South Coast AQMD

2022 AIR QUALITY MANAGEMENT PLAN

Comments and Responses to Comments

Volume I



2022 AQMP
COMMENTS AND RESPONSES TO COMMENTS

ADOPTED DECEMBER 2, 2022

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Preface

A total of one hundred six (106) written comments and numerous verbal comments have been received on the 2022 AQMP since May 2022, including eighty (80) addressing the Draft 2022 AQMP main document and Appendix II through VI of the Draft 2022 AQMP, six (6) addressing the Appendix I (Health Effects) of the Draft 2022 AQMP, and twenty (20) addressing the Revised Draft 2022 AQMP and accompanying appendices. Throughout the development of the AQMP, various meetings such as working group meetings, advisory council meetings, advisory group meetings, control measures workshop, regional public workshops, and regional public hearings were held to solicit public participation and feedback. Those comments were reflected in the AQMP to the extent possible, and the comments raised during the regional public hearings are included in Section III of Responses to Comments Volume II. This is because public hearings are intended to solicit public comments to be heard by the South Coast AQMD's Governing Board, and staff did not provide responses during those hearings. In addition to staff responses to the public comments, the regional hearings were transcribed and will be included in the final public hearing's package for the South Coast AQMD's Governing Board consideration.

This 'Responses to Comments' document consists of two volumes. Volume I includes general responses to similar comments that were raised by multiple letters. The general responses are followed by Section I which covers responses to individual comments on the Draft 2022 AQMP.

Volume II consists of two sections. Section II includes twenty (20) comments received on the Revised Draft 2022 AQMP and accompanying Appendices II–VII that were released on September 2, 2022. Section III includes numerous verbal comments received on the Revised Draft 2022 AQMP at the Regional Public Hearings that were held on October 12–20, 2022.

Six (6) comments (Comment number 81–86) that were received on Appendix I of the Draft 2022 AQMP are published separately in the Comments and Responses to Comments on Appendix I – Health Effects.

TABLE 1

NUMBER OF COMMENTS RECEIVED ON THE 2022 AQMP

Volume	Section	Comments Received on	Release Date	Comment Close Date	Number of Comments	Comment Number
Volume I	Section I	Draft 2022 AQMP main document and Appendix IV-A	May 6, 2022	July 5, 2022	76	1 – 76
	Section I	Remaining appendices of Draft 2022 AQMP	June 1, 2022	July 22, 2022	4	77 – 80
Volume II	Section II	Revised Draft 2022 AQMP main document and Appendices II–VII	September 2, 2022	October 18, 2022	20	87 – 106
	Section III	Verbal Comments Raised during Regional Public Hearings	October 12 – 20, 2022		16	1 – 16

For some comments, similar remarks have been made in other comments so the response may indicate where the reader can locate the appropriate previous response(s). Modifications have been made in the various sections of the AQMP and/or Appendices in response to key comments received.

General Responses

There are nine general responses included in this chapter. They are:

- General Approach for the 2022 AQMP
- Need for Federal Actions
- Black Box Measures
- Need for Zero Emission Technology in Residential and Commercial Building Appliances
- Cost of Zero Emission Technology in Residential and Commercial Building Appliances
- Zero Emissions Infrastructure
    - Grid Infrastructure for Mobile, Larger Stationary Sources
    - Hydrogen Infrastructure
    - Zero Emission Building Measures and Electricity Supply and Demand
- Impact of Zero Emission Technology on Inequity
- Control Measures for Large Combustion Sources
- Cost-Effectiveness Calculation and Threshold

1. General Approach for the 2022 AQMP

This section addresses public comments raised regarding the general approach of the 2022 AQMP, which includes why this AQMP is needed, how the South Coast Air Basin and Coachella Valley will meet the

federal ozone standard by the 2037 due date, and a discussion of the consequences if a region fails to develop an attainment plan or to meet the air quality standard by the due date.

The 2022 AQMP is the blueprint as to how the region will meet the 2015 8-hour National Ambient Air Quality Standard (NAAQS or standard) for ozone. Federal law requires that the South Coast AQMD and CARB develop and submit plans to attain NAAQS to U.S. Environmental Protection Agency (U.S. EPA) for approval.[1] U.S. EPA can then impose mandatory economic sanctions and other consequences in the event the plans are not implemented, or the region fails to meet the standard by the date required.

U.S. EPA sets National Ambient Air Quality Standards (NAAQS or standard) for criteria air pollutants based on the latest available science. Ozone is one of six criteria pollutants for which U.S. EPA has established NAAQS. The standards are required to be reviewed every five years under the Clean Air Act (CAA) to ensure that they remain protective of public health. When conducting this review, U.S. EPA is expressly prohibited from considering costs when evaluating whether a NAAQS needs to be strengthened. The most recent revision to the ozone NAAQS occurred in 2015 when U.S. EPA lowered the 8-hour ozone standard to 70 ppb.

The South Coast Air Basin and Coachella Valley fail to meet the 2015 8-hour ozone standard. The federal Clean Air Act requires South Coast AQMD to develop an AQMP, which serves as the State Implementation Plan (SIP) for the South Coast Air Basin and Coachella Valley. An AQMP/SIP requires that a state/local air authority take all feasible measures to reduce emissions and ensure that the region is able to meet the standard by the due date set by U.S. EPA. The due date for the South Coast Air Basin to attain the 70 ppb standard is 2037. Failure to meet the standard or comply with Clean Air Act requirements results in the possibility of sanctions by the federal government and other consequences such as increased emission fees, stricter permit conditions for new projects, and the loss of federal highway funds. Failure to meet the standard also means that our residents will continue to breathe levels of air pollution that cause adverse health impacts such as respiratory diseases and asthma.

Air quality modeling shows that the emission reductions achieved through implementing the 2022 AQMP allow both the South Coast Air Basin and the Coachella Valley to meet the 2015 8-hour ozone standard by 2037. Ozone is a pollutant that is formed in the atmosphere through a complex reaction of Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOCs) in the presence of sunlight. Modeling shows that NOx is the key pollutant that must be controlled to reduce ozone levels in our region. While reducing VOCs can also help to reduce ozone levels in the short-term, eliminating man-made VOC emissions without reducing NOx would not lead to attainment.

Modeling further shows that the maximum amount of NOx in the atmosphere that still results in attainment – known as the carrying capacity - is 60 tons per day for the entire South Coast Air Basin. Achieving this level of emissions requires a 67 percent additional reduction beyond what we expect from current regulations and programs. The 2022 AQMP control strategy calls for aggressive NOx emission reductions via the deployment of zero emission technologies across all sectors where feasible, and the cleanest possible technologies where zero emission technology is not feasible.

[1] CAA Section 172(b).

In addition to meeting the legal obligations under the federal Clean Air Act, meeting the ozone standard will result in substantial public health benefits. The South Coast AQMD estimates that the 2022 AQMP will result in approximately $134.3 billion of public health benefits from 2025-2037 upon full implementation. These benefits include an average of 1,500 premature deaths avoided every year, as well as annually 8,700 fewer hospitalizations, 1,450 fewer emergency room visits related to asthma, other respiratory and cardiovascular illnesses, and nearly 163,000 fewer days of absences from work and school.

2. Need for Federal Actions

Many commenters expressed concerns regarding the substantial contribution of NOx from sources subject to federal and international regulation and whether measures in the AQMP could result in emission reductions from sectors beyond the South Coast AQMD's regulatory authority. Commenters further questioned whether the federal government's inaction would shift the emission reduction burden to sources that have already been highly regulated by South Coast AQMD and CARB.

NOx emissions within the Basin are regulated by the U.S. EPA, CARB, or South Coast AQMD depending on the emission source category.

- As a local agency, the South Coast AQMD has direct regulatory authority over stationary sources. Examples of stationary sources include large industrial sources such as power plants, factories, refineries, but also include smaller sources such as backup generators, fueling stations, furnaces, and hot water heaters.
- The South Coast AQMD has limited authority to regulate mobile sources of emissions, such as the fleet rules, and also has authority to regulate indirect sources, which are sources which attract mobile sources, such as warehouses, ports, airports, and railyards.
- CARB has direct regulatory authority to regulate mobile sources within the state; in some cases a CARB mobile source rule will require a waiver or authorization from EPA under the Clean Air Act. Most of the NOx in the region is from heavy-duty mobile sources, including trucks, ships, aircraft, and construction equipment.
- In some instances, federal law/standards govern certain sources of mobile source emissions, such as new heavy-duty trucks first sold outside of California, new locomotives, aircraft, and some new off-road engines and equipment. These sources are instead subject to federal regulations.
- Collectively, emission sources that are primarily subject to federal regulatory authority contribute the bulk of NOx emissions in our region and their contribution is only expected to grow in the future given existing regulations.

Even if all sources subject to CARB and South Coast AQMD control were shut down, federal sources (that is, sources primarily subject to federal regulation) would still emit substantially more than the 60 tons per day NOx limit needed to attain the 2015 ozone standard. It is imperative that the federal government act to reduce emissions from sources of air pollution within their authority so that the region can meet national air quality standards.

While we have limited authority to control the sources primarily under federal and international authorities, South Coast AQMD has an obligation under state and federal law to take all feasible measures to reduce emissions to meet the standards. We cannot ignore any emission source category that we are able to regulate and instead must strive to achieve further reductions for all sources. To this extent, South

Coast AQMD is actively engaging with the federal government to encourage action on their share of emission reductions. These efforts include close collaboration with the U.S. EPA, Department of Energy, Department of Transportation, Congress and the White House to raise awareness on the challenges to meet federal air quality standards and to attract their support in funding and legislative actions. South Coast AQMD is also leveraging its limited authority to regulate to affect mobile sources such as developing facility-based measures under our indirect source authority and partnering with international and national entities. However, we recognize that far more aggressive action from the federal government is needed to ultimately meet the standard. All levels of the federal government – Congress, the White House, and multiple federal agencies – need to be involved to achieve meaningful emission reductions.

3. Black Box Measures

This section addresses public comments on "black box" measures, including why the black box measures are necessary for this AQMP, what types of measures can be perceived as black box measures, and how to incorporate potential emission reductions from future clean technologies.

The federal Clean Air Act (CAA) recognizes that clean technologies continually evolve over time and technologies that may be commonplace in 20 years may not be available today. As a result, Section 182(e)(5) of the CAA provides additional flexibilities for areas classified as "extreme" nonattainment – such as the South Coast Air Basin – to rely on the adoption of new advanced technologies to achieve the emission reductions needed to meet the standard. This is because "extreme" nonattainment areas have the longest pathway to attainment. Control measures that rely on new advanced technologies are commonly referred to as "black box" measures because they are not defined specifically at the time of plan development.

The 2022 AQMP presents a comprehensive strategy to achieve the emission reductions needed for attainment, including 48 defined control measures covering stationary and mobile sources. Reductions from these defined measures are far short of the needed reductions to achieve the carrying capacity of 60 tons per day. This is because the majority of NOx that must be reduced to meet the standard are from mobile sources that 1) need to be turned over to advanced zero emission or substantially cleaner technology to achieve the needed emission reductions, and 2) are beyond South Coast AQMD and CARB's regulatory authority. Additional measures associated with the "black box" will therefore be necessary to attain the 2015 8-hour ozone standard. Collectively, "black box" measures represent 61 tons per day, or 49 percent of the emission reductions needed to reach attainment. There are several different types of measures that can be considered as part of the "black box," including cleaner technologies that have yet to be developed or deployed at scale, emission reductions from sources subject to federal regulatory authority, and select incentive measures.

CAA section 182(e)(5) "black box" measures point to the deployment of developing advanced technologies. The reliance on "black box" measures provides flexibility and time for the development of new technology and improvement of existing technologies. Technologies may be currently emerging, not available at scale, or prohibitively expensive and difficult to deploy. However, such technologies are anticipated to become far more available and affordable before the 2037 attainment year, driven by the need to reduce GHG emissions as well as the need to reduce criteria air pollutants. Some incentive measures are also considered as "black box" measures since it is challenging to obtain SIP creditable

emission reductions for these measures. While mobile source incentives are considered "black box" measures, the reductions they produce will be critical to meet the ozone standard in 2037.

Several commenters have asked that we develop the 2022 AQMP without reliance on the black box. Because of the sheer magnitude of emission reductions needed to meet the standard and the fact that most of the sources of these emissions are beyond the South Cost AQMD's direct regulatory control, that is not possible. Even if all of South Coast AQMD's measures resulted in zero emissions the amount of NOx in the atmosphere would still be above that required to meet the standard. Moreover, CARB's measures that are a key component of this AQMP also contain a substantial black box. Taking the black box out of the 2022 AQMP would result in a plan that does not provide for attainment of the standard. Such a plan would be deemed incomplete by the U.S. EPA, triggering potential economic sanctions and other consequences for the region.

4. Need for Zero Emission Technology in Residential and Commercial Building Appliances

This section addresses public comments on the impact of, and the need for, emission reductions from combustion in residential and commercial buildings. Many commenters opposed these measures, particularly for residential buildings. Others expressed support for these measures and advocated for greater stringency.

The South Coast AQMD is home to approximately 44 percent of the California population, who reside in approximately six million housing units. NOx emissions from the residential sector are primarily generated by natural gas appliances for water and space heating and cooking. According to the 2022 AQMP, the baseline NOx emission inventory for residential fuel combustion in 2018 is about 11 tons per day, which ranks this category as the 12th highest emitter. As emissions from mobile source categories decrease due to the on-going implementation of regulations and emission reduction programs, the contribution of non-mobile source emissions become more prominent. Without further action, NOx from the residential sector alone will be approximately 10 tons per day in 2037, one of the top two emitters among stationary sources. When combined with emissions from commercial buildings, these sources will contribute 14 percent more NOx than large industrial sources.

While over 80 percent of the NOx in the region is from mobile sources, we recognize that the contribution of emissions from residential and commercial building appliances is not trivial. Further, the South Coast AQMD has primary regulatory authority to control these sources. We further recognize that we have an obligation to make all feasible emission reductions, and cleaner technologies are available for this sector. The 2022 AQMP therefore includes control measures aimed at reducing emissions from natural gas appliances.

The South Coast AQMD is required by law to develop plans to meet federal air quality standards. We have made great progress over the past several decades in cleaning up the air. But we still fail to meet federal air quality standards and the public continues to breathe unhealthy air. If we are unable to meet federal air quality standards, we face penalties on major sources, and if we do not submit a plan that meets all requirements, we face economic sanctions from the federal government, as well as the imposition of a federal air quality plan.

The 2022 AQMP contains measures to reduce NOx emissions across all sectors. While a key focus is accelerating the adoption of zero emissions technology, these control measures are based on performance and emissions rate, not on specific fuel or technology type, therefore, there are no control measures that ban the use of a specific fuel such as natural gas.

We understand the cost concern for consumers associated with the adoption of zero emission appliances. The costs associated with widespread adoption of zero emission appliances are significant, and substantial incentive funds and programs will be needed to implement these measures. Please refer to the general response to the Cost of Zero Emission Technology in Residential and Commercial Building Appliances for further discussion on the cost. The South Coast AQMD and other state and local agencies recognize that cost and socioeconomic factors also pose an inequity concern. Please refer to the general response to the Impact of Zero Emission Technology on Inequity. Staff also understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Please refer to the general response to Zero Emission Building Measures and Electricity Supply and Demand for more details.

5. Cost of Zero Emission Technology in Residential and Commercial Building Appliances

Many commenters expressed concern regarding the costs of adopting zero emission technologies in buildings, particularly in residential buildings. We agree that such measures will likely be expensive, and that the success of such measures will depend on the availability and design of incentive programs. Beyond the cost of replacing appliances, zero emission appliances often require additional infrastructure such as new wiring and upgraded electrical panels, particularly in older buildings. This is not as much of a concern for new construction, as new residential and commercial buildings are required to be built to accommodate electrical appliances by January 1, 2023. Given this, the costs for measures for new buildings are less than those for existing buildings. Additional complications for the residential sector include the fact that most residences in the region are tenant-occupied, and landlords may be reluctant to make the additional investment in the property.

Staff considers cost during control measure development and preliminary studies have indicated the potential range of additional cost. For new residential buildings, staff estimates that proposing zero emission water heating would not pose a significant additional cost. According to the California Energy Commission (CEC) analysis for new residential construction,[2] cost-effectiveness of heat pumps for single-family homes in the South Coast region climate zones indicate that additional cost is more than offset by discounted energy cost savings. There are further estimated avoided costs of natural gas infrastructure and interconnection.

Staff acknowledges that existing older residential buildings will likely require electrical panel upgrades. Such upgrades would cost approximately $2,000 to $4,000 in the South Coast AQMD jurisdiction beyond

[2] Single Family Heat Pump Documentation: https://efiling.energy.ca.gov/GetDocument.aspx?tn=237850&DocumentContentId=71093.

the costs of new appliances. However, given the other policies incentivizing building electrification, the costs might not be as onerous in the future.

There will be operational cost savings that offset costs of panel upgrades. Per the CEC study, the additional purchase cost of an electric heat pump for residential space heating and cooling would be offset by lower operational cost of approximately $350 per year, as compared to a natural gas furnace and air conditioner system. There will be further cost savings from installation especially for new buildings and maintenance over the lifetime of the equipment. According to the E3 2019 study,[3] the installation of Heating, Ventilation and Air Conditioning (HVAC) heat pumps can result in a lifecycle of savings because of their high energy efficiency. Electrifying both HVAC and water heating systems generates bill savings for all retrofit homes studied. Per the CEC study, larger single-family homes and those of older vintages benefit more from switching to HVAC heat pumps due to higher heating and cooling demands.

South Coast AQMD staff recognize that the entities that pay utility bills and therefore experience cost savings as a result of zero emission technology may not be the same as the ones that would bear the cost of installation. The majority of South Coast residential housing stock is tenant-occupied, and a landlord may not recoup cost savings from decreased utility use if they are not responsible for the utilities. Additional costs may be partially offset by local utility companies and state agencies who have proposed incentives for heat pumps (e.g., California TECH Initiative) or panel upgrades. The South Coast AQMD would also propose incentive programs to further lower the upfront cost. It is also anticipated that the cost for heat pumps will be lowered when the market achieves greater penetration. Improvements in available technology may also lower the cost of equipment as well as related upgrades. For example, heat pump water heaters that are compatible with 120-volt electric systems are currently entering the market, removing the need for upgrading electric service in older homes.

Zero emission appliances for residential buildings are being proposed, however, low NOx technologies will be allowed as an alternative approach when the installation of a zero emission unit is determined to be infeasible (e.g., colder climate zones, or architecture design obstacles). Notwithstanding the challenges described above, staff believes this is an appropriate and feasible measure given other programs in development to require adoption of zero emission technologies. In 2022, the Los Angeles City Council instructed the Department of Building and Safety (DBS) to report a plan for all new residential and commercial buildings in Los Angeles to be built so that they will achieve zero-carbon emissions effective January 1, 2023. The California Air Resources Board (CARB) is also focused on advancing towards zero emission buildings. CARB's Office of Community Air Protection is developing resources to encourage electrified end uses in existing buildings through its appliance clearinghouse and consumer education programs. Several commenters advocate that the South Coast AQMD take an even more aggressive approach. Staff believes the control strategies are taking an aggressive approach applying zero emission goals in both a regulatory and incentive manner within in a timeframe that allows time to address costs and other potential hurdles.

For existing commercial buildings, heat pumps are the primary zero emission technology used in commercial applications. The heat pump commercial market is not as mature as in the residential market.

[3] https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf.

On this basis, the implementation for a zero NOx emission standard for space heating and cooling in commercial buildings would start later than that for residential buildings. For commercial buildings, the most common zero emission water heating technologies include an integrated heat pump with a water tank packaged as a single unit and a split heat pump water heater with a water tank that can be located as far as 50 feet apart. Heat pump water heaters generate both hot water and cool air; therefore, they can be used simultaneously for water heating and space cooling which can substantially offset their higher capital costs relative to a single function natural gas or an oil-fueled unit.

While the transition to cleaner technologies will be expensive, the public health benefits associated with meeting the ozone standard will be substantial. There will also be significant co-benefits from related reductions in greenhouse gas (GHG) emissions, resulting in significant climate change benefits. Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption. Please refer to the general response to the Need for Zero Emission Technology in Residential and Commercial Building Appliances for more discussion on residential gas use and emissions. Failure to meet air quality standards would not only have negative public health consequences but could also risk imposing adverse economic impacts on the region due to potential federal sanctions if the region does not submit a plan meeting all CAA requirements., including demonstrating how the region will attain the standards.

South Coast AQMD will conduct more in-depth cost-effectiveness analyses during the rulemaking process for both residential and commercial measures. As additional information regarding technology and existing processes becomes available, the cost-effectiveness will be revised and analyzed during rulemaking. The South Coast AQMD and other state and local agencies recognize that cost and socioeconomic factors also pose an inequity concern. Please refer to the general response to Impact of Zero Emission Technology on Inequity. Staff also understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Please refer to the general response to Zero Emission Building Measures and Electricity Supply and Demand for more details.

6. Zero Emissions Infrastructure

This section addresses concerns on the infrastructure challenges to accommodate zero emissions technologies necessary to attain the federal ozone air quality standard. Multiple commenters raised concerns regarding the ability of existing infrastructure to support the transition to zero emission technologies. Staff responses are provided in three categories: grid infrastructure for mobile and larger stationary sources, hydrogen infrastructure, and zero emission building measures and electricity supply and demand.

6.1. Grid infrastructure for mobile and larger stationary sources

Concerns regarding grid capacity and reliability to support a widespread transition to zero emission technologies are the reason why the South Coast AQMD developed MOB-15, Zero Emission Infrastructure for Mobile Sources. This control measure is a commitment to engage with stakeholders involved in every aspect of the transition to zero emission fueling with the goal of identifying potential shortfalls in technologies and/or energy availability while assisting in a collaborative effort to address these concerns. The South Coast AQMD is uniquely positioned to actively engage with the California Energy Commission

(CEC), California Public Utilities Commission (CPUC), CARB, local utilities, fleets and other stakeholders to help address the challenges related to grid capacity and reliability in the region. South Coast AQMD will continue to share information that can be used to better inform forecasting and energy analyses which are used to plan grid capacity upgrades. Current forecasting and energy analyses are primarily focused on the state ZEV goals and do not fully address all emission categories that will need to transition to zero emissions to reach attainment goals. The challenges related to the electrical grid and infrastructure availability are significant and will require collaborative problem solving involving all stakeholders. South Coast AQMD will continue to advise partner organizations through information sharing and close coordination of efforts to remove barriers to ZE infrastructure and technology deployments.

Agencies and organizations throughout the state that are involved in energy distribution such as CEC, CPUC, and local utilities such as Southern California Edison, are aware of the challenges ahead in terms of energy and infrastructure availability and are actively engaged in planning to anticipate future demand as the state moves toward a zero emission future. Engagement with these and additional partners involved in this transition through the direction detailed in MOB-15 will help articulate the region's needs and challenges to anticipate potential shortfalls in energy and technology availability, and grid readiness and reliability.

In addition to electric technology options, fuel cells and possibly other new technologies will be used to support the transition to a zero emission future. The state of California, through various programs, has allocated significant funding to advance the development and deployment of zero emission technologies, including electric charging and hydrogen fueling infrastructure. As part of MOB-15, South Coast AQMD will continue to track all available funding sources for zero emission infrastructure and share this information with fleets and other stakeholders to provide financial assistance and encourage early planning for transitioning to zero emission technologies. Early planning and collaborative problem solving involving all stakeholders will be necessary to assure grid readiness and infrastructure availability. South Coast AQMD will also actively support and advocate for new funding sources that will accelerate the deployment of zero emission infrastructure in the South Coast AQMD. This effort will encourage consumers to plan early with support from the local utilities to streamline the process for approving installations and interconnection with the grid.

6.2. Hydrogen Infrastructure

South Coast AQMD supports the inclusion of fuel cell technologies in NOx control measures for stationary source combustion and mobile source applications where feasible. This is well indicated in the control measure descriptions in Chapter 4 and Appendix IV. Fuel cells can provide power to various applications across multiple sectors, including transportation; industrial, commercial, and residential buildings. Hydrogen storage in conjunction with fuel cells provides long-term energy storage for the grid. The application of fuel cell technologies for power generation and transportation has increased over the years and continues to expand with emerging technologies. However, cost, performance, and durability are still critical challenges with this technology.

It is essential to overcome these challenges to benefit from the advantages of fuel cell technologies over combustion-based technologies, such as higher efficiencies (>60%), zero tailpipe emissions, and lower CO2 emissions. Over the years, South Coast AQMD has partnered with national laboratories, universities, and industry partners to develop low-cost fuel cell stack and balance of plant (BOP) components and advance high-volume manufacturing approaches to reduce overall system cost. In addition, improving

fuel cell efficiency and performance is critical to maintaining adequate performance over an extended period of time. High-performance fuel cell technologies can be built through innovative material and integration technologies and identifying and understanding fuel cell degradation mechanisms to develop materials and strategies to mitigate these effects. South Coast AQMD supports such research and development projects through its work in the Technology Demonstration group and the Clean Fuels Fund.

In the transportation sector, the cost of fuel cells, hydrogen production, distribution, and fueling infrastructure at a small scale remain the primary challenges to fuel cell technology adoption. While fuel cell vehicles and infrastructure provide comparable ranges and fueling times to conventional technologies, such barriers can still impact business and consumer models. South Coast AQMD is committed to investing and partnering where appropriate to expand light, medium and heavy-duty hydrogen infrastructure and to advance fuel cell vehicle technologies in specific vehicle categories.

6.3. Zero Emission Building Measures and Electricity Supply and Demand

This section addresses public comments on the challenges of zero emission building measures and electricity supply and demand. Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. The adoption of small-scale units of power generation that operate locally and are connected to the larger power grid (distributed energy resources, e.g., solar panels) and utilize high levels of renewables is increasing. To address these challenges and potential problems and accommodate future electrification needs, there will need to be far more planning at the state level from the agencies involved in energy distribution and the local utilities. State and local agencies have been developing plans and conducting studies on improving the power grid infrastructure, and further accelerated effort will be needed at the state level.

In June 2022, the Los Angeles City Council instructed (Council file No. 22-0530) the Department of Water and Power (LADWP) to report on the needs to improve the Los Angeles power grid transmission and distribution infrastructure to properly facilitate future investments into sustainable energy methods such as but not limited to electrification, distributed energy resources, energy storage, and micro-grids. The City's Bureau of Engineering (BOE) has been instructed to conduct an analysis on the electrical load and upgrades needed for all city and city-proprietary departments to prepare all city buildings and facilities for full electrification and decarbonization.

Southern California Edison (SCE), the primary electricity provider within South Coast AQMD jurisdiction, has been working actively on forecasting and planning to accommodate the need for increasing electricity demand. SCE has established a work plan for the refinement of the Integration Capacity Analysis (ICA) modeling practices based on planned system configuration with forecasted load and distributed energy resources (DER). Edison also launched the Charge Ready Transport Program in 2019. This five-year program with an approved total program budget of $356.4M is helping California to achieve its greenhouse gas (GHG) reduction goals by providing infrastructure to support fleet electrification.

In June 2021, the California Public Utilities Commission (CPUC) launched a rulemaking to modernize the electric grid for a high distributed energy resources future. The California Independent System Operator (CAISO) uses demand forecasts that predict higher amounts of electric vehicle charging to prepare the transmission system for increased load.

Preliminary estimates of statewide zero emission infrastructure needs have been developed by the California Energy Commission (CEC) and the California Air Resources Board (CARB) based on existing state goals and mandates. For example, Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy report (IEPR). AB 3232 requires consideration of the impact of emission reduction strategies on grid reliability. The CEC will conduct additional analysis on strategies and assess electricity demand and load impacts in updates in the IEPR as new information is available. The next update in 2023 will include an assessment of major energy trends and issues facing California's electricity, natural gas, and transportation fuel sectors. These preliminary estimates are largely based on a transition to zero emission vehicles for on-road transportation sources. When the policy direction is given for other emission sources, including residential and commercial building appliances, those estimates will need to be further developed to include the zero emission infrastructure needs of all sources and address the unique needs of the Southern California region.

Policy and regulatory certainty will enable utilities to make strategic investments to accommodate the grid for a high electrification future and develop new infrastructure, e.g., distributed energy resources, microgrids, to ensure grid resilience and reliability. South Coast AQMD will work closely with local utilities and state agencies to provide the adoption plan and regulatory timelines to ensure that grid investments are made at the right location and right time. In addition to grid infrastructure resilience, South Coast AQMD will continue working with developers and other agencies to deploy other types of clean energy such as hydrogen fuel cells.

Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption. For further discussion on residential gas use and the need for emission reductions, please refer to the general response on the Need for Zero Emission Technology in Residential and Commercial Building Appliances. The costs associated with widespread adoption of zero emission appliances are significant, and substantial incentive funds and programs will be needed to implement these measures. Please refer to the general response to the Cost of Zero Emission Technology in Residential and Commercial Building Appliances for further discussion on the cost. The South Coast AQMD and other state and local agencies recognize that cost and socioeconomic factors also pose an inequity concern. Please refer to the general response to the Impact of Zero Emission Technology on Inequity.

7. Impact of Zero Emission Technology on Inequity

This section addresses public comments regarding equity concerns for consumers in Environmental Justice (EJ) and disadvantaged communities. Multiple commenters raised concerns regarding the expensive cost of control measures and the key challenge of implementing a transition to zero emission technologies in an equitable way that does not leave behind disadvantaged communities or other communities facing inequity concerns.

South Coast AQMD is required by federal law to develop plans to meet air quality standards and are further required to take all feasible measures to reduce emissions to meet those standards. Meeting the U.S. EPA's current 2015 8-hour ozone standard of 70 ppb and other NAAQS will require continued emission reduction efforts for both stationary and mobile sources with shared responsibility from all levels of government. In doing so, South Coast AQMD is committed to improve air quality and public health with a focus on inequity to ensure that socioeconomic status or other factors will not pose obstacles for the equitable protection from air pollution.

Staff understands the cost concern for consumers associated with the adoption of zero emission appliances and vehicles, and that these costs can pose substantial barriers to widespread adoption of these technologies. These costs are significant, and substantial incentive funds and programs will be needed to implement these measures. Please refer to the general response to the Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost. For consumers in EJ/disadvantaged communities, the South Coast AQMD and other state and local agencies recognize that cost and socioeconomic factors also pose an inequity concern. There can also be additional hurdles to deploying cleaner technologies in residences that are tenant occupied, which comprise the majority of the residences in the region. In addition, the South Coast AQMD recognizes there is still much work to be done for communities that are disproportionately impacted by pollution and are more vulnerable to the adverse health effects of pollution. Further building electrification efforts for these communities will improve air quality while maintaining the focus on inequity.

The South Coast AQMD has already begun studying to address inequity through extensive community-based efforts that focus on improving air quality and public health in EJ/disadvantaged communities. For example, through the Assembly Bill (AB) 617 Community Emissions Reductions Program, the South Coast AQMD is working to reduce air pollution in designated areas, including the East Los Angeles/Boyle Heights/West Commerce community (ELABHWC), the San Bernardino/Muscoy community (SBM), the Wilmington/Carson/West Long Beach community, the Eastern Coachella Valley community (ECV), the Southeast Los Angeles community (SELA), and the South Los Angeles community (SLA). The South Coast AQMD works with the communities to develop and implement Community Emission Reduction Plans (CERPs) specific to each area, as well as Community Air Monitoring Plans (CAMPs). Additional state bills have provided new funding to support this program, which will help reduce air pollution by changing out older trucks and other equipment for newer, cleaner technologies. To implement AB 617, CARB established a Community Air Protection Program with statewide strategies to reduce exposure in communities most impacted by air pollution. Community outreach programs will be a key 2022 AQMP strategy, along with other strategies, to help address the cost concern for existing building electrification and identify alternatives when a zero emission requirement is deemed infeasible.

Incentives will continue to be a critical component in implementing the control strategies in the 2022 AQMP. Stationary source control measures for the R-CMB and C-CMB series include incentive components as part of the proposed control approach. For example, control measure R-CMB-01 proposes to incentivize zero emission technology adoption with a focus on electric panel upgrades needed for older homes, especially for homes in disadvantaged communities. The incentives would not only promote more participation in building electrification, but also provide an opportunity to improve some of the inequities. Funding sources identified through previously collected mitigation fees have been used in existing rebate programs such as the South Coast AQMD's Clear Air Furnace program. Funded by Rule 1111 mitigation fees, the program provides rebates to those installing a residential electric heat pump to replace a natural gas furnace, with a specific percentage of the funding dedicated to those applying from a disadvantaged community. The South Coast AQMD has also been implementing a number of incentive programs to accelerate the deployment of clean technologies with a particular emphasis on benefits to EJ/disadvantaged communities. For example, under the Lower-Emission School Bus Program, the Carl Moyer Program, and other diesel mitigation programs, not less than 50 percent of the funds appropriated are expended in a manner that directly reduces air contaminants and/or associated public health risks in disadvantaged communities. The South Coast AQMD will continue to identify more funding sources for

future building electrification incentive programs and ensure that EJ/disadvantaged communities are able to access advanced technologies and benefit from the transition to zero emission technologies.

Partnerships with other organizations, such as Technology and Equipment for Clean Heating (TECH) Clean California or Southern California Edison, with similar programs and directives could assist in providing more rebate money to further incentivize early deployment of cleaner technologies. Incremental utility, equipment, and/or infrastructure costs may be partially offset by incentives provided by local or state agencies, or local utility companies. TECH Clean California, launched in December 2021, is a $120 million initiative designed to help advance the State's mission to achieve carbon neutrality by 2045 through driving the market adoption of low-emissions space and water heating technologies for existing single and multi-family homes across California. About 40 percent of the program benefits will be targeted towards EJ/disadvantaged communities. The Energy Savings Assistance program covers the equipment and installation costs of new energy-efficient appliances for income-qualified customers. Income-qualified homeowners in EJ/disadvantaged communities may also qualify for a free solar system through the Energy for All Program that can help offset incremental utility costs. The Residential Advanced Clean Energy program provides eligible customers with a household energy assessment and the installation of energy efficient technologies such as no-cost furnace and water heating optimization measures and incentives for upgrading to high efficiency furnaces, tankless water heaters, and fireplace inserts. Rebates are also available for upgrades to select Energy Star-certified high efficiency appliances. Future partnership efforts will continue to facilitate transitions for disadvantaged communities.

The South Coast AQMD mission is to improve air quality and public health with a focus on equity to ensure that socioeconomic status or other factors will not pose obstacles for the equitable protection from air pollution. For further discussion on residential gas use and the need for emission reductions, please refer to the general response on the Need for Zero Emission Technology in Residential and Commercial Building Appliances. Staff also understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Please refer to the general response to Zero Emission Building Measures and Electricity Supply and Demand for more details.

8. Control Measures for Large Combustion Sources

This section addresses public comments raised regarding the control measures for large stationary combustion sources, which includes the proposed stringency, the role of zero emission technology, and the anticipated emission reductions.

South Coast AQMD recently adopted Rule 1109.1, a landmark rule that will reduce NOx emissions by over 60% at petroleum refineries. Rule 1109.1 requires Best Available Retrofit Control Technology (BARCT) for all NOx emitting refinery equipment in aggregate. Due to the stringent requirements in Rule 1109.1, upon full implementation, staff projects that petroleum refineries located within in the South Coast AQMD will have the lowest emitting refineries in the country. Because South Coast AQMD has enacted the most stringent stationary source controls in the nation, NOx emissions under our direct regulatory control have been reduced by 60 percent over the past 20 years. In 2037, only 20 percent of NOx emissions will be from sources under South Coast AQMD's direct regulatory authority. Thus, even if all stationary sources were converted to zero emissions technology, mobile sources would emit substantially more than the 60 tons per day NOx limit, thwarting any other actions to meet the standard.

The 2022 AQMP control strategy includes additional reductions for stationary sources with greater emphasis on small commercial and residential sources as well as additional reductions on industrial sources. Proposed control measures will achieve a 40 to 70 percent reduction in NOx emissions from stationary sources, above and beyond the emission reductions achieved by the stringent controls in place. South Coast AQMD is currently concluding a major effort to establish updated BARCT standards for most industrial combustion equipment. Over the past several years, 15 rules have been adopted or amended requiring compliance to emission standards on a per unit basis for large combustion sources as the sources transition from RECLAIM to a command-and-control regulatory structure and to expedite BARCT standards for facilities subject to the Greenhouse Cap-and-Trade Program. This effort has resulted in more than 13 tons per day of NOx emission reductions, and the establishment of the most stringent regulatory controls for NOx for stationary sources in the country. Staff believes we have taken all feasible steps to reduce emissions from stationary sources and will continue to do so in the future as opportunities are identified such as co-benefits from decarbonization efforts.

Zero emission technologies play a critical role in the 2022 AQMP and the South Coast AQMD will push to establish the lowest emissions standard with the goal of zero emission standards wherever those technologies are feasible. That said, South Coast AQMD staff is committed to accomplishing a transition to zero emission technology as expeditiously as possible and to the greatest extent possible. For example, L-CMB-02 relies on electrification as zero emission technology. Industrial heat pumps or other emerging technologies may become commercially available for large boilers and process heaters in the future but were not incorporated in the control measure due to lack of information demonstrating that those technologies will be available for at scale deployment in near future. However, staff will continue to evaluate the state of technology during the rulemaking to implement the control measure. At that point, staff will reevaluate the commercial status of equipment, and given the expected rapid acceleration of availability of advanced technologies, staff believes there may be additional opportunities. If additional zero emission technologies are available at the time of rule development, staff will consider those technologies in establishing emission standards provided that the implementation schedule can accommodate the technology to emerge. At the same time, South Coast AQMD will work with State and local agencies to pursue additional benefits from decarbonization efforts in all sectors including large industrial combustion sources.

9. Cost-Effectiveness Method and Threshold

This response addresses the comments received on the proposed modified public process that will be used in rulemaking when considering the cost-effectiveness of proposed controls.

Many commenters expressed concerns about the cost-effectiveness threshold, including concerns that it is either too high or too low. An important consideration for all of these comments is what the proposed threshold will be used for. This threshold is neither an upper nor a lower limit on what the Board may consider as an appropriate cost-effective approach for any rule. As described in Chapter 4 of the AQMP, the cost-effectiveness threshold is to be used as a screening tool during rule development. If the cost-effectiveness of the rule exceeds a specified threshold, additional public process would be conducted. This process would include a public meeting if a threshold is exceeded to discuss proposed options, including emission standards that would have cost-effectiveness levels below the threshold and the associated emission reductions trade-offs. The proposed threshold would be based on the public health benefit from reducing NOx emissions. This threshold would be $325,000 per ton of NOx reduced, and

would be adjusted for inflation through time. Proposed controls above this threshold would be considered to have costs above the public health benefits from reducing NOx (e.g., avoided premature death, avoided asthma exacerbation, etc.). This approach is more similar to practices used by CARB and U.S. EPA compared to previous South Coast AQMD practice, as it is based on a comparison of costs and benefits.

When presenting a proposed rule to the Board for its consideration where the average cost-effectiveness is above the $325,000 threshold, staff would ensure that at least one alternative option would also be presented that is below the threshold. The proposed revised public process in relation to cost-effectiveness is meant to ensure that staff presents a full range of options to the Board for their consideration in implementing individual control measures. streamline rulemaking. Staff does not expect that the potential types of controls in individual rules will change as a result of this process, as the magnitude of needed emission reductions are already determined in the 2022 AQMP. If there is a shortfall in anticipated emission reductions from one rule due to cost-effectiveness or other considerations, then those reductions will need to be made up in other control measures. The Clean Air Act does not contain any relief from meeting air quality standards based on whether controls meet any cost effectiveness criteria.

Consistent with past practice, staff will strive to develop each rule in the most cost-effective manner possible, while still achieving the necessary emission reductions required to meet federal and state air quality standards. Finally, future socioeconomic analysis during rulemaking will continue to meet all requirements for evaluating cost-effectiveness as described in the Health and Safety Code.

VOLUME I

COMMENTS AND RESPONSES TO COMMENTS ON THE DRAFT 2022 AQMP

SECTION I

COMMENTS AND RESPONSES TO COMMENTS ON THE DRAFT 2022 AQMP AND APPENDICES

Comments and Staff Responses

This section includes a total of 80 written comment letters received on the Draft 2022 AQMP main document and appendices and staff responses to comments. The 80 comment letters are broken down as follows.

The first 76 comment letters from 86 entities that were received addressing the Draft 2022 AQMP main document and Appendix IV-A.

- Private Individuals 45
- Environmental Organizations 16
- Academic/Research 2
- Business Association 10
- Industry 9
- Transportation Sector 4

The remaining four (4) comment letters (Comment Number 77 through 80) from four (4) entities were received addressing the Draft 2022 AQMP appendices, other than Appendix IV-A.

- Business Association 1
- Transportation Sector 3

TABLE 2

COMMENT LETTERS ON THE DRAFT 2022 AQMP

Comment Letter	Commentor Name	Representing	Date Received	Time Received
1	Ronald Stein	PTS Advance	5/12/2022	11:27
2	Wes Younger	Self	6/2/2022	11:05
3	Rita	Self	6/2/2022	20:25
4	Brissa Sotelo-Vargas, David Fleming, Tracy Hernandez	Los Angeles County Business Federation	6/6/2022	14:56
5	Fred Orr	Self	6/12/2022	9:53
6	Elliott Alhadeff	Self	6/12/2022	11:13
7	Jean Fullerton	Self	6/12/2022	12:56
8	Dennis Gimian	Self	6/12/2022	13:37
9	Camilla Khan	Self	6/12/2022	14:53
10	Peter Ballas	Self	6/12/2022	15:03
11	Fred W. Daniel	Self	6/12/2022	15:14
12	Ralph Kostant	Self	6/12/2022	15:21
13	J. Craig Collins, M.D.	Self	6/12/2022	15:24
14	Kelly Todak	Self	6/12/2022	15:47
15	Richarda Venn	Self	6/12/2022	18:40

TABLE 2 (CONTINUED)

COMMENT LETTERS ON THE DRAFT 2022 AQMP

Comment Letter	Commentor Name	Representing	Date Received	Time Received
16	Larry Kennedy	Self	6/12/2022	19:39
17	Walter Mirczak	Self	6/12/2022	22:31
18	John Winkler	Self	6/13/2022	9:06
19	Reed Rothrock	Self	6/13/2022	9:44
20	Crawford S. Moller	Self	6/13/2022	10:30
21	Jonathan Peske	Self	6/13/2022	11:20
22	Dr. Jack Brouwer	National Fuel Cell Research Center (NFCRC)	6/13/2022	11:29
23	Joe Wilson	Self	6/13/2022	11:41
24	Robert Wood	I.E.-Pacific, Inc.	6/13/2022	11:46
25	William Oram	Self	6/13/2022	12:18
26	Kirk Wasson	Self	6/13/2022	12:42
27	Collette Lee	Self	6/13/2022	12:55
28	Vanessa Miller	Self	6/13/2022	13:01
29	Nancy Latimer	Self	6/13/2022	14:22
30	Irene Hirsch	Self	6/13/2022	14:35
31	Pam Rehwoldt	Self	6/13/2022	17:02
32	Kenneth Linden	Self	6/13/2022	17:28
33	Gail Brenner	Self	6/14/2022	14:07
34	Robert Horvath	Self	6/14/2022	17:10
35	Vernestrong	Self	6/14/2022	20:18
36	Edwina Berg	Self	6/15/2022	9:30
37	Diana Calderwood	Self	6/15/2022	14:46
38	Rick Rohn	Self	6/16/2022	12:44
39	Scott Foley	Self	6/16/2022	15:52
40	Mel Foley	Self	6/16/2022	19:52
41	Brad Levi	Tesoro Refining and Marketing Company, LLC	6/17/2022	14:25
42	V. H. Sheets	Self	6/17/2022	18:31
43	Ramine Cromartie	Western States Petroleum Association (WSPA)	6/17/2022	20:03
44	George Allen	Self	6/18/2022	5:54
45	Paul Larson	Self	6/19/2022	17:16
46	Curtis Cribbs	Self	6/20/2022	9:45
47	Dan Phu	Orange County Transportation Authority (OCTA)	6/20/2022	11:05
48	Susan Spongberg	Self	6/21/2022	8:56
49	Gerald Pilger	Self	6/21/2022	9:21
50	Ruth Boersma	Self	6/21/2022	11:30

TABLE 2 (CONTINUED)

COMMENT LETTERS ON THE DRAFT 2022 AQMP

Comment Letter	Commentor Name	Representing	Date Received	Time Received
51	Brady Van Engelen	Bloom Energy Corporation	6/21/2022	12:05
52	David Juarez	California Restaurant Association	6/21/2022	14:49
53	Eric Truskoski	Bradford White Corporation (BWC)	6/21/2022	16:16
54	Denis LaBonge	Self	6/23/2022	8:53
55	Maru A.	Self	6/28/2022	17:47
56	Michael McCarthy, Susan A. Phillips, Sari Fordham	Redford Conservancy, Radical Research, and 350+ Riverside	6/30/2022	9:11
57	Joseph P. Lala	PQ Corporation, LLC	7/1/2022	13:54
58	Curtis L. Coleman	Southern California Air Quality Alliance	7/5/2022	10:42
59	Bill Quinn	California Council for Environmental and Economic Balance (CCEEB)	7/5/2022	11:18
60	Christopher Chavez	Coalition for Clean Air	7/5/2022	11:53
61	Michelle Brantley	Ontario International Airport Authority	7/5/2022	13:17
62	Tim A. Pohle, Ira Dassa	Airlines for America	7/5/2022	13:33
63	Brian Mello	The Associated General Contractors (AGC) of California	7/5/2022	14:00
64	Brissa Sotelo-Vargas, David Fleming, Tracy Hernandez	Los Angeles County Business Federation	7/5/2022	15:54
65	Matthew Arms, Christopher Cannon	San Pedro Bay Ports	7/5/2022	16:01
66	Joshua C. Greene	A. O. Smith Corporation	7/5/2022	16:24
67	Rita M. Loof	RadTech International	7/5/2022	16:24
68	Jawaad A. Malik	SoCalGas	7/5/2022	16:09
69	Dawn Anaiscourt	Southern California Edison	7/5/2022	16:27
70	David Diaz, MPH, Christy Zamani, Michael Rochmes, Lexi Hernandez, Resa Barillas, Leah Louis-Prescott, Marven Norman, MPA, Nihal Shrinath, Andrea Vidaurre, Taylor Thomas, Fernando Gaytan	Active San Gabriel Valley, Day One, The Climate Reality Project, Los Angeles Chapter, Climate Action Campaign, California Environmental Voters, RMI, Center for Community Action and Environmental Justice, Sierra Club, The People's Collective for Environmental Justice, East Yard Communities for Environmental Justice, Earthjustice	7/5/2022	16:52
71	Michael J. Carroll	Latham and Watkins LLP	7/5/2022	17:00
72	Ramine Cromartie	Western States Petroleum Association (WSPA)	7/5/2022	18:13
73	Sara Fitzsimon, J.D.	California Hydrogen Business Council	7/5/2022	18:33
74	Thomas Jelenic	Pacific Merchant Shipping Association (PMSA)	7/5/2022	19:30
75	Mark Abramowitz	Community Environmental Services	7/5/2022	22:06
76	Adrian Martinez	Earthjustice	7/6/2022	16:29

TABLE 2 (CONCLUDED)

COMMENT LETTERS ON THE DRAFT 2022 AQMP

Comment Letter	Commentor Name	Representing	Date Received	Time Received
77	Melinda McCoy	John Wayne Airport	7/22/2022	11;25
78	Alfred Fraijo, Jr.	Sheppard, Mullin, Richter, and Hampton, LLC	7/22/2022	11:36
79	Michelle Brantley	Ontario International Airport Authority	7/22/2022	14:37
80	Brissa Sotelo-Vargas, David Fleming, Tracy Hernandez	Los Angeles County Business Federation (BizFed)	7/22/2022	14:55

Comment Letter #1

South Coast AQMD Form Type: Draft 2022 AQMP Comment Submission Form

Received: 5/12/2022 11:27 AM

Commentor's Name: Ronald Stein

Organization: PTS Advance

Email Address: Ronald.Stein@PTSadvance.com

Commentor's Signature: Ronald Stein Pulitzer Prize nominated author, Policy advisor for The Heartland Institute on Energy, and National TV Commentator- Energy & Infrastructure with Rick Amato. http://www.energyliteracy.net/

Comments and suggestions on the Draft 2022 AQMP:

Without fossil fuels there is no need for electricity Since everything that needs electricity is made from the oil derivatives manufactured from crude oil, there will be nothing new to power without crude oil! America is in a fast pursuit toward achieving President Biden's stated goal that "we are going to get rid of fossil fuels" to achieve the Green New Deal's (GND) pursuit of wind turbines and solar panels to provide electricity to run the world, but WAIT, everything in our materialistic lives and economies cannot exist without crude oil, coal, and natural gas. Everything that needs electricity, from lights, vehicles, iPhones, defibrillators, computers, telecommunications, etc., are all made with the oil derivatives manufactured from crude oil. The need for electricity will decrease over time without crude oil. With no new things to power, and the deterioration of current things made with oil derivatives over the next few decades and centuries, the existing items that need electricity will not have replacement parts and will ultimately become obsolete in the future and the need for electricity will diminish accordingly. The Green New Deal proposal calls on the federal government to wean the United States from fossil fuels and focus on electricity from wind and solar, but why? What will there be to power in the future without fossil fuels? Rather than list the more than 6,000 products made from the oil derivatives manufactured from crude oil, I will let the readers list what is NOT dependent on oil derivatives that will need electricity. They can begin listing them here _____ _____ _____. And by the way, crude oil came before electricity. The electricity that came AFTER the discovery of oil, is comprised of components made with those same oil derivatives from crude oil. Thus, getting rid of crude oil, also eliminates our ability to make wind turbines, solar panels, as well as those vehicles intended to be powered by an EV battery. Today, Environmental, Social and Governance (ESG) divesting in fossil fuels are all the rage with big banks, Wall Street firms, and financial institutions, to divest in all 3 fossil fuels of coal, natural gas, and crude oil. Both President Biden and the United Nations support allowing banks and investment giants to collude to reshape economies and our energy infrastructure toward JUST electricity from wind and solar. A reduction in the usage of coal, natural gas, and crude oil would lead us to life as it was without the crude oil infrastructure and those products manufactured from oil that did not exist before 1900, i.e., the decarbonized world that existed in the 1800's and before when life was

Comment 1-1

hard, and life expectancy was short. Ridding the world of crude oil would result in less manufactured oil derivatives and lead to a reduction in each of the following: • The 50,000 heavy-weight and long-range merchant ships that are moving products throughout the world. • The 50,000 heavy-weight and long-range jets used by commercial airlines, private usage, and the military. • The number of wind turbines and solar panels as they are made with oil derivatives from crude oil. • The pesticides to control locusts and other pests. • The tires for the billions of vehicles. • The asphalt for the millions of miles of roadways. • The medications and medical equipment. • The vaccines. • The water filtration systems. • The sanitation systems. • The communications systems, including cell phones, computers, iPhones, and iPads. • The number of cruise ships that now move twenty-five million passengers around the world. • The space program. Before we rid the world of all three fossil fuels of coal, natural gas, and crude oil, the greenies need to identify the replacement or clone for crude oil, to keep the world's population of 8 billion fed and healthy, and economies running with the more than 6,000 products now made with manufactured derivatives from crude oil, along with the fuels manufact

Comment 1-1 Con't

Response to Comment 1-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP. Electricity is produced with diverse energy sources, including fossil fuels (coal, natural gas, and petroleum), nuclear energy, and renewable energy sources. California in-State electricity generation is powered by fossil fuels (41 percent), nuclear and other hydroelectric energy categories (25 percent), and renewable energy (34 percent).[1] A significant portion of electric power is generated with renewable energy sources, including solar, wind, geothermal, and biomass. The South Coast AQMD also has a long-standing policy of fuel-neutrality, meaning that South Coast AQMD staff focus on technologies that reduce emissions regardless of fuel sources.

Comment Letter #2

From: Wes Younger <wyounger@gmail.com>
Sent: Thursday, June 2, 2022 11:05 AM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: AQMP comment

Large numbers of small appliances contribute unnecessarily to NOx emissions, and many of them have never been regulated by a RACT rule. My recommendations for the long-term plan:

1. The NOx emission standard for residential-scale water heaters should be zero. This job is widely done using solar, electric resistance, and electric heat pump technologies presently, which already achieve zero emissions. There is no reason to continue to

Comment 2-1

[1] California Energy Commission, 2021 Total System Electric Generation, available at: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2021-total-system-electric-generation.

provide a special carve-out for natural gas combustion, except potentially in remote areas subject to frequent PSPS shutoffs. However, most ultra-low NOx natural gas water heaters seem to require electricity now anyway, so a remote area carve-out may not be necessary. Furthermore, as replacements transition to ultra-low NOx, power outlet retrofits are becoming necessary to support the electrical needs of the gas-fired units; why not pull 240 volts instead of 120 and convert to zero emission? The simplest implementation would be a stop-sale on water heaters with NOx emissions.

Comment 2-1 Cont.

2. The NOx emission standard for residential-scale clothes dryers should be zero. This job is widely done using clotheslines, electric resistance dryers, electric heat pump dryer technologies presently, which already achieves zero emissions. There is no reason to continue to provide a special carve-out for natural gas combustion in any part of SCAQMD jurisdiction. The simplest implementation would be a stop-sale on clothes dryers with NOx emissions.

Comment 2-2

3. The ultra-low NOx emission standard for residential fan-forced space heating has produced some benefit, but over the long term ultra-low is still unreasonably high compared to zero emission alternatives such as heat pumps. Significant portions of the US with similar climates never bothered to install widespread natural gas service or LPG alternatives; houses are all-electric and space heating is via electric heat pumps. I recommend a stop-sale on such furnaces that exceed a zero-NOx standard for residential and light commercial equipment.

Comment 2-3

4. The NOx emission standard for cooking equipment including stoves, ovens, cooktops, flat-tops, and fryers should be zero. This job is widely done using electricity presently, which already achieves zero emissions. There is no reason to continue to provide a special carve-out for natural gas combustion in any part of SCAQMD jurisdiction except potentially in remote areas subject to PSPS shutoffs. The simplest implementation would be a stop-sale on cooking equipment with NOx emissions. This equipment also operates indoors without proper ventilation and adversely affects indoor air quality.

Comment 2-4

5. The low NOx emission standard for pool and spa heating has produced some benefit, but over the long term ultra-low is still unreasonably high compared to zero emission alternatives such as solar and heat pump heaters. Significant portions of the US with similar climates never bothered to install widespread natural gas service or LPG alternatives; there are still plenty of swimming pools in Florida, for example. I recommend a stop-sale on such pool and spa heating equipment that exceeds a zero-NOx standard.

Comment 2-5

Many of these changes will include some nonzero retrofit cost, which is unfortunate but can be managed by end users and with appropriate rebate programs. If this were not the case, we would all still be shoveling coal and splitting wood. These rules can also be phased in by targeting new construction first, remodeling second, and other retrofits third.

Comment 2-6

Response to Comment 2-1: Thank you for supporting South Coast AQMD's proposal for zero emission water heaters. The proposal does align with your suggestion that natural gas units would only be allowed when zero emission units are deemed infeasible, such as the installations in remote areas subject to frequent public safety power shutoffs (PSPS). Further analysis will be conducted during the rulemaking process to determine specific situations where natural gas units with lower NOx technology would be

allowed as an alternative. New technologies, e.g., 120-volts heat pumps, would be a much-needed addition to the all-electric market profile, and a solution for consumers that cannot afford power outlet retrofits.

Response to Comment 2-2: Staff recognized the wide adoption of electric resistance dryers and availability of electric heat pump dryers. Staff also understand there are challenges that prevent certain households to install those all-electric units. For example, for some old houses, the electrical wiring does not support electric dryers. Electric heat pump dryers do not have as wide a market adoption as the heat pumps for space and water heating either. Current market available heat pump dryers have smaller capacities than gas dryers and are only ideal for a family of four or less. Staff will meet with stakeholders during the future rulemaking to discuss the off-ramps when gas dryers would have to be allowed. Further in-depth analysis will be conducted as well.

Response to Comment 2-3: The AQMP Control Measure R-CMB-02 is proposing zero emission for residential space heating. The adoption of heat pumps for space heating, ventilation, and air conditioning (HVAC) is gaining popularity. Manufacturers are also working on further development to expand their product profiles and overcome some application challenges (e.g., cold climate zones). There are various obstacles for a stop-sale approach as discussed in the control measure. Staff will establish a working group during the rulemaking process, during the public process staff will discuss specific situations for when an off-ramp should be provided.

Response to Comment 2-4: South Coast AQMD staff appreciates your comments supporting a zero emission standard for cooking equipment. While a zero emission standard would be effective for sales of new appliances, it would not reduce emissions from existing conventional appliances. Control measures R-CMB-03 for residential cooking appliances and C-CMB-03 for commercial cooking appliances seek nitrogen oxides (NOx) reductions by replacing conventional gas-fired cooking appliances with a combination of zero emission and low NOx emission devices such as electric cooking devices, induction cooktops, and low NOx burner technologies. Future rule development will assess the feasibility of setting a standard for cooking equipment through a technology assessment, including testing of various cooking devices to establish emissions rates. More details on NOx reductions from cooking appliances can be found in Appendix IV-A of the Draft 2022 AQMP.

Response to Comment 2-5: The AQMP Control Measure R-CMB-04 proposes a zero emissions standard for residential miscellaneous combustion sources such as pool heaters. The 2012 AQMP estimated that there were about 200,000 residential pool heaters in the South Coast AQMD that use natural gas. Significant amounts of those units would transition to zero emission units at end of their useful lifetime through implementing this control measure. One of the obstacles is that a pool heat pump works slower than a gas heater for heating the pool. In order to achieve the same performance, some cases would require installation of two heat pumps that would drive the cost even higher. The control measure proposed natural gas units as an off-ramp when zero emission units are deemed infeasible. Staff will have working group meetings to have further discussion and work out a feasible solution to maximize adoption of zero emission units.

Response to Comment 2-6: Staff recognizes the concern for cost challenges for end users. The costs associated with widespread adoption of zero emission appliances are significant, and substantial incentive funds and programs will be needed to implement these measures. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances. Staff agrees with

the comment, based on the feasibility, that the implementation for new buildings could occur earlier (e.g., 2024) than that for existing building remodel or retrofit.

Comment Letter #3

South Coast AQMD Form Type: Draft 2022 AQMP Comment Submission Form

Received: 6/2/2022 at 8:25 PM

Commentor's Name: Rita

Organization: Self

Email Address: marquismgr@gmail.com

Commentor's Signature: Rita

Comments and suggestions on the Draft 2022 AQMP:

I oppose the proposal to eliminate gas appliances. We need multi energy sources to meet our energy needs and deserve consumer freedom. Costs are going up and natural gas is a relatively clean and abundant. If the board is serious about promoting all electric policies it should look at reinstating San Onofre Nuclear power station and expanding nuclear generation first. If we are not promoting nuclear energy we are not serious about a green future. Comment 3-1

Response to Comment 3-1: For discussion on residential natural gas use, please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances. Staff also recognizes the concern for consumer cost. For further discussion, please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances.

Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption, and the South Coast AQMD will continue to work with developers and other agencies to deploy other types of clean energy. Meeting the U.S. EPA's current 2015 8-hour ozone standard of 70 ppb and other NAAQS will require continued emission reduction efforts with shared responsibility from all levels of government. Regarding the San Onofre nuclear power station, that is beyond South Coast AQMD's regulatory authority. The Nuclear Regulatory Commission (NRC) has jurisdiction over the licensing, safety, and operational aspects of all nuclear power plants in the United States, and the California Public Utilities Commission (CPUC) has jurisdiction related to electric cost issues and ratepayer funding. The South Coast AQMD will conduct more in-depth analyses on clean energy deployment during the rulemaking process.

Comment Letter #4

Los Angeles County Business Federation
Strengthening the Voice of Business Since 2008

6/6/22

Wayne Nastri
Executive Officer
South Coast Air Quality Management District

Via email

Re: South Coast Air Quality Management Plan – Request for comment deadline extension

Mr. Nastri,

We are contacting you on behalf of BizFed, the Los Angeles County Business Federation, an alliance of over 200 business organizations who represent over 400,000 employers in Los Angeles County. We are writing to express our concerns with the June 21 comment period deadline for the draft 2022 South Coast Air Quality Management Plan (AQMP).

As you know, BizFed represents businesses large and small from a wide range of industries throughout the South Coast Air Basin who will be heavily impacted by the goals set forth in the AQMP. As such, we want to provide the district with the most comprehensive comment letter that accurately represents the views of the broader business community. Doing so takes time, education, collaboration, and discussion.

Comment 4-1

Even though the draft AQMP report text was released on May 6, most of the technical appendices were only released on the evening of June 1. This additional material is foundational to the draft plan and requires additional time to study and provide adequate feedback.

As the AQMP is not scheduled to be considered until October, we respectfully request that the district extend the comment period deadline another 30 days, at a minimum, for our members, and other stakeholders, to properly review and comment on the draft.

We appreciate your consideration. If you have any questions, please contact sarah.wiltfong@bizfed.org.

Sincerely,

Brissa Sotelo-Vargas
BizFed Chair
Valero

David Fleming
BizFed Founding Chair

Tracy Hernandez
BizFed Founding CEO
IMPOWER, Inc.

CC:
Hon. Ben Benoit, Chair
Hon. Vanessa Delgado, Vice-Chair
Ian McMillan, Assistant Deputy Executive Officer

BizFed Association Members

7-11 Franchise Owners Association for SoCal
Action Apartment Association
Alhambra Chamber
American Beverage Association
Apartment Association of Greater Los Angeles
Apartment Association, CA Southern Cities, Inc .
Arcadia Association of Realtors
AREAA North Los Angeles SFV SCV
Armenian Trade & Labor Association
Associated Builders & Contractors SoCal (ABC SoCal)
Association of Club Executives
Association of Independent Commercial Producers
Azusa Chamber
Beverly Hills Bar Association
Beverly Hills Chamber
BioCom
Black Business Association
BNI4SUCCESS
Bowling Centers of SoCal
Boyle Heights Chamber of Commerce
Building Industry Association - LA/Ventura Counties
Building Industry Association of Southern California
Building Industry Association- Baldyview
Building Owners & Managers Association of Greater Los Angeles
Burbank Association of Realtors
Burbank Chamber of Commerce
Business and Industry Council for Emergency Planning and Preparedness
Business Resource Group
CABIA California Business and Industrial Alliance
Calabasas Chamber of Commerce
CalAsian Chamber
CalChamber
California Apartment Association- Los Angeles
California Asphalt Pavement Association
California Bankers Association
California Business Properties
California Business Roundtable
California Cannabis Industry Association
California Cleaners Association
California Contract Cities Association
California Fashion Association
California Gaming Association
California Grocers Association
California Hispanic Chamber
California Hotel & Lodging Association
California Independent Oil Marketers Association (CIOMA)
California Independent Petroleum Association
California Life Sciences Association
California Manufacturers & Technology Association
California Metals Coalition
California Natural Gas Producers Association
California Restaurant Association
California Retailers Association
California Self Storage Association
California Small Business Alliance
California Society of CPAs - Los Angeles Chapter
California Trucking Association
Carson Chamber of Commerce
Carson Dominguez Employers Alliance
Central City Association
Century City Chamber of Commerce
Cerritos Regional Chamber of Commerce
Chatsworth Porter Ranch Chamber of Commerce
Citrus Valley Association of Realtors
Claremont Chamber of Commerce
Coalition for Small Rental Property Owners
Commercial Industrial Council/Chamber of Commerce
Compton Chamber of Commerce
Construction Industry Air Quality Coalition
Construction Industry Coalition on Water Quality
Covina Chamber
Crenshaw Chamber of Commerce
Crescenta Valley Chamber
Culver City Chamber of Commerce
Downey Association of REALTORS
Downey Chamber of Commerce
Downtown Center Business Improvement District
Downtown Long Beach Alliance
El Monte/South El Monte Chamber
El Segundo Chamber of Commerce
Employers Group
Encino Chamber of Commerce
Energy Independence Now EIN
Engineering Contractor's Association
EXP Future
FastLink DTLA
Filipino American Chamber of Commerce
Friends of Hollywood Central Park
FuturePorts
Gardena Valley Chamber
Gateway to LA
Glendale Association of Realtors
Glendale Chamber
Glendora Chamber
Greater Antelope Valley AOR
Greater Bakersfield Chamber of Commerce
Greater Lakewood Chamber of Commerce
Greater Leimert Park Crenshaw Corridor BID
Greater Los Angeles African American Chamber
Greater Los Angeles Association of Realtors
Greater Los Angeles New Car Dealers Association
Greater San Fernando Valley Chamber
Harbor Association of Industry and Commerce
Harbor Trucking Association
Historic Core BID of Downtown Los Angeles
Hollywood Chamber
Hong Kong Trade Development Council
Hospital Association of Southern California
Hotel Association of Los Angeles
Huntington Park Area Chamber of Commerce
ICBWA- International Cannabis Women Business Association
Independent Cities Association
Industrial Environmental Association
Industry Business Council
Inglewood Board of Real Estate
Inland Empire Economic Partnership
International Franchise Association
Irwindale Chamber of Commerce
La Cañada Flintridge Chamber
LA Coalition
LA Fashion District BID
LA South Chamber of Commerce
Lancaster Chamber of Commerce
Larchmont Boulevard Association
Latin Business Association
Latino Food Industry Association
Latino Restaurant Association
LAX Coastal Area Chamber
League of California Cities
Long Beach Area Chamber
Long Beach Economic Partnership
Los Angeles Area Chamber
Los Angeles County Board of Real Estate
Los Angeles County Waste Management Association
Los Angeles Economic Development Center
Los Angeles Gateway Chamber of Commerce
Los Angeles Gay & Lesbian Chamber of Commerce
Los Angeles Latino Chamber
Los Angeles Parking Association
Los Angeles World Affairs Council/Town Hall Los Angeles
MADIA
Malibu Chamber of Commerce
Marketplace Industry Association
Monrovia Chamber
Motion Picture Association of America, Inc.
MoveLA
MultiCultural Business Alliance
NAIOP Southern California Chapter
NAREIT
National Association of Minority Contractors
National Association of Tobacco Outlets
National Association of Women Business Owners
National Association of Women Business Owners - LA
National Association of Women Business Owners- California
National Federation of Independent Business
Owners California
National Hookah
National Latina Business Women's Association
Orange County Business Council
Pacific Merchant Shipping Association
Panorama City Chamber of Commerce
Paramount Chamber of Commerce
Pasadena Chamber
Pasadena Foothills Association of Realtors
PhRMA
Pico Rivera Chamber of Commerce
Planned Parenthood Affiliates of California
Pomona Chamber
Rancho Southeast REALTORS
ReadyNation California
Recording Industry Association of America
Regional Black Chamber-San Fernando Valley
Regional Hispanic Chambers
Regional San Gabriel Valley Chamber
Rosemead Chamber
San Dimas Chamber of Commerce
San Gabriel Chamber of Commerce
San Gabriel Valley Economic Partnership
San Pedro Peninsula Chamber
Santa Clarita Valley Chamber
Santa Clarita Valley Economic Development Corp.
Santa Monica Chamber of Commerce
Sherman Oaks Chamber
South Bay Association of Chambers
South Bay Association of Realtors
South Gate Chamber of Commerce
Southern California Contractors Association
Southern California Golf Association
Southern California Grantmakers
Southern California Leadership Council
Southern California Minority Suppliers Development Council Inc.
Southern California Water Coalition
Southland Regional Association of Realtors
Sportfishing Association of California
Sunland/Tujunga Chamber
Sunset Strip Business Improvement District
Torrance Area Chamber
Tri-Counties Association of Realtors
United Cannabis Business Association
United Chambers – San Fernando Valley & Region
United States-Mexico Chamber
Unmanned Autonomous Vehicle Systems Association
US Green Building Council
US Resiliency Council
Valley Economic Alliance, The
Valley Industry & Commerce Association
Venice Chamber of Commerce
Vermont Slauson Economic Development Corporation
Veterans In Business Network
Vietnamese American Chamber
Warner Center Association
West Hollywood Chamber
West Hollywood Design District
West Los Angeles Chamber
West San Gabriel Valley Association of Realtors
West Valley/Warner Center Chamber
Western Electrical Contractors Association
Western Manufactured Housing Association
Western States Petroleum Association
Westside Council of Chambers
Whittier Chamber of Commerce
Wilmington Chamber
Women's Business Enterprise Council
World Trade Center

Los Angeles County Business Federation / 6055 E. Washington Blvd. #1005, Commerce, California 90040 / T:323.889.4348 / www.bizfed.org

Response to Comment 4-1: Staff appreciates the comment letter and acknowledges that most appendices were released after the Draft 2022 AQMP. To provide sufficient time for public input on the Draft 2022 AQMP and associated appendices, South Coast AQMD extended the public comment deadline for the

Draft 2022 AQMP from June 21st to July 5th. In addition, comments on the appendices were accepted through July 22nd.

Comment Letter #5

From: Fred Orr <outlook_8DE46A95C025C540@outlook.com>
Sent: Sunday, June 12, 2022 9:53 AM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: [EXTERNAL]Proposed regulations on natural gas in residences

Reading about proposals to do away with in home natural gas appliances and the pros and cons of doing so, leads me to comment that again our state of CA, appearing to be bent on saving the world from all the evils of pollution, seems to be going in the wrong direction.

I was around when "all electric" homes were all the future rage, but the costs of electric water/home heating were and now are almost unbearable for all. To try and require replacement of these devices already in homes throughout CA seems once again over reach by our not so golden state. And to "make things okay", but paying yet another "fee" (tax in my mind), is way beyond reasonable, especially when our state seems to have a problem with supplying electricity at the present time!

Comment 5-1

Guess it is okay to have natural gas, etc out of state to supply electricity for the power hungry folks who live here?? I'm all for better air quality, but maybe there are better ways to accomplish this, especially in the auto world with gas hungry SUVs and trucks barreling down our freeways at +80MPH?

My vote is definitely against requiring home natural gas items such as clothes dryers, water/home heaters and stoves to be replaced by electric models—an expense most folks who live here won't be able to afford.

Thanks for listening,

Fred Orr, Redlands, CA

Sent from Mail for Windows

Response to Comment 5-1: Staff recognizes the concern for consumer cost as an obstacle to the implementation of zero emission appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances. Staff also understands the concern for electric grid supply and reliability. For discussion on electricity infrastructure and supply, please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand.

Comment Letter #6

From: Elliott Alhadeff <ealha3@msn.com>
Sent: Sunday, June 12, 2022 11:13 AM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: Regulations

Re the Orange County Register article, "Regulators Tilt at Windmills" June 12, Opinion, have any of you come to know that the atmospheric, manmade CO2 caused by the US is .00012%? And you have the fantasy that California can have a measurable affect on this infinitesimal amount? Get real! NO MORE ECONOMICALLY DESTRUCTIVE REGULATIONS! Concentrate on adjusting to the changes, if any, and keeping California from falling any further into becoming a 3rd world, banana republic state.

Comment 6-1

Elliott Alhadeff.
Laguna Woods, Ca. 92637

Sent from my T-Mobile 5G Device

Response to Comment 6-1: The 2022 AQMP is the blueprint for the region to meet the 2015 federal ozone standard. It is a plan focused on reducing emissions of NOx, the key pollutant that must be controlled to reduce ozone. While steps to reduce CO2 and mitigate climate change are of critical importance, those programs are addressed by CARB and other entities.

Staff understands the cost concern for consumers associated with the adoption of zero emission appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for more discussion on cost. Please refer to the general response to Impact of Zero Emission Technology on Inequity which includes discussion on incentive programs. The control measures set a plan for future rulemaking. Staff will conduct in-depth analysis on the cost-effectiveness during the future rulemaking. Any new rule requirement must be deemed cost-effective and feasible before it would be adopted.

Comment Letter #7

From: Jean Fullerton <jeanfullerton09@gmail.com>
Sent: Sunday, June 12, 2022 12:56 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: [EXTERNAL]Draft 2022

Committee Members:
I urge you to take a RATIONAL review of CMB-01 and CMB-02. Banning gas appliances and space heaters is not going to solve any problems.
Everyone is in favor of clean air however, this can be done without the over-regulation that you think is necessary.

Comment 7-1

I keep asking myself why the government is mandating so much new housing construction and at the same time telling citizens that we don't have adequate water supplies and our electric grids are a problem. Let's fix this first using common sense and workable solutions.
Thank you,
Jean Fullerton

Comment 7-1 Con't

Response to Comment 7-1: The South Coast AQMD recognizes the significant impact of and the need for emission reductions from residential gas consumption. Please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances. Staff is aware of the public concern for electric grid supply for implementing zero emission appliances. For further discussion on electricity infrastructure, please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand.

Comment Letter #8

From: Dennis <dennisg2@cox.net>
Sent: Sunday, June 12, 2022 1:37 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: AQMP

Our communities would be best served by AQMD closure of all facilities and the firing of your entire bureaucracy.
Short of that, we would all be better off if you cancelled your "new" plan and stepped back from your continued micro-management.

Having worked with people such as yourselves, I realize that you're congenitally incapable of understanding the harm you do on a daily basis.
It was one thing to clean up the air pollution that we had in the 1960's – 1979's…….you are now into what we economists call the "Law of Diminishing Returns".

Comment 8-1

48 newly proposed "control measures"???
Are you kidding us?
All you've done is move the source of pollution somewhere else and the idea that a "wind & solar" grid will save us is sheer folly.
May I suggest you read Vaclav Smil's book, "How the World Really Works" and get some much-needed perspective on the damage you do.

Having written this, I also know that it will end up in your "round file".
Very sad…….

Dennis Gimian

Irvine, CA

Response to Comment 8-1: South Coast AQMD staff appreciates your comments on the control measures for the Draft 2022 AQMP. Please refer to the general response to General Approach for the 2022 AQMP.

Comment Letter #9

From: Camilla Khan <camillak@yahoo.com>
Sent: Sunday, June 12, 2022 2:53 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: New Control Measures

I am opposed to the proposed AQMP control measures. They will only create greater reliance on electricity, which is already a fragile source of energy. Natural gas is the obvious choice for clean, abundant energy. I in an attempt to achieve the unattainable ozone standard, the AQMD is proposing control measures that are detrimental to our standard of living and will achieve nothing. Please consider revising the ozone standard instead because it is an impossible goal. Comment 9-1

Thanks,
Camilla Khan
15 Chickadee Lane
Aliso Viejo, CA 92656
714-878-0939

Response to Comment 9-1: The Draft 2022 AQMP forecasts the 2037 emissions inventory for residential fuel combustion to be about 10 tons/day under the existing regulations, one of the two top emitters among stationary sources. Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption. For discussion on residential gas use and the need for emission reduction, please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances.

Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand for more details.

While attaining the federal ozone standard by the 2037 deadline will be challenging, air quality modeling shows that it is possible with the measures in the Draft 2022 AQMP. Regarding the comment to revise the ozone standard, South Coast AQMD does not have the authority to change the standard. The U.S. EPA is required to establish and revise national standards for air pollutants at levels that are protective of public health. State and local entities like the South Coast AQMD are required to meet those standards; failure

to do so could result in the federal government imposing penalties and economic sanctions, as well as federal requirements to further reduce emissions.

Comment Letter #10

From: Peter Ballas <golfer6002000@icloud.com>
Sent: Sunday, June 12, 2022 3:04 PM
To: AQMPTeam <aqmpteam@aqmd.gov>
Subject: Draft Air Quality Management Plan

I just heard about the plan referenced above. Are you people insane? Your plan will do irreparable harm to the people of California. I am against it. Comment 10-1

Sent from my iPhone
Peter W Ballas

Response to Comment 10-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP. Please refer to the general response to General Approach for the 2022 AQMP.

Comment Letter #11

AQMPteam@aqmd.gov

Comments on your proposed 2022 Air Quality Management Plan

The AQMD has the thankless task of attempting to eliminate as many pollutants in the 4 county basin as possible, to improve the lives of the citizens. In their zeal to transition to zero- and near-zero emission technologies to meet unproven 2023 and 2032 air quality standards, they falsely assume the electric grid will continue to expand, to handle the additional loads being placed upon it.

Clearly, your plan recognizes the LA basin is a unique place for air quality management as the mountains surrounding the basin, limit and restrict the free flow of air and pollutants in and out of the basin. However, blindly accepting the air quality standards meant for cities without seeking some adjustment for our unique set of problems is counter productive. It is foolish to believe one-size-fits-all regulation is always the best path forward. But, it is wise to seek the best as an ideal to wish for.

I would ask the AQMD to take a broader perspective of the "bigger picture" and see if zero is the real number or is there a more reasoned approach in near-zero or timing to transition to a cleaner basin?

Comment 11-1

I primarily oppose the residential combustion source measures R-CMB-01, R-CMB-02, R-CMB-03 and R-CMB-04 which propose to eliminate all natural gas appliances in the home and force the replacement with electric appliances, that are usually vastly more expensive to operate. The single exception are some instant water heaters. As a citizen of this land, I believe all AQMD employees should be the first to adopt the "all electric" approach for at least 2 years before forcing it upon the public. This would allow your team to gain first hand knowledge what is in store for all the little people. *My belief is strong enough to contribute funds to an organized opposition to you plan.*

Even though the AQMD proposes a "ponzi like scheme" to force people like myself, who wish to retain gas appliances to pay fees, which will be used to fund near free appliances for others, this plan will cause enormous economic difficulty for the public, just to replace the appliances. This is because many homes are not designed to handle the extra high-current loads of ranges, ovens, dryers, space heaters and water heaters, all on at the same time. Therefore, the true cost will include an electric service upgrade to at least a 200-250 amp meter box, main and many additional breakers & circuits to the new appliances. Will the AQMD be subsidizing these $5,000 to $10,000 costs per home also?

In addition, consider the cost to operate, as a customer of Southern California Edison, my current everyday electric rates average $0.51 per KWh from 4 to 9 PM daily, when average people come home from work. All other times average $0.21KWh. This price for energy is vastly greater than the cost of natural gas. This cost is expected to rise at least 10% annually, over the next decade.

Now back to the power grid. Please consider the current shift of passenger vehicles from gasoline to electric. I am an engineer and I can tell you the existing electric grid can just barely accommodate the increase of load from thousands to millions of electric vehicles charging, mostly between 4 PM and 7AM. These vehicles consume more power than several major appliances on at once. Usually around 8KW for 3 to 7 hours, depending upon driving needs. This load can be reduced and managed over a longer period, but a Smart Grid is only talk at this point, so real high-current loads will unexpectedly drop-on and drop-off the grid for another decade or more, causing great instability in the grid. *Many people will wake to learn there was a power outage overnight and their car still has a low battery, making it unable to transport them to work.*

Comment 11-2

To get an idea of the probable shift awaiting the grid, I suggest you determine the amount of gasoline sold in the region on an average day. Convert that into an energy metric such as BTU. Then compare that to the amount of electrical power in peak demand KW and Kwh over a day during driving times and ask if DWP or SCE can handle that increase over the next 10 years. ***As the operators of the electric monopoly, they will assure you, they have a plan for everything***. Now consider adding the load you are proposing to the grid, *by eliminating all commercial & residential natural gas use*, along side of the EV demand.

Comment 11-2 Con't

Keep in mind, DWP and SCE are primarily in the business of "distributing" electric, not generating power. Many of the power generation plants were sold years ago. Even so, your L-CMB-06 proposal in the same plan will severely restrict new power plants required to generate the power, needed to replace all the gasoline and natural gas being currently used by the public. Who will invest in a power power plant that is destined to be shut down ASAP. **Remember, somewhere there must be a power generator, using the same or more energy as the amount of gasoline and natural gas being replacing. Electricity is only a transportation medium for energy, like a water pipe is for water.**

Comment 11-3

Our cleanest solution is either using the natural gas you are taking from the public and burning it outside the basin or using nuclear power, which is highly unlikely due to public misinformation.

This proposal of your is years ahead of the infrastructure required to support such a plan. The grid will barely be able accommodate the EV scheme, if at all. What you will force upon the public is constant and reoccurring power black-outs for years, with tens of thousand of people reverting to use of small generators which will cause far more pollution than what you will gain from this effort to get ever closer to the magic number of zero. Zero is a tough number to reach.

Fred W Daniel
33 Saint Tropez
Newport Beach, CA 92660
949-640-8899

Received via email on 6/12/22 at 15:14

Response to Comment 11-1: The focus of the 2022 AQMP is to reduce NOx emissions to meet federal ozone standards. While measures to accelerate the adoption of zero emission appliances is part of that plan, staff recognizes that zero emission technologies may not be feasible in certain situations. The proposed control measures include low NOx technologies as a transitional alternative when the installation of a zero emission unit is determined to be infeasible (e.g., colder climate zones, or architecture design obstacles). Staff also understands that consumer cost of implementation will be a substantial challenge. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances, and preliminary cost estimates will be quantified in the upcoming Socioeconomic Report for the 2022 AQMP.

Response to Comment 11-2: Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand.

Response to Comment 11-3: For further discussion on electricity infrastructure and supply, please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand. See Response to Comment 3-1 for discussion on nuclear power.

Comment Letter #12

South Coast AQMD Form Type: Control Measure Idea Submission Form

Received: 6/12/2022 at 15:21 PDT

Commentor's Name: Ralph Kostant

Organization: None

Email Address: Rbkostant@sbcglobal.net

Control measure or emission source addressed: R-CMB-01,02, 03

Provide your comments and suggestions on the control measures or emission source identified:

At a time when California is facing rolling power outages and an increasingly unstable power grid, it is the height of regulatory irresponsibility to mandate replacement of natural gas water heaters and space heaters in existing residences, or to endeavor to reduce NOx by replacing gas ovens and ranges. The NOx reductions will be minimal relative to the expense and hardship the proposed rules will impose.

Comment 12-1

Response to Comment 12-1: The South Coast AQMD recognizes the significant impact of and the need for emission reductions from residential gas consumption. Please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances. Staff is aware of the public concern for electric grid supply for implementing zero emission appliances. For further discussion on

electricity infrastructure, please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand. Staff also understands the cost concern for consumers. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for more discussion on cost; and please refer to the general response to Impact of Zero Emission Technology on Inequity which includes discussion on incentive programs. The future rulemaking will involve an in-depth analysis on subjects such as utility cost change and power supply. Staff will also conduct working group meetings and other public meetings to develop feasible rule requirement with stakeholder input.

Comment Letter #13

From: J. Craig Collins [redacted]
Sent: Sunday, June 12, 2022 3:24 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: Public Comment on "2022 Air Quality Management Plan"

Dear South Coast AQMD:

We have reviewed the Executive Summary and selected portions of the 2022 AQMP. We are residents of Long Beach. We own a hydrogen fuel cell car and a gas-hybrid SUV. Our home appliances are fueled by natural gas and electricity. We have 200-ampere electric service. Solar panels are not an option due to our home's 1930 Spanish Colonial Revival architecture.

Please consider the following:

Comment 13-1

1. We strongly disagree with the premise that the stated NOx and ozone reductions can be achieved by 2037 at acceptable cost - if at all. Reality must be inserted here. Reconsider the goal and determine what is reasonable and feasible.

2. Given the massive contributions of aircraft, heavy trucks and locomotives to NOx and ozone, SCAQMD lacks jurisdiction to accomplish this goal. It should not disrupt residential life for millions of Californians in a futile attempt to do so.

Comment 13-2

3. We STRONGLY disapprove of the proposed residential control measures R-CMB-01, R-CMB-02 and R-CMB-03. Electricity is NOT "zero emission"; electricity is generated largely through the combustion of fossil fuels at remote sites, with consequent pollution.

Comment 13-3

4. The California electric grid is woefully deficient to support even current demand. It is absurd to propose burdening it further with unnecessary load.

Comment 13-4

5. Natural gas is a clean, efficient and versatile fuel that is ideally suited to on-site residential water heating, cooking, and space heating. Natural gas functions during periods of emergency that make electricity unavailable. Under no circumstances should its use be curtailed.

We predict that intelligent California consumers will react with outrage should these proposals go forward. Please go back to the drawing board. Thank you.

Comment 13-5

Sincerely,

J. Craig Collins [redacted]
[redacted]

[redacted]
[redacted]

Response to Comment 13-1: South Coast AQMD is legally required to develop all feasible measures to reach the 70 ppb standard by 2037. If South Coast AQMD fails to develop a Plan and submit to U.S. EPA, there will be sanctions by the federal government and other consequences such as increased permitting fees, stricter permit conditions for new projects, and the loss of federal highway funds. Failure to meet the standard also means that residents in the region will continue to breathe levels of air pollution that cause adverse health impacts such as respiratory diseases and asthma. See general response for General Approach for the 2022 AQMP for more discussions.

Response to Comment 13-2: Please refer to the general response to Need for Federal Actions.

Response to Comment 13-3: Staff understands that the residential control measures would achieve even more NOx emission reductions, when combined with renewable, non-combustion, or lower emission power generation. In 2020, about 55 percent of electricity generation serving California came from renewable and zero-carbon resources. Although fossil fuels still comprise a significant portion of the resource mix, the state's electric system is in a period of transition. Nearly 6,000 MW of firm and dispatchable resources are expected to be retired over the next five years. At the same time, the state continues to rapidly expand deployment of renewable resources and plan for increased electrification. Senate Bill 100 (De León, Chapter 312, Statutes of 2018) mandates that the California Public Utilities Commission, California Energy Commission, and Air Resources Board plan for 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. The bill also updated the state's Renewables Portfolio Standard to include the interim target of 60 percent of retail sales procured from eligible renewable sources by December 31, 2030. In addition to the state's goal on renewables, the South Coast AQMD is dedicated to NOx emission reductions from electricity generating facilities. The 2022 Draft AQMP includes control measure L-CMB-06 which proposes to develop a rule to implement low NOx and zero emission technologies at electricity generating facilities. The target of this approach is to replace boiler units with lower-emitting turbines, implement zero emission technologies such as fuel cells or electrification for 10 percent of gas-fired sources and other lower NOx emission technologies for the rest of gas-fired sources, and require stricter emission requirements from diesel internal combustion engines. This control measure reduces NOx emissions from electric generating units regulated by Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities.

Response to Comment 13-4: South Coast AQMD staff recognizes that there are valid concerns regarding grid capacity and reliability to support a widespread transition to zero emission technologies. Staff developed control measure MOB-15 to provide a commitment to engage with stakeholders involved in every aspect of the transition to zero emission fueling with the goal of identifying potential shortfalls in technologies and/or energy availability while assisting in a collaborative effort to address these concerns. The South Coast AQMD is uniquely positioned to actively engage with the CEC, CPUC, CARB, local utilities,

fleets and other stakeholders to help address the challenges related to grid capacity and reliability in the region. South Coast AQMD will continue to share information that can be used to better inform forecasting and energy analyses which are used to plan grid capacity upgrades. Current forecasting and energy analyses are primarily focused on the state ZEV goals and do not fully address all emission categories that will need to transition to zero emissions to reach attainment goals. The challenges related to the electrical grid and infrastructure availability are significant and will require collaborative problem solving involving all stakeholders. South Coast AQMD will continue to advise partner organizations through information sharing and close coordination of efforts to remove barriers to ZE infrastructure and technology deployments.

Agencies and organizations throughout the state that are involved in energy distribution such as the California Energy Commission, the California Public Utility Commission, and local utilities such as Southern California Edison, are aware of the challenges ahead in terms of energy and infrastructure availability and are actively engaged in planning to anticipate future demand as the state moves toward a zero emission future. Engagement with these and additional partners involved in this transition through the direction detailed in MOB-15 will help articulate the region's needs and challenges to anticipate potential shortfalls in energy and technology availability, and grid readiness and reliability.

Response to Comment 13-5: Air quality regulatory agencies have traditionally set policies and requirements that are performance-based, and are therefore technology- and fuel-neutral. However, natural gas appliances still emit NOx and residential and commercial appliances using natural gas account for a substantial amount of NOx emissions in the Basin. South Coast AQMD is required by law to adopt all feasible measures to reduce NOx emissions in order to attain the standard by the deadline.

Comment Letter #14

From: Kelly Todak <ktodak@att.net>
Sent: Sunday, June 12, 2022 3:47 PM
To: AQMPTeam <aqmpteam@aqmd.gov>
Subject: Air Quality Management Plan - Public Comment

I would like to voice my objections to the 2022 Draft Air Quality Management Plan. It is ridiculous to imply that forcing homeowners and business owners to replace gas-burning appliances with electric appliances will improve air quality in Southern California in an appreciable way. Mitigating wildfires would do far more to reduce NOx emissions than demanding the replacement of water heaters (CMB-01), space heaters (CMB-02), and cooking devices (CMB-03). California does not presently have adequate electricity generation to prevent rolling blackouts in the summer. How, then, are people supposed to rely on electric stoves and water heaters? Like all California boondoggles, such as the Bullet Train or $7 billion in bonds to build dams and reservoirs that never materialize, this is a blatant attempt by the AQMD to extract "mitigation fees" and penalties from those who fail to comply. The very ozone standards the AQMD is attempting to achieve are completely unrealistic and must be reassessed. The 48 "control measures" that have been proposed serve no purpose other than to enrich the AQMD and companies that would sell and install compliant electric appliances.

Comment 14-1

As a member of the public, I find these control measures completely unacceptable and I have no intention of cooperating with them. Please come up with a better plan.

Comment 14-1 Con't

Kelly Todak
Orange, CA

Sent from my iPhone

Response to Comment 14-1: The South Coast AQMD does consider the emissions from wildfires, which can affect air quality through increased emissions of the pollutants that form ozone. The South Coast AQMD's mobile source measures are categorized into five broad categories, one of which involves the consideration of wildfire prevention and enhanced public outreach and education. Proposed control measure MCS-02 for wildfire prevention will seek to reduce the impacts of wildfires on particulate matter (PM) and ozone levels from efforts to reduce wildfire fuel. Fuel reduction efforts include hand-thinning, mechanical thinning, and the use of chipping equipment (chipping) to mitigate excess fuels at properties located in the residential urban-wild-interface (UWI) areas of the San Bernardino National Forest (SBNF). To support efforts of wildfire prevention and aid compliance with Zone 0 defensible space requirements of California Assembly Bill 3074, incentive funding will be provided for a pilot project of approximately 1,400 acres. The South Coast AQMD will identify and coordinate implementation of the pilot project with established organizations and their contractors such as the Inland Empire Fire Safe Alliance, Mountain Rim Fire Safe Council, and Big Bear Fire Authority to provide fuel load reducing curbside chipping services to residents of these UWI areas.

The South Coast AQMD is required by law to take all feasible measures to reduce emissions in order to meet air quality standards. Natural gas appliances account for a substantial amount of NOx in the Basin, which is the key pollutant that must be controlled to reduce ozone levels.

Staff is aware of the concern for electric grid infrastructure for implementation. For further discussion on electricity infrastructure and supply, please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand.

For discussion on the ozone standard, see Response to Comment 9-1.

Comment Letter #15

From: richarda venn <dick.venn@att.net>
Sent: Sunday, June 12, 2022 6:40 PM
To: susan@susanshelly.com
Cc: AQMPTeam <aqmpteam@aqmd.gov>; publisher@scng.com; editor@scng.com
Subject: Tilting at Windmills

6/12/2022

Brilliant article by you again as to the California Greenies playing Don Quixote! The California government people will never learn what is destroying

Comment 15-1

the state as they shut off the water and now the fossil fuels that we all depend on for our quality of life.

My lowest utility bill every month is natural gas ... and the government wokes want to destroy this efficiency. Wonder why so many businesses and residents are leaving this miss-managed state?

Thanks for being a rare voice of reason on a regular basis! I will cc email to the AQMPteam as suggested in the event it might make a difference. Great to see the San Francisco wake up call this past week as to getting rid of the radical SF Attorney General who was promoting criminals over the residents. Let's hope we can get enough people awake to the need to change the direction of this previously great state before it is too late.

Comment 15-1 Con't

Best regards,

Dick Venn
Retired 42 Year Resident; ex-ARMY Vet
6566 Pinion Street
Oak Park, CA 91377

PS: You and Mallard are the reasons I read the Daily News

Response to Comment 15-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP. The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. Please refer to the general response to General Approach for the 2022 AQMP and the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances.

Comment Letter #16

From: Larry Kennedy <cotobaja@aol.com>
Sent: Sunday, June 12, 2022 7:39 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: [EXTERNAL]Do not require the conversion of all stoves, heaters, hot water heaters from natural gas to electricity

Hello,
I am requesting you do not advance the proposal of "Air quality Management plan", by restricting and requiring all gas appliances, stoves, heaters, water heaters or any other appliance be converted from gas to electric. This is not the answer to fixing the health problem.
This solution-the 2022 Draft by AQMD reminds me of the present "Bullett Train" fiasco that the state has put millions, yes, millions of dollars into and needs to be abandoned, however at this point our politicians keep pouring millions into a Freeway to No Where.
Please do not embark on a similar project that fixes nothing.

Comment 16-1

Thanking you in advance for your attention to this matter.
Larry Kennedy
2231 E. 2nd St.
Long Beach Ca 90803

Response to Comment 16-1: NOx emissions from the residential sector are primarily generated by natural gas appliances for water heating, space heating and cooking. Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption. Please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances for more discussion on residential gas use and emissions.

The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost.

Comment Letter #17

South Coast AQMD Form Type: Draft 2022 AQMP Comment Submission Form

Received: 6/12/2022 at 22:31 PTD

Commentor's Name: Walter Mirczak

Organization: No affiliation

Email Address: Wmirczak@gmail.com

Commentor's Signature: Walter Mirczak

Comments and suggestions on the Draft 2022 AQMP:

I understand the region is required to meet the "2015 federal 8-hour ozone standard" by 2037 and that meeting the standard would require reducing emissions of nitrogen oxides (NOx) by 71% more than current rules and regulations will achieve. What the AQMD is allowed to regulate accounts for less than 20 percent of NOx emissions. Everything else is under federal or state control, such as ships, off-road equipment and aircraft. The AQMD can only regulate "stationary sources" of emissions. Residential combustion accounts for only a fraction of a fraction of NOx emissions even though there are gas water heaters, furnaces and stoves in up to 5.3 million residences. I oppose Control measure R-CMB 01, Control measure R-CMB 02, and Control measure R-CMB 03. While ozone may be the cause of health problems in Southern California, banning gas appliances doesn't fix it. Residential appliances like gas-powered furnaces and water heaters vent pollution outside; the stove is the one gas appliance in a home that is most likely unvented. Even so there are no documented risks to respiratory health from natural gas stoves from the regulatory and advisory agencies and organizations responsible for protecting residential consumer health and safety. The Federal Interagency Committee on Indoor Air Quality (CIAQ) routinely addresses indoor air quality issues of public importance. The CIAQ has not identified natural gas cooking emissions as an important issue

Comment 17-1

concerning asthma or respiratory illness. The association between the presence of a natural gas cooking appliance and increases in asthma in children is not supported by data-driven investigations covering actual appliance usage, emission rates, exposures, and the control of other factors that are well established for contributing to asthma and other respiratory system threats. Claims that children in homes with gas stoves have an increased risk of asthma symptoms frequently reference a "meta-analyses" of literature that emphasizes the simple presence of a gas appliance, not appliance usage or other exposure-related factors. There is no substantive evidence that electric cooking is cleaner when cooking byproducts are considered. Indoor air quality studies have consistently found that emissions from the cooking process—not solely from the burner or heat source operation—represent the chief source of concern with respect to indoor air quality for various classes of pollutants such as particulate matter and volatile organic compounds. Switching to electrical appliances is not a useful strategy to address indoor air quality because the emissions of concern are dominated by the smoke and grease that comes from cooking, regardless of the energy source used in conventional residential appliances. Residential gas cooking appliances represent a minor source of NO2. The principal source of indoor NO2 is polluted outdoor air that migrates indoors from vehicle and other sources.

Comment 17-1 Con't

Response to Comment 17-1: Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption. South Coast AQMD is required by federal law to develop plans to meet air quality standards, and is further required to take all feasible measures to reduce emissions to meet those standards. Meeting the U.S. EPA's current 2015 8-hour ozone standard of 70 ppb and other NAAQS will require continued emission reduction efforts for both stationary and mobile sources with shared responsibility from all levels of government. Please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances for more discussion on residential gas use and emissions.

Comment Letter #18

From: John Winkler <jhwinkler@me.com>
Sent: Monday, June 13, 2022 9:06 AM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: Air Quality Management Plan

Dear Sir,

The State energy officials warned that California likely will have a storage of electricity this summer which would be equivalent to power about 1.3 million homes.

On that same note, why is our government regulators trying to force us to purchase electric vehicles when there will not be enough electric power recharging facilities to accommodate electric cars?

The AQMD can only regulate "stationary sources", such as power plants, refineries and factories; and the AQMD is already doing that. The challenge is that the region is required to meet the ozone standard by 2037 and it does not look like it will happen, as nitrogen oxides would have to be reduced by 71%.

Comment 18-1

That being said, how do you achieve this goal in the next 15 years when you have no control of the high ozone in California do to the wild fires, which happen a lot on federal land. Our Federal Government are not good stuarts of taking care of the forests. The other issue is methane emissions from cows which produce global greenhouse emissions of 14.5% .

I look forward to your response, as we were thinking about an electric vehicle although if the vehicle cannot be recharged, what is the purpose of owning one?

John Winkler
San Pedro, CA
Jhwinkler@me.com

Comment 18-1 Con't

Response to Comment 18-1: Concerns regarding grid capacity and reliability to support a widespread transition to zero emission technologies are the reason why the South Coast AQMD developed MOB-15. This control measure is a commitment to engage with stakeholders involved in every aspect of the transition to zero emission fueling with the goal of identifying potential shortfalls in technologies and/or energy availability while assisting in a collaborative effort to address these concerns. The South Coast AQMD is uniquely positioned to actively engage with the CEC, CPUC, CARB, local utilities, fleets and other stakeholders to help address the challenges related to grid capacity and reliability in the region. South Coast AQMD will continue to share information that can be used to better inform forecasting and energy analyses which are used to plan grid capacity upgrades. Current forecasting and energy analyses are primarily focused on the state ZEV goals and do not fully address all emission categories that will need to transition to zero emissions to reach attainment goals. The challenges related to the electrical grid and infrastructure availability are significant and will require collaborative problem solving involving all stakeholders. South Coast AQMD will continue to advise partner organizations through information sharing and close coordination of efforts to remove barriers to ZE infrastructure and technology deployments.

Agencies and organizations throughout the state that are involved in energy distribution such as the California Energy Commission, the California Public Utility Commission, and local utilities such as Southern California Edison, are aware of the challenges ahead in terms of energy and infrastructure availability and are actively engaged in planning to anticipate future demand as the state moves toward a zero emission future. Engagement with these and additional partners involved in this transition through the direction detailed in MOB-15 will help articulate the region's needs and challenges to anticipate potential shortfalls in energy and technology availability, and grid readiness and reliability.

The South Coast AQMD is aware of the emissions from wildfires. While the emissions from federal land belong to federal authority, staff has proposed control measure MCS-02 for wildfire prevention will seek to reduce the impacts of wildfires on particulate matter (PM) and ozone levels from efforts to reduce wildfire fuel. For discussion on wildfire emissions, please refer to Response to Comment 14-1. Staff also recognizes that emission reductions from primarily federally regulated emissions sources will be critical to attainment. Please refer to the general response to Need for Federal Actions.

The South Coast AQMD also considers the emissions from livestock waste. Rule 1127 aims to reduce ammonia, volatile organic compounds (VOC), and PM10 emissions from livestock waste and applies to dairy farms and related operations such as heifer and calf farms and the manure produced on them. It also applies to manure processing operations, such as composting operations and anaerobic digesters.

Comment Letter #19

From: Reed Rothrock <rothrockreed@gmail.com>
Sent: Monday, June 13, 2022 9:44 AM
To: AQMPTeam <aqmpteam@aqmd.gov>
Subject: AQMP draft 2022

Let me start by sharing with you that I am an environmentalist and can think of few things more important than the air we breathe. However, I am also a pragmatist with a family and monthly bills that struggles to get by in California. I heard about AQMP 2022 and started thinking about its vast implications to my pocketbook and to millions of others just like me. If you actually care about public input let me assure you that pretty much anyone shown the facts will think it's a ludicrous waste to force the replacement of millions of gas appliances to make an insignificant difference in our air quality. You may not hear much from the public now because they are busy with their lives and have no idea of your plans, but if the day comes that millions of households and restaurants are forced to spend thousands for a fractional change there will be outrage and a deepened sense that California is hopelessly dysfunctional. This proposal plainly doesn't give us much bang for the buck. The time is now for thoughtful choices to be made and you are at the helm for this challenge...please consider the burdens your policy can impose on us regular folks and look for other ways to improve the air we breathe without costing us the money we need to pay for the food we eat.
Thank you,
Reed Rothrock

Comment 19-1

Response to Comment 19-1: The South Coast AQMD is tasked with improving air quality and public health and consider socioeconomic concerns and other factors in achieving equitable protection for all residents from air pollution. The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost. The agency has already begun to address inequity for disadvantaged communities. Please refer to the general response to Impact of Zero Emission Technology on Inequity. The South Coast AQMD will work with stakeholders involved in zero emission infrastructure to ensure that zero emission technologies are distributed affordably and equitably. Affordability will be further considered during the future rulemaking or incentive program development process.

Comment Letter #20

From: Crawford Moller <csmoller@hotmail.com>
Sent: Monday, June 13, 2022 10:30 AM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: Draft 2022 AQMP

I am opposed to the proposed control measures regarding ozone. If passed, they will do nothing to alleviate the identified problems but they will increase the cost of living in California.

Comment 20-1

To get to zero emissions, please use your authority to make nuclear energy a more viable option.

Crawford S. Moller

Response to Comment 20-1: South Coast AQMD staff appreciates your comments on the control measures for the Draft 2022 AQMP. South Coast AQMD is required by law to develop plans to meet federal air quality standards, and also has a legal obligation to take all feasible measures to reduce emissions to meet those standards. Failure to meet federal air quality standards could result in the federal government imposing penalties, economic sanctions, and a federal plan.

The Draft 2022 AQMP proposes control measures across all sectors that emit NOx. Staff recognizes the significant impact of, and the need for emission reductions from, residential gas consumption. For discussion on residential gas use and emissions, please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances. The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. Please see refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost. For discussion on nuclear energy, please see Response to Comment 3-1. Please refer to the general response to General Approach for the 2022 AQMP.

Comment Letter #21

South Coast AQMD Form Type: Draft 2022 AQMP Comment Submission Form

Received: 6/13/2022 at 11:20 PTD

Commentor's Name: Jonathan Peske

Organization: No affiliation

Email Address: jonpeske@yahoo.com

Commentor's Signature: Jonathan Peske

Comments and suggestions on the Draft 2022 AQMP:

I do not support your proposals to phase out natural gas powered water heaters, furnaces, stoves, and ovens. It is not wise for us to shift all of our power needs to electricity when we already have trouble generating enough stable power statewide. We are already pushing to add many more electric vehicles so making these appliances also electric creates an even greater strain. We understand the value of diversity when it is applied to human teams and having a variety of power sources creates a more stable experience for citizens. Otherwise when the power goes out or the grid goes down there, you lose everything. If people choose to use electric appliances and heaters, that is their choice, but it should not be mandated by you. Please respect our freedoms.

Comment 21-1

Response to Comment 21-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP. Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand.

Comment Letter #22

National Fuel Cell Research Center Comments
South Coast AQMD Stationary and Mobile Source Control Measures
Draft 2022 Air Quality Management Plan
June 13, 2022

The National Fuel Cell Research Center (NFCRC) appreciates the opportunity to recommend that the South Coast Air Quality Management Plan (AQMP) should include fuel cell systems as preferred resources for electric generation in the AQMP for immediate reductions of NOx and other criteria air pollutant emissions.

I. INTRODUCTION

Comment 22-1

The NFCRC (1) facilitates and accelerates the development and deployment of fuel cell technology and systems; (2) promotes strategic alliances to address the market challenges associated with the installation and integration of fuel cell systems; and (3) educates and develops resources for the power and energy storage sectors. The NFCRC was established in 1998 at the University of California, Irvine, by the U.S. Department of Energy and the California Energy Commission to develop advanced sources of power generation, transportation, and fuels and has overseen and reviewed thousands of commercial fuel cell applications.

These comments will address the following control measures:

- **L-CMB-03: NOx Reductions from Permitted Non-Emergency Internal Combustion Engines [NOx]**
- **L-CMB-04: Emission Reductions from Emergency Standby Engines [NOx, VOCs]**
- **L-CMB-05: NOx Emission Reductions from Large Turbines [NOx]**
- **L-CMB-06: NOx Emission Reductions from Electricity Generating Facilities**

II. COMMENTS

A. L-CMB-03: NOx Reductions from Permitted Non-Emergency Internal Combustion Engines [NOx]

Comment 22-2

The NFCRC recommends the inclusion of zero and near-zero emission fuel cell systems to replace non-emergency internal combustion engines as a Control Method in L-CMB-03.

Fuel cell systems that can run on stored hydrogen—scalable to the required runtime—and have been commercially deployed since the early 2000s. There are more than 5,000 telecommunication and cable network facility locations using fuel cell systems for backup power in North America, hundreds of which are in California serving power requirements ranging from under 200 Watts to over 10kW in urban, rural, and remote

settings. Other fuel cell systems that are used for cellular tower backup power can run on a mixture of methanol/water fuel, which can reduce total system footprint for extended runtime (beyond 72 hours). Higher power fuel cell systems (200 kW and larger) that use biogas, hydrogen or natural gas for both continuous and backup power are also being used today by telecommunications providers such as AT&T,[1] Cox,[2] and Verizon.[3] These systems are grid-connected and seamlessly take over the load during a grid outage. These systems have operated for weeks at a time during extended outages in the Northeast and continue to operate as long as fuel is reliably delivered in underground pipeline infrastructure or is locally available in storage.

Plug Power hydrogen PEM fuel cell systems are designed to start in the same amount of time as the diesel generators that they are currently replacing.[4] Forty (40) data centers in the U.S. are using Bloom Energy fuel cell systems instead of diesel generators, including those at eBay, AT&T, Equinix, Apple, and JP Morgan.[5] Each component in the Bloom Energy Server architecture is built with native redundancy of the component, which assures 99% uptime.[6]

Comment 22-2 Con't

Plug Power has over 90 installations using stored liquid hydrogen for material handling customers that consume over 24 tons of hydrogen daily. This same type of hydrogen distribution and storage system will be used in future data center primary and backup power applications. Further, while the actual footprint of the diesel engines alone may be smaller than the footprint of the equivalent power of fuel cell systems, additional space is required for diesel fuel storage. Even if the diesel fuel is stored underground, nothing can be stored or built above the underground diesel tanks, necessitating additional footprint.

B. L-CMB-04: Emission Reductions from Emergency Standby Engines [NOx, VOCs]

The NFCRC supports the use of zero and near-zero emission fuel cell systems as a Control Method in L-CMB-04 to replace emergency standby engines and immediately reduce NOx and VOCs.

Comment 22-3

DIESEL GENERATOR REPLACEMENT

Stationary fuel cell systems offer a means to improve resiliency by not only providing continuous local clean power and thermal energy, but also to seamlessly transition to islanding operation to serve dedicated loads. This resilient operation replaces both diesel backup generators as well as other dirtier 24-7-365 power generation technologies on the grid with the same installation. This type of resilient fuel cell operation has occurred

[1] AT&T Progress Toward our 2020/2025 Goals, at 4. Available at: https://about.att.com/content/dam/csr/sustainability-reporting/PDF/2017/ATT-Goals.pdf
[2] Doosan Fuel Cell America Project Profile: Cox Communications. Available at: http://www.doosanfuelcellamerica.com/en/news-resources/project-profiles/
[3] GreenTech Media, Verizon's $100M Fuel Cell and Solar Power Play, April 30, 2013. Available at: https://www.greentechmedia.com/articles/read/verizons-100m-fuel-cell-and-solar-power-play
[4] Available at: GenSure Hydrogen Fuel Cell Backup Power - Plug Power
[5] Available at: https://resources.bloomenergy.com/data-centers
[6] Id.

through wildfires, hurricanes, super storms, earthquakes, and other grid outage events in California, the Northeast, and around the world.

Commercial fuel cell systems are available on the market and have been deployed to replace diesel generators for utility backup power, government communication networks, and telecommunications applications that scale from below 1kW to multi-MW capacities for nearly two decades.

Comment 22-3 Con't

ACHIEVING NOX EMISSIONS REDUCTIONS WITH FUEL CELL SYSTEMS

- The combination of high efficiency and extremely high-capacity factor results in the displacement of more GHG emissions than equivalent nameplate-sized intermittent renewable resources. Note that the most significant previous NOx, other criteria air pollutant and greenhouse gas (GHG) emissions reductions achieved in the California Self-Generation Incentive Program were made by fuel cells operating on natural gas.[7]
- Fuel cells are an integral part of a resilient, always-on energy system and are capable of islanding to serve critical loads in the event of a grid outage, eliminating the need for backup diesel generators and their emissions.
- Unlike combustion technologies that are only efficient at very large scale, stationary fuel cell systems are an efficient scalable resource with global project sizes ranging from under 1 kW to 78 MW[8]. As a result, fuel cells improve overall system efficiency at any size, behind-the-meter and in-front-of-the-meter.
- Unlike combustion technologies, fuel cells electrochemically convert fuel so that there is no opportunity to produce and emit criteria air pollutants.
- Fuel cell systems are fuel flexible, operating today on biogas, hydrogen and natural gas, so that they do not represent a long-term commitment to fossil fuels and will facilitate a seamless transition to renewable fuels.

Comment 22-4

A 2018 UC Irvine Advanced Power and Energy Program assessment[9] showed that stationary fuel cell systems can achieve air quality and GHG co-benefits. This assessment resulted in the following conclusions:

- By off-setting emissions from combustion technologies, fuel cell systems are ideally suited to balance intermittent wind and solar power on the grid while maximizing the air quality and GHG co-benefits of renewable energy.

[7] *SGIP 2016-2017 Self-Generation Incentive Program Impact Evaluation Report.* Submitted by Itron to Pacific Gas & Electric Company and the SGIP Working Group, September 28, 2018. Available at: https://www.cpuc.ca.gov/General.aspx?id=7890

[8] H2 View, George Heynes, "*New 78.96 MW hydrogen fuel cell power plant opens in South Korea,"* November 3, 2021. Available at: New 78.96MW hydrogen fuel cell power plant opens in South Korea (h2-view.com)

[9] *Air Quality and GHG Emission Impacts of Stationary Fuel Cell Systems,* An Assessment Produced by the Advanced Power and Energy Program at the University of California, Irvine, March 2018, available at: http://www.apep.uci.edu/Research/whitePapers/PDF/AQ_Benefits_Of_Stationary_Fuel_Cells_BenMAP_Final_041718.pdf

- The use of fuel cell systems yields improvements in both ozone and $PM_{2.5}$ concentrations in key areas of California associated with high populations and unhealthy levels of pollution including the South Coast Air Basin, San Francisco Bay Area, and Central San Joaquin Valley.
- The integration of combined heat and power ("CHP") can enhance the air quality and GHG benefits of fuel cells by providing an effective and efficient mechanism to reduce emissions from traditional thermal generation methods (e.g., industrial boilers and process heat, commercial space and water heating).
- Reductions in pollutant emissions, notably of NOx, achieves improvements in ground level ozone and $PM_{2.5}$ in both summer and winter.
- The economic value of avoided health impacts from air quality improvements is significant and estimated here to be $2,145,950 for a summer day and $1,572,330 for a winter day.

Comment 22-4 Con't

C. L-CMB-05: NOx Emission Reductions from Large Turbines [NOx]

The NFCRC supports the use of zero and near-zero emission fuel cell systems to replace large turbines as a non-combustion Control Method for L-CMB-05.

Benefits of fuel cell systems include the provision of 24/7, clean, firm, load-following power at close to 100% capacity factors. Importantly, this high capacity factor corresponds to the production of clean, renewable electric energy (MWh) per unit of power capacity (MW) that is on the order of five (5) times that of solar power systems (assuming a 20% capacity factor for solar) and on the order of three (3) times that of wind power systems (assuming a capacity factor of 30% for wind). Thus, investments in fuel cell capacity produce vastly more renewable energy compared to wind or solar power systems per unit of capacity installed. This translates into substantially more GHG reductions per MW installed. Unlike investments in solar and wind power systems, installations of fuel cell systems can be used by the utility to (1) support local capacity and spinning reserve requirements that are used for grid reliability, and (2) serve as an alternative to costly utility system transmission and distribution upgrades. In addition, the energy density of fuel cell systems significantly reduces the land footprint required for onsite generation. Typically, only one acre is required for one MW of generation, allowing for operation of clean power generation in high density areas and increased acreage available for habitat restoration and preservation in dense urban environments.

Comment 22-5

D. L-CMB-06: NOx Emission Reductions from Electricity Generating Facilities

The NFCRC support the use of zero and near-zero emission fuel cell systems to supplement or offset electricity generating facilities as a Control Method for L-CMB-06.

The AQMP must include the use of load-following, non-combustion fuel cell systems for general grid support and to increase reliability and resiliency. Utility-scale procurements

Comment 22-6

of fuel cell systems can provide unique co-benefits. Fuel cell systems are deployed today on the utility-side of the meter to create grid support solutions where transmission or distribution infrastructure or clean, 24/7, load-following power generation to complement the increasing deployment of intermittent solar and wind resources, and to support grid reliability in locations where it is most needed – including disadvantaged communities. The size of these utility-side-of-the-meter fuel cell installations range from 3 MW to 78 MW.

Fuel cell systems support the utility grid network and can also provide ancillary services such as:

1. Peak demand reduction;
2. Power quality;
3. Grid frequency and voltage support;
4. Capacity and spinning reserve;
5. Avoidance of expensive transmission and distribution system upgrades; and
6. Fast ramping and load-following.

Comment 22-6 Con't

The installation and operation of fuel cell systems in a highly dynamic utility grid network environment: 1) directly complements intermittent renewable power generation, 2) improves the reliability and stability of a grid utilizing a high penetration of renewable power generation, and 3) causes no challenging need for increasing storage or other grid infrastructure.

With a substantial deployment of intermittent and diurnal varying renewables with relatively low capacity factor power generation, California is experiencing challenging grid reliability issues and capacity shortfalls in power generation. In the November 2 CARB 2022 Scoping Plan Electricity Sector Technical Workshop presentation for the California Public Utilities Commission (CPUC), Edward Randolph emphasized the need for clean, firm resources to fully decarbonize the grid. While battery energy storage is necessary, the inclusion of clean, 24/7 load-following generation is also required for a successful conversion to 100% clean energy.[10] Fuel cells and hydrogen are perfectly suited to serve these roles and are the most cost-effective means for storing massive amounts of electricity for long durations due to separate power and energy scaling. The use of short-duration energy storage technologies (mostly lithium-ion battery systems) to-date has resulted in increased emissions on the California grid.[11, 12] Some of these emissions increases can be eliminated with better rate design and enforcement, which should be pursued. Nonetheless, reversible fuel cells or fuel cells and electrolyzers coupled with hydrogen storage should also be considered, especially for large magnitude and long duration energy storage because they can also serve as controllable loads that correspondingly help the grid manage instances of overproduction from renewable

[10] Davis, *et. al., Net-Zero Emissions Energy Systems,* Science **360**, 1419 (2018) 29 June 2018
[11] Id.
[12] MQRI– California ISO, Greenhouse Gas Emission Tracking Report, February, 2018. Available on-line at: https://www.caiso.com/Documents/GreenhouseGasEmissions-TrackingReport-Feb2018.pdf

resources to produce a renewable hydrogen fuel for energy storage and later electricity production or for electrification of transportation via fuel cell electric vehicles.

Comment 22-6 Con't

LAND USE

As an example of the decreased land use that can be achieved using fuel cell systems for electric generation, Doosan has installed 30.8 MW of fuel cells for district heating and electricity for 71,500 homes in the City of Busan, Korea. This system can also operate when the grid goes down and is configured in a tiered structure and sited on only one acre of land; an equivalent 30 MW solar farm could require more than 75 acres and would produce as little as 1/6th the amount of electric energy and zero heat. In the event of a grid outage, the Doosan fuel cell system is capable of an immediate transition to full grid independent power.[13]

Comment 22-7

Another example is a 59 MW FuelCell Energy power plant located at Gyeonggi Green Energy south of Seoul, Korea. This system produces 440 million kilowatt-hours of electricity per year and supplies district heating, all on just 5.2 acres of land.

III. CONCLUSION

The NFCRC greatly appreciates the opportunity to comment on the draft AQMP and encourages the SCAQMD to consider including fuel cell systems in multiple control measures. Fuel cell systems around the world are providing backup and prime power behind the meter, replacing emergency standby engines and large turbines, and in-front-of-the-meter generating electricity at utility scale.

Dr. Jack Brouwer
National Fuel Cell Research Center
University of California Irvine
Irvine, CA 92697-3550
jb@nfcrc.uci.edu
949-824-1999 Ext. 11221

Received from William Gary on 6/13/22 at 1708
wmg@apep.uci.edu
cc: Jack Brouwer

[13] Available at: electric-load-following-capability-of-the-purecell-model-400_en.pdf (doosanfuelcellamerica.com)

Response to Comment 22-1: Thank you for reviewing and commenting on the 2022 Draft Air Quality Management Plan (AQMP). As Chapter 4 of the 2022 Draft AQMP elaborates, South Coast AQMD supports the inclusion of fuel cell technologies in NOx control measures for stationary source combustion and mobile source applications where feasible. Fuel cells can provide power to various applications across multiple sectors, including transportation; industrial, commercial, and residential buildings. Hydrogen storage in conjunction with fuel cells provides long-term energy storage for the grid. The application of fuel cell technologies for power generation and transportation has increased over the years and continues to expand with emerging technologies. However, as the commenters may agree, cost, performance, and durability are still critical challenges with this technology.

It is essential to overcome these challenges to benefit from the advantages of fuel cell technologies over combustion-based technologies, such as higher efficiencies (>60 percent), zero tailpipe emissions, and lower CO2 emissions. Over the years, South Coast AQMD has partnered with national laboratories, universities, and industry partners to develop low-cost fuel cell stack and balance of plant (BOP) components and advance high-volume manufacturing approaches to reduce overall system cost. In addition, improving fuel cell efficiency and performance is critical to maintaining adequate performance over an extended period of time. High-performance fuel cell technologies can be built through innovative material and integration technologies and identifying and understanding fuel cell degradation mechanisms to develop materials and strategies to mitigate these effects. South Coast AQMD supports such research and development projects through its work in the Technology Demonstration group and the Clean Fuels Fund.

In the transportation sector, the cost of fuel cells, hydrogen production, distribution, and fueling infrastructure at a small scale remain the primary challenges to fuel cell technology adoption. While fuel cell vehicles and infrastructure provide comparable ranges and fueling times to conventional technologies, such barriers can still impact business and consumer models. South Coast AQMD is committed to investing and partnering where appropriate to expand light, medium and heavy-duty hydrogen infrastructure and to advance fuel cell vehicle technologies in specific vehicle categories.

Response to Comment 22-2: As part of the technology evaluation for the rule making process, staff seeks out new technology that may provide emissions reductions for pollutants such as NOx, SOx, and PM. The use of zero or low NOx emission fuel cell systems to replace existing non-emergency internal combustion engines may be explored and would be subject to a cost-effectiveness analysis to determine viability as an option.

Response to Comment 22-3: Staff appreciates the support for fuel cell systems to replace emergency internal combustion engines (ICEs). Staff will evaluate zero and low NOx technologies for technical feasibility and cost-effectiveness in future rulemaking processes.

Response to Comment 22-4: Staff supports fuel cell technologies in NOx control measures for stationary source combustion and mobile source applications where feasible. Fuel cells can provide power to various applications including transportation, buildings, and long-term energy storage for the grid. Fuel cell technologies will continue to expand with emerging technologies, but cost, performance and durability are still critical challenges.

Response to Comment 22-5: Staff appreciates the support for zero and low NOx technologies to replace large turbines. Staff will evaluate all zero and low NOx technologies for technical feasibility and cost-effectiveness.

Response to Comment 22-6: Staff appreciates the support for zero and low NOx emission technologies for electricity generation. Fuel cell systems will be included in the evaluation of zero and low NOx technologies for technical feasibility and cost-effectiveness. The operation of zero and low NOx load demand following technologies will complement renewable power generation improving the reliability and stability of the electrical grid.

Response to Comment 22-7: The smaller footprint and operational ability to continue providing power when the grid goes down are beneficial features of fuel cells. These features will be included in feasibility and cost-effectiveness assessments.

Comment Letter #23

From: joe f. wilson <teqqjazz@gmail.com>
Sent: Monday, June 13, 2022 11:41 AM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: [EXTERNAL]Banning gas appliances-comments -against

To whom it may concern- the wife and i are in our 70!s and remember when smog was so thick you could feel it in our lungs . You people are never satisfied. You green, clean, and downright mean, proposals are whats killing us seniors. Just bought a new (900.00) water heater a couple of years ago(hope fully the last one. Never paid so much for a water heater in my life. Pilotless ignition, really smart, now you have to wait for hot water longer than the old d ones. We dont go anywhere, and are just trying to survive, its getting harder all the time, and all you people do is think of more outrageous mandatory proposals that will cost us even more money. We don think people are going to stand for much more of this crap. Out of money, out of patience, and almost out of time. Going all electric is madness, 0ne emp nuclear device, Detonated over the USA, and it would be game over for everything electric, A-Z, and no backup. You folks are absolutely brilliant, our grid is vulnerable right now with no plans to harden it. I could go on and on, but why bother, you know where we and thousands of people on fixed incomes are going to hate all of this. So- have a Blessed day.
Joe and lola wilson

Comment 23-1

Response to Comment 23-1: The South Coast AQMD is required by law to develop plans to meet federal air quality standards. As the commenter noted, South Coast AQMD has made great progress over the past several decades in cleaning up the air, but still fails to meet federal air quality standards and the public continues to breathe unhealthy air. If South Coast AQMD is unable to meet federal air quality standards the agency faces potential penalties and economic sanctions from the federal government, as well as the imposition of federal air quality plans.

Staff is aware of the public concern for the cost of implementing zero emission appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building

Appliances for discussion on the cost. For consumers in disadvantaged communities and on fixed incomes, the South Coast AQMD and other state and local agencies recognize that cost and socioeconomic factors also pose an inequity concern. For further discussion, please refer to the general response to Impact of Zero Emission Technology on Inequity.

Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand for how state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure to address these challenges and accommodate future electrification needs.

Comment Letter #24

From: Robert Wood <RWood@iepacific.com>
Sent: Monday, June 13, 2022 11:46 AM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: 2022 Draft AQMP - against

I read a short editorial in the San Bernardino Sun and the following excerpt tells you what you already know. This is a colossal regulatory nightmare and should be rejected and reworked.

"The South Coast Air Quality Management District has just produced its 2022 Draft Air Quality Management Plan, known as the AQMP. It's very long, but here's the short version: The region is required to meet the "2015 federal 8-hour ozone standard" by 2037, and there's no way it can be done.

Meeting the standard would require reducing emissions of nitrogen oxides (NOx) by 71% more than all our current rules and regulations will achieve. "The only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources," the executive summary states, but what the AQMD is allowed to regulate "accounts for less than 20 percent of NOx emissions."

So even though "residential combustion" accounts for only a fraction of a fraction of NOx emissions, they're trying to force the replacement of gas water heaters, furnaces and stoves in up to 5.3 million residences."

Comment 24-1

STOP THE MADNESS!

Thank you,

Bob Wood - Superintendent

BEQ Repairs Bldgs 5698 & 5697
MCAS Miramar, CA
C: 619.947.8073
E: rwood@iepacific.com



Response to Comment 24-1: The Draft 2022 AQMP forecasts the 2037 emissions inventory for residential fuel combustion to be about 10 tons/day under the existing regulations, one of the two top emitters of NOx from stationary sources. NOx is the key pollutant that must be reduced to meet federal ozone standards. For discussion on emissions from residential natural gas use, please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances.

The South Coast AQMD's primary regulatory authority to control emissions is for stationary and area sources of emissions and has limited regulatory authority to control mobile source emissions. The Draft 2022 AQMP addresses mobile source emission reductions by developing creative strategies, such as measures to reduce mobile source emissions associated with warehouses, ports, and rail yards. It also includes measures developed by the California Air Resources Board (CARB) as part of their Draft 2022 State SIP strategy and measures provided by the Southern California Association of Governments (SCAG). Meeting the U.S. EPA's current 2015 8-hour ozone standard of 70 ppb and other NAAQS will require continued emission reduction efforts for both stationary and mobile sources with shared responsibility from all levels of government. For discussion on the ozone standard, see Response to Comment 9-1.

Comment Letter #25

From: sitefinity@aqmd.gov <sitefinity@aqmd.gov>
Sent: Monday, June 13, 2022 12:18 PM
To: Sang-Mi Lee <slee@aqmd.gov>
Subject: Contact Form

Contact Form

Name: william oram

Email: whojr@verizon.net

Message:

I have read through some parts of this plan. What I see is eliminating natural gas and going all electric. I have been reading that we don't have enough electricity as it is. The wind and solar is never going to be enough and no seems to want to talk about nuclear. How are we going to cook food during a rolling blackout. It seems the AQMD is trying to fix problems that are going to cause more problems than they solve.

Comment 25-1

Response to Comment 25-1: While the focus of the control measures for stationary sources is to accelerate the adoption of zero emission appliances, staff acknowledges that zero emission technologies may not be feasible in certain situations. The proposed measures include low NOx technologies as a transitional alternative when the installation of a zero emission unit is determined to be infeasible (e.g., colder climate zones, or architecture design obstacles). Staff also understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand for how state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure to address these challenges and accommodate future electrification needs. Please refer to Response to Comment 3-1 for additional discussion on nuclear energy.

Comment Letter #26

From: Kirk Wasson <kirkwasson7@gmail.com>
Sent: Monday, June 13, 2022 12:42 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: The plan

After reading about he plan I believe it is really horrible, it will not do what we hope it would do and clean things up. Please scrap this plan.
Thank you
Kirk Wasson

Comment 26-1

Response to Comment 26-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP. Please refer to the general response to General Approach for the 2022 AQMP.

Comment Letter #27

From: Collette Lee <colletteleesells@gmail.com>
Sent: Monday, June 13, 2022 12:55 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Cc: Gale Hammons <ghammons5@msn.com>
Subject: Rethink this unreasonable position that hurts Californians

The 48 newly proposed emission "control measures." All need to be abolished due to the impossibility of compliance. How is it possible to reduce emissions when

As stated in recent article"Meeting the standard would require reducing emissions of nitrogen oxides (NOx) by 71% more than all our current rules and regulations will achieve. "The only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources," the executive summary states, but what the AQMD is allowed to regulate "accounts for less than 20 percent of NOx emissions."

Comment 27-1

That being said why would you penalize the average worker through requirements that are impossible to be met.

Lawmakers help us

Sincerely

Collette Lee

Collete Lee

Response to Comment 27-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP. The South Coast AQMD is required by law to develop plans to meet federal air quality standards. The South Coast AQMD has made great progress over the past several decades in cleaning up the air, but

still fails to meet federal air quality standards and the public continues to breathe unhealthy air. If the South Coast AQMD is unable to meet federal air quality standards the agency faces potential penalties and economic sanctions from the federal government, as well as the imposition of federal air quality plans. Please refer to the general response to General Approach for the 2022 AQMP for more details, as well as the response to comment 24-1.

Comment Letter #28

From: Vanessa Miller <scottandness@gmail.com>
Sent: Monday, June 13, 2022 1:01 PM
To: AQMPTeam <aqmpteam@aqmd.gov>
Subject: Emissions plans

I am disturbed by several components of the air quality plan that only make sense if your goal is to reduce air emissions to X level, but completely throw out any idea of living cheaply or ultimately safely for the environment.

Sixty-six percent of CA's energy comes from non-renewable sources, like coal, oil and nuclear. Yet for the sake of emissions, not the planet or even the state as a whole, you want southern CA gardeners and residents to switch to electric stoves, water heaters, furnaces, appliances, and electric garden appliances despite the fact that the actual number of those items might not have a measurable effect on lowering our air pollutants due to emissions you don't have the power to regulate, and due to our weather patterns. In addition, those appliances are often more costly to purchase, more costly to run, and less efficient than their natural gas or gasoline powered counterparts. This hurts the middle and lower class much more than it hurts So Cal's wealthy. We already pay more to live in CA than in much of the rest of the nation, and now the proposed measures make it more expensive and less efficient. Comment 28-1

I understand that it's the job of the board to meet expectations in emissions levels. But who will stand up to say anything when the standards handed to you aren't achievable or reasonable?

Please reconsider the new standards you are proposing.

Thanks,
Vanessa Miller
Cypress resident

Response to Comment 28-1: The South Coast AQMD is required by law to develop plans to meet federal air quality standards. The South Coast AQMD currently fails to meet these standards, and the public suffers health impacts from breathing unhealthy levels of ozone as a result. If the South Coast AQMD is

unable to meet federal air quality standards the agency faces potential penalties and economic sanctions from the federal government, as well as the imposition of federal air quality plans.

The South Coast AQMD recognizes the significant impact of and the need for emission reductions from residential gas consumption. Please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances. Staff is aware of the public concern for electric grid supply for implementing zero emission appliances. For further discussion on electricity infrastructure, please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand. Staff also understands the cost concern for consumers. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for more discussion on cost and the general response to Impact of Zero Emission Technology on Inequity which includes discussion on incentive programs. The future rulemaking will involve an in-depth analysis on subjects such as utility cost change and power supply. Staff will also conduct working group meetings and other public meetings to work out a feasible rule requirement with stakeholders.

Comment Letter #29

From: sitefinity@aqmd.gov <sitefinity@aqmd.gov>
Sent: Monday, June 13, 2022 2:22 PM
To: Sang-Mi Lee <slee@aqmd.gov>
Subject: Contact Form

Contact Form

Name: Nancy Latimer

Email: nancy99n@gmail.com

Message:

Please do a reality check on any new regulations. Please have a good analyst give you information on what the consequences of these regulations will be on real people in the state of California. Don't let vocal extremists outweigh common sense. Figure out if regular and lower income citizens will be able to afford complying with any new regulations. Electricity in the state of California is a problem with brown-outs and

Comment 29-1

shutdowns during high fire danger. If you regulate away all sources of energy except electricity -- will California become a place where the poor and middle class live like a third-world country and the only the rich can afford to live here? Please think long and hard about all the unforeseen consequences of your regulations. Thank you.

Comment 29-1 Con't

Response to Comment 29-1: The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. Please see general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost. For consumers including disadvantaged communities, the South Coast AQMD and other state and local agencies recognize that cost and socioeconomic factors also pose an inequity concern. For further discussion, please see general response to Impact of Zero Emission Technology on Inequity. In addition, a socioeconomic impact analysis of the proposed control measures is underdevelopment and will be released for public review and comment soon. The economic analysis will evaluate the cost associated with the proposed control measures and monetized benefits expected from cleaner air resulting from the implementation of the control measures. Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Please see general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand for how state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure to address these challenges and accommodate future electrification needs. The future rulemaking will involve an in-depth analysis on subjects such as utility cost change and power supply. Staff will also conduct working group meetings and other public meetings to work out a feasible rule requirement with stakeholders.

Comment Letter #30

From: iahirsch@aol.com <iahirsch@aol.com>
Sent: Monday, June 13, 2022 2:35 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: Air Quality Management Plan

Dear AQMD,

I read an article in the OC Register on June 12, that I found really worrisome. It's the plan to have homeowners replace their gas powered appliances with electric as well as requiring new car purchases to be electric, not gas.

We don't have enough power now as it is. In the summer we are instructed to not use power from 4:00 p.m. until 9:00 p.m. because of the strain on the power grid. Not to mention the even higher electric bills homeowners will have with the use of all this extra electricity. I know the lawmakers that come up with these ideas are well paid, so they can afford these high costs, but they forget the average person, family, or senior citizen on a fixed income will not be able to afford these higher bills.

Comment 30-1

I hope that the committee who is deciding this new plan really thinks long and hard about the repercussions it will have on the citizens. Of course clean air is a goal we should all be behind, but I hope the committee thinks these plans through very carefully and investigates the possibility of other alternatives.

Sincerely,

Irene Hirsch

Response to Comment 30-1: Thank you for your comments. While the focus of the control measures for stationary sources is to accelerate the adoption of zero emission appliances, South Coast AQMD staff acknowledges that zero emission technologies may not be feasible in certain situations. The proposed measures include low NOx technologies as a transitional alternative when the installation of a zero emission unit is determined to be infeasible (e.g., colder climate zones, or architecture design obstacles). Note that the Draft 2022 AQMP does not contain a control measure that requires the replacement of

gasoline-fueled cars with electric vehicles. This would be for the California Air Resources Board (CARB) to pursue on the state level.

Electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand for how state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure to address these challenges and accommodate future electrification needs.

The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost. For consumers in disadvantaged communities and on fixed incomes, the South Coast AQMD and other state and local agencies recognize that cost and socioeconomic factors also pose an inequity concern. For further discussion, please refer to the general response to Impact of Zero Emission Technology on Inequity.

Comment Letter #31

From: Pam Rehwoldt <psrehwoldt@sbcglobal.net>
Sent: Monday, June 13, 2022 5:02 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: Defeat Draft 2022 AQMP

To Whom It May Concern:

In reading about Draft 2022 AQMP, I do not know how it can even be considered a solution to our problem.

It requires reducing nitrogen oxides by 71% more than all our current rules and regulations will achieve. AQMD is only allowed to regulate "accounts for less than 20% of NOx emission" Everything else is under federal or state control. AQMD can, therefore, only regulate "stationary sources" of emissions, such as power plants, refineries, and factories -- which they have already done. This leaves "residential combustion" as the source needed for reductions to meet this plan.--even though they are only a small percentage of the problem and remedies such as getting rid of gas water heaters, furnaces and stoves in residents. This is very costly to residents.
It seems other areas which contribute to the pollutant levels should be evaluated and researched -- wildfires, "weather conditions, "topography," "frequent strong temperature inversions" and "abundant sunshine" create a "perfect storm" of conditions for forming air pollution and high ozone.

Comment 31-1

Given all these factors, perhaps it would make sense to review the ozone standard itself and see if it is appropriate or delusion. Could our financial resources be directed toward something more beneficial?

Please give this consideration.

Pam Rehwoldt

Response to Comment 31-1: The South Coast AQMD is required by law to develop plans to meet federal air quality standards. The South Coast AQMD has made great progress over the past several decades in cleaning up the air, but still fails to meet federal air quality standards and the public continues to breathe unhealthy air. If the South Coast AQMD is unable to meet federal air quality standards, the agency faces potential penalties and economic sanctions from the federal government, as well as the imposition of federal air quality plans.

The Draft 2022 AQMP contains control measures across all sectors that emit NOx, the key pollutant that must be controlled to reduce ozone. The South Coast AQMD's primary regulatory authority is to control emissions for stationary point and area sources of emissions and has limited regulatory authority to control mobile source emissions. The Draft 2022 AQMP addresses mobile source emission reductions by developing creative strategies, such as facility wide and incentive approaches, and includes measures developed by the California Air Resources Board (CARB) as part of their Draft 2022 State SIP strategy and measures provided by the Southern California Association of Governments (SCAG).

Stationary sources still contribute significant NOx emissions. Staff forecasts that by 2037 emissions from residential fuel combustion will be one of the two top emitters among stationary sources. For discussion on emissions from residential natural gas use, please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances.

Meeting the U.S. EPA's current 2015 8-hour ozone standard of 70 ppb and other NAAQS will require continued emission reduction efforts for both stationary and mobile sources with shared responsibility from all levels of government. For discussion on the ozone standard, see Response to Comment 9-1.

The South Coast AQMD does consider the emissions from wildfires, which can affect air quality through increased emissions of ozone precursors. The South Coast AQMD's mobile source measures are categorized into five broad categories, one of which involves the consideration of wildfire prevention and enhanced public outreach and education. Proposed control measure MCS-02 for wildfire prevention will seek to reduce the impacts of wildfires on particulate matter (PM) and ozone levels from efforts to reduce wildfire fuel. For further discussion on wildfire emissions, please refer to Response to Comment 14-1.

Comment Letter #32

South Coast AQMD Form Type: Draft 2022 AQMP Comment Submission Form

Received: 6/13/22 at 17:28 PDT

Commentor's Name: Kenneth Linden

Organization: No affiliation

Email Address: ccbbone@verizon.net

Commentor's Signature: /s/Kenneth Linden

Comments and suggestions on the Draft 2022 AQMP:

You must be kidding. My power goes out and I can't heat hot water or cook meals or heat water on stove because they are gas appliances in my home and must be replaced with non gas sources. This rule will not reduce NOx levels by any significant amount. Stop forest fires and that will have a much bigger effect. This rule reminds me of what we were told about changing to California blended gas requirements. The blend won't cost any more. Look how that worked out. Don't put NOx burdens on households because we are easy targets. Since my gas furnace is also at risk, maybe I should go back to heating my house with my wood burning fireplace. This 70 parts per billion standard for the LA basin is crazy.

Comment 32-1

Response to Comment 32-1: The South Coast AQMD is required by law to develop plans to meet federal air quality standards. The South Coast AQMD has made great progress over the past several decades in cleaning up the air, but still fails to meet federal air quality standards and the public continues to breathe unhealthy air. If the South Coast AQMD is unable to meet federal air quality standards the agency faces potential penalties and economic sanctions from the federal government, as well as the imposition of federal air quality plans.

Residential fuel combustion contributes significant levels of NOx emission in the region. Staff forecasts that by 2037 emissions from residential fuel combustion will be one of the two top emitters among stationary sources. For discussion on emissions from residential natural gas use, please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances. The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost.

Staff understands that electricity infrastructure, reliability, and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand for more details.

The South Coast AQMD does consider the emissions from wildfires, which can affect air quality through increased emissions of ozone precursors. The South Coast AQMD's mobile source measures are categorized into five broad categories, one of which involves the consideration of wildfire prevention and enhanced public outreach and education. Proposed control measure MCS-02 for wildfire prevention will seek to reduce the impacts of wildfires on particulate matter (PM) and ozone levels from efforts to reduce wildfire fuel. For further discussion on wildfire emissions, please refer to Response to Comment 14-1. For discussion on the ozone standard, see Response to Comment 9-1.

Comment Letter #33

From: Gail Brenner <gailbgrey@gmail.com>
Sent: Tuesday, June 14, 2022 2:07 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: [EXTERNAL]Proposal for regulatory approach to natural gas

This email is being sent to strongly oppose your plans to regulate and force your changes for conversion from gas appliances.

My home was built in 1966 and has gas heating, cooking and clothes drying. For all this my gas bill averages 10 therms per month. You are proposing that I have to pay (from my social security payment) to convert all my appliances to save 10 therms per month?

Comment 33-1

Someone needs to look at big picture here. I hope this email is one of many telling you I find your proposals ridiculous.

Gail Brenner

Response to Comment 33-1: The South Coast AQMD is required by law to develop plans to meet federal air quality standards. The South Coast AQMD has made great progress over the past several decades in cleaning up the air, but still fails to meet federal air quality standards and the public continues to breathe unhealthy air. If the South Coast AQMD is unable to meet federal air quality standards the agency faces potential penalties and economic sanctions from the federal government, as well as the imposition of federal air quality plans.

While the focus of the control measures for stationary sources is to accelerate the adoption of zero emission appliances, staff acknowledges that zero emission technologies may not be feasible in certain situations. The proposed measures include low NOx technologies as a transitional alternative when the installation of a zero emission unit is determined to be infeasible (e.g., colder climate zones, or architecture design obstacles). The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost. For consumers in disadvantaged communities, the South Coast AQMD and other state and local agencies recognize that cost and socioeconomic factors also pose an inequity concern. For further discussion, please refer to the general response to Impact of Zero Emission Technology on Inequity.

Comment Letter #34

From: mahorvath@verizon.net <mahorvath@verizon.net>
Sent: Tuesday, June 14, 2022 5:10 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: Comments on Draft 2022 AQMP

I am submitting comments on the Draft 2022 Air Quality Management Plan. My objections are to the proposed regulatory approach for residential NOx emissions contained in R-CMB-01, R-CMB-02, R-CMB-03, and R-CMB-04. I find it unacceptable to force residences to stop using natural gas appliances/devices and switch entirely to electrical devices.

Unfortunately, as you must know, but are ignoring, California's power supplies are getting less reliable each year. The idealistic move to legislated dependence on "renewable" sources is resulting in supplies that cannot meet demand. Power outages are becoming more frequent as climate change forces more need for air conditioning, wildfire dangers force preventative outages, and phaseouts of natural gas fueled power generation create shortages of peak production. To make things worse, it appears we will lose 8% on the state's power production via the closure of Diablo Canyon.

Comment 34-1

Natural gas residential devices provide reliable service when the electric grid fails to meet demand. Since this is also earthquake country, I want the diversification provided by natural gas when the inevitable earthquake takes out our power, but may well spare our gas lines (and I have invested in portable electric generators to also provide service to my gas appliances during a power outage).

It's ridiculous for you to put the squeeze on such a small portion of our total NOx emissions, when it is the federal standards and the federal regulatory approach that prevent you from addressing the large mobile sources that could really make a difference. You must know that such a fruitless bureaucratic approach will make you lose credibility with the public.

Robert W. Horvath
3680 Conquista Ave.
Long Beach, CA 90808
562-421-0809

Response to Comment 34-1: The South Coast AQMD is required by law to develop plans to meet federal air quality standards. The South Coast AQMD has made great progress over the past several decades in cleaning up the air, but still fails to meet federal air quality standards and the public continues to breathe unhealthy air. If the South Coast AQMD is unable to meet federal air quality standards the agency faces potential penalties and economic sanctions from the federal government, as well as the imposition of federal air quality plans. The South Coast AQMD is also required to take all feasible measures to meet air quality standards.

Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand.

Residential fuel combustion contributes significant levels of NOx emission in the region. Staff forecasts that by 2037 emissions from residential fuel combustion will be one of the two top emitters among stationary sources. For discussion on emissions from residential natural gas use, please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances.

Comment Letter #35

From: vernestrong@aol.com <vernestrong@aol.com>
Sent: Tuesday, June 14, 2022 8:18 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: Regard control measure R-CMB-03 to achieve NOx reductions from residential cooking devices

Your thinking is over the top on that to save a miniscule amount in our atmosphere. The problem is you don't know where to draw the line. I and my friends don't want you to tell us to replace everything we have just because you nitpick at high cost to us to achieve little. Wake up and smell the roses.

Comment 35-1

Response to Comment 35-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP. Please refer to the general response to General Approach for the 2022 AQMP.

Comment Letter #36

From: Edwina Berg <edwina.berg@gmail.com>
Sent: Wednesday, June 15, 2022 9:30 AM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: [EXTERNAL]CMB-01 CMB-02 CMB-03

Just saw this in the LA Times. The most ridiculous idea ever! We can not depend on EDISON for uninterrupted power! We can depend on EDISON to cause catastrophic wildfires; so instead of improving their equipment they just turn off the power to tens of thousands of homes.

In December 2011 I went without power for SEVEN DAYS but I could still cook on my gas stove and drive to the McDonalds a mile away with Pasadena Power.

If you are so worried about air quality BAN THE USE OF WOOD BURNING FIREPLACES--NO EXCEPTIONS in urban areas.

Please reconsider this uninformed idea that will be a total disaster for EDISON customers.

Comment 36-1

Edwina M. Berg
1959 Minoru Dr.

Altadena. Ca. 91001

Response to Comment 36-1: Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand for more details.

The South Coast AQMD does consider the emissions from woodburning fireplaces through Rule 445, which aims to reduce the emission of particulate matter (PM) from wood-burning devices and establish contingency measures for applicable ozone standards for the reduction of volatile organic compounds. The rule also prohibits the installation of any open or enclosed permanently installed wood burning device. In addition, the Wood Stove and Fireplace Change-Out Incentive Program was implemented as part of the Healthy Hearths initiative to help reduce the cost to purchase and install cleaner hearth products.

Comment Letter #37

From: James Sims <ddkyc@cox.net>
Sent: Wednesday, June 15, 2022 2:46 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: AIR QUALITY MANAGEMENT PLAN

To whom it may concern,

RE: DRAFT 2022 AQMP

Are we living in China, Russia, North Korea, Cuba, Venezuela ? I thought not but it sure feels like it in California. Our Democratic majority here thinks they can wield power over the people of this state like a mean mother who is trying to force us to do something that in their opinion is what is good for us.

Our legislators in California are trying to ram clean energy down our throats even though this technology costs a lot more to purchase and use. Why is it that the AQMD, the California Air Resources Board, South Coast Air Quality Management District seem to have more power than the people they work for? Now we are to understand that our illustrious leaders are planning to forcefully make us change all of our existing appliances from natural gas and all of our cars to electricity. HAVE YOU SEEN THE CURRENT COST OF ELECTRICITY!!

Comment 37-1

Where has all the common sense disappeared? The people of California deserve better than what we are stuck with because some people keep voting in tyrannical and greedy political narcissists. We need real leadership that cares about California and works for everyone, not just Democrats and Progressives, but Conservatives as well. I

am an angry resident who is fed up with fiscal mismanagement, forced taxes and blaming everything on climate change.

I demand accountability as I have a voice as to what happens here in my beloved state. I want to be very clear. I OPPOSE PROPOSED CONTROL MEASURES TO FORCE COMPLIANCE . I DO NOT SUPPORT THE MEASURES THAT ARE BEING PROPOSED WHICH MAKE IT A REQUIREMENT OR MANDATORY TO CHANGE OUT OUR GAS APPLIANCES FOR NEW AND EXISTING HOMES OR REPLACING A GASOLINE DRIVEN VEHICLE.

Comment 37-1 Con't

Diana Calderwood
Laguna Niguel, CA

Response to Comment 37-1: The South Coast AQMD is required by law to develop plans to meet federal air quality standards. The South Coast AQMD has made great progress over the past several decades in cleaning up the air, but still fails to meet federal air quality standards and the public continues to breathe unhealthy air. If the South Coast AQMD is unable to meet federal air quality standards the agency faces potential penalties and economic sanctions from the federal government, as well as the imposition of federal air quality plans.

The Draft 2022 AQMP contains measures to reduce NOx emissions across all sectors. However, note that there is not a control measure that requires the replacement of gasoline-fueled cars with electric vehicles. The South Coat AQMD recognizes the significant impact of and the need for emission reductions from residential gas consumption. Please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances. The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances and the inequity concern for disadvantaged communities. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost and the general response to Impact of Zero Emission Technology on Inequity.

Comment Letter #38

From: sitefinity@aqmd.gov <sitefinity@aqmd.gov>
Sent: Thursday, June 16, 2022 12:44 PM
To: Sang-Mi Lee <slee@aqmd.gov>
Subject: Contact Form

Contact Form

Name: Rick Rohn

Email: Ricks2nd@aol.com

Message:

I wish to submit I am against your actions of removing gas appliances from our homes. I am not a supporter of that action by your agency. Keep your hands off my gas range and furnace.

Comment 38-1

Response to Comment 38-1: The Draft 2022 AQMP contains measures for reducing NOx emissions across all sectors. While a key focus is accelerating the adoption of zero emissions technology, there are no control measures that ban the use of natural gas

Residential fuel combustion contributes significant levels of NOx emission in the region. Staff forecasts that by 2037 emissions from residential fuel combustion will be one of the two top emitters among stationary sources. For discussion on emissions from residential natural gas use, please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances. The Draft 2022 AQMP control measures set a plan for future rulemaking. Staff will conduct in-depth analysis on the cost-effectiveness during the future rulemaking. Any new rule requirement must be deemed cost-effective and feasible before it would be adopted.

Comment Letter #39

From: Scott Foley <foleyconstruction@sbcglobal.net>
Sent: Thursday, June 16, 2022 3:52 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: Air Quality Management Plan

To Whom it may concern:

The banning of natural gas will only increase the cost of its use to those that already have it. Which will cause even more hardship by adding to the high electric and gasoline prices we are already paying.

Natural gas is our most affordable, convenient and useful energy we have. Your plan will only cause further shortages, outages and access to affordable energy.

Comment 39-1

Your plan of banning natural gas makes no sense and seems to be politically motivated. It is way to costly to taxpayers for what little you will gain.

Please abandon this ridiculous idea.

Scott Foley
North Orange County Resident

Response to Comment 39-1: The Draft 2022 AQMP contains measures to reduce NOx emissions across all sectors. While a key focus is accelerating the adoption of zero emissions technology, there are no control measures that ban the use of natural gas.

Residential fuel combustion contributes significant levels of NOx emission in the region. Staff forecasts that by 2037 emissions from residential fuel combustion will be one of the two top emitters among stationary sources. Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption. For discussion on residential gas use and the need for emission reduction, please refer to the general response to the Need for Zero Emission Technology in Residential and Commercial Building Appliances.

The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. Please refer to the general response to the Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost.

Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emission Building Measures and Electricity Supply and Demand for more details.

Comment Letter #40

From: Mel Foley <melfoley@gmail.com>
Sent: Thursday, June 16, 2022 7:52 PM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: [EXTERNAL]air quality management plan

I strongly object to the banning of natural gas in our area or anywhere in California. Our state will not run on electricity only!!! There will be more shortages and much higher costs for all taxpayers.

This plan is purely political with no good common sense. Don't destroy our way of life and gain nothing for your "credits"

Again, Do not implement this new plan!!

Mel Foley
Fullerton,CA

--
Mel

Comment 40-1

Response to Comment 40-1: The South Coast AQMD is required by law to develop plans to meet federal air quality standards. The South Coast AQMD has made great progress over the past several decades in cleaning up the air, but still fails to meet federal air quality standards and the public continues to breathe unhealthy air. If the South Coast AQMD is unable to meet federal air quality standards, the agency faces potential penalties and economic sanctions from the federal government, as well as the imposition of federal air quality plans.

The Draft 2022 AQMP contains measures to reduce NOx emissions across all sectors. While a key focus is accelerating the adoption of zero emissions technology, there are no control measures that ban the use of natural gas.

Residential fuel combustion contributes significant levels of NOx emission in the region. Staff forecasts that by 2037 emissions from residential fuel combustion will be one of the two top emitters among stationary sources. Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption. For discussion on residential gas use and the need for emission reduction,

please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances.

The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost.

Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand for more details.

Comment Letter #41

Tesoro Refining & Marketing Company LLC
A subsidiary of Marathon Petroleum Corporation

Los Angeles Refinery – Carson Operations
2350 E. 223rd Street
Carson, California 90810
310-816-8100

July 27, 2022

VIA Certified Mail and eMail (*wnastri@aqmd.gov*)
Return Receipt Requested

Wayne Nastri
Executive Officer
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Comments on SCAQMD 2022 Draft Air Quality Management Plan
Proposed Measure L-CMB-07: Emission Reductions from Petroleum Refineries

Dear Mr. Nastri:

On behalf of Tesoro Refining & Marketing Company LLC, a wholly-owned subsidiary of Marathon Petroleum Corporation (collectively, "MPC"), MPC appreciates this opportunity to provide South Coast Air Quality Management District (SCAQMD or District) with comments on the Proposed Measure L-CMB-07: Emission Reductions from Petroleum Refineries ("Proposed Measure L-CMB-07" or "L-CMB-07") associated with the 2022 Draft Air Quality Management Plan ("Draft AQMP").[1]

Proposed Measure L-CMB-07 will consider next-generation ultra-low NOx burners, advanced selective catalytic reduction (SCR), and a transition to zero-emission technology to achieve further reductions from boilers and process heaters greater than or equal to 40 MMBtu/hr, before the recently promulgated standards established by Rule 1109.1 have been fully realized. As described below, through the recently implemented Rule 1109.1, the refining industry in the Air Basin is already required to invest significant resources towards achieving large NOx emission reductions during the coming years. Additionally, we are concerned that SCAQMD is proposing to require the same untested, and technically infeasible technologies for stationary sources that were rejected during the development of Rule 1109.1. Therefore, we request that Proposed Measure L-CMB-07 be removed from the Draft AQMP.

For your reference, we have enclosed MPC's February 1, 2021 comment letter for Proposed Rule 1109.1. The letter and its attachments provide a detailed analysis of feasibility and safety concerns with achieving the same 2 ppmv NOx standard for refinery boilers and heaters that is proposed in L-CMB-07. (See Enclosure A). Our specific comments follow.

[1] Accessed at http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan

1. The refining industry is already required to achieve significant NOx reductions via Rule 1109.1.

Rule 1109.1 requires refineries to implement Best Available Retrofit Control Technology (BARCT) control strategies and is expected to achieve approximately 7.7 to 7.9 tons per day of NOx reductions industry-wide. MPC actively participated in the development of Rule 1109.1 and is committed to achieving these NOx emission reductions required by the Rule. This rulemaking was extremely challenging and is likely the most expensive single rule adopted by the District's Governing Board. For example, MPC has recently submitted permit applications to SCAQMD to replace eight existing steam generating units with two new state-of-the-art boilers. MPC will also be submitting an "I-Plan" (compliance schedule) to the District by the Rule's September 1, 2022 deadline that, when implemented, is expected to reduce facility-wide NOx emissions by over 60 percent from 2018 levels. This will be a significant undertaking by the refining industry to achieve these reductions.

The Executive Summary of the Rule 1109.1 staff report estimates that the Rule will require a total of 220 pieces of equipment to be retrofitted or replaced at the cost of $179 million to $1 billion per refinery.[2] While the Rule establishes an expedited schedule for implementing reductions, it recognizes the complexity and significant capital investments needed to meet these Rule limits. Additionally, Rule 1109.1 allows each refinery to develop a schedule of pollution control projects to minimize disruptions to fuel supply and competition for resources while implementing the pollution control projects. MPC will undertake projects to reduce NOx emissions by over 60 percent, consistent with the scheduling requirements specified by Rule 1109.1.

Comment 41-1

As L-CMB-07 is currently drafted, it could require the same boilers and heaters currently required to comply with Rule 1109.1 to have additional new and/or retrofitted emissions controls installed only a few years after significant investments have been made. It is unduly burdensome and impractical for a source to retrofit or replace a unit to meet Rule 1109.1 only to be forced to retrofit or replace the same unit a few years later to meet a new requirement. Moreover, in analyzing the cost-effectiveness of Rule 1109.1, District staff assumed that projects would have a 25-year life. If facilities are forced under Proposed Measure L-CMB-07 to further retrofit and/or replace equipment only a few years after implementing Rule 1109.1 emission control projects, the projects will be dramatically less cost-effective than they were assumed to be in the analysis the District relied on when adopting Rule 1109.1.

2. L-CMB-07's proposed control measures likely overstate NOx emissions reductions by assuming unreasonably high future activity levels of refinery boilers and process heaters.

Appendix III of the Draft AQMP[3] assumes and consequently estimates no change in the activity level at petroleum refineries between the baseline year of 2018 and 2037 and fails to account for the regulations and targets the State has put into place that have the effect of dramatically reducing the consumption of fuel in the next 10 – 20 years. The only NOx emission reductions projected to occur at refineries between 2018 and 2037 are the reductions due to Rule 1109.1. This results in a constant NOx inventory of 3.82 tons/day between 2031 and 2037 and potential reductions due to L-CMB-07 of 0.77 tons/day, which represents a 20 percent reduction of the projected 2037 inventory. Assuming constant production at refineries through 2037 disregards Executive Order N-79-20,[4] which identifies a goal of 100 percent of in-state sales of new passenger cars and trucks to be zero-emission by 2035 and 100 percent of medium- and heavy-duty vehicles in the state to be zero-emission by 2045. Indeed, the California Air Resources Board (CARB) recently proposed the Advanced Clean Cars II (ACC II)[5] and Advanced Clean Fleets

Comment 41-2

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[2] Accessed at http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-Nov5-034.pdf?sfvrsn=6
[3] Accessed at http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/combined-appendix-iii.pdf?sfvrsn=8
[4] Accessed at https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf
[5] Accessed at https://ww2.arb.ca.gov/rulemaking/2022/advanced-clean-cars-ii

(ACF) Regulations to implement this executive order. The Standardized Regulatory Impact Assessment for the proposed ACC II[6] projects that production at refineries will be reduced in line with the reduction in petroleum demand and projects an 83 percent reduction in GHG emissions at refineries from 2020 to 2045.

However, in contrast to its inventory for refineries, SCAQMD has accounted for reduced production and use of motor vehicle fuels in other portions of the draft AQMP. For example, the growth factor for gasoline dispensing and transfers in Los Angeles County declines from a value of 1 for 2018 to 0.685 in 2037, reflecting a projected 31.5 percent reduction in gasoline usage in the county by 2037. If this same projected 31.5 percent reduction were to be applied to refineries, the NOx inventory would be reduced to 2.62 tons/day, which is below the 3.05 ton/day emission rate targeted through the implementation of L-CMB-07.

Comment 41-2 Con't

The NOx emission inventory for the refining sector should realistically reflect existing and proposed regulations that have the explicit goal of reducing the production and use of vehicle fuels and identify whether the proposed 0.77 tons/day of NOx emission reductions will be achieved even without implementing L-CMB-07.

3. The proposed measure is not cost-effective.

The recently adopted Rule 1109.1 staff report has already analyzed the cost-effectiveness of further reducing emissions below Rule 1109.1 levels. For example, the final Rule 1109.1 BARCT NOx limit for process heaters and boilers > 40 MMBtu/hr is 5 ppmv (24-hour average). Due to the cost-effectiveness of $293,000/ton to further reduce boiler and heater emissions from 5 ppmv NOx to 2 ppmv NOx, the District did not set a NOx limit of 2 ppmv.[7]The Draft AQMP provides a significantly lower estimate of the cost-effectiveness to achieve 2 ppmv NOx of only $50,300/ton and provides no detail or analysis for how this value was calculated. Staff should explain their basis on how the cost-effectiveness estimate is drastically different from the District's detailed analysis that was just completed as part of Rule 1109.1 adoption. Based upon the recent cost-effectiveness analysis associated with the Rule 1109.1 process, MPC does not agree that further reductions in NOx are cost effective.

Comment 41-3

In addition, any cost-effectiveness analysis at this point is highly speculative, given that the technologies proposed under L-CMB-07 have not been implemented in practice for this sector. It is unknown whether these technologies can cost effectively work on large refinery boilers and heaters, and the level of reliability and maintenance required to continuously achieve the proposed performance standards is also unknown.

4. MPC's comments submitted during Rule 1109.1 development regarding technical feasibility and safety concerns for next-generation ULNBs and SCR installation are also relevant for L-CMB-07.

During the development of Rule 1109.1, MPC submitted detailed comments regarding the feasibility concerns of retrofitting existing units and achieving 2 ppmv NOx performance levels. (See Enclosure A) Because these performance levels have not been demonstrated in practice, the Rule 1109.1 staff report relied on third-party reports by Norton Engineering Consultants (NEC) and the Fossil Energy Research Corporation (FERCo) to conclude that achieving 2 ppmv NOx is technically feasible. At the time, MPC commented on this conclusion and the analyses by these third-party firms. The technical and safety issues

Comment 41-4

[6] Accessed at: https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp.pdf
[7] See Appendix B of the Rule 1109.1 Staff report, accessed at: http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-Nov5-034.pdf?sfvrsn=6

raised in the attached February 1, 2021, comment letter for a 2 ppmv NOx standard for refinery boilers and heaters continue to be relevant and are incorporated herein for SCAQMD's consideration for L-CMB-07.

Comment 41-4 Con't

5. The proposed next-generation ultra-low NOx burners have not been demonstrated to be technically feasible.

The proposed measure L-CMB-07 considers using next-generation ultra-low NOx burners (ULNBs) as one technology to achieve further reductions from boilers and process heaters rated greater than 40 MMBtu/hr. The Rule 1109.1 staff report describes emerging technology as a technology that "can achieve emission reductions but is not widely available at the time the NOx limit is established and the rule is adopted." Rule 1109.1 was adopted less than six months ago. At the time of Rule adoption, the staff report identified a single real-world example of next-generation ULNBs at a refinery, which consisted of a single 39 MMBtu/hr pilot project that demonstrated NOx emissions of 29.3 ppmv NOx. This is an order of magnitude higher than the proposed target in L-CMB-07 of 2 ppmv.

Comment 41-5

No evidence was presented that this technology has been tested in an application over 40 MMBtu/hr for a large refinery boiler or heater or that it can actually achieve emission reductions beyond what is currently achievable with current and commercially-available ULNB technology.

Because the technical infeasibility issues identified earlier during Rule 1109.1 rulemaking are still present, our following comments mirror the comments we provided during the development of Rule 1109.1. District staff has not presented any realistic examples of large refinery boilers or heaters that achieve a 2 ppmv NOx performance standard on a continuous basis. Before requiring new technology in a control measure, SCAQMD should demonstrate that the new technology can actually achieve reductions for the design types of refinery boilers and heaters that exist in the Air Basin.

6. Next-generation ULNB technology has not yet been proven safe and new safety standards may need to be developed to safely implement next-generation ULNB technology.

Safety of our employees, contractors, business partners, customers and the community is MPC's number one priority. Our goal is to have an accident-free, incident-free workplace. Next-generation ULNB have not been evaluated or demonstrated to be safe in refinery boilers and process heaters rated greater than 40 MMBtu/hr. Requiring unproven emerging technologies could have severe consequences if the safety of these technologies is not fully addressed before the SCAQMD requires refineries to adopt them. It would be premature for SCAQMD to force the adoption of next-generation ULNB before their safety has been fully assessed, including an assessment of flame impingement and related safety risks and whether retrofits result in inadequate area in and around heaters for safe operations and maintenance.

Comment 41-6

API standards are the industry-wide standards implemented to ensure safe operating practices. These practices and standards require significant work to develop and take several years to complete. The standards that apply to boiler and heater installation and operation include API Standard 538 (Industrial Fired Boilers for General Refinery and Petrochemical Service), API Recommended Practice 535 (Burners for Fired Heaters in General Refinery Services), and API Standard 560 (Fired Heaters for General Refinery Service). Since the proposed measure identifies next-generation ULNBs that are different designs of burner technology, these standards may have to be revised or supplemented in order to safely install and operate next-generation ULNBs. Because only one of these technologies has been tested, and only in a single demonstration project that is smaller than the refinery combustion units covered by L-CMB-07, any estimate of the time or cost associated with revising and updating these standards would be speculative. Before requiring next-generation ULNB, SCAQMD should identify the standards and practices that would apply, whether the standards and practices must be revised or supplemented, and the time and cost

Comment 41-6 Con't

associated with any required updates to the standards and practices.

7. The SCAQMD has not considered the specific technical feasibility issues associated with installing next-generation ULNBs on the broad universe of process heater designs at refineries.

The District must consider our previously submitted comments during the Rule 1109.1 development activities specific to the retrofit feasibility of ULNBs when evaluating if next-generation ULNBs can be safely implemented and if the corresponding level of emissions performance can be achieved for the heater's operating envelope. See the following list of characteristics that must be considered for the feasibility of retrofitting units with next-generation ULNBs.

Risk of Flame Impingement – Operating with ULNBs results in longer flames compared to conventional burners, which may result in flame impingement on internal surfaces such as heater tubes, tube hangers, or refractory. Flame impingement is a major safety concern by causing heater tubes to rupture due to metal fatigue. Flame impingement has the potential to also break heater tube hangers, which may cause the process tubes to fail and create further unsafe conditions. Any of these scenarios could lead to an explosion in the firebox. An ULNB retrofit is not technically feasible if flame impingement cannot be avoided due to the radiant section's existing fixed geometry, tube configurations, and burner spacing. Certain design criteria have been developed by the American Petroleum Institute (API) to avoid flame impingement and include key parameters such as heater floor flux density, burner-to-burner spacing, and burner-to-tube spacing among others. The design criteria provided by API Standard 560 (Fired Heaters for General Refinery Service)[8] and API Recommended Practice 535 (Burners for Fired Heaters in General Refinery Services)[9] must be followed as unified design standards in order to manage the risk of flame impingement. Similarly, API Standard 538 (Industrial Fired Boilers for General Refinery and Petrochemical Service) provides design criteria for boilers at refineries.[10] Computational fluid dynamic (CFD) modeling should be conducted for any fired unit prior to the installation of ULNBs to inform conformance with API 560 and the corresponding technical feasibility of any retrofit project. MPC has preliminarily concluded that 56% of the refinery heaters and boilers at LAR cannot be safely operated with a ULNB retrofit without a significant rebuild and/or replacement.

Comment 41-7

Air Preheaters – Some refinery heaters and boilers operate in-line equipment to preheat combustion from residual heat produced by the unit in order to improve energy efficiency. Low-level NOx concentrations are rarely achievable for ULNB retrofits to existing heaters that operate with air preheaters. Air preheaters warm the incoming air to improve energy efficiency, save fuel, and reduce greenhouse gas emissions. The consequence, however, is a hotter flame temperature which increases NOx formation. Performance of NOx emissions for a typical commercially available ULNB at a furnace using an air preheater is 40 to 50 ppmv at 3% O_2, which is SCAQMD's presumed inlet or uncontrolled NOx concentration in its model heater.

Heater Turndown and Variable Heat Input Operation – Although refinery utilization on a throughput (i.e., barrels of production) basis is normally consistently high (notwithstanding present and future volatility in this market or other externalities like a pandemic that affect

[8] See API Standard 560, 5th Edition, February 2016, which specifies requirements and gives recommendations for the design, materials, fabrication, inspection, testing, preparation for shipment, and erection of fired heaters, air preheaters (APHs), fans, and burners for general refinery service; see also API Standard 560, Proposed 5th Edition, Addendums 1, Addendum 1 approved and submitted for publication.

[9] See API Recommended Practice 535, 3rd Edition, May 2014, which provides guidelines for the selection and/or evaluation of burners installed in fired heaters in general refinery services.

[10] See API Recommended Practice 538, 1st Edition, October 2015 which provides guidelines for the selection and/or evaluation of boiler components, including burners and combustion equipment, in general refinery and petrochemical services.

demand), many refinery process heaters do not operate at consistently high levels of utilization (low turndown). For example, heaters in hydrotreating and desulfurization processes will operate at relatively low utilization (high turndown) for the start-of-run after a turnaround but will then require higher duty utilization as catalyst activity degrades in the reactors towards the end-of-run for the processing unit prior to maintenance turnaround activities. Additionally, heater duty may normally fluctuate on a day-to-day basis as a result of variable feed compositions and other frequent changes to heat demand. During high turndown and fluctuating heat input duties, the NOx levels on a concentration basis will be higher than burner guarantees and are unlikely to meet stringent NOx standards being proposed.

Dynamic Changes in Fuel Gas Composition – All refineries combust off-gas from the refining process, referred to as refinery fuel gas (RFG). RFG composition can change at a moment's notice. For example, hydrogen concentrations can vary significantly based on operating conditions at other refinery process units. During this transient condition, the amount of excess air required for complete combustion of the fuel can drastically increase. Therefore, the combustion process may not have enough time to respond to the change in RFG, which could result in an unsafe sub-stoichiometric firing condition (i.e., insufficient excess oxygen within the heater for complete combustion). This condition must be avoided at all times, hence the need for flexibility with excess air requirements to accommodate unforeseen process changes. These inherent fluctuations in excess air result in higher NOx emissions than for combustion units operating on a more stable fuel, such as natural gas.

Routine Burner Cleaning During Normal Operation – ULNB burner tips are smaller than conventional burner technology and require periodic cleaning. A refiner will typically use fuel filters/coalescers to minimize plugging of burner tips; however, online maintenance is necessary as they are smaller than conventional burners. Even with proper fuel conditioning, ULNB burner tips can still become plugged, requiring removal of the burner for online maintenance. Burner removal is likely to degrade ULNB performance because air registers for removed burners commonly leak air (also known as "tramp air"). During online maintenance, the other remaining burners in service must compensate by firing at higher rates, which increases bridgewall oxygen and NOx formation, and affect the overall balance of heater performance. While burner maintenance may not be a frequent occurrence, this operating scenario must be considered in establishing limits for ULNB installations on natural draft heaters, which constitute most of the refinery heaters at LAR.

Comment 41-7 Con't

Because next-generation ULNBs have not been demonstrated in units greater than 40 MMBtu/hr, MPC's concerns are even more relevant. Please refer to Enclosure A at Attachment B for additional detail.

8. Space constraints affect the ability to install SCRs on most existing heaters and boilers at the refinery.

SCR installation requires a significant footprint area that cannot always be accommodated in refineries. Inherent to the technical feasibility of any retrofit that includes a new SCR system, the available free space at or near the heater must be evaluated in order to determine if it can even physically be accommodated. Additionally, it is imperative that BARCT consider the foundational support infrastructure that can become overloaded when heavy SCR equipment is installed vertically due to nearby ground-level plot space being unavailable.

Comment 41-8

MPC has previously preliminarily concluded that 52% of units at LAR cannot physically be retrofitted with SCR due to space constraints in the existing process units. The Rule 1109.1 staff report and the third-party consultant FERCo's report acknowledge that space constraints, as well as electrical capacity,

and other unknowns can affect the complexity and cost of SCR retrofits and that installation costs can exceed the equipment cost by a factor of at least 2.5.

Comment 41-8 Con't

9. The advanced SCR performance to the level specified in L-CMB-07 is technically infeasible for many existing refinery heaters.

The third-party technical reports attached to our February 1, 2021 letter point to several real-world considerations with retrofitting existing boilers and heaters at refineries. In addition, they identify the specific operational considerations for SCRs at refinery heaters that make it infeasible to sustain a reliable and long-term sustained performance level of 2 ppmv NOx at 3% oxygen with a maximum of 5 ppmv ammonia slip on a 24-hour average. Although an SCR system can achieve 99% control under ideal conditions, a BARCT standard must be achievable on a continuous basis under all operating conditions. As stated in the NEC report, "limited information is available for SCR reliability at sub 10 ppmv NOx emission levels" for refinery process heaters. A few critical parameters that impact SCR performance are summarized as follows.

Allowable Ammonia Slip – Achieving the required NOx removal efficiencies on a continuous basis will require a higher level of ammonia slip (i.e., 10 ppmv), especially for NOx limits with a short-term average compliance period in Rule 1109.1. There are relatively few operating variables that can be used other than ammonia to manage NOx performance with a fixed bed system like SCR. The ammonia slip limit needs to reflect this accordingly.

CFD Modeling – Even with proper CFD modeling and SCR system design, it is still common for improper mixing to occur initially or over time, resulting in degradation of the NOx removal performance. To meet a 2 ppmv limit at 3% oxygen, for example, an SCR vendor will be required to specify an even lower level to account for such intrinsic variabilities. It has not been commercially proven that the 2 ppmv limit can be met for the majority of refinery heaters, much less a lower specification. Reasonable tolerances need to be incorporated in the NOx and ammonia slip limits with respect to both a higher absolute limit and a corresponding longer averaging period.

Comment 41-9

Heater Turndown and Variable Heat Input Operation – Many refinery process heaters do not operate at consistently high levels of utilization (low turndown). For example, heaters in hydrotreating and desulfurization processes will operate at relatively low utilization (high turndown) for the start-of-run after a turnaround but will then require higher duty utilization as catalyst activity degrades in the reactors towards the end-of-run for the processing unit prior to maintenance turnaround activities. Additionally, heater duty may normally fluctuate on a day-to-day basis as a result of variable feed compositions and other frequent changes to heat demand. These fluctuations will impact SCR performance because the flue gas temperature and inlet NOx entering the reactor correspondingly vacillates, thus lowering the NOx removal efficiency in the SCR system. This needs to be considered for establishing sustained NOx and ammonia slip emissions limits for heaters with SCR.

Unexpected Catalyst Fouling - Although SCR systems are designed to operate at the guaranteed performance at end-of-run operation prior to conducting heater maintenance activities, predicting the actual operating condition of a heater for a several-year period is difficult. For example, it is impossible to predict dust fouling from refractory or heater tube scaling as the materials deteriorate over time. For example, MPC observed the fouling of SCR catalyst on a process heater within just 20 months of operation, reducing the NOx control efficiency by 8% and causing a 9-day unplanned outage. Given this uncertainty, any NOx or ammonia slip limits must

be established to allow for compliance during heater operation, up to and including end-of-run operations prior to a process unit turnaround.

An appropriate evaluation to determine the sustained and consistent performance levels of SCR systems operating in refinery heater service is critical to establishing BARCT. SCAQMD has not considered the fundamental realities that impact SCR performance and ability to meet a NOx standard at a level demonstrated for several years of operation for the wide variety of refinery heater designs. A sustained NOx removal efficiency of 92% for SCR installed at refinery heaters is generally reasonable based on the current performance of systems at refinery process heaters and when considering real-world operational factors.

Comment 41-9 Con't

10. Zero emission boilers and heaters are not technologically feasible or cost effective.

While electric heaters and boilers are used in smaller applications, they do not have the capacity to meet refinery heat demands. Neither the extensive Rule 1109.1 development process nor the Rule 1109.1 CEQA analysis identified electrification of boilers or heaters as a feasible alternative. Any consideration of electrification should carefully consider the costs and time required to construct additional substations, perform other electric grid upgrades, and the ongoing electricity costs to operate an electric heater or boiler. The potential GHG impacts of zero-emission boilers and heaters must also be considered. The California Energy Commission (CEC) has developed marginal GHG values for the express purpose of estimating the incremental impacts of adding electric load in specific regions of the state and these marginal GHG values should be used to evaluate the impacts of adopting electrically-powered boilers and heaters. As a result, this analysis may demonstrate an increase in GHG emissions compared to the use of refinery fuel gas or natural gas-fired heaters and boilers.

Comment 41-10

Conclusions

The proposed L-CMB-07 control measure considers technologies that were recently rejected by SCAQMD during the Rule 1109.1 development process. The emission limits being considered in L-CMB-07 have not been achieved in practice and are not technically feasible. SCAQMD should remove L-CMB-07 from the AQMP and allow refineries to continue implementing the control technologies required under Rule 1109.1.

Comment 41-11

Please note that in submitting this letter, MPC reserves the right to supplement its comments as it deems necessary, especially if additional or different information is made available to the public regarding the proposed measure.

Thank you for the opportunity to provide comments. We are glad to discuss this further and look forward to continued dialogue.

Sincerely,

Brad Levi
Vice President – Los Angeles Refinery

Enclosure A: February 1, 2021, comment letter package from MPC to SCAQMD on Proposed Rule 1109.1

cc: ***SCAQMD***
Sarah Rees – Deputy Executive Officer
Susan Nakamura – Chief Operating Officer
Michael Krause – Assistant Deputy Executive Officer

cc: ***SCAQMD Governing Board***
Hon. Ben Benoit – Governing Board Chair
Hon. Michael Cacciotti – Governing Board Member
Hon. Vanessa Delgado – Governing Board Vice-Chair
Hon. Andrew Do – Governing Board Member
Hon. Gideon Kracov – Governing Board Member
Hon. Sheila Kuehl – Governing Board Member
Hon. Larry McCallon – Governing Board Member
Hon. Veronica Padilla-Campos - Governing Board Member
Hon. V. Manuel Perez – Governing Board Member
Hon. Nithya Raman – Governing Board Member
Hon. Rex Richardson – Governing Board Member
Hon. Carlos Rodriguez – Governing Board Member
Hon. Janice Rutherford – Governing Board Member

ecc: 2022-07-27 MPC Comment Letter on 2022 AQMP
Jamie Bartolome, MPC RE
Ruth Cade, MPC RE
Chris Drechsel, MPC RE
Luis Martinez, MPC LAR
Robert Nguyen, MPC LAR
Robin Schott, MPC LAR
Vanessa Vail, MPC LAW

ENCLOSURE A

February 1, 2021 Rule 1109.1 Comment Letter
And Attachments

Tesoro Refining & Marketing Company LLC
A subsidiary of Marathon Petroleum Corporation
Los Angeles Refinery – Carson Operations
2350 E. 223rd Street
Carson, California 90810
310-816-8100

February 1, 2021

VIA Certified Mail and eMail (*wnastri@aqmd.gov*)
Return Receipt Requested

Wayne Nastri
Executive Officer
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Second Set of Comments on SCAQMD Revised Draft of Proposed Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Industries (Release Date: December 24, 2020)

Dear Mr. Nastri:

On behalf of Tesoro Refining & Marketing Company LLC, a wholly owned subsidiary of Marathon Petroleum Corporation (collectively, "MPC"), MPC appreciates this opportunity to provide South Coast Air Quality Management District (SCAQMD) with additional comments on the Revised Preliminary Draft Proposed Rule 1109.1 Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Industries (Proposed Rule 1109.1) that was issued on December 24, 2020.[1] Throughout the rulemaking process, MPC staff continues to be active participants in Proposed Rule 1109.1 working group meetings and discussions with SCAQMD staff.

This set of comments supplement MPC's comments submitted to SCAQMD on December 22, 2020 and provide additional detail on key issues concerning the technical feasibility, safety, and cost of NOx emissions controls for BARCT.[2]

Through this letter, MPC provides supplemental comments further explaining the key issues that SCAQMD must consider with the technical feasibility, safety, and costs necessary to comply with the rule as currently proposed. This examination is centered on the 2 ppm NOx (at 3% oxygen and 5 ppm ammonia slip) emissions limit in Table 1 for boilers and process heaters with a rated heat input capacity of at least 40 million British thermal units per hour (MMBtu/hr). However, many of the fundamental issues described herein apply also to other source categories covered in Proposed Rule 1109.1.

[1] SCAQMD, "Revised Preliminary Draft Proposed Rule 1109.1", http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/r1109-1-rule-language---12-24-20.pdf

[2] Correspondence from Brad Levi of Marathon Petroleum Company to Phillip Fine of SCAQMD, December 22, 2020.

In support of this review, MPC retained Mr. L. David Wilson of EN Engineering, LLC to conduct technical feasibility analyses to meet the NOx emissions limits in Proposed Rule 1109.1 for refinery heaters. Please refer to Attachment A for a professional profile of Mr. Wilson's four decades of direct experience with the design and operation of refinery fired equipment. Attachment B is a paper providing key NOx emissions control retrofit considerations for existing refinery process heaters.

Mr. Wilson was also commissioned to complete a technical review of corresponding studies recently completed by Norton Engineering Consultants ("NEC report") and Fossil Energy Research Corporation ("FERCo report") that were commissioned by SCAQMD to assist staff's BARCT assessment.[3] Attachment C outlines our fundamental concerns with the NEC and FERCo reports that may lead to inappropriate conclusions for BARCT.

Background and Overview

Proposed Rule 1109.1 is being developed as a result of SCAQMD's planned transition from the Regional Clean Air Incentives Market (RECLAIM) program to a command-and-control regulatory structure for achieving BARCT. MPC's Los Angeles Refinery (LAR) has been complying with the RECLAIM market-based NOx emission reduction program since 1993. As noted in our prior comment letter, Proposed Rule 1109.1 will be the most wide-reaching, complex, and costly refining industry rule ever developed by SCAQMD. It will cover at least seventy-six (76) distinct pieces of equipment at LAR alone. As presently drafted, it applies a one-size-fits-all approach that calls for installation of ultra-low NOx burners (ULNBs) and selective catalytic reduction (SCR) on the majority of this equipment. MPC has preliminarily concluded that NOx emissions controls and infrastructure needed to comply at LAR cannot be retrofitted at more than half of the existing heaters and boilers due to inherent physical and safety constraints without significant rebuild and/or replacement. A requirement that cannot be implemented in *most* cases is patently inconsistent with applicable state law, which requires BARCT limits to be actually "achievable." Health and Safety Code § 40406.

BARCT limits applied by SCAQMD must also account for economic impacts and meet cost-effectiveness requirements. *Id.* §§ 40406, 40920.6(a). Proposed Rule 1109.1 violates these requirements. The cost-effectiveness analysis on which it is based is deeply flawed, relying on superficial generalizations that do not bear out as applied. The analysis fails to include significant unit-specific retrofit and replacement expenses that will be incurred under the current proposal and costs for installing best available control technology (BACT) emission controls that will be consequently needed to address resulting particulate matter increases.

Proposed Rule 1109.1 is also inconsistent with the requirements of Assembly Bill (AB) 617, which contemplates application of BARCT limits in a manner that achieves actual air quality benefits to the surrounding community. *Id.* § 40920.6(d). The requirements embodied in Proposed Rule 1109.1 appear to ultimately do the opposite, as they will achieve minimal impacts on total NOx emissions in the Los Angeles Basin and will potentially increase particulate matter (PM_{10} and $PM_{2.5}$) emissions by up to approximately 620 pounds per day (or 113 tons per year) from just implementing the proposed rule at LAR alone.

[3] Norton Engineering Consultants, "NOx BARCT Analysis Review", December 4, 2020. Accessed at http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/norton-report.pdf?sfvrsn=6 in December 2020; Fossil Energy Research Corporation, "South Coast Air Quality Management District Rule 1109.1 Study Final Report", November 2020. Accessed at http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/ferco-report.pdf?sfvrsn=6 in December 2020.

In summary, SCAQMD's BARCT technology selection and Proposed Rule 1109.1 limits have not been appropriately determined and are not technically feasible for many of the required installations, and in many cases also present unacceptable safety hazards. Inclusive of the technical issues described in Attachment B are the following critical elements that must be considered in BARCT for boilers and process heaters.

Technical Feasibility

1. **The SCAQMD has not considered the specific technical feasibility issues associated with installing the same controls on the broad universe of process heater designs at refineries.**

Proposed Rule 1109.1 establishes BARCT limits that will require ULNBs and SCRs in many circumstances to potentially achieve the emissions limits, while applied uniformly based solely on heater size. What is missing from this flawed logic is the fundamental fact that there can be inherent operational variability experienced by refinery process heaters within one heater size. Process heaters at petroleum refineries are in many cases complex, custom-designed pieces of equipment built to operate within site-specific constraints.

SCAQMD's use of heat release duty (also referred herein as "size") as the only category to define BARCT for the wide variety of refinery boiler and process heater designs disregards basic physical design characteristics that are mandatory to assess the retrofit feasibility, safety, and performance of new NOx emissions controls. These emissions controls include the combination of ULNBs and SCRs that will be effectively required by Proposed Rule 1109.1.

Specific to the retrofit feasibility of ULNBs, the following characteristics, at a minimum, must be considered when evaluating if ULNBs can be safely implemented and the corresponding level of emissions performance that may be achieved for the heater's operating envelope. Please refer to Attachment B for additional detail.

> *Risk of Flame Impingement* – Operating with ULNBs results in longer flames compared to conventional burners, which may result in flame impingement on internal surfaces such as heater tubes, tube hangers, or refractory. Flame impingement is a major safety concern by causing heater tubes to rupture due to metal fatigue. Flame impingement has the potential to also break heater tube hangers, which may cause the process tubes to fail and create further unsafe conditions. Any of these scenarios could lead to an explosion in the firebox. As discussed more in Item #2 below of this letter, a ULNB retrofit is not technically feasible if flame impingement cannot be avoided due to the radiant section's existing fixed geometry, tube configurations, and burner spacing. Certain design criteria have been developed by the American Petroleum Institute (API) to avoid flame impingement and include key parameters such as heater floor flux density, burner-to-burner spacing, burner-to-tube spacing, among others. The design criteria provided by API Standard 560 (Fired Heaters for General Refinery Service)[4] and API Recommended Practice 535 (Burners for Fired Heaters in General Refinery Services)[5] must be followed as unified design standards in order to manage the risk of flame impingement. Similarly, API Standard 538 (Industrial Fired Boilers for General Refinery and Petrochemical Service) provides design criteria for boilers at

[4] See API Standard 560, 5th Edition, February 2016, which specifies requirements and gives recommendations for the design, materials, fabrication, inspection, testing, preparation for shipment, and erection of fired heaters, air preheaters (APHs), fans, and burners for general refinery service; see also API Standard 560, Proposed 5th Edition, Addendum 1. Addendum 1 approved and submitted for publication.

[5] See API Recommended Practice 535, 3rd Edition, May 2014, which provides guidelines for the selection and/or evaluation of burners installed in fired heaters in general refinery services.

refineries.[6] Computational fluid dynamic (CFD) modeling should be conducted for any fired unit prior to the installation of ULNBs to inform conformance with API 560 and corresponding technical feasibility of any retrofit project. MPC has preliminarily concluded that 56% of the refinery heaters and boilers at LAR cannot be safely operated with a ULNB retrofit without significant rebuild and/or replacement.

Air Preheaters – Some refinery heaters and boilers operate in-line equipment to preheat combustion from residual heat produced by the unit in order to improve energy efficiency. Low-level NOx concentrations are rarely achievable for ULNB retrofits to existing heaters that operate with air preheaters. Air preheaters warm the incoming air to improve energy efficiency, save fuel, and reduce greenhouse gas emissions. The consequence, however, is a hotter flame temperature which increases NOx formation. Performance of NOx emissions for a typical commercially available ULNB at a furnace using an air preheater is 40 to 50 ppmvd at 3% O_2, which is SCAQMD's presumed inlet or uncontrolled NOx concentration in its model heater.

Heater Turndown and Variable Heat Input Operation – Although refinery utilization on a throughput (i.e., barrels of production) basis is normally consistently high (notwithstanding present and future volatility in this market or other externalities like a pandemic that affect demand), many refinery process heaters do not operate at consistently high levels of utilization (low turndown). For example, heaters in hydrotreating and desulfurization processes will operate at relatively low utilization (high turndown) for the start-of-run after a turnaround but will then require higher duty utilization as catalyst activity degrades in the reactors towards end-of-run for the process unit prior to maintenance turnaround activities. Additionally, heater duty may normally fluctuate on a day-to-day basis as a result of variable feed compositions and other frequent changes to heat demand. During high turndown and fluctuating heat input duties, the NOx levels on a concentration basis will be higher than burner guarantees and are unlikely to meet stringent NOx standards being proposed.

Dynamic Changes in Fuel Gas Composition – All refineries combust off gas from the refining process, referred to as refinery fuel gas (RFG). RFG composition can change on a moment's notice. For example, hydrogen concentrations can vary significantly based on operating conditions at other refinery process units. During this transient condition, the amount of excess air required for complete combustion of the fuel can drastically increase. Therefore, the combustion process may not have enough time to respond to the change in RFG, which could result in an unsafe sub-stoichiometric firing condition (i.e., insufficient excess oxygen within the heater for complete combustion). This condition must be avoided at all times, hence the need for flexibility with excess air requirements to accommodate unforeseen process changes. These inherent fluctuations in excess air fluctuations result in higher NOx emissions than for combustion units operating on a more stable fuel.

Routine Burner Cleaning During Normal Operation – ULNB burner tips are smaller than conventional burner technology and require periodic cleaning. A refiner will typically use fuel filters/coalescers to minimize plugging of burner tips; however, online maintenance is necessary as they are smaller than conventional burners. Even with proper fuel conditioning, ULNB burner tips can still become plugged, requiring removal of the burner for online maintenance. Burner removal is likely to degrade ULNB performance because air registers for removed burners commonly leak air (also known as "tramp air"). During online maintenance, the other remaining

[6] See API Recommended Practice 538, 1st Edition, October 2015 which provides guidelines for the selection and/or evaluation of boiler components, including burners and combustion equipment, in general refinery and petrochemical services.

burners in service must compensate by firing at higher rates, which increases bridgewall oxygen and NOx formation. While burner maintenance may not be a frequent occurrence, this operating scenario must be considered in establishing limits for ULNB installations on natural draft heaters, which constitute most of the refinery heaters at LAR.

In order to demonstrate the infeasibility of retrofitting a heater based on SCAQMD's BARCT determinations, we conducted a technical feasibility evaluation to retrofit an ULNB at one of the existing LAR refinery heaters. The method we used to evaluate the feasibility of ULNB in this study is based on the consensus API Standard 560, Fifth Edition, Addendum 1 for the oil and gas industry that has been developed by subject matter experts across segments to enhance operational safety, environmental protection and sustainability across the refining industry. Based on our analysis, it is technically infeasible and unsafe to retrofit ULNB technology at this heater, failing several of the key design features recommended in API Standard 560 by significant margins, including the ratio of allowable firebox height to tube circle diameter, floor firing density, flame height, burner-to-burner spacing, and burner-to-tube spacing.

Similarly, a post-combustion control such as SCR that is mandated by BARCT has unique site-specific feasibility issues. Not considered by SCAQMD is the fact that an SCR installation requires a significant footprint area. Inherent to the technical feasibility of any retrofit that includes a new SCR system, the available free space at or near the heater must be evaluated in order to determine if it can even physically be accommodated. MPC has also preliminarily concluded that 52% of SCR systems otherwise required by Proposed Rule 1109.1 cannot physically be installed due to space constraints in the existing process units. It is critical that any technology-forcing standard that necessitates installation of post-combustion controls such as SCR must consider such inherent space constraints, either in determining installation is technically infeasible for that heater category or that the costs associated with redesigning, relocating, and rebuilding process equipment and infrastructure are prohibitive under the cost-effectiveness analysis.

2. **Categorizing refinery equipment solely based on heat release duty (burner size) makes it infeasible to achieve the proposed BARCT NOx levels; Proposed Rule 1109.1's BARCT standards must also consider physical characteristics in determining the feasible level of NOx emissions from existing equipment.**

An appropriate classification of refinery heaters and boilers for BARCT must also consider along with heat release duty, at a minimum, the unique design of heaters that can make it technically infeasible for a ULNB retrofit. Additionally, it is imperative that BARCT consider the existing footprint that is available or unavailable for a new SCR system, and the foundational support infrastructure that can become overloaded when heavy SCR equipment is installed vertically due to nearby ground-level plot space being unavailable. As noted in Attachment B, process heaters come in various shapes and sizes, and have been constructed with specific physical features, such as configuration, geometry, and firebox dimensions, and have foundation supports that are fixed at time of original construction. Considerations for retrofit feasibility must include whether the NOx reduction pollution control technology can be accommodated within these constraints.

Key design limits for determining the technical feasibility of ULNB at refinery heaters that need to be considered for categorization under Proposed Rule 1109.1 include, but are not limited to, API Standards 535's and 560's refining industry recognized safe design criteria that are associated with a heater's physical shape (i.e., vertical cylindrical style or cabin or box styles and associated floor-fired burner configurations that may be present). Some of the design criteria in the API standards that should be used for determining technical feasibility of a ULNB retrofit are as follows:

- Vertical Cylindrical:
  - Vertical cylindrical heaters shall be designed with a maximum height-to-diameter ratio of 3.00, where the height is that of the radiant section (inside refractory face) and the diameter is that of the tube circle, both measured in the same units.
  - The minimum clearance from grade to burner plenum or register shall be 2 m (6.5 ft) for floor-fired heaters.
  - The floor heat flux density for floor-mounted burners cannot exceed 300,000 Btu/hr/ft^2.
  - Burner arrangement must meet normalized burner-to-burner and burner-to-coil spacings in equations (5) through (10) of API 560. For vertical cylindrical heaters, the ratio of the burner-circle-diameter (BCD) to the tube-circle-diameter (TCD) shall be designed to satisfy equations (11) through (13) of API 560.
  - The burner flame length design shall not exceed 60% of the radiant section height.
  - The minimum clearance between the flame envelope, as defined in API RP 535, Section 3.22, and unshielded refractory walls shall be 0.50 ft unless it can be shown that refractory service temperature and velocity limits are not exceeded.
- Cabin or Box:
  - For single-fired, box-type, floor-fired heaters with sidewall tubes only, an equivalent height-to-width factor shall be determined by dividing the height of the wall bank (or the straight tube length for vertical tubes) by the distance between wall tube banks and applying the limitations specified in Table 1 of API 560.
  - In cabin and box style heaters, the distance between the unshielded end wall refractory and the nearest burner centerline shall be between 45% and 60% of the burner-to-burner spacing.
  - The minimum clearance from grade to burner plenum or register shall be 2 m (6.5 ft) for floor-fired heaters.
  - The floor heat flux density for floor-mounted burners cannot exceed 300,000 Btu/hr/ft^2.
  - Burner arrangement must meet normalized burner-to-burner and burner-to-coil spacing in equations (5) through (10) of API 560.
  - The burner flame length design shall not exceed 60% of the radiant section height.
  - The minimum clearance between the flame envelope, as defined in API RP 535, Section 3.22, and unshielded refractory walls shall be 0.50 ft unless it can be shown that refractory service temperature and velocity limits are not exceeded.

These and other design limits are critical to reduce the risk of flame impingement and to conform to recognized and accepted good engineering practices. MPC's internal standards for heater design reference API Standards 535 and 560 and also contain additional design limits specific to ULNB installations based on the company's significant experience in this area.

For reference, we have included a flowchart illustrating the steps SCAQMD should take when categorizing process heaters. Please refer to Attachment D. This example is not intended to be inclusive of all the key design criteria that must be considered for feasibility of ULNB and SCR at an existing heater.

3. The SCR performance to the level specified in Proposed Rule 1109.1 is technically infeasible for many refinery heaters.

The technical paper in Attachment B points to several real-world considerations with operating an SCR at refinery heaters that make it infeasible to sustain a long-term performance level of 2 ppm NOx at 3% oxygen with maximum 5 ppm ammonia slip on a 24-hour average. A few of these critical parameters are summarized as follows.

Allowable Ammonia Slip – Achieving the required NOx removal efficiencies on a continuous basis will require a higher level of ammonia slip (i.e. 10 ppmvd), especially for NOx limits with a short-term average compliance period in Proposed Rule 1109.1. There are relatively few operating variables that can be used other than ammonia to manage NOx performance with a fixed bed system like SCR. The ammonia slip limit needs to reflect this accordingly.

CFD Modeling – Even with proper CFD modeling and SCR system design, it is still common for improper mixing to occur initially or over time, resulting in degradation of the NOx removal performance. To meet a 2 ppm limit at 3% oxygen, for example, an SCR vendor will be required to specify an even lower level to account for such intrinsic variabilities. It has not been commercially proven that the 2 ppm limit can be met for the majority of refinery heaters, much less a lower specification. Reasonable tolerances needs to be incorporated in the NOx and ammonia slip limits with respect to both a higher absolute limit and corresponding longer averaging period.

Heater Turndown and Variable Heat Input Operation – Many refinery process heaters do not operate at consistently high levels of utilization (low turndown). For example, heaters in hydrotreating and desulfurization processes will operate at relatively low utilization (high turndown) for the start-of-run after a turnaround but will then require higher duty utilization as catalyst activity degrades in the reactors towards end-of-run for the process unit prior to maintenance turnaround activities. Additionally, heater duty may normally fluctuate on a day-to-day basis as a result of variable feed compositions and other frequent changes to heat demand. These fluctuations will impact SCR performance because the flue gas temperature and inlet NOx entering the reactor correspondingly vacillates, thus lowering the NOx removal efficiency at the SCR system. This needs to be considered for establishing sustained NOx and ammonia slip emissions limits for heaters with SCR.

Unexpected Catalyst Fouling - Although SCR systems are designed to operate at the guaranteed performance at end-of-run operation prior to conducting heater maintenance activities, predicting the actual operating condition of a heater for a several-year period is difficult. For example, it is impossible to predict dust fouling from refractory or heater tube scaling as the materials deteriorate over time. For example, MPC observed the fouling of SCR catalyst on a process heater within just 20 months of operation, reducing the NOx control efficiency by 8% and causing a 9-day unplanned outage. Given this uncertainty, any NOx or ammonia slip limits must be established to allow for compliance during heater operation, up to and including end-of-run operations prior to a process unit turnaround.

As we have explained above, an appropriate evaluation to determine the sustained and consistent performance levels of SCR systems operating in refinery heater service is critical to establishing BARCT. SCAQMD has not considered the fundamental realities that impact SCR performance to meet a 24-hour average NOx standard at a level demonstrated for several years of operation for the wide variety of refinery heater designs. A sustained NOx removal efficiency of 92% for SCR installed at refinery heaters is generally reasonable based on current performance of systems at refinery process heaters and considering real-world operational factors in Attachment B.

Cost Evaluation

California law requires that prior to establishing BARCT requirements, SCAQMD must assess cost-effectiveness of each potential control option. This entails calculating the actual cost, in dollars, of the

potential control option. Health and Safety Code § 40920.6(a)(2). It also entails calculating the *incremental* cost-effectiveness of each option to inform the District's BARCT determination. *Id.* § 40920.6(a)(3). This is consistent with the requirement that BARCT itself must be set at an "achievable" level after accounting for "economic impacts." *Id.* § 40406. The current body of evidence assembled by SCAQMD does not satisfy these requirements.

4. The SCAQMD has not considered the incremental cost-effectiveness calculations for Proposed Rule 1109.1 as required under California Health and Safety Code.

Health and Safety Code § 40920.6(a)(3) clearly requires SCAQMD to calculate the incremental cost-effectiveness of technically feasible BARCT options. SCAQMD has conducted such an analysis for other rules and it has been conclusive in its BARCT determination. For example, in the September 2020 draft staff report for the BARCT assessment of NOx emission reductions from combustion equipment at publicly owned treatment works facilities, excerpted below, the SCAQMD demonstrated through its incremental cost analysis that the alternative control option was not viable.[7]

> *Health and Safety Code section 40920.6 requires an incremental cost-effectiveness analysis for Best Available Retrofit Control Technology (BARCT) rules or emission reduction strategies when there is more than one control option which would achieve the emission reduction objective of the proposed amendments relative to ozone, carbon monoxide, sulfur oxides, oxides of nitrogen, and their precursors. Incremental cost-effectiveness is the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control options as compared to the next less expensive control option.*
> ...
> *The proposed project would require one facility to meet 18.8 ppm at 15 percent oxygen on a dry basis on three turbines. The next progressively more stringent potential control option would be to require turbines to meet 5 ppm at 15 percent oxygen on a dry basis and would affect two facilities and a total of six turbines. To meet 5 ppm, one facility would be required to implement SCR on their existing turbines. The other facility would be required to replace their turbines with lower emitting turbines to meet 5 ppm.*
>
> *Incremental cost-effectiveness = ($160,832,987 – $6,712,430) / (1,791 – 138) = $93,237 per ton of NOx reduced*
>
> *The incremental cost analysis presented above demonstrates that the alternative control option is not viable when compared to the control strategy of the proposed amendments.*

MPC has estimated the average and incremental cost-effectiveness on a high-level for multiple scenarios of presumed technical feasibility for ULNB and SCR. Two examples are provided here to illustrate the impact from SCAQMD failing to take consider the required incremental cost-effectiveness for BARCT. The total capital and operating costs for the control options are engineering estimates and do not take into account lost opportunity cost that may occur due to additional refinery downtime required for compliance (e.g., to extensively overhaul the heater for a ULNB retrofit or to relocate process equipment to accommodate an SCR).

---

[7] SCAQMD, "Draft Staff Report, Proposed Rule 1179.1 – NOx Emission Reductions from Combustion Equipment at Publicly Owned Treatment Works Facilities", September 2020. http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1179.1/pr-1179-1---dsr.pdf

Example 1: Retrofit of ULNB and SCR Assumed to Both be Technically Feasible

Table 1 summarizes the cost-effectiveness for a 200 MMBtu/hr heater at LAR that currently performs at 41 ppmvd NOx at 7.9% oxygen (56 ppmvd corrected to 3% oxygen) with corresponding annual actual emissions of 43.3 tons per year. MPC assumes for purposes of this example that it is technically feasible to retrofit the existing heater design with ULNB and SCR (i.e., the existing firebox dimensions are acceptable for ULNB under API code and there is sufficient existing physical space for a new SCR system). Consideration of a full heater replacement with ULNB and SCR is also considered in the control technology evaluation to attempt to meet the 2 ppm NOx standard, since the retrofits of the existing heater design cannot reliably achieve this level of performance.

Table 1: Cost-effectiveness calculations for Example 1

Control Technology Option	NOx Performance Level	NOx Emissions Reduction Compared to Current Conditions (tpy)	Annualized Cost ($MM/yr)	25-Year Average Cost-effectiveness ($/ton)	Incremental Cost-effectiveness ($/ton)
Current conditions	41 ppmvd @ 7.9% (56 ppmvd @ 3% O_2), 43.3 tpy NOx actual emissions				
ULNB only	33 ppmvd @ 7.9% O_2 (~20% control)	8.7	0.29	33,375	--
SCR only[1]	92% control (> 2 ppm at outlet)	39.9	1.03	25,777	23,661
Combined ULNB + SCR[1]	Combined 93.6% control (> 2 ppm at outlet)	40.6	1.32	32,483	417,184
Heater replacement with combined ULNB + SCR	*May* meet 2 ppmvd proposed limit	41.4	8.06	200,582	8,060,255

[1] The SCR system is assumed to be 92% efficient in controlling inlet NOx. A SCR system with a greater control efficiency likely would be needed to reach this level of NOx performance, which may not be technically feasible. The costs in this table do not include the substantial costs for these types of SCR systems if it was determined to be technically feasible.

For Example 1, the incremental cost-effectiveness analysis shows that both the combined ULNB and SCR retrofit and the heater replacement control technology options are not cost-effective as compared to the alternative control option of installation of SCR only.

Example 2: Retrofit of SCR Assumed to be Technically Feasible

Example 2 is for a heater with low NOx burner technology for which further reductions with ULNB is technically infeasible and an SCR retrofit is assumed to be technically feasible. Table 2 summarizes the cost-effectiveness for a 100 MMBtu/hr heater at LAR that currently performs at 27 ppmvd NOx at 7.3% oxygen (36 ppmvd corrected to 3% oxygen) with corresponding annual actual emissions of 17.5 tons per year. Consideration of a full heater replacement with ULNB and SCR is also considered in the control technology evaluation to attempt to meet the 2 ppm NOx standard, since the retrofits of the existing heater design cannot reliably achieve this level of performance.

Table 2: Cost-effectiveness calculations for Example 2

Control Technology Option	NOx Performance Level	NOx Emissions Reduction Compared to Current Conditions (tpy)	Annualized Cost ($MM/yr)	25-Year Average Cost-effectiveness ($/ton)	Incremental Cost-effectiveness ($/ton)
Current conditions	27 ppmvd @ 7.9% (36 ppmvd @ 3% O_2), 17.5 tpy NOx actual emissions				
SCR[1]	92% control (> 2 ppm at outlet)	16.1	1.39	86,364	--
Heater replacement with combined ULNB + SCR	*May* meet 2 ppmvd proposed limit	16.4	6.62	404,407	22,148,395

[1] The SCR system is assumed to be 92% efficient in controlling inlet NOx. A SCR system with a greater control efficiency likely would be needed to reach this level of NOx performance, which may not be technically feasible. The costs in this table do not include the substantial costs for these types of SCR systems if it was determined to be technically feasible.

For Example 2, the average and incremental cost-effectiveness values show that both the SCR retrofit and the heater replacement control technology options are significantly above the threshold and thus economically infeasible.

Figure 1 displays the cost-effectiveness results for Examples 1 and 2 relative to the $50,000 per ton cost-effectiveness threshold established by the SCAQMD Governing Board in the 2016 Air Quality Management Plan and to the relative control technology options on an incremental basis.[8]

[8] SCAQMD. "Final 2016 Air Quality Management Plan". Approved March 3, 2017.

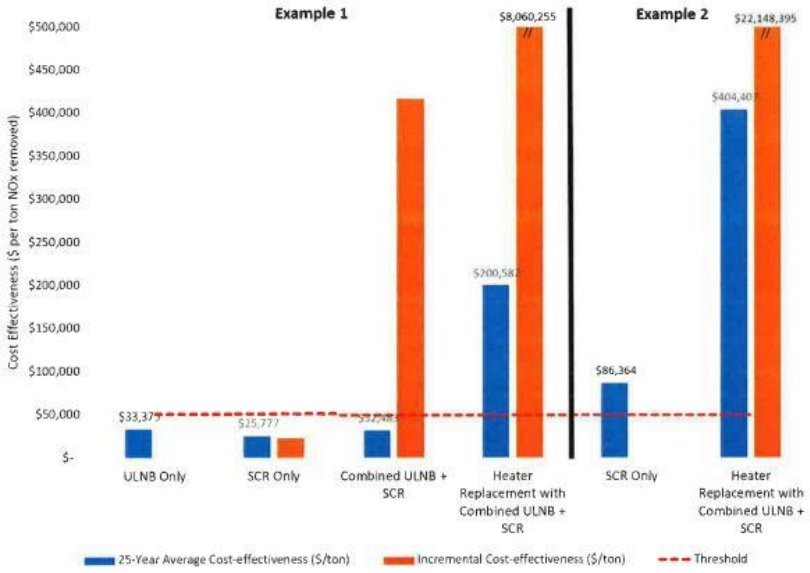


Figure 1: Average and incremental cost-effectiveness analysis for Examples 1 and 2

These two examples are representative of many existing refinery heaters and boilers at LAR when considering the actuality of implementing such retrofit NOx controls and the associated NOx performance and cost. Coupling this with the reality that some heaters cannot be safely retrofitted with ULNB or have no physical space nearby for an SCR, the resulting cost-effectiveness inclusive of redesign, rebuild, or replacement of the heater and/or its associated process equipment, as well as the lost opportunity cost due to additional refinery downtime, far exceeds the $50,000 per ton cost-effectiveness threshold. If SCAQMD is considering major equipment redesign and/or replacement to accommodate ULNB and/or SCR with a new heater design, these costs must be considered in the BARCT analysis.

Norton/FERCo Report Review

The SCAQMD is incorrectly using these third-party reports as the basis for their technical feasibility determinations under BARCT. Attachment C outlines our fundamental concerns with the NEC and FERCo reports that has led SCAQMD to make inappropriate conclusions for BARCT. While the NEC and FERCo studies are informative and speak to many of the safety concerns noted in this letter, there are several technical concerns for ultra-low NOx burners (ULNB) and selective catalytic reduction (SCR) that are either not addressed or that are not addressed appropriately for refinery process heaters.

Conclusions

SCAQMD has not complied with California law and has inappropriately determined BARCT in Proposed Rule 1109.1:

- The SCAQMD has not considered the specific technical feasibility issues associated with installing the same controls on the broad universe of process heater designs at refineries.
- Categorizing refinery equipment based only on heat release duty makes it infeasible to achieve the proposed BARCT NOx levels; Proposed Rule 1109.1's BARCT standards must consider physical characteristics in determining the feasible level of NOx emissions from existing equipment.
- The SCR performance to the level specified in Proposed Rule 1109.1 is technically infeasible for many refinery heaters.
- The SCAQMD's cost-effectiveness determinations ignore actual costs.
- The SCAQMD has not considered the incremental cost-effectiveness calculations for Proposed Rule 1109.1 as required under California Health and Safety Code.

Due to the significant impacts that this rulemaking will have on our refinery and the refining industry as a whole, MPC again requests that Proposed Rule 1109.1 rulemaking be paused to provide adequate time for more meaningful review and comment during this rulemaking process.

Please note that in submitting this letter, MPC reserves the right to supplement its comments as it deems necessary, especially if additional or different information is made available to the public regarding the Proposed Rule 1109.1 rulemaking process.

Thank you for the opportunity to provide comments. We are glad to discuss further and look forward to continued dialogue.

Sincerely,



Brad Levi
Vice President – Los Angeles Refinery

Attachments

cc: ***SCAQMD***
Sarah Rees – Acting Deputy Executive Officer
Susan Nakamura – Assistant Deputy Executive Officer
Michael Krause – Planning and Rules Manager

cc: ***SCAQMD Governing Board Refinery Committee***
Dr. William Burke – Governing Board Chairman
Hon. Ben Benoit – Governing Board Vice-Chairman and Refinery Committee Member
Hon. Larry McCallon – Governing Board Member and Refinery Committee Chairman
Hon. Lisa Bartlett – Governing Board Member and Refinery Committee Member

cc: ***SCAQMD Governing Board***
Hon. Joe Buscaino – Governing Board Member
Hon. Michael Cacciotti – Governing Board Member
Hon. Vanessa Delgado – Governing Board Member
Hon. Gideon Kracov – Governing Board Member
Hon. Sheila Kuehl – Governing Board Member
Hon. V. Manuel Perez – Governing Board Member
Hon. Rex Richardson – Governing Board Member
Hon. Carlos Rodriguez – Governing Board Member
Hon. Janice Rutherford – Governing Board Member

ecc: 2021-02-01 MPC Second Comment Letter on Revised Draft of SCAQMD PR1109.1
Greg Busch, MPC RE
Ruth Cade, MPC RE
Chris Drechsel, MPC RE
Ben Franz, MPC LAW
Denis Kurt, MPC LAR
Robert Nguyen, MPC LAR
Tim Peterkoski, MPC EA
Robin Schott, MPC LAR
Vanessa Vail, MPC LAW

ATTACHMENT A

Larry David "David" Wilson
Sr. Technical Lead – Oil & Gas

Resume Highlights
Fired Equipment Specialist
Management
Field Installation Review
Troubleshooting
Inspection
Design Emergency Shutdown Systems
Wrote Emergency Procedures

Job Title:
Senior Technical Lead, Oil & Gas

Years with EN Engineering: 5

Total Years of Experience: 40+

Primary Office Location:
Catlettsburg, KY

Education:

- Master of Science in Mechanical Engineering from the University of Kentucky, 1976
- Bachelor of Science in Aerospace Engineering from West Virginia University, 1972

Military United States Air Force Education Experience:

- Air University Diploma in communications, leadership, management, tactics, and strategy, 1999
- Federal Emergency Management Agency (FEMA), Emergency Management Institute Course for managing multiple projects.
- Air Command and Staff School Diploma in communications leadership, management, tactics, and strategy, 1990

Overview: An engineering manager, fired equipment specialist, and mechanical engineer with over 40 years of experience working for two large petroleum companies and two consulting engineering firms.

Relevant Projects & Experience:

EN Engineering, Catlettsurg, KY, Senior Technical Lead. Trained operators and engineers on the design, operation, safety systems, troubleshooting, heater tuning, and maintenance for fired heaters, ultra-low NOx burners (ULNBs), combustion air preheaters (APHs), selective catalytic reduction (SCR) units, forced draft (FD) fans, and induced draft (ID) fans at a major refinery. Trained operators and engineers on the design, operation, safety systems, troubleshooting, heater tuning, and maintenance for fired heaters, ultra-low NOx burners (ULNBs), combustion air preheaters (APHs), selective catalytic reduction (SCR) units, forced draft (FD) fans, and induced draft (ID) fans at a major petrochemical plant. Reviewed and recommended changes to the design, operation, and control of a platformer heater and its air preheater (APH), selective catalytic reduction (SCR) unit, forced draft (FD) fan, and induced draft (ID) fan. Reviewed and recommended changes to a major refiner's fired heater specifications. Developed operator heater training program and trained operators and engineers for Texas Transmission Company. Analyzed the heat transfer and stresses on a waste heat generator exchange tubes and recommended changes to improve tube life. Developed designed conditions, wrote heater specification, developed heater data sheets, submitted proposal to heater vendors, analyzed bids, and recommended a vendor for a large transmission company. Performed steam and boiler studies and recommended a new boiler purchase for petrochemical plants. Sized and specified relief valves for supercritical fluid vessels.

EEC, Catlettsburg, Mechanical Lead. Developed operator heater training program and trained operators for a major Texas petrochemical plant. Analyzed and specified relief valves for boilers and natural gas transmission compressors. Designed, wrote specifications, developed control and burner management systems, oversaw installation, trained operations and maintenance personnel, start – up and tested a new boiler and boiler feedwater pumps for a chemical plant. Troubleshot, analyzed, and recommended solutions for a boiler feedwater corrosion problem at a marine terminal. Evaluated several heat exchangers designs by using TEMA and ASME Section VIII, Div 1 for an ethylene plant. Wrote specifications based upon API - 610 and analyzed two new boiler feedwater pumps at a major chemical plant. Wrote specifications based upon ASME Section I and analyzed a new boiler and its ancillary equipment for a major chemical plant. Analyzed heat treating furnace at a major steel mill. Analyzed and reported on several heat recovery steam generators (HRSG) performance at a major coke plant. Performed a study on installing large duct burners to increase HRSG steam production for power generation in peak power periods at a major coke plant. Presented classes on boiler fundamental to customers.

Marathon Petroleum Company, Findlay, Fired Equipment Specialist. Developed and implemented a program in 2000 to retrofit several existing process heaters with low NO_x burners (LNBs) on several heaters at several refineries in order to comply with a Federal Consent Decree; oversaw the installation of the LNBs. Wrote and reviewed standards and emergency procedures, designed emergency shutdown systems, reviewed operating and maintenance procedures; wrote heater, boiler, rotating equipment training

Larry David "David" Wilson
Sr. Technical Lead – Oil & Gas

Military United States Air Force Education Experience (cont'd):

- Squadron Officers School Diploma in communications, leadership, management, tactics, and strategy, 1984
- Graduate from Air Force Pilot Training, 1976

Air National Guard Work Experience

- Veteran of Desert Storm 1991.
- C–130H Command Pilot.
- Chief of Operations Command and Control.
- Chief of Maintenance Aircraft Quality Control and Functional Check Flights.
- Deployed Acting Maintenance Commander.

Professional Registration:

- Licensed Professional Engineer, KY 1980-Current

Professional Organizations & Affiliations:

- Served on the Subcommittee for Mechanical Equipment as a member of the committee.
- Responsible for the team development of API standards in the petrochemical industry.
- Served on the Committee for Refinery Equipment (CRE) and served a term as committee chair.
- Served on the Subcommittee on Heater Transfer as a sponsor from CRE.

programs for engineers, operators, and maintenance personnel; trained engineers, operators, and maintenance personnel. Specified, designed, purchased, troubleshot, analyzed, and re-rated fired equipment such as fired process heaters, boilers, burners, incinerators, and flares for seven refineries. Solved unique heat transfer, fluid dynamics, and thermodynamic problems and implemented solutions associated with refinery equipment such as FCC's, Sulfur Units, Crude Units, Vacuum Units, Coker Units, Hydrogenation Units, heaters, boilers, etc. Solved refractory material and installation problems and implemented solutions for vessels, ducts, and heaters. Applied these skills along with field installation review, inspection, and start-up assistance to 12 fired process heaters and a fired package boiler to complete one major project totaling over 1.5 billion dollars.

Ashland Petroleum Company, Ashland, Manager of Mechanical Technologies and Reliability. Managed engineers who were responsible for the process safety management, i.e., OSHA's 1910.119 regulation and for reliability, design, purchase, troubleshooting, analyzing, writing standards, and re-rating of fired, unfired, fixed, rotating, and utility equipment for three refineries. Wrote reliability and mechanical integrity programs.

Ashland Petroleum Company, Maintenance Manager of Refinery Projects, Engineering, and Planning. Managed engineers and technicians who were responsible for maintenance planning, projects, and the reliability of the fired, unfired, fixed, rotating, and electrical equipment for the Catlettsburg Refinery.

Ashland Petroleum Company, Mechanical and Power Engineer. Provided design, specifying, purchasing, troubleshooting, analyzing, and re-rating assistance for rotating equipment such as pumps, compressors, and steam turbines and for both fired, unfired, and fixed equipment such as fired process heaters, boilers, burners, deaerators, cooling towers, heat exchangers, piping systems, and emergency shutdown systems.

ENengineering

ATTACHMENT B

ENGineering

Comprehensive and Dependable Engineering, Consulting, and Automation Services

Feasibility Considerations for NO_X Emissions Control Retrofits at Existing Refinery Process Heaters

Prepared for
Marathon Petroleum Corporation

January 2021

Feasibility Considerations for NO_x Emissions Control Retrofits at Existing Refinery Process Heaters

January 2021

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Executive Summary

Refineries operate many different designs of heaters with unique process fluids, tube materials, shapes and sizes, burner orientations, firing conditions, tube orientations, and draft types. There is no "one size fits all" feasible ULNB/SCR retrofit for existing refinery heaters. Not all existing process heaters can be safely retrofitted with ULNBs and SCRs due to flame impingement and related safety risks, inadequate area in and around the heater for operating and maintaining the heater safely, and lack of physical space to install, operate, and maintain post-combustion emissions control equipment.

It is imperative that any existing refinery process heater being considered for a ULNB retrofit is first assessed for its capability to be safely operated and maintained with the new technology. Design standards and recommended practice documents from the American Petroleum Institute (API), as well as company-specific refinery heater and burner specification documents, provide the technical criteria for a case-by-case NOx emissions control retrofit evaluation. Computational fluid dynamic (CFD) modeling is conducted on the specific heater's physical design and variable operating conditions to support the technical feasibility analysis.

Similarly, determining the feasibility and performance of installing SCR technology on an existing refinery process heater requires a case-by-case assessment of the exhaust conditions (i.e., NOx and excess oxygen concentrations and operating temperature range) and the available physical footprint to accommodate the SCR infrastructure.

Therefore, four possible scenarios result from conducting a feasibility analysis of retrofitting existing process heaters with ULNBs and SCRs:

1. ULNBs may not be safely installed due to flame impingement and/or operations and maintenance personnel's inability to safely execute their duties, and an SCR cannot be installed due to limited available space or excessive installation costs.
2. ULNBs may be safely retrofitted in an existing process heater, but an SCR may not be installed due to limited space or to structural concerns with the heater foundation (if constructed vertically) or at other nearby platform support structures if space if available. Depending on the type of ULNB, required turndown, the fuel gas composition, tramp air, safe operating conditions, and combustion air preheat, the controlled NOx from the installation is normally in the range of 25 to 50 parts per million on a volume dry basis (ppmvd) corrected to 3% excess oxygen.
3. ULNBs may not be safely installed due to flame impingement and/or operations and maintenance personnel's inability to safely execute their duties, but an SCR may be safely installed. Depending on the type of burner in the existing process heater, combustion air preheat, safe operating conditions, excess air (oxygen), tramp air, and the heater's operating mode, the NOx formation entering the SCR could be between 50 to 130 ppmvd. The SCR NOx removal efficiency and any associated outlet NOx limit must consider real-world operational variability and deviations from the theoretical assumptions used in the initial SCR design. With a reliably proven and sustained NOx removal efficiency of 92% for most installations with a higher inlet NOx concentration, the

corresponding outlet NOx from the SCR is normally 4.0 to 10.4 ppmvd with a corresponding maximum ammonia slip limit of 10 ppmvd to sustainably meet the underlying NOx limit during normal operations.

4. ULNBs may be safely installed and an SCR may also be safely retrofitted at the existing process heater. From scenario #2 above, the ULNB-controlled NOx concentration is normally 25 to 50 ppmvd corrected to 3% excess oxygen. The SCR NOx removal efficiency and any associated outlet NOx limit must consider real-world variability and deviations from the theoretical assumptions used in the initial SCR design. Given the lower NOx concentration entering the SCR, the sustained NOx removal efficiency may be lower than that in scenario #3. At a 92% control efficiency, the outlet NOx is 2.4 to 4.0 ppmvd with a corresponding maximum ammonia slip limit of 10 ppmvd to sustainably meet the underlying NOx limit during normal operations.

Any emissions limits for NOx, ammonia, and other pollutants that are established for retrofit NOx controls at a refinery heater under scenarios #2 to #4 above must consider the inherent variability in operating conditions that appreciably impact the actual control efficiency on a short-term basis.

SCAQMD's Proposed Rule 1109.1 requires every existing refinery process heater with a design heat release of 40 MMBtu/hr or greater on a higher heating value (HHV) basis to meet 2 ppmvd NOx and 5 ppmvd ammonia slip corrected to 3% excess oxygen (O_2) and on a 24-hour rolling average. These limits and associated averaging period are not proven and/or are infeasible for many existing refinery heaters. For those heaters that can potentially meet these emission limits under ideal conditions, the limits as proposed provide no margin for compliance with respect to the inherent operational variability that is experienced by refinery process heaters.

This paper outlines in Section 1 the different types of process heaters used at refineries and their associated combustion design factors. Key characteristics that are considered by engineers to determine the feasibility of retrofitting these distinct designs of refinery process heaters with NOx emissions controls are described in Section 2. Section 3 presents four possible NOx control retrofit cases or scenarios that will result from a given feasibility analysis of applying ULNBs and SCR at an existing heater and the corresponding level of NOx performance expected during normal operations following the retrofit project.

1 Common Refinery Heater Types and Design Factors for NOx Controls

Process heaters are classified in different ways. The South Coast Air Quality Management District (SCAQMD) classifies heaters per their heat release on a higher heating value (HHV) basis. However, for a given heat release or heat release range, heaters come in different physical shapes, sizes, burner orientations, process fluid types, tube materials, firing conditions, coil orientations, and air drafts. When evaluating existing heaters to be retrofitted with ultra-low NOx burners (ULNBs) and selective catalytic reduction (SCR) units, these other heater design criteria for a given heat release or heat release range will significant influence whether the existing process heater or boiler can accommodate the proposed NOx control technology.

This section explains the different heater classifications at a given heat release or heat release range that are common to the petroleum refining sector.

1.1 API and Company-specific Standards for Safe Heater Design, Operation, and Maintenance

It is important to first recognize that design standards and recommended practice documents from the American Petroleum Institute (API) as well as company-specific refinery heater and burner specification documents provide the technical criteria for the design of heaters and combustion systems for safe operation. Throughout this report, reference is made to four API documents: API-535 (reference 1), API-536 (reference 2), and API-560 (the currently published Fifth Edition and approved Addendum 1 to be published, references 3 and 4). These documents govern the design, operation, and maintenance of burners for fired heaters, post-combustion NOx controls (i.e., SCR), and fired process heaters in general refinery service, respectively. These documents have been revised over the years to address emerging technologies (i.e., ULNB), as well as learnings from safety and operational incidences that have occurred for the various types of refinery heaters that are used today.

These API and related company-specific documents (e.g., reference 8) address recognized and generally accepted good engineering practices (RAGAGEP) for refinery process heaters, burners, and post-combustion NOx controls. By adhering to the specified procedures and criteria when evaluating future modifications, such as adding combustion controls or installing post-combustion technology, to a heater complex, the technical feasibility of such changes can then be determined. For example, in order to satisfy API standards, ULNB retrofits for natural draft heaters may require a complete redesign of the heater floor, new fuel gas piping, additional instrumentation and controls, a new induced draft fan, and electrical upgrades for flame scanners and pilot ignition. For some existing heater designs, installing ULNBs cannot meet the API standards without a complete reconstruction or replacement of the heater, which effectively means that the heater design cannot be feasibly retrofitted.

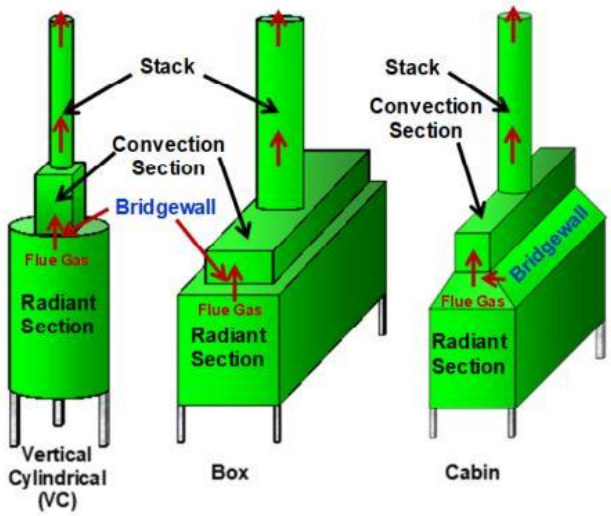
When evaluating the feasibility of changes at a heater that may impact combustion, computational fluid dynamic (CFD) modeling is conducted for the given specific heater design and the new technology option being considered. CFD modeling is an advanced engineering calculation procedure that uses complex

engineering algorithms to simulate the combustion and flue gas flow characteristics inside the burner and heater to determine if flame impingement may occur. This simulation analysis provides an understanding of the heater's impacts on safety (i.e., heat flux, tube metal temperature) for comparison to the API and company-specific design standards associated with a potential retrofit of new burners or associated combustion equipment.

These design standards contain technical criteria that apply to different types of furnace designs and burner characteristics. Understanding these key heater and burner design characteristics is essential to evaluating the feasibility of retrofitting a given heater with new NOx emissions controls.

1.2 Shape and Size Characteristics

Process heaters are classified by their dimensional shape and physical size. Three common process heaters shapes are illustrated in Figure 1-1.



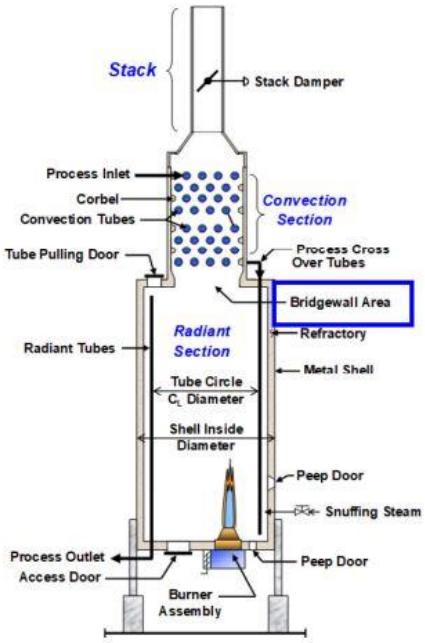
Source: reference 9

Figure 1-1 Common physical shapes of petroleum refinery process heaters.

The three common types of heaters are referred to as vertical cylindrical (VC), also called a "can" heater, box, and cabin heaters. The shape and physical size set the existing physical geometry that all internal equipment must fit inside, such as interior tubes that hold process fluid, burners, and interior target-fired walls. Each unique configuration needs to be evaluated for the feasibility of installing NOx emissions controls.

Figure 1-1 also shows the flue gas flow and the basic areas of the heater: radiant section, bridgewall, convection section, and stack. Generally, the process fluid absorbs about 60% to 70% of the total required absorbed duty while the convection section absorbs approximately 30% to 40%. Very few heaters may not have a convection section, in which case the flue gas temperature leaving the heater may be over 1,250°F. The flue gas is made in the radiant section, flows from the radiant section through the convection section, and out the stack. The bridgewall is the area where the flue gas leaves the radiant section and enters the convection section and is a key location where temperature, pressure, and excess oxygen are measured to safely control the heater.

These areas of the heater and other more detailed components of refinery heaters relate to safe design parameters that are found in API and company-specific documents. Figure 1-2 is an illustration of a VC heater identifying these areas and components for reference.



Source: reference 9

Figure 1-2 Areas and components of a refinery process heater.

API and company-specific heater design documents refer to the bridgewall or to other areas and components of the heater for safe design parameters. Some examples of these parameters that are described in this report include minimum clearance from grade to burner, maximum floor firing heat flux density, maximum tube metal temperature, etc.

1.3 Burner Orientations and Firing Conditions

Four types of burner orientations are normally found at refinery heaters, including fired upward, fired downward, fired horizontally to a target wall, or fired horizontal to an opposed burner. Each orientation poses unique conditions that may lead to unacceptable flame coalescence or impingement for ULNB retrofits. Such flame impingement on various heater surfaces can be catastrophic. For example:

- Flame impingement on process tubes will overheat the tubes, which may result in a tube rupture and a firebox explosion.
- Flame impingement on the tube hangers will cause the hangers to overheat, break, and allow the tube to fall near or into the flame.
- Flame impingement on the refractory surfaces may overheat the refractory, cause the refractory to fall (spall) off the metal shell, and overheat the metal shell creating cracks in the shell. Because operations and maintenance personnel must work near the heater, cracks in the metal shell becomes a safety issue and should be avoided. If the metal shell crack is large enough, the structural integrity of the heater may be significantly compromised, and the heater may collapse.

Figure 1-3 shows both an unfavorable (left) and a favorable (right) flame to flame interaction and coalescing patterns, for example.



Unfavorable flame patterns | Favorable flame patterns

images courtesy of MPC

Figure 1-3 Unfavorable and favorable flame to flame interaction and coalescence.

Guidelines for burner spacing are found in industry standards such as API-535 (reference 1), API-560 Addendum 1 (reference 4), or in company-specific standards (e.g., reference 8) that are based in part on these API publications.

1.3.1 Burner Configuration in Vertical Cylindrical Heaters

Vertical cylindrical (VC) heater burners are arranged in a circle on the floor and fired upward. The diameter of the burner circle can restrict the ability to perform burner retrofits. If the burner circle diameter is too small (i.e., burner to burner spacing will be too close), the flames will coalesce and grow with a potential of flame impingement on the shock tubes or arch refractory. If the burner circle diameter is too large (i.e., burner to burner spacing will be too far apart), the radiant section flue gas circulation currents will "pull" the flames into the tubes.

Significant engineering analysis, including CFD modeling, is necessary to evaluate whether flame impingement or flame coalescing has the potential to occur. To fully understand whether ULNBs can be safely installed for the equipment, each existing process heater must be individually evaluated.

Flame length restrictions are highly dependent on the heater height. Figure 1-4 shows two side-by-side natural draft VC heaters of different sizes.



image courtesy of MPC

Figure 1-4 Two vertical cylindrical heater configurations.

The firebox for the jet reboiler is only 13 feet tall, which constrains long flame envelopes associated with ULNB technology and thus may be infeasible to retrofit. Burner retrofits must comply with API-560 Addendum 1, API-535, and company-specific vertical spacing requirements. Likewise, the Jet R-3 Heater is 21 feet tall; taller than the Jet Reboiler Heater, but still may present a problem in installing ULNBs.

1.3.2 Burner Configuration in Upward Fired Cabin or Box Heaters

Figure 1-5 shows a small natural draft cabin heater that is upward fired.



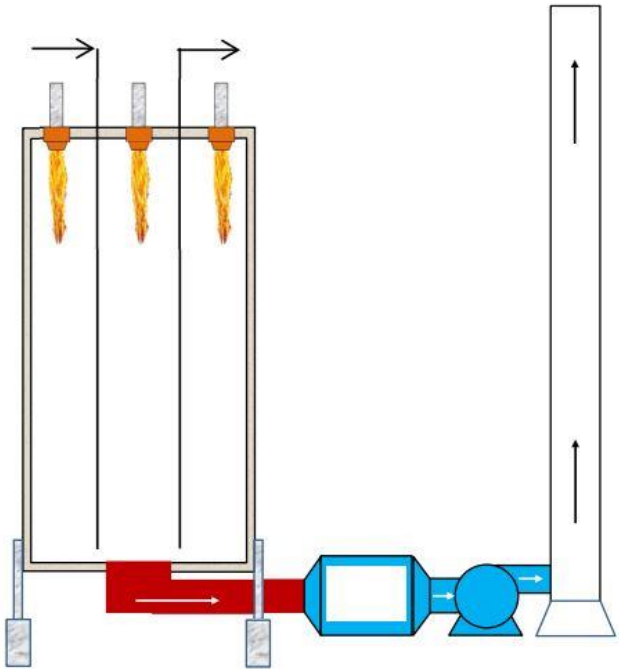
image courtesy of MPC

Figure 1-5 Upward fired natural draft cabin heater.

Upward fired cabin or box heater burners usually are arranged in-line down the length of the heater. If the burner to burner spacing is too close, the flames will coalesce and grow with a potential of flame impingement on the shock tubes or arch refractory. If the burner to burner spacing is too far apart, the radiant section flue gas circulation currents will "pull" the flames into the tubes. Safely installing ULNBs may not be possible in order to avoid flame impingement. Conformance with API-560 Addendum 1, API-535, and company-specific design standards must be evaluated on an individual basis.

As with vertical cylindrical heaters, a CFD model may be necessary to determine the feasibility of retrofitting a heater such as this with ULNBs.

Downward fired burners in refinery process heaters are less common than upward firing burners. An example illustration of downward firing burners is in Figure 1-6.



Source: reference 9

Figure 1-6 Downward fired cabin heater illustration

If the burner to burner spacing is too close to each other, the flames will coalesce and grow with a potential of flame impingement on the floor refractory. The radiant section flue gas circulation currents may "pull" the coalescing flames into the tubes.

1.3.3 Burner Configuration in Horizontal Fired Cabin or Box Heaters

Wall mounted horizontally fired burners pose unique flame length restrictions given the proximity to target walls or other burners mounted opposite of them. Figure 1-7 shows a horizontal fired box heater.



image courtesy of MPC

Figure 1-7 Horizontal fired "3-in-1" box heater.

The horizontally fired box heater above includes pressure relief doors, which are normally sources of infiltration air, also called tramp air.

Figure 1-8 shows an example schematic of a cabin heater CFD model with two horizontally opposed burners.

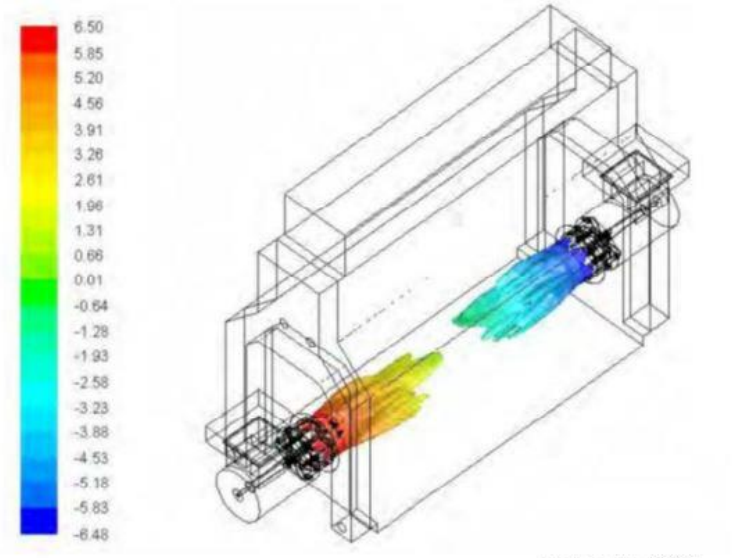
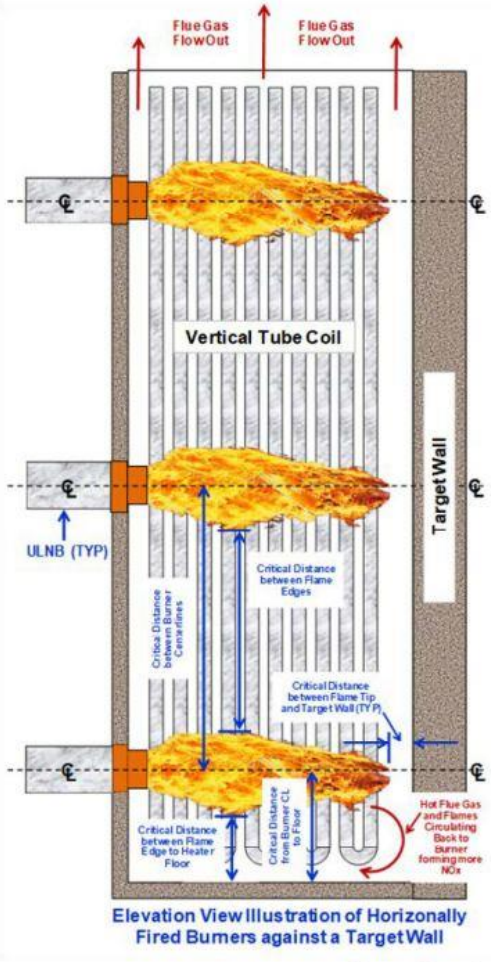


image courtesy of MPC

Figure 1-8 CFD model of horizontal fired cabin heater.

This example shows some space between the flame tips; however, some existing process heater designs may not have this space when ULNBs are installed. If adequate burner-to-burning spacing does not exist, then the flames will interact with either other, spread outward, and impinge on the tubes. Even with enough flame tip spacing between the burners, the radiant section internal currents may pull the flames into the radiant section tubes.

Figure 1-9 shows a burner firing towards a target wall for an operating heater.



Source: reference 6

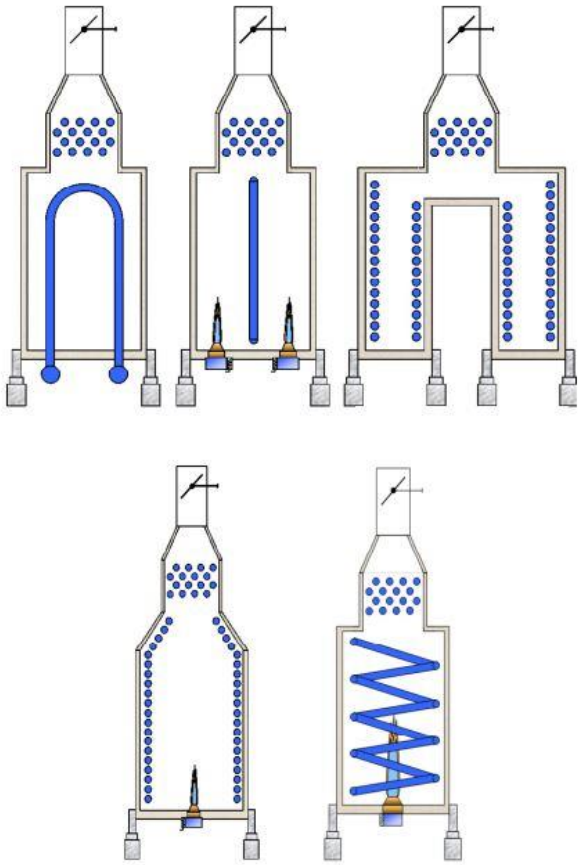
Figure 1-9 Burner firing towards a target wall.

Installing ULNBs with long flames may hit the target wall, spread out, impinge on the tubes, and create additional NOx by hot flue gas and flames near the floor circulating back to the burner. Also, if the flame envelopes are too close to each other, they may spread out and impinge on the process tubes. These consideration must thoroughly be evaluated against the API and company-specific design standards before installing ULNBs at an existing heater.

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1.4 Process Coil (Tube) Arrangements Relative to Burners

Process heater tubes can be arranged in several different manners. Each design has unique burner constraints to avoid burner coalescence or flame impingement. Figure 1-10 shows several heater tube and burner arrangements found in the refining industry.

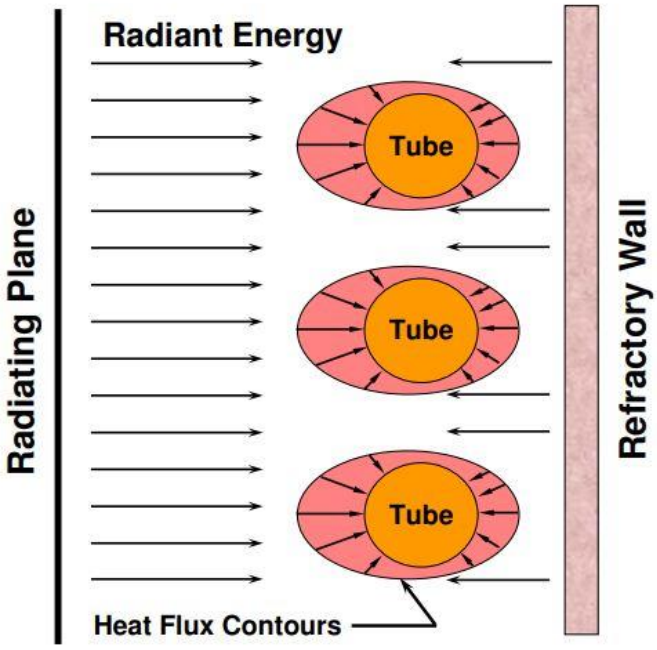


Source: reference 9

Figure 1-10 Process coil and burner orientations.

In evaluating existing process heaters for retrofitting with NOx emissions controls, the coil configurations, burner conditions, and corresponding spacing between the coils and burners need to be considered to ensure that flame impingement does not occur.

Transfer of heat from the burners to the process coils depends on the tube, burner, and refractory wall arrangements. Figure 1-11 shows an illustration of a single fired heater.

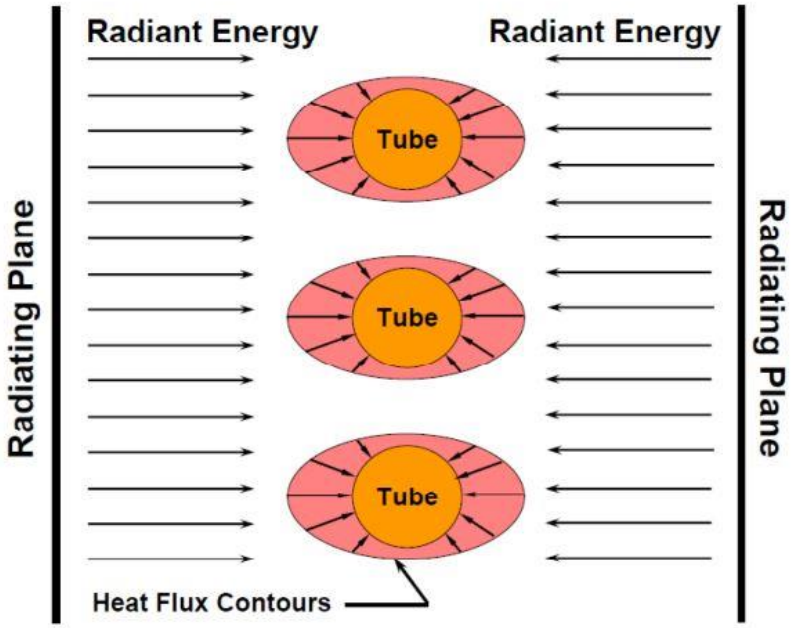


Source: reference 9

Figure 1-11 Heat transfer for a single fired process heater.

In this example, the flame from the radiating plane is on one side of the tube, so the maximum heat flux is on the front side of the tube facing the radiating plane. The maximum heat flux can be 1.8 to 1.9 times the average heat flux, which may present a concern for tube integrity. This firing condition needs to be considered when evaluating the feasibility of retrofitting burners in existing process heaters, as it could increase the heat flux at the tubes and refractory wall.

Figure 1-12 shows a heat transfer illustration of a double fired heater.



Source: reference 9

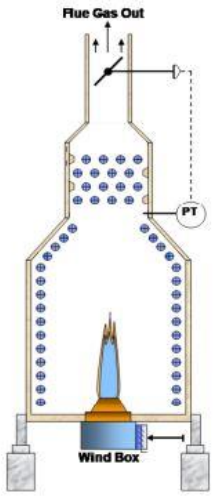
Figure 1-12 Heat transfer for a double fired process heater.

For this design, flames are located on both sides of the tube. In theory, the heat flux should be the same on both sides of the tubes. Even so, spacing between the burner flames and tubes must be sufficient to ensure no flame impingement occurs at the tubes for any ULNB retrofit project.

1.5 Heater Draft Conditions

Four basic draft conditions exist for process heaters: natural draft, induced draft, forced draft, and balance draft. Each style presents its own inherent challenges and limitations to install ULNBs and SCRs at existing process heaters.

Figure 1-13 illustrates a single fired natural draft cabin heater with horizontal coils.



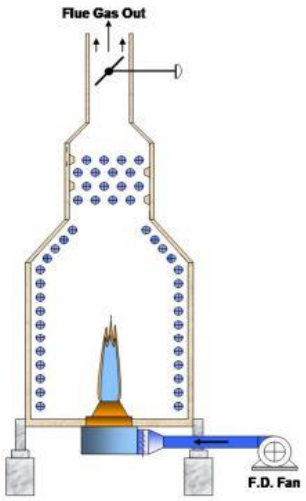
Source: reference 9

Figure 1-13 Natural draft cabin heater.

Natural draft heaters are very common in refineries. VC, box, and cabin heaters can all be natural draft. In order to satisfy API standards, ULNB retrofits generally require heater floor redesigns, new fuel gas piping, controls, instrumentation, a new induced draft (ID) fan (changing heater from natural draft to induced draft due to increased flue gas pressure drop), and possible electrical upgrades for the ID fan, flame scanners and pilot ignition.

Installing an SCR on top of the convection section may not be possible because this would create excess stresses on the existing heater structure and foundation. The space around the heater needs to be evaluated to determine if sufficient usable space is available for installation of an SCR and its ancillary equipment (i.e., ammonia skid, ammonia storage tank, induced draft fan).

Figure 1-14 shows a single fired, forced draft cabin heater with horizontal coils.

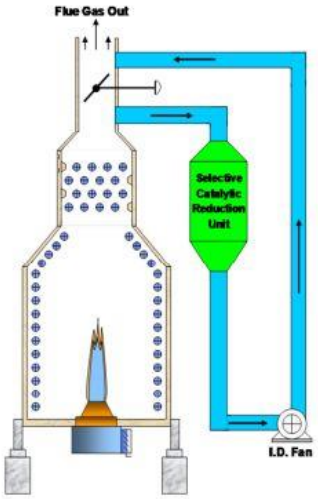


Source: reference 9

Figure 1-14 Forced draft cabin heater.

Forced draft heaters are not very common in refineries. VC, box, and cabin heaters may be forced draft. ULNB retrofit considerations for forced draft heaters are similar to natural draft heaters. Forced draft heaters may change to an induced draft or balance draft heater in order to accommodate ULNBs.

Figure 1-15 shows a single fired, induced draft cabin heater with horizontal coils.

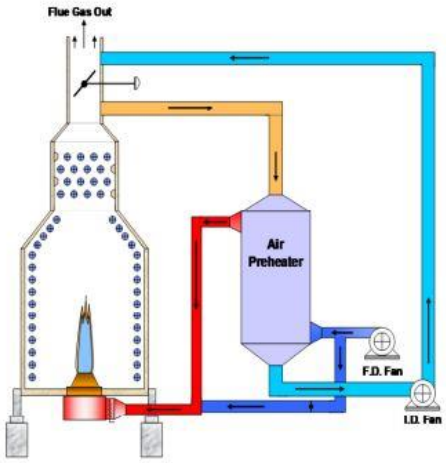


Source: reference 9

Figure 1-15 Induced draft cabin heater.

VC, box, and cabin heaters may be induced draft. This illustration shows a retrofitted SCR to either a natural draft or induced draft heater. Because of the increased pressure drop, an induced draft (ID) fan is necessary to overcome the pressure drop. Cooling the flue gas going to the ID fan, not shown in the illustration, may be necessary for the fan design and operation.

Figure 1-16 shows a single fired, balanced draft cabin heater with horizontal coils.



Source: reference 9

Figure 1-16 Balanced draft cabin heater.

VC, box, and cabin heaters may be balanced draft. The primary purpose of a balanced draft heater is to reduce fuel flow and recovery energy for a given process absorbed duty. By installing an air preheater (APH), the combustion air temperature increases and the flue gas temperature decreases. The result is a reduction in fuel flow for the same process absorbed duty. Retrofit considerations for ULNB in a balanced draft heater are the same for a natural draft heater except the combustion air duct to the burners will also need to be modified.

Retrofitting an SCR to a balanced draft heater may be difficult and costly. The SCR could potentially be placed on top of the APH provided that the existing structure and foundation can accommodate the added stress and if sufficient usable space is available.

The SCR could potentially also be located aside the APH depending on the available space. Necessary roadways for operations, maintenance personnel, first emergency responders, equipment should not be considered available space. Equipment laydown and staging areas should also not qualify as available space.

Replacing the APH with the SCR is not recommended, since a greater fuel firing rate will be needed to maintain the same process absorbed duty demand. As a result, the heater may need to be re-permitted to account for the increased firing rate, energy usage and operating costs will increase, and additional carbon dioxide, a greenhouse gas, will be generated.

2 Design and Operational Characteristics for NOx Control Retrofits

There are several technical considerations for retrofits of existing heaters with ULNBs and SCRs. Specifics for each are included below.

2.1 Mechanisms of NOx Formation

NOx formation is well known for the past 40 years. NOx is formed by atomic nitrogen and oxygen combining to form nitric oxide (NO) and nitrogen dioxide (NO_2) plus other less prevalent NOx species. In process heaters, NO is predominant at about 95% of the total NOx while the remainder is NO_2 at heater design conditions. A higher flue gas oxygen content during turndown operations will result in a relative increase in NO_2 formation. For calculation purposes, SCAQMD considers all NOx to be NO_2.

NOx formation is classified as thermal, fuel bound, and prompt NOx. Thermal NOx is formed from high temperature dissociation of nitrogen and oxygen molecules into atomic nitrogen and oxygen. The atomic nitrogen and oxygen combine to produce NOx compounds, primarily NO. Fuel bound NOx is produced by burning fuels with nitrogen compounds. The atomic nitrogen is release during the combustion process and combines with atomic oxygen to produce NOx. Prompt NOx occurs instantaneously even when burning natural gas. Very little prompt NOx occurs during combustion.

Thermal NOx is the predominant NOx generator for gaseous fuels such as natural gas and refinery fuel gas (RFG). Since existing and new heaters burn gaseous fuels instead of fuel oils, thermal NOx formation is primarily addressed in this paper.

2.2 Types of NOx Emissions Control Technologies

NOx control has evolved over the past 40 years. NOx control technologies are generally classified as combustion controls that prevent formation of NOx at the source and post–combustion NOx reduction technologies. Several control methods have been and are continually being developed and used for NOx reduction, such as the following

Combustion NOx reduction:

1. Water or Steam Injection into the Combustion Zone
2. External Flue Gas Recirculation
3. Staged Air Burners (later developed into ULNB)
4. Staged Fuel Burners (later developed into ULNB)
5. Staged Fuel with Internal Fuel Gas Recirculation (IFGR) Burners, referred to as ultra-low NOx burners (ULNB)

Post-combustion NOx reduction:

1. Selective Non-Catalytic Reduction (SNCR)
2. Selective Catalytic Reduction (SCR)

NOx reduction is controlled both at the source and through post-combustion measures, if feasible. A summary of each method is provided in this paper, noting that staged air and staged fuel burners were developed into ULNB technology. ULNBs and SCRs are evaluated in more detail given their better NOx reduction performance relative to the other technologies.

2.2.1 Water or Steam Injection Into the Combustion Zone

Both water or steam injection into the combustion zone reduces the adiabatic flame temperature and reduces the mole percentages of both oxygen and nitrogen in the combustion air. Both of these effects reduce the thermal NOx formation.

Water injection requires a source of water supply, piping, and an injector (atomizer). The water must be effectively atomized to get the maximum benefit from NOx reduction. The latent heat of vaporization and the amount of water will cool the flame temperature and reduce the thermal NOx. However, more fuel is needed to maintain a constant process energy absorption which results in more greenhouse gases being produced and emitted into the atmosphere.

Water injection requires installation costs and continual operating costs. Too much water injection will create flame instability and the burner will flame out. Water injection to control NOx is not typically used in refinery process heaters. ULNBs are better, more efficient, and have no operating costs to reduce NOx.

Steam injection is not widely used for refinery process heaters, but it is used. It, too, requires a source of steam, piping, and injectors. It does not need to be atomized, since it is already in the vapor form. It otherwise works the same way as water injection for NOx control.

Steam injection requires installation costs and continual operating costs. Too much steam injection will create flame instability and the burner will flame out. Steam injection to reduce NOx is used in process heaters in refineries, but not as much as ULNBs. ULNBs are better, more efficient, and have lower operating costs relative to water or steam injection.

2.2.2 External Flue Gas Recirculation (FGR)

External flue gas recirculation takes a portion of the flue gas going to the stack and injects it with the combustion air going to the burner. The external flue gas flow cools the flame temperature and it reduces the mole percent of both oxygen and nitrogen in the combustion air. Both of these effects reduce the thermal NOx formation.

External FGR is measured by the percent of flue gas flow that is recirculated from the flue gas flow to the stack. Too much external FGR will make the flame unstable and go out. The maximum amount of external

FGR for NOx control should be around 20 to 25%. Most applications prefer the external FGR to be less than 20% to ensure the burner flame remains stable.

External FGR is typically used in large single burner package boiler applications and is not generally used in process heaters. However, some process heaters that have a high heat release single burner that requires a forced draft (FD) combustion air fan may use external FGR to minimize NOx formation.

For package boilers, flue gas is taken from a stack connection that is typically close to grade. External flue gas flow is ducted from this stack connection to the inlet of the combustion air FD fan. The FGR flow rate is controlled by a damper in the duct from the stack and a damper upstream of the FD fan. Since process heater stacks are several feet above grade, this type of arrangement is not practical for process heaters.

For the relatively few process heaters that have external FGR, flue gas is taken from a stack connection which is several feet above grade. Insulated ducting from the stack to an FGR fan and ducting from the FGR fan to the burner must be installed for this technology. Even though the installation of external FGR is expensive, it may need to be used to help reduce NOx formation for a process heater with a single, large heat release burner application.

Most process heaters are natural draft with several small heat release burners. Installing external FGR on these heater types is impractical. Since ULNBs use both internal flue gas recirculation and fuel staging, they are more effective in reducing NOx formation and thus are more prevalent in process heaters.

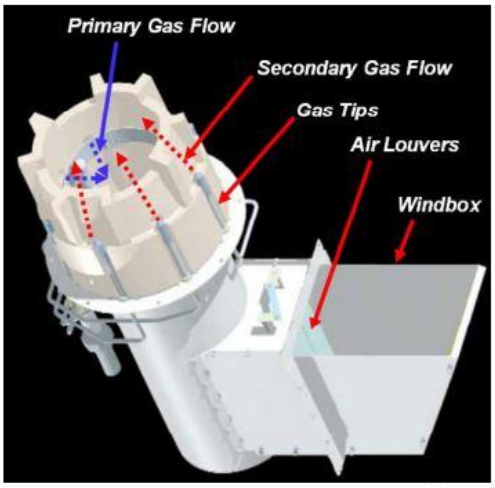
2.2.3 Staged Fuel with Internal Flue Gas Recirculation (IFGR or ULNB)

The current field-proven ULNBs use both staged fuel and IFGR to effectively reduce NOx formation during the combustion process. The total fuel is injected into two sections (primary and secondary) of the burner tile.

The primary fuel flow is about 15 to 25% of the total fuel. It is injected into the throat of the burner through holes in the burner tile. The primary fuel jet acts as an eductor that pulls in flue gas from the heater floor. The primary fuel with the IFGR is mixed with the total combustion air required for the total fuel flow resulting in the flame temperature in the primary combustion region being very low. Also, the mole percentage of both oxygen and nitrogen in combustion air and resulting flue gas are reduced. Even though the excess oxygen is relatively high, the low flame temperature and the reduced mole concentrations significantly reduces NOx formation.

The secondary fuel is about 75 to 85% of the total fuel flow. The secondary fuel is injected up the outside of the burner throat tile and into the flue gas stream from the primary fuel combustion at the exit of the burner throat tile. Due to the secondary fuel jet action, flue gas in the surrounding area is entrained and mixed with the secondary fuel before the mixture reaches the exit of the burner throat. The secondary fuel and IFGR mixture combust up the length of flame, resulting in a longer flame than conventional burners. This is a key feasibility consideration when evaluating this technology in existing heater fireboxes.

An example illustration of primary and secondary flow distribution associated with John Zink's CoolStar ULNB technology is shown in Figure 2-1.



Source: reference 7

Figure 2-1 John Zink CoolStar burner flow distribution.

The ULNBs are self-contained with no moving parts and thus results in low operating costs relative to other NOx reduction technologies. The ULNBs are relatively efficient in reducing NOx formation at the combustion source. They are primarily used for NOx control in refinery process heaters compared to the other types of aforementioned combustion controls.

See Section 2.3 for important design considerations for the feasibility and performance of retrofitting ULNB technology in existing heaters.

2.2.4 Selective Non-catalytic Reduction (SNCR)

With SNCR, ammonia or urea is directly injected into the flue gas steam at a specified flue gas temperature range. The NOx mixes with the ammonia or urea to chemically convert NOx to molecular nitrogen and water vapor.

SNCR technology is not typically used in process heaters due to a narrow flue gas temperature operating range and a relatively low NOx removal efficiency compared to an SCR. Since SCRs are more efficient than SNCR for NOx performance and have a better operating temperature range, they are primarily considered for post–combustion NOx reduction in process heaters.

2.2.5 Selective Catalytic Reduction (SCR)

Similar to SNCR, SCR technology uses ammonia (aqueous or anhydrous) or urea as the reducing agent. Ammonia is injected into the flue gas where it is mixed and flows over a catalyst bed to convert NOx into nitrogen and water vapor. To optimize NOx removal, some residual amount of ammonia remains in the flue gas. This residual ammonia is called ammonia slip.

See Section 2.4 for important design considerations when assessing the feasibility and performance of retrofitting SCR technology in existing heaters.

2.3 ULNB Design Considerations

Specific ULNB design considerations are discussed below. Each of these should be evaluated to determine the technical feasibility of ULNB retrofits and potential limits if ULNBs are feasible.

2.3.1 Spacing and Flame Impingement

Flame impingement (i.e., flame contact with heater refractory, tubes, tube hangars) is a major safety concern, and ULNBs are not feasible if this occurs. Combustion occurring in the visible flame creates high temperatures greater than 2,000°F with very active turbulence. When the flame impinges on tube surfaces, more local energy is transferred by radiation, convection, and conduction through the tube to the process fluid. Flame impingement may cause coke formation on the inside surface of the process tube. This internal coke will continue to build up and insulate the tube from the cooling effects of the process fluid. This can cause the tube temperatures to exceed tube metal temperature limits. If flame impingement continues to occur, the metal temperature will increase and the tube can rupture, releasing process hydrocarbons into the heater's firebox, risking a fire or heater explosion.

Flame impingement can also overheat heater tube hangers causing them to fail, which may then result in the process tubes falling that will create further impingement on the tubes. In addition, flame impingement on refractory can occur, causing the material to erode and fall, which will then result in overheating of the metal shell. If the local outside surface of the shell gets too hot, thermal expansion will occur. However, the shell around the hot spot is relatively cool and will not expand. The subsequent thermal expansion at the hot spot and the surrounding cooler surfaces can create a buckling effect with the potential of rupturing or cracking the shell. A ruptured shell for integrally supported heaters may even cause the heater to structurally fail.

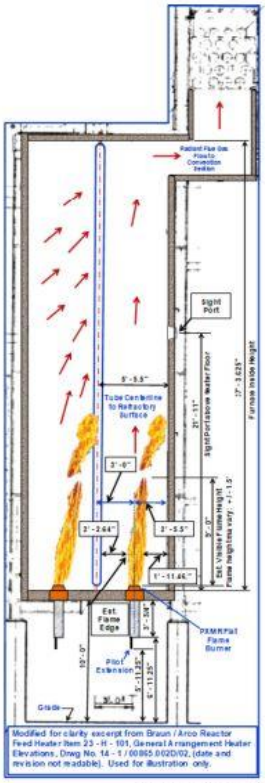
Any of these conditions presents dangerous working conditions for operations and maintenance personnel working near the heater. Therefore, an ULNB retrofit is not technically feasible if flame impingement cannot be avoided. CFD modeling should be conducted prior to the installation of ULNBs to help determine technical feasibility for each individual heater. Key design factors that can lead to flame impingement are discussed below

2.3.1.1 ULNB Flame Length

Inherently, ULNBs have long flames to stage the fuel and reduce peak flame temperatures (reference 1, references 3 and 4). At high heat releases, the visible flame length may reach 30 to 35 feet or higher

depending on operating conditions. At low heat releases, the visible flame length can exceed 10 feet, depending on the ULNB model. API-535 states that natural draft low NOx burners typically have flame heights of 1.5 to 2.5 feet/MMBtu. This can be an issue of technical feasibility because long flames can readily be pulled to the process tubes and refractory walls due to flue gas recirculation currents within the heater.

Figure 2-2 shows an example of flame impingement on process tubes.



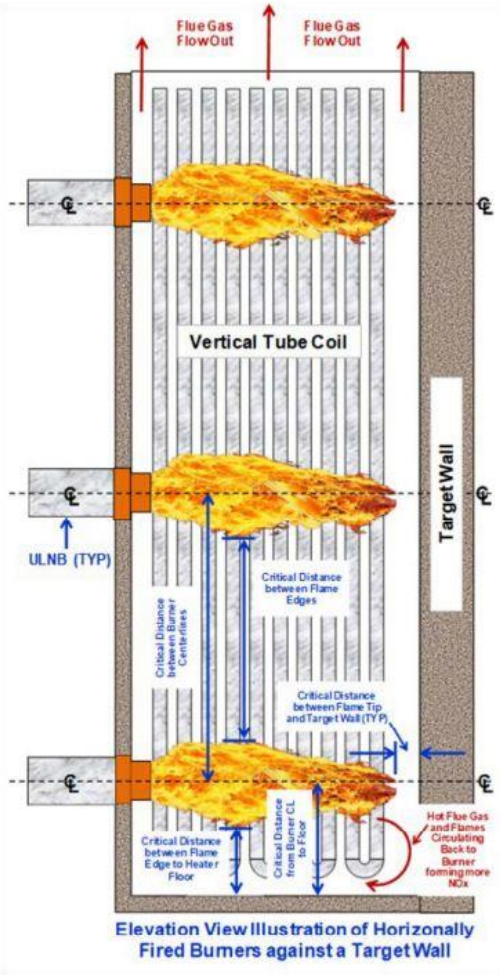
Source: reference 5

Figure 2-2 Illustration of flame impingement on process heater tubes.

In this design, the heater is a natural draft, double fired box heater with a vertical coil. The convection section is offset from the center of the box requiring the radiant section flue gas to go through the radiant tubes and to the convection section. Installing ULNBs with long flames could result in flame impingement, as shown. Further, long flames with certain heater geometries can cause flame impingement on the radiant arch (roof) refractory, the radiant roof tubes, or the convection shock tubes.

Such flame impingement, as described earlier in this document, could result in catastrophic failure. Therefore, flame impingement on the interior components of the heater must be avoided.

Figure 2-3 (also shown earlier as Figure 1-9) shows a burner firing towards a target wall.



Source: reference 6

Figure 2-3 Burner firing towards a target wall.

Installing ULNBs with long flames may impact the target wall, spread out, impinge upon the tubes, and create additional NOx by hot flue gas and flames near the floor circulating back to the burner.

Another example is Figure 2-4 (shown earlier as Figure 1-8), which is a CFD model for a cabin heater with two horizontally opposed firing burners.

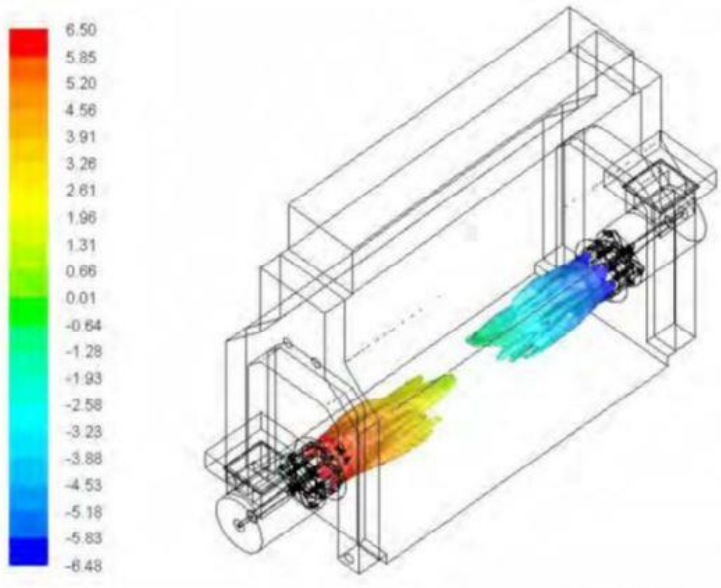


image courtesy of MPC

Figure 2-4 CFD model of horizontal fired cabin heater.

This example shows some space between the flame tips; however, some existing process heater designs may not have this spacing when ULNBs are retrofitted. If adequate space does not exist, then the flames will interact with either other, spread outward, and impinge on the tubes. Even with enough flame tip spacing between the burners, the radiant section internal currents may still pull the flames into the radiant section tubes.

2.3.1.2 Sufficient Spacing

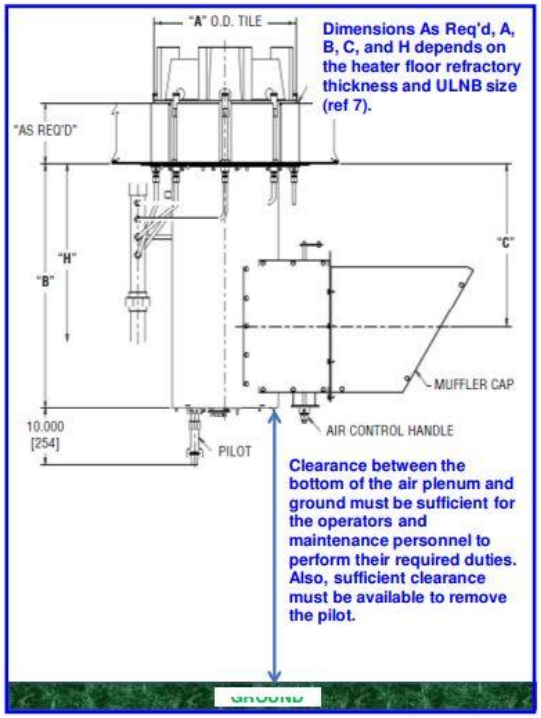
Sufficient spacing is required between the following locations to prevent flame impingement:

- Burners and the radiant tubes
- Radiant refractory side and end walls along with the top of the flame to the arch refractory
- Arch tubes, and / or the convection shock tubes
- Burner to burner

At a minimum, heaters retrofitted with ULNB should follow the same spacing guidelines as a new heater. API-560 Addendum 1 (reference 4) and company-specific heater design documents provide spacing guidelines that should be applied to ULNB retrofits for existing process heaters. Operating experience has shown that the existing API-560 (reference 3) spacing guidelines can be too narrow to avoid flame impingement. The API subcommittee on heat transfer increased these spacing requirements in the approved and to-be-published Addendum 1 of API-560 Fifth Edition (reference 4) to reduce the risk of flame impingement.

2.3.2 Maintenance Accessibility

Operators and maintenance personnel safety is paramount. Some heater floors are too close to the ground, which would force maintenance personnel to perform job responsibilities in unsafe and unergonomic positions for ULNB retrofits. Any ULNB retrofit should have adequate spacing between the bottom of the burner windbox (i.e., air plenum) and the ground to allow operators and maintenance personnel to safely perform their duties. API-560 Addendum 1 requires that the distance between the bottom of the burner air plenum to ground be at least 6.5 feet. Figure 2-5 shows an excerpt from the John Zink CoolStar burner brochure (reference 7) that illustrates spacing requirements for accessibility.



Source: reference 7

Figure 2-5 John Zink CoolStar ULNB excerpt.

The air plenum dimension (B) may be anywhere from 3 to 4 feet long depending on the burner size. For example, if an existing heater floor is only 7 feet from the ground, then clearance between the bottom of the air plenum to the ground would be between 4 and 3 feet. This is insufficient clearance for the operations and maintenance personnel to perform their duties.

During startup, there must be adequate space for an operator to inspect burners and air registers and to properly complete lighting of the pilot(s) from underneath the air plenum. For normal operations, operators inspect the burner air plenums to ensure the pilots remain lit and to inspect the mechanical integrity of components that could affect burner stability or performance. Clearance must be adequate for maintenance personnel to safely remove and clean the burner tips and pilot orifices while the heater is operating. In addition, maintenance personnel have to be able to safely remove the entire pilot, burner gas tips, or flame detection devices while the heater is operating. Operators and maintenance personnel should not be positioned on their knees, backs, or stomachs to perform these tasks.

2.3.3 ULNB Performance Characteristics

Burner manufacturers normally guarantee emissions based upon a single operating condition. Other operating scenarios are not typically guaranteed. However, burner manufacturers may estimate emissions for different expected conditions.

ULNBs manufactured by John Zink, Callidus, and Zeeco, for example, use staged fuel and internal flue gas recirculation (IFGR) principles to minimize thermal NOx formation from combustion. Fuel staging reduces peak flame temperatures, reducing NOx formation. IFGR injects flue gas with reduced oxygen concentrations into the combustion zones, cooling the flame, and reducing NOx formation.

Burner manufacturers generally base their NOx guarantees on the combustion air temperature, fuel gas composition, and excess air (excess oxygen) going to the burner. Refineries have dynamic operating conditions and it is common for process heaters to operate at a wide operating envelope that is inconsistent with the set of conditions used for burner guarantees. For example, and as discussed more in Section 2.3.4.2:

- *Presence of an Air Preheater:* Some high heat release heaters have air preheaters (APH) that raise the combustion air temperature to improve heater efficiency resulting in fuel savings and in lower greenhouse gas emissions. However, NOx formation increases with the use of an APH since higher combustion air temperatures raises peak flame temperatures (reference 1). Therefore, NOx performance limits for heaters with APHs are higher compared to heaters without APHs.
- *Hydrogen and other compositional and heating value fluctuations in refinery fuel gas:* Fuel gas composition is another key parameter impacting NOx performance. For example, high hydrogen concentrations in the fuel gas system increases guaranteed NOx performance because of high combustion temperatures relative to typical fuel gas constituents. Hydrogen in fuel gas systems can vary from 20% to over 60% depending on refinery operating conditions and configurations. Further, any fuel gas constituents that contain chemically bound nitrogen such as ammonia (NH_3), hydrogen cyanide (HCN), or amines can significantly increase NOx formation rates.
- *Changes in oxygen content within heater:* The amount of excess air (i.e., excess oxygen) is controlled to improve efficiency, provides sufficient oxygen for complete combustion at varying operating and ambient conditions, and to ensures flame stability. NOx burner guarantees are higher for heaters with increased concentrations of excess air. Allowing for more excess air into the fire box will increase thermal NOx formation (reference 1). Note, NOx formation increases with excess air up to a maximum value, but enough excess air will eventually reduce peak flame temperatures due to the cooling effect of the ambient air. However, operating with high levels of excess air is inefficient and may jeopardize flame stability. The amount of excess air for optimal operation depends on the heater operation and the manufacturer's recommendation at turndown and low bridgewall temperatures. Therefore, NOx burner guarantees are highly dependent on appropriate levels of excess air.

2.3.4 Heater Operation

Process heater operation is dynamic with several different operation conditions. The excess air required for safe operation will change depending on the heater's operating condition. The heater operating scenarios are the following:

1. Start-up
2. Normal operation
3. Turndown operation
4. Normal shutdown
5. Emergency shutdown

Specific considerations and factors impacting each scenario are discussed below.

2.3.4.1 Start-Up

Process heaters are required to gradually warm the equipment components (e.g. process tubes, tube hangers, refractory, heater shell, etc.) to minimize thermal shock and stresses that may damage the heater. The rate of increase of the flue gas temperature during start–up should be close to 100°F per hour. At normal operating conditions, the flue gas temperature at the bridgewall is typically around 1,400 to 1,700°F depending on the heater type. Therefore, the startup time required is generally at 14 to 17 hours; some processes are longer than 24 hours. During the start–up condition, excess air concentrations must be higher to control the temperature in the heater. As discussed above, higher excess air will increase NOx formation, which must be a consideration for the development of NOx concentration limits if they are inclusive of start-up operations.

2.3.4.2 Normal Operations

During normal operations, ULNBs generally perform within the manufacturer's guaranteed limits from approximately 50 to 100% of the burner's maximum heat release and with a bridgewall temperature greater than approximately 1,300°F. Outside these parameters, excess oxygen increases along with NOx formation. Further, when bridgewall flue gas temperatures are at or below 1,300°F at a high firing rate, John Zink requires the excess oxygen to be 6% on a wet basis or greater for burner stability. Each burner manufacturer has established NOx guarantees based on 15% excess air.

Excess air is the amount of air over the required amount of air to completely combust the fuel gas, i.e., the excess. Excess air cannot be directly measured. Excess oxygen directly correlates to excess air. Since excess oxygen is measured, excess air can be determined by a mathematical correlation. For example, depending on the fuel gas composition, 15% of dry excess air correlates to around 3% excess oxygen on a dry mole basis.

In practice, low excess oxygen maybe unsafe for all normal operating conditions for new or retrofitted heater designs. For safety, the excess oxygen at the bridgewall should be more than sufficient to ensure that all the fuel is completely combusted in the firebox for all heater operating conditions. A flue gas with

excess fuel can occur without sufficient combustion air, which may lead to a heater explosion. The excess oxygen and corresponding NOx performance in the heater depends on the following:

1. Fuel gas composition.
2. Tramp air.
3. Burners Outages and Maintenance.
4. Weather conditions.

Fuel Gas Composition

All refineries combust off gas from the refining process, referred to as refinery fuel gas (RFG). RFG composition can change on a moment's notice. For example, hydrogen concentrations can vary significantly based on operating conditions at other refinery process units. During this transient condition, the amount of excess air required for complete combustion of the fuel can drastically increase. Therefore, the combustion process may not have enough time to respond to the change in RFG, which could result in an unsafe sub-stoichiometric firing condition (i.e., insufficient excess oxygen within the heater for complete combustion). This condition must be avoided at all times, hence the need for flexibility with excess air requirements to accommodate unforeseen process changes. The relationship between excess air fluctuations and NOx performance is described in Section 2.3.3. Refinery operations are dynamic and RFG composition changes are impossible to accurately predict. Therefore, safety considerations require that more excess oxygen is needed to ensure adequate air is used in the combustion process, typically at 3.5% to 4.0% on a wet basis. Given MPC's experience with heater safety, burner manufacturers must guarantee NOx at 3.5% wet excess oxygen at the bridgewall.

Tramp Air

Tramp air is defined as air that enters the heater, but not through the burner (i.e. unintended infiltration air). Typically, sight ports are a common source of tramp air. Operators open sight ports approximately once each shift to view the operating condition of the burners, heater, or process tubes allowing a significant amount of tramp air to enter the heater. Depending on the heater operating condition, these sight ports may be open for around 5 to 20 minutes.

Further, heater shells may not be completely sealed, causing tramp air to enter through these openings. Very old heaters may be bolted together instead of welded, and some existing process heaters will have pressure relief doors at the top of the radiant section. These types of heaters can be a significant source of tramp air. Tramp air will also come from burners taken out of service for cleaning and replacing burner tips, flame impingement caused by a given burner or burners, and heater turndown. Refineries already try to minimize tramp air, but some may still exist which may increase NOx formation.

Heaters are controlled by bridgewall excess oxygen, so tramp air can negatively alter burner performance. Combustion air is designed to enter the heater through the burners. For example, if the bridgewall excess oxygen is 2.5% and the tramp air contributes around 1.5% of this excess oxygen, then the excess oxygen from the ULNB is only around 1%. Low excess oxygen can produce unburned hydrocarbons (UHC) and CO. Depending on firebox temperatures, UHC and CO can mix with tramp air and combust above the

main visible flame envelope. This is called afterburning and it will produce its own visible flame that may engulf the process tubes resulting in the overheating of process tubes. As described in Section 2.3.1, this can create an unsafe operating condition.

Burner Outages and Maintenance

ULNB have very small burner tip drillings (can be less than 1/16-inch diameter). Small burner tips are necessary in staged fuel combustion to minimize NOx formation. Even with RFG filters or coalescers, small tips can plug and need to be cleaned to maintain burner performance and stability. In addition, ULNB burner tips may crack over time requiring replacement. Operator and maintenance personnel are able to clean or replace tips while the heater continues to operate. A defective burner is taken out of service by an operator by turning off the burner gas supply and closing the air register. Burner registers are not typically air-tight. Even with the burner air registers closed, around 3 to 5% of the design air flow may still go through the burner becoming a source of tramp air as described above. In addition, the firing rate on the operating burners must increase to produce the same energy release and a constant process operating condition. Air entering the operating burners must increase to ensure complete combustion with no afterburning. Tramp air from the out of service burner register increases bridgewall excess oxygen concentrations. The air registers for the burners in service will be manually opened by the operators to ensure enough air is available for the increase in fuel going through the burners increasing excess air entering the heater. The additional excess air from the out-of-service burner register and the in-service burners will produce more NOx compared to normal operating conditions during this type maintenance event.

In some instances, burners causing flame impingement may be taken out of service for analysis. Burners may be left out of service to improve flame envelopes and to avoid flame impingements. However, as described above, an out-of-service air register may leak excess air, increasing NOx formation.

Weather Conditions

Air entering natural draft burners can fluctuate based on atmospheric conditions. As the atmospheric air conditions change, the pressure differential across the burner air registers can change, inducing more air or restricting air from entering the burners. Therefore, excess oxygen at the bridgewall could increase or decrease depending on the weather conditions, impacting NOx formation and burner performance.

2.3.4.3 Turndown Operation

Turndown operation is the reduction of heater firing relative to normal operations, generally as a response to a decrease in the associated process production rate. Heaters are designed to operate at turndown depending on the market demand conditions, process conditions, start of run (SOR), and end of run (EOR) for a given process unit. Turndown is defined as the actual heat release of the burner compared to the burner's maximum heat release. For example, if the burner maximum's heat release is 20 MMBtu/hr (LHV) and the burner is operating at 10 MMBtu/hr (LHV), then the turndown is (20/10) or 2:1. If the unit turndown is more than 4:1 (25% of maximum capacity), burners may be taken out of service to ensure burner stability. Out-of-service burners result in tramp air going through these burners' air registers as described above, which is expected to increase NOx formation.

Process heaters that service refinery hydrotreating units experience high frequency of turndown operation. After each catalyst change, the fresh catalyst acts as the processing heat source via an exothermic reaction. The process heaters, in turn, often operate at a high turndown, generally up to a 6:1 ratio. As the catalyst ages over multiple years of operation, the catalyst-generated exotherm declines and the process heater correspondingly is fired at a higher utilization to supply additional heat to the process. During high turndown, the NOx levels on a concentration basis will be higher than burner guarantees and are unlikely to meet stringent NOx standards being proposed.

2.3.4.4 Normal Shutdown

For a normal shutdown, heaters should be cooled slow at around 100°F/hr to avoid excess thermal stress that could damage heater components. During the shutdown process, the heater will be provided additional excess air to help cool the components resulting in higher NOx concentrations, even though the actual mass of NOx emitted is lower due to the decrease in firing.

2.3.4.5 Emergency Operation

During the infrequent occurrence of an emergency operation, the excess oxygen may need to increase which will result in more NOx formation. For example, the process tube metal temperature may exceed its high temperature limit but is not high enough to cause an emergency shutdown. The heater may still operate until a controlled unit shutdown can occur. During this operating period, the heater may experience high turndown for a long duration, which will require more excess air and NOx formation.

2.3.4.6 Emergency Shutdown

An emergency shutdown is a rare event that occurs when a key safety operating parameter is outside of normal limits. For example, if the process fluid flow immediately stops entering the heater, then the heater will automatically shut down for safety purposes. The fuel flow to the burners will automatically shutoff, alarms will sound, and the problem troubleshot to determine the cause and fix. Subsequent restart of the heater will require more excess oxygen going to the burners thus generating a higher NOx concentration in the flue gas.

2.4 SCR Design Considerations

SCR systems have several important design considerations for process heaters. The NOx removal efficiency of SCR depends primarily on the following factors:

1. Ammonia injection distribution
2. Flue gas temperature entering the SCR catalyst
3. Catalyst fouling
4. Catalyst quantity
5. Catalyst age
6. Allowable ammonia slip
7. Heater operations

All these factors are considered by catalyst manufacturers for the heater operating from startup, high turndown, and normal to maximum operations. However, accurately predicting these factors over a several-year operation is difficult, because unforeseen circumstances may occur during operation. Additional detail for each factor is discussed below.

2.4.1 Ammonia Injection Distribution

Ammonia distribution is critical in the proper operation of the NOx reduction in the SCR. The ammonia injection grid (AIG) sprays the reagent into the flue gas where it assumed to be homogeneously mixed with the NOx. To ensure even distribution, a computational fluid dynamic (CFD) model is required for each SCR installation. Without proper ammonia distribution and mixing, the SCR NOx removal efficiency decreases. Theoretical CFD modeling may not be totally accurate in actual applications; therefore, an appropriate margin should be given for the SCR removal efficiency.

2.4.2 Flue Gas Temperature Entering the SCR Catalyst

Flue gas temperatures in excess of 820°F may sinter SCR catalysts and shorten the catalyst life span. API-536 defines sintering as the irreversible loss of active catalyst surface due to high temperatures. High temperature causes the catalyst particles to combine, eliminating micropores and macropores, reducing the catalyst's effectiveness. Some heaters have flue gas temperatures in excess of 820°F. To extend the catalyst life, more catalyst can be added at the SOR, which increases the cost of the installation.

Further, catalyst removal efficiencies can decrease for high flue gas temperature operations. A heater operation with a flue gas temperature at the SOR of 650°F and 850°F at the EOR may only achieve a SCR removal efficiency around 93%, depending on inlet concentration, with a maximum NH_3 slip of 5 ppmvd.

2.4.3 Catalyst Fouling or Masking

API-536 defines masking as a condition where the outer surfaces of the catalyst are covered with foreign material such as refractory dust, outside air dust, ceramic fibers, etc. Dust covers active catalyst surfaces and making the catalyst less accessible for NOx reduction. Accurately predicting catalyst fouling while designing a SCR system is very difficult. To account for masking, SCR manufacturers add more catalyst and increases catalyst spacing to allow the foreign material to pass through. Even with proper design, fouling will increase over time, which reduces the NOx control efficiency; therefore, appropriate margin should be given for the SCR removal efficiency in the establishment of NOx limits.

Further, API-536 defines catalyst poisons as flue gas components that can adsorb onto active catalyst surfaces and rendering them inactive. A list of poisons may be found in API-536, Table K.1, Catalyst Degradation Sources and Mechanisms (reference 2). An example catalyst poison is chromium. Many process heater tubes are made of chromium, which oxidizes over time producing a scale (chromium oxide). This catalyst poison will hinder the SCR performance over time.

2.4.4 Catalyst Volume

NOx reduction is directly related to the amount of catalyst volume in the SCR unit. Also, the volume of catalyst is determined by the amount of NOx and flue gas temperature entering the SCR and the required

NOx destruction efficiency and/or controlled emissions level. Depending on the specific heater operating conditions, the volume of catalyst may become very large requiring significant costs for installation. For example, the flue gas temperature leaving a given heater at the start of run could be around 650°F while at the end of the run the temperature may be over 850°F. These two operating conditions may require two different catalyst types and installation zones, resulting in substantial catalyst and installation costs that may not be economically cost effective to install an SCR.

2.4.5 Catalyst Age

The removal efficiency for SCR systems are calculated at the end of the catalyst life. As the catalyst ages, the active catalyst sites become inactive (refer to Section 2.4.3). For example, the removal efficiency for a new SCR was estimated to be 94.78% at the heater's SOR. At the EOR, the removal efficiency was estimated to be 93.24%. Therefore, the proposed SCR NOx removal efficiency of 95% is too high for the case given above. A NOx removal efficiency of 92% is generally more reasonable for existing process heaters that can be retrofitted with SCRs, depending on the level of inlet NOx.

2.4.6 Allowable Ammonia Slip

To maintain optimal removal efficiency, the ammonia slip must increase over time due to the commensurate increased inactivity of the SCR catalyst. Conversely, if the ammonia slip is fixed, then the NOx removal efficiency decreases. Simultaneously requiring stringent NOx emissions and ammonia limits will significantly decrease the useable life of the catalyst and neither limit may be reliably met.

2.4.7 Heater Operations

As discussed in Section 2.3.4, there are several heater operational variables that can impact the inlet NOx concentration to a SCR reactor. This can result in higher outlet NOx concentration from the SCR system unit especially if ammonia slip is limited to 5 ppmvd. This is especially true during periods of startup and shutdown when additional excess air is sent to the heater.

2.4.8 Additional Considerations

There are additional considerations to assess for a SCR system design.

SCR catalyst installation is critical in achieving the best NOx reduction possible. If the final installed system does not accurately reflect the modeled CFD design, then the NOx removal efficiency will be reduced. In addition, usable space may not be available to install an SCR system and its ancillary equipment considering the amount of required catalyst needed to ensure a high NOx removal efficiency. Section 1.2 shows additional detail on potential space considerations for SCR.

The cost of installing ULNBs and SCRs is also an important factor in retrofitting heaters. This document does not develop installation or loss of revenue costs, but we note that a very costly installation for minimal NOx reduction may not be economically feasible for some existing heaters. Each heater needs to be evaluated individually to determine the cost effectiveness.

The theoretical NOx reduction estimates for a SCR retrofit may not be exact. All engineering calculations have allowable tolerances and design margins. The proposed BARCT limit of 2 ppmvd NOx with a 5 ppmvd maximum NH_3 slip allow for no margin of error or tolerances in the SCR design, especially given possible deviations in heater or burner operating conditions as discussed in Section 2.1.

Finally, accurately measuring low NOx concentrations for compliance with BARCT limits is unreasonable. Individual readings may fluctuate as much as +/- 2 ppmvd or more. Calibrating monitoring equipment to assess compliance with the proposed NOx limit may not be feasible. The NOx monitor may provide different values than a stack test given the low concentrations. Given the high level of monitoring precision required to assess compliance, the proposed BARCT limit of 2 ppmvd is too low.

3 NOx Retrofit Cases for Existing Heaters

Based on the design considerations for ULNBs and SCR systems, it may not be technically feasible to install these controls on every process heater. Therefore, there are four possible scenarios that arise based on a ULNB and SCR feasibility review for each individual process heater:

1. ULNBs may not be safely installed due to flame impingement and/or operations and maintenance personnel's inability to safely execute their duties, and an SCR cannot be installed due to limited available space or excessive installation costs.
2. ULNBs may be safely retrofitted in an existing process heater, but an SCR may not be installed due to limited space or to structural concerns with the heater foundation (if constructed vertically) or at other nearby platform support structures if space if available. Depending on the type of ULNB, required turndown, the fuel gas composition, tramp air, safe operating conditions, and combustion air preheat, the controlled NOx from the installation is normally in the range of 25 to 50 parts per million on a volume dry basis (ppmvd) corrected to 3% excess oxygen.
3. ULNBs may not be safely installed due to flame impingement and/or operations and maintenance personnel's inability to safely execute their duties, but an SCR may be safely installed. Depending on the type of burner in the existing process heater, combustion air preheat, safe operating conditions, excess air (oxygen), tramp air, and the heater's operating mode, the NOx formation entering the SCR could be between 50 to 130 ppmvd. The SCR NOx removal efficiency and any associated outlet NOx limit must consider real-world operational variability and deviations from the theoretical assumptions used in the initial SCR design. With a reliably proven and sustained NOx removal efficiency of 92% for most installations with a higher inlet NOx concentration, the corresponding outlet NOx from the SCR is normally 4.0 to 10.4 ppmvd with a corresponding maximum ammonia slip limit of 10 ppmvd to sustainably meet the underlying NOx limit during normal operations.
4. ULNBs may be safely installed and an SCR may also be safely retrofitted at the existing process heater. From scenario #2 above, the ULNB-controlled NOx concentration is normally 25 to 50 ppmvd corrected to 3% excess oxygen. The SCR NOx removal efficiency and any associated outlet NOx limit must consider real-world variability and deviations from the theoretical assumptions used in the initial SCR design. Given the lower NOx concentration entering the SCR, the sustained NOx removal efficiency may be lower than that in scenario #3. At a 92% control efficiency, the outlet NOx is 2.4 to 4.0 ppmvd with a corresponding maximum ammonia slip limit of 10 ppmvd to sustainably meet the underlying NOx limit during normal operations.

Any emissions limit for NOx, ammonia, and other pollutants that is established for retrofit NOx controls at a refinery heater under scenarios #2 to #4 above must consider the inherent variability in operating conditions that appreciably impact the actual control efficiency on a short-term basis.

SCAQMD's Proposed Rule 1109.1 requires every existing refinery process heater with a design heat release of 40 MMBtu/hour (HHV) or greater to meet 2 ppmvd NOx and 5 ppmvd ammonia slip corrected

to 3% excess oxygen on a dry mole basis and on a 24-hour rolling average. These limits and associated averaging period are not proven and/or are infeasible for many existing refinery heaters. For those heaters that can potentially meet these emission limits under ideal conditions, the limits as proposed provide no margin of safety for compliance with respect to the inherent operational variability that is experienced by refinery process heaters.

In conclusion, process heaters in the refining industry have several unique considerations for ULNB and SCR retrofits. There are many unique heater configurations that can significantly alter the feasibility of ULNB or SCR. Each heater needs to be evaluated independently for feasibility. Not all heaters can be safely equipped with ULNBs and SCR due to flame impingements, safe operations, inadequate space, etc. Given these considerations, the Proposed Rule 1109.1 emissions limit of 2 ppmvd NOx with 5 ppmvd ammonia slip for most refinery heaters is too stringent to allow for the needed operational flexibility and will be impossible for existing process heater retrofits to continuously comply.

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ATTACHMENT C

ENGineering

Comprehensive and Dependable Engineering, Consulting, and Automation Services

Technical Memorandum

To: Marathon Petroleum Corporation (MPC)
From: L. David Wilson
Subject: Review of NEC and FERCo Engineering Reports for Refinery Process Heater NOx Reductions
Date: January 29, 2021

Norton Engineering Consultants (NEC) and the Fossil Energy Research Corporation (FERCo) evaluated the feasibility and implementation of NOx control technologies for the South Coast Air Quality Management District (SCAQMD). The studies from NEC and FERCo are expected to be used to assess the feasibility of SCAQMD Best Available Retrofit Control Technology (BARCT) NOx emission controls and associated limits for many refinery emission sources. While the studies are informative, there are several technical concerns for ultra-low NOx burners (ULNB) and selective catalytic reduction (SCR) that are either not addressed or that are not addressed appropriately for refinery process heaters. A technical review of each study as it relates to refinery process heaters is provided in this memorandum.

These comments are based also on a detailed evaluation conducted of technical feasibility issues associated with NOx emissions reductions at existing refinery process heaters. This evaluation is provided in a report to MPC under separate cover and provides important documentation for the comments made in this memorandum.

1.0 Review of NEC Report Regarding Process Heater NOx Controls

In general, the Norton Engineering Consultants' (NEC) report (reference 7) was well written and adequately addressed current and emerging control technologies to reduce NOx formation. However, the report excludes logical and important conclusions which the data supports, as follows:

1. Not all existing process heaters can be safely retrofitted with ultra-low NOx burners (ULNBs) to avoid flame impingement on the existing heater process tubes, tube hangers, or refractory surfaces. Flame impingement on process tubes will overheat the tubes, may result in a tube rupture, and a firebox explosion. In summary, the report does not recognize the key critical issues:
    a. The report recognizes that ULNBs produce longer flames but does not address solutions for existing heaters' radiant sections that are too short to accommodate these longer flames.
    b. Additional costs are necessary to install and maintain a fuel conditioning system, such as filters/coalescers, stainless steel piping, electrical and instrumentation, controls, foundations, etc. Also, the report does not address the costs associated with periodic burner tip cleaning and tuning.

c. The report identifies burner spacing considerations but fails to offer solutions when proper burner spacing is not possible to prevent flame impingement in an existing heater.
d. The report does not address the cost associated with eliminating tramp air commonly found in decades-old existing heaters. Very old heaters may be bolted together and will, essentially, require a heater rebuild to eliminate tramp air.
e. The report recognizes that exceeding the API-560 (reference 3) and API-560 Addendum 1 (reference 4) standards for floor heat flux density or volumetric density will increase NOx emissions from ULNBs but fails to state that these parameters need to be considered in retrofitting ULNBs. The report state that exceeding these parameters' values will limit the effectiveness of ULNBs in retrofit applications but draws no conclusions for NOx reduction effectiveness associated with this exceedance. The report provides no remedies if the heat flux or volumetric density deviates from API's safe design criteria.
f. The report recognizes that heater turndown must be considered in retrofitting ULNBs but does not identify remedies to the issues that turndown presents for NOx control and related performance.
g. The report reviews emerging technologies that have not been proven or even installed in the field. For example, ClearSign has installed very few burners with limited applications for very low heat releases in the field, while John Zink SOLEX burner is still in the testing phase with no installations in the field. Emerging technologies such as these reviewed that have not been proven in the field or still on the testing stand should not be considered in setting a NOx emission limit that is intended to be applied as a retrofit for every type of refinery process heater.

2. Not all existing process heaters can be retrofitted with SCRs due to space limitations and/or excessive cost constraints. The report states on page 23, *"Existing units are generally space constrained and locating the SCR and ancillary equipment (i.e., ammonia/urea tanks, pumps, vaporizer, piping, etc.) within the available on-site plot space or remotely is an important operational consideration."* This statement fails to identify recommendations or the cost effectiveness of installing an SCR if the spacing is constrained for an existing heater in an already congested process operating area.
3. All existing process heaters must be individually analyzed to determine if ULNBs and SCR with its associated ancillary equipment can safely, physically, and economically be installed.
4. The report mentions many issues for installing ULNBs and SCRs that must be considered but fails to acknowledge that these considerations effectively makes retrofitting existing process heaters with these technology infeasible on a technical and/or cost basis.
5. The report mentions SCR reliability at levels greater than 10 ppmvd and notes limited information is available for SCR reliability at less than 10 ppm. It does not reach the logical conclusion that a universal solution is unavailable that can be applied to all existing heaters and that can sustainably meet the BARCT limits as currently proposed.

Additionally, NEC's primary conclusions in the report are not indicative of the data and presentation provided:

1. NEC concludes that the NOx limit of 2 ppmvd (assumed to be corrected to 3% excess oxygen) is technically achievable for all existing process heaters. This conclusion ignores their own statements that limited technical information on NOx removal is available below 10 ppmvd to determine SCR reliability at these emission levels.
2. NEC concludes that the ammonia slip limit of 5 ppmvd is technically achievable for all existing process heaters. This conclusion neglects statements in the report that overtreating with ammonia may be necessary to achieve SCR NOx removal if the optimum temperature window is not achievable. The report addresses installing an ammonia destruction bed to limit the NH3 slip. However, the report does not address the performance of the ammonia destruction bed, its disposal requirements, and an associated cost effectiveness analysis to determine feasibility.

In summary, NEC's report, as reviewed and critiqued in this memorandum, demonstrates that a single approach for establishing NOx removal efficiencies and emission limits at every type of existing, older process heater at refineries is not technically feasible or practically achievable.

The NEC report centers on the use of ULNBs and SCR technology for NOx emissions reduction. Technical challenges and considerations for these installations and related performance issues that are not identified or need clarification are provided in the following sections.

1.1 Review of ULNB Information in Section 3.1 and 3.3 of NEC Report

NEC's report identifies NOx control technologies that limits NOx formation from combustion and reduces NOx post-combustion. The control technologies that limit NOx formation from combustion in the NEC report are fuel switching, external water or steam injection into the combustion process, external flue gas recirculation (FGR), and low NOx (LNB) and ultra-low NOx burner (ULNB). After reviewing the control technologies to limit NOx formation in the combustion process for existing process heaters, the NEC report recommends using ULNB.

Technical concerns in the NEC report with respect to the feasibility (i.e., safety) and performance of ULNB technology are provided below.

Flame Impingement - NEC recognizes that ULNB have longer flames compared to conventional burners, which may result in flame impingement on heater tubes, tub hangers, or refractory for ULNB retrofits. The NEC reports states on page 12, *"A radiant section that is firing with ULNB needs to be long enough to avoid flame impingement on internal surfaces."* However, the report does not address the consequence if the radiant section is not sufficiently tall enough to avoid flame impingement. Flame impingement is a critical safety concern. Such impingement can rupture heater tubes by overheating the metallurgy. Flame impingement may also break heater tube hangers, which may cause the process tubes to fall and create further impingement. Any of these scenarios may lead to a catastrophic explosion in the firebox, which is

clearly unacceptable. In addition, impingement on refractory can cause the material to erode and fall from the heater shell overheating the metallurgy. The shell may crack, which presents dangerous working conditions for operations and maintenance personnel working near the heater. Therefore, an ULNB retrofit is not technically feasible if flame impingement cannot be avoided. CFD modelling and adherence to the API standards and company-specific heater design standards should be conducted prior to the installation of ULNB at a given heater to determine feasibility.

Air Preheaters – Table 3.1-1, which excerpts Table 13 of API-535 (reference 1), provides typical NOx emissions when burning a gaseous fuel. It states that the NOx levels with ULNB could be 10 ppmvd firing natural gas or 20 ppmvd with refinery fuel gas (RFG). NEC appropriately notes that this table in the API document was produced from a test furnace operating under ideal design and operating conditions and is not from an operating heater at a refinery. NEC's report also states that these low values are rarely achievable in an operating heater and the actual NOx could be as much as two times (40 ppmvd) that of the idealized Table 3.1-1 number. However, NEC does not consider the performance impact of refinery heaters with air preheaters. NOx concentrations from heaters with air preheaters typically are higher due to hotter flame temperatures, which may hinder a heater's ability to comply with associated BARCT limits.

Heat Flux and Volumetric Heat Density - NEC discusses the concerns for ULNB retrofits for heaters with high floor heat flux or high volumetric heat density. ULNB performance would be hindered, but no specific performance levels were listed. Careful consideration should be given to ULNB retrofits for these types of process heaters and associated emission limits. Further, no remedies were provided for heaters that may exceed the API-560 heat flux or volumetric heat density standard.

Fuel Conditioning - NEC note that ULNBs typically use fuel filters/coalescers to minimize plugging of burner tips as they are smaller than conventional burners. Even with proper fuel conditioning, ULNB burner tips can still become plugged requiring removal of the burner for online maintenance. Burner removal is likely to degrade ULNB performance because air registers for removed burners commonly leak air (also known as tramp air). During online maintenance, the other remaining burners in service must fire at higher rates, which increases bridgewall oxygen and NOx formation. While burner maintenance may not be a frequent occurrence, this operating scenario must be considered for the establishment of limits for ULNB installations on natural draft heaters. Further, these maintenance costs should be considered for any cost effectiveness analysis for ULNB. Also, piping downstream of the filter/coalescer sets may need to be upgraded to stainless steel to prevent the formation of rust and scale associated with carbon steel piping and, therefore, minimizing fouling of the burner tips. The upgrade in downstream ULNB piping was not considered by NEC.

Tramp Air - Many older vintage heaters were bolted together as opposed to welded or have large pressure relief doors at the top of the radiant section, which results in significant tramp air infiltration increasing thermal NOx formation. Tramp air must be independently evaluated for the establishment of limits for ULNB retrofits. In addition, NEC does not recognize the cost associated with minimizing tramp

air to improve ULNB performance, which could be significant for aged heaters. In some cases, a cost a full heater rebuild may be necessary to resolve tramp air issues.

Burner Spacing - NEC mentions technical issues with burner spacing for ULNB, but they do not consider horizontal flame clearance between two opposed horizontal firing burners or between horizonal firing burners and a target wall. This can result in flame impingent and the associated issues discussed above. In addition, the clearance concerns above can change flue gas recirculation patterns creating higher flame temperatures and more NOx formation, degrading the ULNB performance.

Maintenance Accessibility - NEC fails to consider burner accessibility if a retrofit project requires lowering of the floor to accommodate a longer flame length. Doing so may cause heater floors to be too close to the ground, which would force maintenance personnel to perform job responsibilities in unsafe and unergonomic positions for ULNB retrofits. There must be sufficient clearance from the bottom of the burner air plenum to the ground to pull out the pilot assembly while the burner is in operation.

Emerging Burner Technologies - NEC reviewed emerging burner technologies including the ClearSign Core and John Zink's SOLEX. While the testing results for these burners appear promising, they are still considered to be emerging technologies and are not commercially proven by the refining industry. NEC does not unequivocally state that these emerging technologies are not commercially proven and are not viable alternatives to existing ULNBs. Since they are not proven technologies, they should not be considered these technologies should not be considered as viable alternatives to well-establish ULNBs nor should they be used to establish BARCT limits.

Flameless Combustion Technologies - NEC stated that flameless combustion technologies "may... not be possible" for existing heater retrofits. The technology has a very limited application and should not be a viable alternative to conventional ULNBs.

ULNB Feasibility – Table 3.3-1 of the NEC report seems to suggest that ULNB technology is technically feasible for all existing process heaters. Each heater must be evaluated ULNB technical feasibility individually to determine conformance with API and company-specific safe design standards and practices.

ULNB Turndown Performance with Air Preheaters – Table 3.3-1 may not be representative of ULNB performance in turndown conditions for heaters equipped with air preheaters. More typical ULNB performance for this scenario is 40-45 ppmv @3% O_2.

In summary, the NEC report does not address what happens when an existing heater cannot install ULNBs without resulting coalescing long flames, flame impingement on heater internals (i.e., tubes and refractory surfaces), and/or does not allow for safe operation and maintenance. Additionally, each existing heater should have the following technical evaluations performed to determine if ULNBs are safe to install to

avoid flame impingement and allow the heater to be safely operated and maintained pursuant to API and company-specific design standards:

1. Determine the floor heat flux and volumetric heat density and ensure they comply with API-560 Addendum 1 (reference 4).
2. Determine the spacing between flame height and roof tubes, convection shock tubes, and roof refractory to ensure no flame impingement can occur on these surfaces.
3. Determine the spacing between the burner flame envelope and tubes and refractory surfaces to avoid flame impingement on these surfaces.
4. Determine the spacing between burners to ensure the flames do not coalesce, grow, and become unstable.
5. Determine the spacing between flame tips for horizontal firing burners to avoid flame intertwining and possible tube flame impingement.
6. Determine the spacing between the flame tip and the target wall to avoid flame impingement on the wall that may result in tube flame impingement and higher NOx formation.
7. Perform a computational fluid dynamic (CFD) model to help determine whether flame impingement will not occur with the retrofitted design.

1.2 Review of SCR Information in Section 3.2 and 3.3 of NEC Report

The NEC report reviews three post-combustion NOx removal systems: selective non-catalytic reduction (SNCR), low temperature oxidation (LoTOx), and selective catalytic reduction (SCR). SNCR technology is almost never used in process fired heaters due to turndown issues and geometrical considerations and thus is not a viable option for process heaters. LoTOx is not intended for gas-fired refinery process heaters and has no commercial installations. Therefore, NEC evaluated SCR in more detail.

Technical concerns not addressed or that require clarification in the NEC report with respect to the feasibility (i.e., safety) and performance of SCR technology are provided below.

Turndown - NEC did not mention that turndown for heaters with ULNB can be a concern for SCR performance because the flue gas temperature entering the reactor will decrease lowering the NOx removal efficiency. This must be a consideration for the establishment of limits for heaters with SCR.

Varying Flue Gas Temperatures - The flue gas temperatures for some heaters vary significantly from the start of run (SOR) to the end of run (EOR) between maintenance turnaround activities. Designing a catalyst bed to maintain an optimal NOx control efficiency for varying temperatures throughout the entire operating range from SOR to EOR must be considered for the establishment of limits for each individual heater with SCR. A higher temperature will affect (lower) NOx removal efficiency, and each heater must be individually evaluated to determine SCR effectiveness at expected flue gas temperatures.

Allowable Ammonia Slip - Higher levels of ammonia slip (i.e. 10 ppmvd) is needed to maintain NOx removal efficiencies at various operating conditions that deviate from theoretical and optimal conditions

used in the SCR design control efficiency calculations. This is especially important if high control efficiencies are desired. NEC does not address the intrinsic relationship and flexibility needed with ammonia slip to optimize NOx removal.

CFD Modeling and Limit Flexibility - Even with proper CFD modeling and SCR system design, there can still be improper mixing degrading the NOx removal efficiency. Reasonable tolerances should be incorporated in NOx and ammonia slip limits. NEC does not address this inherent practical issue.

Unexpected Catalyst Fouling and Limit Flexibility - Although SCR systems are designed to operate at the guaranteed performance at EOR operation, predicting the actual operating condition of a heater for a five-year period is difficult. For example, it is impossible to predict dust fouling from refractory or heater tube scaling as the materials deteriorate over time. Marathon has observed the fouling of SCR catalyst on a process heater within just 20 months of operation, reducing the NOx control efficiency by 8% and causing a 9-day unplanned outage. Given this uncertainty, any NOx or ammonia slip limits must not be too stringent to prohibit heater operation at EOR operations.

Physical Space Constraints – NEC discussed space constraint considerations for SCR operation but not the clear consequence of not physically accommodating SCR. If a company cannot physically accommodate an SCR at an existing heater, it is not technically feasible.

1.3 Review of NEC's Conclusions in Section 4.1 of Report

Section 4.1 of NEC's report assesses the feasibility and performance of the combined ULNB and SCR technologies relative to the BARCT limits in the Proposed Rule 1109.1. Key technical concerns in the NEC report with respect to these conclusions are provided below.

Reliability and Performance – NEC's belief that a 2 ppmvd limit is technically feasible for all refinery process heaters is unsubstantiated. NEC states that "limited information is available for SCR reliability at sub 10 ppmv NOx emission levels." In addition, Figure 4.1-1 shows that most emissions data are well above the 2 ppmvd threshold. Therefore, it is illegitimate to propose a 2 ppmvd limit as it has not been thoroughly demonstrated in practice, especially given the various heater and burner configurations in place at petroleum refineries. Generally, the refining industry has demonstrated that a 92 to 94% NOx reduction in a single catalyst bed with NH3 slip up to 10 ppmvd is feasible in practice. Therefore, for heaters where it is technically feasible to install SCR, corresponding limits must provide adequate flexibility as opposed to a standard applied broadly across the industry. The final SCR outlet NOx concentration is dependent on many factors including the burner performance, so it must be evaluated in a heater-specific basis and with CFD modeling to ensure good mixing and no bypassing or channeling. This is especially important for heaters that where it is technically infeasible to install ULNBs and should be taken into consideration for establishing BARCT limits, since the NOx concentration to the SCR is higher than with ULNB.

Averaging Time – NEC recommends that limits for SCR units should be based on a rolling 24-hour average. However, even a 24-hour averaging period still may not provide sufficient time to allow for startup periods, outages in the ammonia injection grid, or unforeseen operation upsets. Averaging times should be similar to limits for fluidized catalytic cracking units (FCCUs) on an annual and weekly basis.

Performance Variation by Heater Classifications – Table 4.1-1 classifies equipment by the design firing rate (MMBtu/hr). However, this is insufficient and not a reasonable comparison. Heaters in the refining industry have different process fluids, tube materials, shapes, sizes, burner orientations, firing conditions, tube orientations, and draft types. The report does not recognize these differences and how this impacts the feasibility of meeting the proposed BARCT limits and ULNB/SCR performance considerations. The table incorrectly assumed that ULNBs could safely be retrofitted in all existing process heaters. Each heater has to be evaluated independently to determine if ULNBs could be retrofitted in an existing process heater without flame impingement and will allow operations and maintenance personnel to safely execute their responsibilities. This is a logical conclusion that is not stated in the NEC report.

1.4 Conclusions

After a thorough review and comments on NEC's NOx BARCT Analysis Review (reference 7) report, the NOx limit of 2 ppmvd and a corresponding maximum ammonia slip of 5 ppmvd corrected to 3% excess oxygen was not reliably proven in the NEC report. These values do not allow operating flexibility and will be impossible to continually met by retrofitting exist process heaters with ULNBs and SCRs, even if it was feasible to complete such retrofits. These low limits may be difficult for even newly designed process heaters to meet when first put in service and continually operating for several years under ideal conditions.

Not all existing process heaters can be safely retrofitted with ULNBs and SCRs due to flame impingement, safe operations, and inadequate space for installation. The data analysis in the report and the data presented in Figure 4.1-1 do not support these very low limits as being reliable and achievable for all existing refinery process heaters.

2.0 Review of FERCo Study Regarding Process Heater NOx Controls

In general, the Fossil Energy Research Corporation (FERCo) report (reference 5) was well written in its description of theoretical calculations for sizing SCR units and their operations. The SCR examples were idealized and do not represent most existing operating heaters. The report does not adequately cover feasibility and performance of retrofitting field-proven ULNBs in existing process heaters; it was focused primarily on SCRs.

FERCo identifies four unique issues in page 1-1 of the report that are important to address in this memorandum for clarification, as follows:

1. *"Implementation timing given that typical maintenance turnarounds take place every 5 years, and the planning for acquisition of both capital and construction labor are concluded at least 2 years*

prior to the event." A 5-year turnaround cycle is not typical for all units within the refinery. Some units may be longer at 6 to 10 years. Any potential SCR installation should account for the actual turnaround cycle for a given unit in the refinery. The example in Table 5–1 is based on 40,000 hours, equivalent to 4.56 years and not the stated 5-year turnaround. If the unit must be shut down and the catalyst changed before its normal turnaround cycle, then the loss of revenue should be considered in the overall economics of installing an SCR.

2. *"Space can be limited in a refinery due to adjacent equipment and the need for maintenance access roadways and equipment staging areas. SCR reactors and ancillary equipment require adequate space for installation. These space limitations may require some creative engineering and can have an impact on retrofit costs."* This statement is factual; however, it suggests that with creative engineering an SCR may be installed effectively anywhere with extra costs. In reality, space may not be available to install an SCR and all of its ancillary equipment. On page 5–1, FERCo recognizes this fact: *"Until BARCT limits are established and refineries and their associated engineering companies can seriously look into retrofits, it is difficult to say what fraction of the units may not be candidates for SCR retrofits."* Furthermore, the SCR units may be quite large and heavy with massive foundations. These foundations plus all the other associated installation costs need to be considered in the overall economic analysis.
3. *"NOx averaging times to accommodate the anticipated variable NOx outlet values, when attempting to meet low BARCT limit."* The FERCo report does not address this issue in detail. The Norton report (reference 7) addresses the issue and recommends the averaging time be increased to 24 hours. However, even a 24-hour average will not always be sufficient to address major operating deviations or maintenance. For example, if the ammonia injection grid or system malfunctions, 24 hours will not be enough time to repair it.
4. *"Generation of particulate matter due to residual NH_3 from SCR and concentrations of sulfur compounds in the flue gas from the combustion of refinery fuel gas."* The report stated that these reactions occur below 500°F. If the heater system has a combustion air preheater (APH) and an induced draft (ID) fan, the ammonium sulfates and bisulfates will deposit on the APH and the ID fan internal surfaces downstream of the SCR. Additional particulate matter will also exit the stack as emissions. Depending on the quantity of deposits, the heater may be prematurely shutdown to clean the APH and ID fan. The loss of revenue for this outage should be considered in the overall economic analysis of installing an SCR. If the system does not have an APH, then the particulate matter will form outside the stack when the flue gas is cooling to ambient temperatures.

The FERCo report identified some significant conclusions listed on page 6-1:

1. *"Refineries may be space-challenged to install SCRs on some devices."* To be clear, the space may be too challenging to install SCRs at all.
2. *"Further lowering NOx emissions could increase particulate emissions..."* This fact needs to be considered in determining NOx emission limits.

3. *"The EPA NOx costing model could be improved to better reflect refinery SCR systems, most notably the methodology to estimate the required catalyst volumes based on current catalyst technology that is available."*
4. *"Existing refinery SCR systems will need to be evaluated on a case-by-case bases to see how they can be upgraded to meet the new BARCT limit, or if major modifications are necessary."*

The FERCo report ignores the following logical and key conclusions that should be made:

1. Not all existing process heaters can be safely retrofitted with ULNBs to avoid flame impingement on the existing heater process tubes, hangers, or refractory surfaces. The report fails to review current and proven ULNBs and instead only reviews non-field proven emerging technologies which should not be considered as BARCT until they are field proven for all applicable installations.
2. All existing process heaters must be individually evaluated to determine if ULNBs can safely be installed without creating flame impingement on heater internal components. The report fails to even mention the possibility of flame impingement, which is a critical technical feasibility concern.
3. A NOx limit of 2 ppmvd (assumed to be corrected to 3% excess oxygen) is not technically achievable for all existing process heaters.
4. The associated ammonia slip limit of 5 ppmvd is not viable for all existing process heaters to provide the flexibility needed to optimize NOx emissions over a heater's operating cycle.

In summary, FERCO's report, as reviewed and critiqued in this memorandum, demonstrates that a single approach for establishing NOx removal efficiencies and emission limits at every type of existing, older process heater at refineries is not technically feasible or practically achievable.

The FERCo report centers on the use of ULNB and SCR technology for NOx emissions reduction. Technical challenges and considerations for these installations and related performance issues that are not identified or need clarification are provided in the following sections.

2.1 Review of Relevant Host Equipment in Section 2 of FERCo Report

FERCo's report presented a refinery process overview and some major equipment types. In this review, only the existing refinery process heaters were reviewed and commented on here.

Operational Variability - The FERCo report showed a graph of refinery process utilization: Figure 2-5, Four – Week Refinery Percent Utilization: West Coast Refineries. This graph shows that the utilization fluctuated from a minimum of 75% to a maximum of 100% with average of around 89% for the period of 1995 to 2019. The graph is highly misleading inasmuch as FERCo infers that "key portions of a refinery" such as heaters operate at steadily high duties at all times. This is not the case for many process heaters depending on the service that they are in. Individual heater utilization and turndown will differ from the plant utilization shown in the graph and the heater duty varies based on many operating variables including process fluid temperatures and flowrates and dynamic fuel gas composition. This graph only

shows that the consumers on the west coast have a high demand for transportation fuels and the refineries supply this demand, but it does not show individual heater utilization within the plant.

Factors Affecting NOx Control Cost – FERCo identifies and defines their concept of direct and indirect costs but does not detail the components considered or excluded in the cost analysis. The lists below present some of the major cost items, not inclusive, with retrofitting existing process heaters with ULNBs and SCRs. These lists do not differentiate between FERCo's "direct or indirect cost" since all of these costs are associated with a potential retrofit:

ULNB:

1. Purchase complete ULNBs assemblies.
2. Factory performance testing of ULNBs.
3. Installation: remove the existing burners and modify the floor to accept the ULNBs, equipment rental, labor, etc.
4. New instrumentation, installation, and control: flow meters, flame scanners, pressure transmitters, temperature transmitters, etc.
5. New filter / coalescer sets, piping, and installation. Piping downstream of the filter coalescer set is the more expensive stainless steel piping to avoid internal scale that would go to the UNLBs and plug the burner tips.
6. New combustion air ducting especially for a balanced draft heater with a combustion air preheater.
7. Engineering and administrative costs for retrofit, e.g., computational fluid dynamic (CFD) modelling.

SCR:

1. Purchase complete SCR modules and catalyst.
2. New flue gas ducting with internal installation and support.
3. New foundations to support SCR modules, catalyst, and ducting from the heater to the SCR.
4. Ammonia skid, foundation, and installation.
5. Ammonia storage tank, foundation, and installation.
6. New piping for ammonia injection: the ammonia injection grid (AIG).
7. New instrumentation, installation and control.
8. New electrical connections.
9. Platforms.
10. Lighting.
11. Engineering cost for retrofit.
12. Installation: equipment rental, labor, etc.
13. New control logic and installation.

14. Catalyst disposal cost based on 5-year cycle instead of 10-year cycle because of the very low, proposed NOx emission and NH3 slip limits.

New Induced Draft (ID) Fan

1. Purchase cost of ID fan.
2. Factor mechanical and performance test.
3. Ducting to ID fan from the SCR and from fan to the stack.
4. Electrical equipment, connections, and upgrade to electrical system.
5. Foundations and installation.
6. Dampers and / or variable frequent drives.
7. Lighting.
8. Engineering cost for retrofit.
9. New control logic and installation.

The above are just some of the cost considerations to retrofit ULNBs and SCRs for existing process heaters and is not inclusive of all the equipment needs for a given installation based on heater-specific circumstances.

Production Loss - Since retrofitting existing heaters with ULNBs and SCRs is time-consuming and may occur outside the regular turnaround schedule, the turnaround time to accommodate this work will likely result in direct losses in production and opportunity. If the turnaround is extended or occurs outside of planned outages due to the retrofit, then the cost associated with a loss of production should be considered in the overall cost effectiveness of the retrofit.

2.2 Review of ULNB Information in Section 3.1 of FERCo Report

Technical concerns in the NEC report with respect to the feasibility (i.e., safety) and performance of ULNB technology are provided below.

Performance Level - FERCo's report states at page 3-1, *"Ultra Low NOx Burners (ULNB) are burners with NOx emissions less than 10 ppm when firing refinery fuel gas."* Also, the reported stated that, *"Previously, ULNBs were considered capable of providing NOx levels on the order of 20 ppm while firing natural gas."* These statements are incorrect. Unproven emerging technologies should not be considered in any rulemaking process for universal retrofits until after they have been proven in the field. For now, the current ULNBs are the only field proven type of staged internal FGR technology that have guaranteed NOx emissions based on refinery fuel gas (RFG) composition, excess oxygen requirements, bridgewall temperature, and combustion air temperature. Actual NOx emissions typically range from 25 to over 50 ppmvd corrected to 3% excess oxygen on a dry basis depending on the safe operating parameters of the heater, variability of RFG composition, excess oxygen levels, bridgewall temperature, tramp air, and combustion air preheat.

Conformance with Safe Heater Design Standards - FERCo states that, *"Retrofit burners must also comply with API Standard 535 and 560."* This refers to API-535 (reference 1), API-560 (reference 3), and API-560 Addendum 1 (reference 4). API-535 specifically apply to both new heaters and retrofitted heaters; however, API-560 Addendum 1 applies to new heater design. Retrofitting ULNBs should also comply with company-specific heater design standards (e.g., reference 6) that are a result of many years of experience installing and operating heaters with ULNB technology. Particularly important with these design standards is the need to avoid flame impingement. The FERCo report fails to adequately address the limitations to retrofitting the current ULNBs in existing process heaters such as flame impingement on process heater tubes, tube hangers, and refractory surfaces. Flame impingement on process tubes is a safety issue. Flame impingement on process tubes will overheat the tubes, may result in a tube rupture, and a firebox explosion. Flame impingement on tube hangers will cause the hanger to overheat, break, and let the process tubes fall. The tubes could fall into the flame creating tube flame impingement with the results as mentioned above. Flame impingement on the refractory surfaces may overheat the refractory, cause the refractory to fall (spall) off the metal shell, and overheat the metal shell creating cracks in the shell. Because operations and maintenance personnel work near the heater to safely operate and maintain the heater, cracks in the metal shell become a huge safety issue and should be avoided. If the metal shell crack is large enough, the structural integrity of the heater may be significantly compromised and the heater may collapse.

Emerging Technologies - ClearSign and John Zink Hamworthy SOLEX technologies are explained in the FERCo report as emerging, not field proven, technologies. Therefore, they are not viable as a universally feasible retrofit. The Norton Engineering Consultants (NEC) report (reference 7) explains these emerging technologies in more detail and concluded that they are not viable for BARCT.

2.3 Review of SCR Information in Sections 3.2, 4, and 5 of FERCo Report

Technical concerns not addressed or that require clarification in the FERCo report with respect to the feasibility (i.e., safety) and performance of SCR technology are provided below.

SCR Performance Over an Entire Operating Cycle - The FERCo report explains the theoretical equations used in the design of an SCR. The report makes assumptions and suggestions in their calculations that may not be accurate over a five-year or longer (6 to 10 years depending on the unit) turnaround cycle of an operating heater. SCR evaluations should be based on field data over the entire duration of operations and on the actual turnaround cycle for a given unit and not just theoretical equations or an assumed turnaround cycle of 5 years.

Actual SCR Performance Due to Actual Operating Conditions - FERCo theoretically determines the required homogeneity of the NH_3 to NOx ratio based on a root means square (RMS) analysis that must be achieved to comply with their assumptions and suggestions. However, in practice, this theoretical homogeneity is not always achieved or maintained, since flue gas flow deviations occur, heater operating conditions change, and unforeseen events occur such as catalyst fouling or poisoning (reference 2) during operations. When considering all factors in SCR catalyst design per API-536 (reference 2), the actual NOx

reduction values will materially deviate from theoretical calculated NOx reduction values. All engineering calculations must have tolerances and design margins. A 2 ppmvd NOx concentration limit with a 5 ppmvd maximum ammonia slip is too low and does not allow for adequate design margins or tolerances for the theoretical calculations or deviations in heater or burner operating conditions or maintenance requirements. FERCo's theoretical example shows a NOx reduction of around 97% (inlet NOx = 70 ppm and outlet NOx = 2 ppm). A reliable NOx reduction value in practice is closer to 92% (inlet NOx = 70 ppm and outlet NOx = 5.6 ppm, assuming corrected to 3% excess oxygen). Even the 5.6 ppm may not be reliably sustainable over a given time period depending upon the operation of the heater, unforeseen events such as catalyst fouling or poisoning, and required maintenance activities such as burner tip cleaning or repairing a malfunction ammonia injection system. The example in FERCo's report should be consider idealized and not reliable for retrofitting existing process heaters.

Byproduct Emissions - The FERCo report briefly addresses ammonium bisulfate and ammonium sulfate formations. Again, the report stated theoretical examples of ammonia slip versus ammonium bisulfate and ammonium sulfate formations. The report states that these reactions occur below 500°F. If the heater system has a combustion air preheater (APH) and an induced draft (ID) fan, the ammonium sulfates and bisulfates will deposit on the APH and the ID fan internal surfaces downstream of the SCR. Particulate matter will also exit the stack as emissions. Depending on the quantity of deposits, the heater may be prematurely shutdown to clean the APH and ID fan. The loss of revenue for this outage should be considered in the overall economic analysis of installing an SCR. If the system does not have an APH, then the particulate matter will form outside the stack when the flue gas is cooling to ambient temperatures.

Selective Catalytic Reduction Cost Basis: EPA Model and Industry Sources - This section was not reviewed for this analysis and memorandum. However, we note in Table 4-1 on catalyst volume that it uses 5% excess oxygen assumed on a dry basis instead of the required 3% to satisfy the proposed BARCT. Using the standard 3% excess oxygen, the corresponding NOx values will increase by 12.6%.

Impact of Removing Air Preheaters for SCR - FERCo's report at page 5-1 states, *"For instance, for a couple of devices, air preheaters will be removed to accommodate the SCR reactor."* If the APHs are removed and not re-installed downstream of the SCR, then the following scenario may occur that must be weighed into the technical and economic feasibility of such a retrofit:

1. More fuel will be needed to achieve the same process absorbed duty resulting in more operating costs to be considered in the overall economic analysis.
2. If the permitted heat release (HHV) limit is based on fired duty and if the heater is already operating at the permitted heat release, the heater may need to be re-permitted to a higher heat release or otherwise it will lose productive capacity for which such costs need to be considered.
3. If the heater can be repermitted or if the existing permit allows for the higher heat release when the APH is removed, then more CO_2, a greenhouse gas, will be emitted to the atmosphere than a corresponding reduction in NOx emissions.
4. A new ID fan, its ancillary equipment, and foundations will have to be purchased and installed.

5. New foundations will have to be done to accommodate any extra weigh by the SCR installation.

Dual SCR Reactors in Series - FERCo recommends dual SCR reactors in series for BARCT, stating on page 5-3, *"The implementation of SCR NOx control on refinery heater systems can be challenging for many reasons. First and foremost, the physical spaces around these heater units are typically very congested."* If the spaces are very constrained to prohibit the retrofit of an SCR, then an SCR cannot be installed and the NOx emissions will not reliably meet a very low 2 ppmvd standard. Therefore, establishing a very low limit for retrofitting existing process heater would be not feasible or achievable in this situation. The FERCo report ignores this logical eventuality.

2.4 Conclusions

After a thorough review and comments on FERCo's report (reference 5), it is important to recognize the following key conclusions that FERCo should have made regarding technical and economic feasibility of BARCT:

1. Not all existing process heaters can be safely retrofitted with ultra-low NOx burners (ULNBs) to avoid flame impingement on the existing heater process tubes or refractory surfaces.
2. Not all existing process heaters can be retrofitted with SCRs due to space limitations and/or excessively high costs.
3. All existing process heaters must be individually evaluated to determine if ULNBs and SCRs with its ancillary equipment can safely, physically, and economically be installed.
4. A NOx limit of 2 ppmvd (assumed to be corrected to 3% excess oxygen) is not technically achievable for all existing process heaters.
5. A corresponding maximum ammonia slip limit of 5 ppmvd is too low and is inappropriate for being able to optimize NOx reductions for all of the types of existing process heaters .

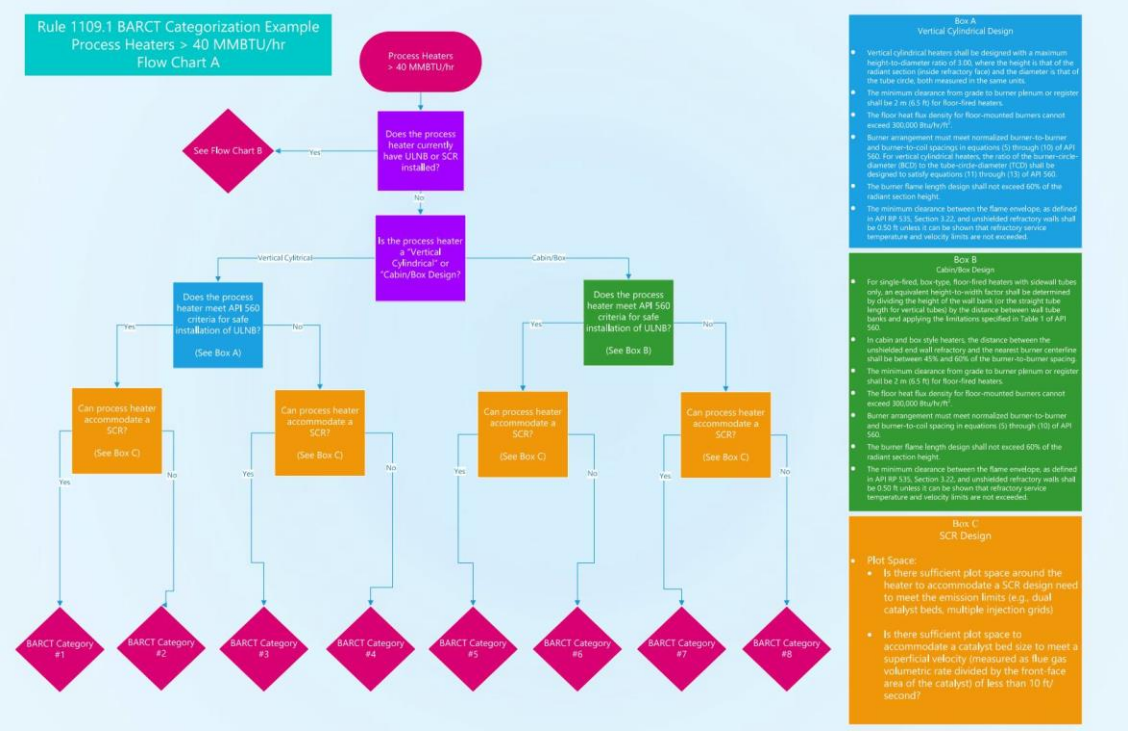
A universal "one size fits all" approach is not technically, reliably, or practically achievable for establishing NOx removal efficiencies of emission limits for retrofitting existing, older process heaters within refineries.

3.0 References

1. American Petroleum Institute (API), API-535, Burners for Fired Heaters in General Refinery Services, Third Edition, May 20, 2014, API Publishing Services, 1220 L Street, NW, Washington, DC.
2. American Petroleum Institute (API), API-536, Post-Combustion NO_x Control for Fired Equipment in General Refinery Services and Petrochemical Services, Third Edition, API Publishing Services, 1220 L Street, NW, Washington, DC.
3. American Petroleum Institute (API), API-560, Fired Heaters for General Refinery Service, Fifth Edition, February 2016, API Publishing Services, 1220 L Street, NW, Washington, DC.
4. American Petroleum Institute (API), API-560, Fired Heaters for General Refinery Service, Fifth Edition Addendum 1 (balloted and approved), publication date pending, API Publishing Services, 1220 L Street, NW, Washington, DC.
5. Fossil Energy Research Corporation (FERCo), South Coast Air Quality Management District Rule 1109.1 Study Final Report, November 2020, Fossil Energy Research Corp, Laguna Hills, CA.

6. Marathon Petroleum Company, SP-45-01, Fired Heater Design, Effective Date: March 20, 2016.
7. Norton Engineering Consultants (NEC), NOx BARCT Analysis Review, Document Number, 19-9009-018, December 4, 2020.

ATTACHMENT D



Response to Comment 41-1: Thank you for your comment. Staff acknowledges that the petroleum refining industry is currently in the process of designing and installing equipment to meet the requirements of Rule 1109.1 and implement compliance plans which may have some potential overlap with CMB-07. However, the latest date for permit application submittal in Rule 1109.1 is January 1, 2031, for I-Plan Option 1 and would place the final compliance date for Rule 1109.1 before 2037 accounting for permit issuance timeframe and 36 months allowance for projects completion. Staff believes this overlap is not likely to occur, because the January 1, 2031, date is intended for facilities that have an extended turnaround schedule for few processing units. This will only impact one or two small combustion units located in the crude unit at one facility. Furthermore, each compliance plan option sets specific NOx reduction targets for NOx control projects that a facility must meet. The emission reductions for Rule 1109.1 are phased in and designed to achieve approximately 75 percent of the reductions by 2027 and approximately 90 percent of the reductions by 2031. A facility cannot meet those targets if there are still a large number of NOx reduction projects to be undertaken. Thus, a facility cannot postpone the permit application submittal for any significant NOx project or a large number of smaller projects until January 1, 2031 as the Plans require substantial reductions in earlier years. Facilities complying with I-Plan Option 4 with B-Cap will have a final implementation date of July 1, 2032, meaning all NOx projects must be completed by this date which is well before 2037.

Rule 1109.1 did include elements that allowed operators compliance flexibility such as the B-Plan and the B-Cap. Although each equipment category did have not-to-exceed NOx concentration limits, there are opportunities for additional NOx emission reductions. The actions anticipated in CMB-07 are to enhance the existing controls such as improved ammonia injection systems, upgrade to newer advanced catalyst, or upgraded burners. Some of these controls will be based on existing NOx control technologies, while others may rely on technology advances, which is consistent with BARCT which is evolves over time. As

technology becomes more widely used and accepted, associated costs will also decrease. Implementation of these enhancement projects (by 2037) is after full implantation of Rule 1109.1 and any evaluation of the technology in terms of cost and performance will be evaluated at the time of rule development. Staff has added the following paragraph in to CMB-07, "During rule development staff will consider the requirements by the other rules associated with the transition of NOx RECLAIM facilities to a command-and-control regulatory structure, including technical feasibility; cost-effectiveness and incremental cost-effectiveness; identify industry-specific affordability issues; and may consider alternative compliance mechanisms."

Response to Comment 41-2: The 2037 baseline emissions in the AQMP reflects the projections for the petroleum refining industry. The AQMP is required to reflect SCAG's projection for future socio-economic productivities and the current AQMP uses 2020 Regional Transportation Plan (RTP). However, staff acknowledges that NOx emission reductions may potentially occur through the proposed state and local goals set for zero emission vehicles and the corresponding decrease in fuel demand within the region. As the Basin transitions to zero emission sources, it is expected that there will be a decrease in demand for gasoline and other petroleum products. Refineries are already expanding their energy portfolios recognizing an energy diverse future. In Marathon's 2021 Sustainability Report, one of the highlights is the evolution of Marathon's Martinez California facility which will become one of the largest renewable diesel facilities in the world.

Response to Comment 41-3: Rule 1109.1 analyzed incremental cost-effectiveness of lowering the current BARCT level of 5 ppmv to 2 ppmv through using a dual-stage reactor SCR system for boilers and process heaters greater than or equal to 40 MMBtu/hr. During the rule development of Rule 1109.1, staff proposed two feasible pathways in which a 2 ppmv BARCT level endpoint can be achieved. The first pathway involves utilizing "traditional" Ultra Low-NOx Burners (ULNBs) and Selective Catalytic Reduction (SCR) combination. Total NOx inlet into the SCR system is reduced by reducing NOx at the point of formation. Under ideal conditions, "traditional" ULNBs can achieve 40 ppmv on refinery fuel gas and a modern SCR design can achieve up to 96 percent reduction of NOx, thus a 2 ppmv endpoint is feasible. The cost-effectiveness for this pathway considered both the cost of "traditional" ULNBs and cost of an SCR system, which was $35,000 per ton of NOX reduced and was presented at Rule 1109.1 Working Group Meeting 17. The cost-effectiveness analysis was calculated based on any process heater that required greater than 92 percent reduction in NOx emissions to achieve the 2 ppmv level of NOx emissions and not all units required greater than 92 percent reduction in emissions. The units that required greater than 92 percent reduction were units that did not have any form of burner control such as conventional low-NOx burners. Ultimately, this pathway was not considered due to the potential challenges of retrofitting "traditional" ULNB into older process heaters which may not conform to API guidelines for burners and fired heater service. An in-depth engineering analysis may be necessary for these older units to install traditional ULNB. As a result, a second pathway utilizing a dual-stage reactor system was proposed and determined to be initially cost-effective with cost-effectiveness value of less than $50,000 per ton of NOx reduced based on the cost effectiveness guidance in the 2016 AQMP. This dual reactor arrangement is commonly employed in nitric acid plants to achieve up to 99 percent removal efficiencies where a 2 ppmv endpoint is feasible. However, the refining industry commented that staff underestimated the cost of these two stage arrangements and stated the cost for such systems can be up to 80 percent more than a standard single stage system. Staff revised the cost to reflect updated cost numbers provided by the

refining industry which resulted in a cost-effectiveness of $293,000 per ton of NOx reduced to achieve 2 ppmv, and exceeding the $50,000/ton NOx reduced threshold.

"Traditional" ULNB costs estimated by staff during Rule 1109.1 were based on cost data provided by the refineries which was on average between $2,000,000 to $3,000,000 per boiler or process heaters. Manufacturers of next generation ULNBs provided cost estimates to staff for next generation ULNBs only. To estimate total installed cost for next generation ULNB, a three times contingency factor was applied which is approximately $3,000,000 total installed cost per process heater using 2021 dollar year. Staff estimated that 130 boilers and process heaters will require upgrades with next generation ULNBs.

The cost-effectiveness methodology for CMB-07 is the same as the method used in Rule 1109.1 development and other rulemaking efforts. Staff used the discounted cash flow (DCF) method, 4 percent interest rate, and 25-year equipment life. The cost-effectiveness for CMB-07 is $50,300 for next generation ULNBs only, whereas Rule 1109.1 considered a dual stage reactor SCR arrangement to achieve a 2 ppmv endpoint from BARCT level of 5 ppmv. A dual-stage SCR reactor arrangement is significantly more expensive than the cost of next generation ULNBs only and explains the large discrepancy in cost-effectiveness and why it is significantly more for Rule 1109.1. In regard to rule development considerations, please see comment 41-1.

Response to Comment 41-4: The report that MPC submitted along with the comment letter on February 1, 2021 focused on the concern regarding the applicability of "traditional" ULNBs to a refinery process heater. MPC's comment letter and the attached report focused on retrofitting existing units with "traditional" ULNBs, not next generation ULNB which is what staff is proposing in CMB-07. Staff does agree that some older units may have potential challenges and safety issues with "traditional" ULNB, however simply applying a broad approach by stating that all refinery process heaters cannot accommodate next generation ULNB is not representative of the universe of equipment.

Next generation ULNB was identified as a potential control option due to its advantages over its challenges, as stated in the comment letter. Staff does not dismiss the fact that "traditional" ULNB may pose inherent challenges and safety concerns in some heaters without conducting an engineering analysis. "Traditional" ULNBs typically operate with longer flame lengths when compared to conventional burners. These longer flames may potentially impinge the tubes and other internal surfaces of the heaters that may result in safety issues due to process tube failure. The manufacturers of the next generation ULNB recognize these limitations in installing "traditional" ULNB in refinery applications and have invested extensive research into addressing the challenges associated with their installation and operation, such as flame impingement on process tubes and internal surfaces. Next generation ULNBs resolve the flame length issue by utilizing a ceramic tile where combustion occurs which results in a shorter compact flame, thus reducing or eliminating the risk of flame coalescing issues and impingement on the internal surfaces of the heater. Next generation ULNBs are also designed to be a direct replacement and have incorporated a standard continuous pilot in response to feedback from industry. Other types of next-generation ULNBs utilize feedforward control of fuel gas streams to control combustion which results in a compact flame and efficient combustion.

Some refineries have submitted permit applications for projects subject to Rule 1109.1 where next generation ULNB will be installed on process heaters greater than 40 MMBtu/hour to prove the technology. Thus, combining next generation ULNB with SCR technology can achieve a 2 ppmv endpoint since the challenges of "traditional" ULNBs have been addressed. Furthermore, staff has added the

following paragraph in to CMB-07, "During rule development staff will consider the requirements by the other rules associated with the transition of NOx RECLAIM facilities to a command-and-control regulatory structure, including technical feasibility; cost-effectiveness and incremental cost-effectiveness; identify industry-specific affordability issues; and may consider alternative compliance mechanisms."

Response to Comment 41-5: CMB-07 considers next generation ULNBs as one pathway to achieve further reductions for boilers and process heaters greater than or equal to 40 MMBtu/hour, but it is not the sole means for further reduction to achieve 2 ppmv. Any new technology being implemented will encounter some challenges, but facilities and vendors currently have a path forward to resolve the current challenges. A reduction from 29.3 ppmv to 2 ppmv requires approximately a 93 percent removal efficiency which is easily attainable with any modern SCR system. The advantage with the next generation ULNB is that it resolves some of the flame impingement issues associated with traditional ULNB mentioned in comment 41-4. Regardless of current performance, next generation ULNBs are a better option in terms of associated operational safety risks. Staff has added the following paragraph in to CMB-07, "During rule development staff will consider the requirements by the other rules associated with the transition of NOx RECLAIM facilities to a command-and-control regulatory structure, including technical feasibility; cost-effectiveness and incremental cost-effectiveness; and may consider alternative compliance mechanisms."

Response to Comment 41-6: South Coast AQMD appreciates that Marathon's number one priority is the safety and well-being of all their employees across all facilities and agrees that having an accident-free and incident-free workplace should be the number one goal. Staff acknowledges that there may be potential safety concerns if API standards and practices are not implemented for traditional ULNB in some units as mentioned in comment 41-4. Next generation ULNB was identified as potential control options due to advantages over "traditional" ULNBs as stated in the comment 41-4. The manufacturers of the next generation ULNBs recognize the inherent limitations of installing these ULNBs or retrofitting "traditional" ULNBs with these ULNBs in refinery applications and have invested extensive research into addressing the challenges associated with its installation and operation. Further, some refinery applications currently have projects in the works for next generation ULNBs to prove the technology.

It is currently unclear as to whether API safety standards need to be updated to allow the installation of next generation ULNBs. To the extent this is a concern, it would be addressed during rule development associated with the control measure. Furthermore, staff has added the following paragraph in to CMB-07, "During rule development staff will consider the requirements by the other rules associated with the transition of NOx RECLAIM facilities to a command-and-control regulatory structure, including technical feasibility; cost-effectiveness and incremental cost-effectiveness; and may consider alternative compliance mechanisms."

Response to Comment 41-7: South Coast AQMD has considered MPC's comments previously submitted during Rule 1109.1 development. The comments submitted pertain to issues associated with traditional ULNB which tend to have different flame and burner characteristics from those of next-generation ULNBs. Issues with traditional ULNB pertains to flame coalescing and flame impingement along with the heater's internal surfaces which may pose a safety issue in certain process heaters. Please see response to comment 41-4. As mentioned in the response to comment 41-4, manufacturers of next-generation ULNB have recognized those issues and designed the burners to be a direct burner replacement for existing burners with a compact flame, increased radiant duty, standard continuous pilot, and reduced tip plugging. In addition, next-generation ULNBs burner performance test have shown a typical burner

turndown of 4:1 and tested on refinery fuel gas (RFG) containing up to 80 percent hydrogen, thus changes in fuel gas consumption. Manufacturers of next-generation ULNB have also partnered with well-established process burner manufacturers to help implement the technology. While not all heaters have air preheaters (e.g., heat exchangers), and staff is only aware of a few. any challenges in operating the preheater with newer or cleaner technologies to achieve further emission reductions will be addressed during rulemaking.

Response to Comment 41-8: Staff agrees that some SCR installations may require a larger footprint which can pose challenges in some situations. During the development of Rule 1109.1, staff considered all costs associated with SCR installations for refinery combustion equipment which included foundational support infrastructure and the necessary electrical infrastructure. In light of concerns with space constraints and other challenges to the existing established refinery property, additional cost information was provided by the affected refineries that the cost was significantly higher than the cost data originally submitted, reflecting the additional costs of installing a SCR system on space constrained units. These updated cost values were included in the BARCT analysis to determine the NOx limits for affected units. As with the development of Rule 1109.1, to support advanced control technology, creative solutions and successful engineering design will need to be considered in achieving further emission reduction goals.

Response to Comment 41-9: Staff agrees that there are considerations that are needed when designing a high efficiency SCR system, but SCR technology is a mature technology that continues to improve overtime. Catalyst technology and understanding of ammonia injection systems have progressed dramatically over the past four decades and have incorporated advanced feedback controls and ammonia injection equipment into modern SCR design that have been proven to be feasible in refinery applications to address concerns. With regard to heater turndown and variable heat input operation, please refer to Response to Comment 41-7. Modern SCR system designers and installers have proven that high removal efficiencies are possible in refinery applications if designed and engineered properly.

There are currently 16 process heaters and 2 boilers operating with SCR systems that are achieving NOx levels below 5 ppmv. Modern SCR systems utilize advanced catalyst materials and design along with a more accurate method of ammonia flow control to achieve NOx levels below 5 ppmv and minimize ammonia slip emissions. The control algorithm typically uses several parameters, including SCR inlet and outlet NOx concentration, to determine the amount of ammonia needed to maintain a specific NOx and ammonia concentration. This design scheme is currently being used in recently submitted permit applications to the South Coast AQMD. The vendor guaranteed removal efficiencies for NOx with these modern SCR systems is up to 98 percent to achieve NOx emissions level below 5 ppm. Norton Engineering confirmed that a dual stage SCR reactor system with secondary ammonia injection upstream of the second stage reactor can achieve 2 ppmv.

Staff does acknowledge that there are some refinery units that can have unexpected catalyst fouling due to dust, however, the issue is not new to experienced SCR system designers. SCR designers typically install blowers or an additional layer of catalyst within the SCR system to alleviate any potential downtime due to fouling of the catalyst. One example where this occurs is within the SCR systems on steam methane reformer (SMR); the metallurgy of the process tubes in the SMR heater can potentially cause catalyst failures overtime, so a second layer of catalyst is added to prevent downtime. Another example is coal-fired power plants where dust loading is not uncommon in SCR systems, which is not an issue for units in the Basin as all refineries are using refinery fuel gas.

Response to Comment 41-10: Staff acknowledges that there may be some additional considerations when trying to implement zero emission technologies at a petroleum refinery. A byproduct of the refining process is refinery fuel gas which is used as a combustion fuel in refinery process heaters and boilers. If all process heaters were to be replaced with electrical variations, the fuel gas will have to be sent elsewhere or flared. One potential option for electrification recently identified by the South Coast AQMD staff is the Rondo Energy Heat Battery System that utilizes a brick battery system to store heat energy generated from electricity or renewable sources such as wind and solar. The electrical heat batteries store thermal energy in bricks at temperatures up to 2,100 °F which is sufficient for most refinery processes. The Rondo system can provide hot air and steam for refinery processes, thus replacing the traditional boilers and process heaters. Staff believes that the Rondo Heat Battery System is a compatible replacement unit for older boilers and process heaters that does not rely on combustion of fuel gas.

Replacing all equipment at a petroleum refinery may not be feasible due to excess fuel gas, but electrification of some or most of the boilers and heaters could be feasible. Considering the amount of electricity needed would be considered before utilizing any of these zero emission options, so the following statement is included in the control measure: "South Coast AQMD would consider electrical infrastructure and potential impacts on refinery fuel gas balance before instituting this alternative as there may be an excess of waste refinery fuel gas if combustion equipment is replaced with electrified versions."

Response to Comment 41-11: The options proposed in CMB-07 are technically feasible. Please see comment 41-1 to 10.

Comment Letter #42

From: Marilou Sheets <sheets22@att.net>
Sent: Friday, June 17, 2022 6:31 PM
To: AQMPTeam <aqmpteam@aqmd.gov>
Subject: [EXTERNAL]Draft 2022

In response to the article by Susan Shelly in the Press Enterprise paper on 06-12-22.

I thought that AQMD was to work for and protect the California citizen's. Why are you continually trying to put more strings on them?
Yourselves have admitted that it is next to impossible to do what some people think can be accomplished, but you keep saying that this and that has to be done to reach the "temple in the sky" when it serves your purpose about going green. I do not mean to sound unfair either, but the truth sometimes hurts.
PLEASE stand up and let the the U.S. Environmental Protection Agency know that there are very strong conditions due to reasons that their designation they put on you does not apply, and that their designation of "Extreme" non attainment area does not, and should not be applied to area. Our finances could and should be used for better things than trying to accomplish what can not be accomplished.Stop trying to enforce such measures as Control measure R-CMB-01, CMB-02, CMB-03, and other forthcoming measures as you know and have admitted that they are not necessary and really have no reason to be put into service as there is already not enough Electricity available for the state and that they will only make the situation worse. There will always be some justified reason for gas. An example is if everyone goes to electric vehicles then the cost of electricity will be astronomical and then who will be able to afford it,beides then there will be MORE

Comment 42-1

Please STAND UP and tell the Gov. agency to quit assaulting you and us with their doctrines which are and should be different for their area.

Comment 42-1 Con't

Please help our citizens.

Sincerely

V. H.Sheets

Response to Comment 42-1: The South Coast AQMD is required by law to develop plans to meet federal air quality standards. The South Coast AQMD has made great progress over the past several decades in cleaning up the air, but still fails to meet federal air quality standards and the public continues to breathe unhealthy air. If the South Coast AQMD is unable to meet federal air quality standards the agency face potential penalties and economic sanctions from the federal government, as well as the imposition of federal air quality plans.

The Draft 2022 AQMP contains measures to reduce NOx emissions across all sectors. While most of the NOx in the region is from mobile sources such as trucks, ships, trains and airplanes, stationary sources also contribute NOx emissions and must be reduced.

Residential fuel combustion contributes significant levels of NOx emission in the region. Staff forecasts that by 2037 emissions from residential fuel combustion will be one of the two top emitters among stationary sources. Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption. For discussion on residential gas use and the need for emission reduction, please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances.

The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost.

Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand for more details.

For discussion on the ozone standard, see Response to Comment 9-1.

Comment Letter #43

Ramine Cromartie
Senior Manager, Southern California Region

June 17, 2022

Dr. Sang-Mi Lee
Planning & Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Via e-mail at: AQMPteam@aqmd.gov

Re: WSPA Comments on SCAQMD Draft 2022 Air Quality Management Plan

Dear Dr. Lee,

Western States Petroleum Association (WSPA) appreciates the opportunity to participate in the working group and workshops for the South Coast Air Quality Management District's (SCAQMD or District) 2022 Air Quality Management Plan (AQMP or Plan). The AQMP is a regional blueprint for achieving the national ambient air quality standards (NAAQS). On October 1, 2015, the U.S. Environmental Protection Agency (EPA) strengthened the National Ambient Air Quality Standards (NAAQS) for ground-level ozone, lowering the primary and secondary ozone standard levels to 70 parts per billion (ppb).[1] The 2022 AQMP is being developed to address the requirements for meeting this standard through proposed control measures.

WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport, and market petroleum, petroleum products, natural gas, renewable fuels, and other energy supplies in five western states including California. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA member companies operate petroleum refineries and other facilities in the South Coast Air Basin that are regulated by the SCAQMD and will be impacted by the 2022 AQMP.

Comment 43-1

We understand the challenges that the District faces in attaining the NAAQS. The region's unique topography and meteorology combined with mobile source emissions continues to produce significant ozone pollution for which the District has limited control authority. Additionally, as cost-effective controls have been implemented, it has become increasingly difficult to identify and implement additional control measures that are cost-effective. On May 6, 2022, SCAQMD released the Draft 2022 AQMP.[2] WSPA offers the following comments:

[1] 2015 Revision to 2008 Ozone NAAQS. Available at: https://www.federalregister.gov/documents/2015/10/26/2015-26594/national-ambient-air-quality-standards-for-ozone.
[2] SCAQMD Draft 2022 AQMP. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/draft2022aqmp.pdf?sfvrsn=12.

1. **The California Air Resources Board (CARB) and U.S. Environmental Protection Agency (EPA) must be accountable for their share of emission reductions.**

   As noted in the Draft 2022 AQMP, "the overwhelming majority of NOx emissions" in the South Coast Air Basin are from trucks and other mobile sources regulated by federal or state authorities and are largely beyond SCAQMD control.[3] Mobile sources emit approximately 80% of the NOx in the South Coast Air Basin. EPA and CARB have the primary authority to regulate emissions from mobile sources. As a result of the 2016 AQMP, SCAQMD began development of indirect source rules to reduce emissions from mobile sources associated with facilities such as warehouses, railyards, and ports. EPA and CARB must be required to provide their share of emission reductions in order to ensure the emission reductions forecast in the 2022 AQMP are met. Stationary sources should not be penalized if EPA and CARB fail to meet their obligations.

Comment 43-2

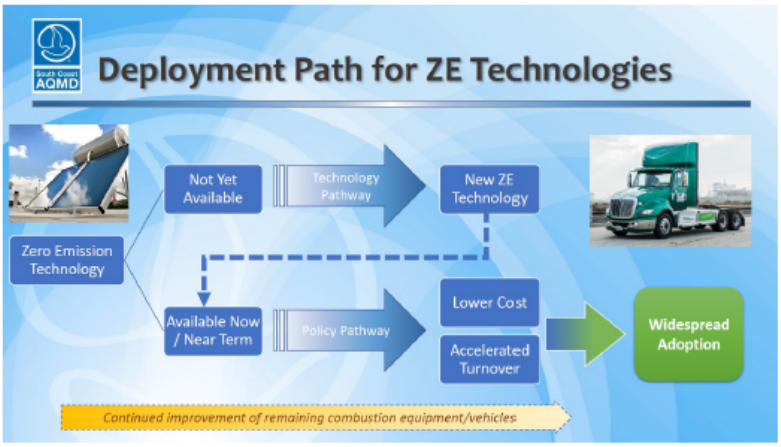
2. **The District has stated that the only viable path to achieving the NAAQS for ozone may be a significant push to zero emission technology, with an approach that includes new zero emissions (ZE) and ultra-low NOx technologies that have yet to be invented and/or commercialized for many stationary and mobile use categories. The District's draft AQMP would rely on flexibility provided under Clean Air Act (CAA) Section 182(e)(5) for potential emission reductions from future technologies. Given the long-term planning horizon of this AQMP (e.g., 2037), WSPA believes this approach will be necessary.**

   CAA Section 182(e)(5) allows the Administrator to "approve provisions of an implementation plan for an Extreme Area which anticipate development of new control techniques or improvement of existing control technologies…".[4] The District has outlined a potential approach for the 2022 AQMP which includes maximized implementation of existing ZE and low NOx technologies. The District acknowledges that new ZE and ultra-low NOx technologies will still need to be invented for many use cases, both stationary and mobile (see Figure 1). For this reason, the District has proposed using the flexibility provided by the CAA §182(e)(5). WSPA supports this approach and suggests that the District maintain fuel neutrality, particularly in the area of ZE, as it evaluates technologies.

Comment 43-3

[3] SCAQMD Draft 2022 AQMP, page 8. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/draft2022aqmp.pdf?sfvrsn=12.
[4] Clean Air Act Title I Part D, Plan Requirements for Nonattainment Areas, §182, Plan Submissions and Requirements. Available at: https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partD-subpart2-sec7511a.htm.

Figure 1: SCAQMD Proposed Deployment Path for ZE Technologies



Source: 2022 AQMP Control Measures Workshop, November 10, 2021, Agenda Item 3.

Comment 43-3 Con't

New funding and programs will be needed to support research, development, and commercial demonstration of new technologies. Additionally, new policies and incentives will need to be implemented to regulate any new technologies developed. These items will be developed over a longer timeline.

The District is in the process of developing new Best Available Retrofit Control Technology (BARCT) rules to transition facilities out of the REgional CLean Air Incentives Market (RECLAIM) program. For example, the District Governing Board just adopted Rule 1109.1 (R1109.1), Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations, which introduces BARCT requirements for subject facilities. The majority of the control technologies specified in that rulemaking were developed and tested technologies. Just the same, the final compliance milestones for R1109.1 implementation are as late as 2034. The District will need to consider whether other technologies can be developed and commercialized on the timeline necessary for achieving the NAAQS for ozone by 2037.

3. **SCAQMD has proposed widespread deployment of zero emission technology, including electric technology options for multiple sectors. Prior to implementation of control measures, SCAQMD must be able to assure that the electrical grid will be able to supply the electric power needed to meet the increased demand.**

Comment 43-4

SCAQMD has stated that widespread deployment of zero emission technology is needed for all sectors.[5] Electric technology options have been proposed for residential and commercial water heating, space heating, and cooking devices, as well as for non-emergency internal combustion engines, large turbines, electrical generation facilities, and petroleum refineries.[6]

[5] 2022 AQMP Control Measures Workshop, Agenda Item 3, South Coast AQMDs Proposed Draft VOC Stationary Source and Other Measures, Slide 9. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/am-pres-agenda-item-3-zero-emission-technology-110621.pdf?sfvrsn=6

[6] 2022 AQMP Control Measures Workshop, Agenda Item 5, South Coast AQMDs Proposed Draft VOC Stationary Source and Other Measures, Slides 7-34. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/am-pres-agenda-item-5-nox-measures-110621.pdf?sfvrsn=6.

In the SCAQMD Control Measures Workshop, Staff acknowledged that the existing infrastructure is currently not sufficient for widespread adoption of ZE technologies.[7] On August 2, 2021, Wayne Nastri, SCAQMD Executive Officer, issued a response to letters received from environmental organizations stating that "the charging/fueling infrastructure (plugs and hydrogen dispensing stations), the electrical distribution system (neighborhood transformers, substations, etc.) and the power/fuel supply to support widespread deployment will take many years to develop."

California has had difficulty supplying sufficient electricity during certain times of year, and siting and construction of new power generating facilities and electric transmission lines is extremely difficult in California. Prior to implementation of control measures, SCAQMD must be able to assure that the electrical grid in California will be able to supply the electrical power needed to meet the increased demand.

Comment 43-4 Con't

4. **With the Proposed Control L-CMB-07 measure, the District suggests transition of refinery boilers and process heaters to ZE, NZE, and other technologies. With the adoption of R1109.1 in November 2021, the District expended significant resources arriving at the country's most stringent refinery BARCT rule. This rulemaking was extremely challenging and is likely the most expensive single rule adopted by the District's Governing Board. Given that R1109.1 has final implementation deadlines stretching to the mid-2030's, the District's proposal to use other yet to be defined technologies to achieve a further 20% emission reduction goal by 2037 seems highly uncertain.**

Proposed Control Measure L-CMB-07 addresses NOx emissions at petroleum refineries, and specifically calls out refinery boilers and process heaters.[8,9] The District suggests additional reductions can be achieved through the implementation of next generation ultra-low NOx burners, advanced SCR technology, and the transition to zero emission technology.[3]

Comment 43-5

The California Health & Safety Code (CHSC) requires the District, in adopting any BARCT standard, to ensure the standard is technologically feasible, and take into account "environmental, energy, and economic impacts" and assess the cost-effectiveness of the proposed control options.[10] R1109.1 was just adopted in November 2021 and has final implementation deadlines stretching to the mid-2030s. This timeline overlaps with the anticipated timeline for the rule development associated with Proposed Control Measure L-CMB-7, which is expected to begin between 2025 to 2027.[3]

WSPA agrees that development of new technologies is crucial to the reduction of pollutants; however, the timeline for development of these emerging technologies is distant. R1109.1 already included implementation of emerging burner technologies to control NOx emissions

[7] 2022 AQMP Control Measures Workshop, Agenda Item 3, South Coast AQMDs Proposed Draft VOC Stationary Source and Other Measures, Slide 13. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/am-pres-agenda-item-3-zero-emission-technology-110621.pdf?sfvrsn=6

[8] 2022 AQMP Control Measures Workshop, Agenda Item 5, South Coast AQMDs Proposed Draft NOx Stationary Source Measures, Slide 31. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/am-pres-agenda-item-5-nox-measures-110621.pdf?sfvrsn=6.

[9] Draft 2022 AQMP Appendix IV-A, South Coast AQMD's Stationary and Mobile Source Control Measures, Pages IV-A-114-117. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/appiv-a.pdf?sfvrsn=18.

[10] California Health & Safety Code §40406, 40440, 40920.6. Available at: https://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=HSC&division=26.&title=&part=&chapter=&article=&nodetreepath=31.

from boilers and heaters <40 MMBtu/hr input. These emerging technologies are still under development and are not commercially available. For this reason, the District acknowledged the need to review and report on the status of the emerging technologies in 2029 and conduct a technology assessment if those technologies are not being commercialized quickly enough.[11]

Comment 43-5 Con't

Proposed Control Measure L-CMB-07 also suggests potential for use of "advanced selective catalytic reduction" (SCR) such as multi-stage reactors. Such multi-stage reactors were exhaustively evaluated during R1109.1 development,[12] and the District and its third-party engineering expert (i.e., Fossil Energy Research Corporation (FERCo)) was unable to show them to be technologically feasible or cost effective.

5. **The District has suggested a transition of higher emitting turbines to ZE technologies. The technologies proposed for equipment replacement must be fit for the operational purpose and of the same scale as those they are replacing in order to be successfully implemented.**

Proposed Control Measure L-CMB-05 addresses NOx emissions from large gas turbines ≥0.3 MW regulated by Rule 1134, Emissions of Oxides of Nitrogen from Stationary Gas Turbines.[13] Similar turbines found at refineries are covered under R1109.1. The District is suggesting a transition of higher emitting turbines to ZE technologies, but the ZE technology cited (i.e., fuel cells) is a comparatively small-scale product. In addition to producing electricity, many turbines are configured also to provide process heat in combined heat and power designs. The District will need to consider these varied types of operational requirements.

Comment 43-6

6. **The District has suggested ZE and near zero emission (NZE) technologies, as well as other technologies as potential replacements for existing emergency standby engines. Technologies proposed must be fit for purpose to be successful.**

Proposed Control Measure L-CMB-04 addresses NOx reductions from permitted emergency standby engines used to provide backup power during power outages.[14] These engines are not subject to the requirements of R1109.1. SCAQMD has suggested ZE and NZE technologies, as well as other technologies as potential replacement options for existing emergency standby engines. Loss of power at essential public services would pose a public health danger. Technologies proposed must be fit for purpose in order to be successful. The battery power and electrification concepts cited may not be suitable for emergency applications. Multiple factors must be considered, including supply lines and distribution, not just the equipment itself.

Comment 43-7

Battery energy storage quickly becomes infeasible for emergency backup applications where potential duration of a backup requirement is unknowable. For example, when an emergency event lasts longer than the battery storage specifications, there could be severe

[11] SCAQMD Draft Staff Report, Proposed Rule 1109.1, Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations, page 3-12, October 2021. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/dsr_pr_1109-1_30_day_package.pdf?sfvrsn=4.

[12] PR1109.1 WGM #22 presentation, slide 27, June 30, 2021. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/pr1109-1_wgm22_presentation.pdf?sfvrsn=18.

[13] 2022 AQMP Control Measures Workshop, Agenda Item 5, South Coast AQMDs Proposed Draft NOx Stationary Source Measures, Slide 29. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/am-pres-agenda-item-5-nox-measures-110621.pdf?sfvrsn=6.

[14] 2022 AQMP Control Measures Workshop, Agenda Item 5, South Coast AQMDs Proposed Draft NOx Stationary Source Measures, Slides 27-28. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/am-pres-agenda-item-5-nox-measures-110621.pdf?sfvrsn=6.

consequences. There may be other dispatchable generation technologies which, while currently non-economical for emergency applications, could eventually become alternatives to diesel-fueled generators. But those technologies are not ZE technologies.

There is a critical need for reliable and instantaneous emergency power in the event the electric grid fails. Therefore, fossil fuel powered emergency electrical generators will likely still be necessary under certain circumstances. Analysis of types of equipment suitable to various situations is necessary to ensure continued on-demand emergency power availability.

Comment 43-7 Con't

7. **SCAQMD has spent the past several years on the development and adoption of rules associated with the transition from the RECLAIM program to command and control rules. As a result, many facilities are in the process of upgrading their combustion equipment to comply with BARCT standards at a substantial cost. These investments should be protected for the useful life of the equipment.**

As a result of the transition from the RECLAIM program to command and control rules for NOx emissions, substantial investments are being made for planning and implementation of BARCT on existing equipment. Compliance schedules proposed in the 2022 AQMP must acknowledge the investments and implementation schedule of the current BARCT rules. The refinery sector alone is required to invest billions of dollars to comply with R1109.1. In some cases, it will be necessary to replace basic equipment and upgrade infrastructure, not just the control equipment. SCAQMD should allow the facilities to operate newly installed/retrofitted equipment for its useful life prior to necessitating transition to other technologies.

Comment 43-8

8. **The District needs to present a technical basis for the emission reduction goal presented for the FUG-01 control measure.**

Proposed Control Measure FUG-01 discusses improved leak detection and repair on process and storage equipment at a variety of facilities.[15] The District is also proposing enhanced leak detection under the Wilmington, Carson, West Long Beach (WCWLB) Community Emissions Reduction Plan (CERP) to achieve emission reductions, suggesting a potential 50% reduction goal through amendments to the following rules:

- Rule 1178, Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities;
- Rule 1118, Control of Emissions from Refinery Flares; and/or
- Rule 1173, Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants.

However, the District provides no technical basis for the proposed 50% VOC reduction goal based upon proven emission reduction methodology and current rule compliance framework.

Comment 43-9

[15] 2022 AQMP Control Measures Workshop, Agenda Item 7, South Coast AQMDs Proposed Draft VOC Stationary Source and Other Measures, Slide 3. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/am-pres-agenda-item-7-voc-and-other-measures-110521.pdf?sfvrsn=6.

9. **SCAQMD must carefully consider mineral resource management when considering implementation of zero emission equipment. Global mineral resources are critical to the technology proposed in the control measures.**

   The expected rise in battery-powered electric vehicles, as well as growth in stationary storage will put a strain on mineral resources. There are 12 minerals used in energy storage technologies, of which 7 are on the US Department Interior Critical Minerals List.[16] WSPA is concerned that the control measures provided in the draft 2022 AQMP may not be achievable given the constraints on global mineral resources. In CARB's ACCII Public Workshop, it was noted that the rate of depletion for several critical minerals is increasing.[17] Significant increases in the rate of battery production will be required to meet both CARB's goals for vehicle electrification and the control measures proposed in the draft 2022 AQMP. SCAQMD must study resource and recycling availability prior to imposing control measures reliant on battery storage.

Comment 43-10

WSPA appreciates the opportunity to provide these comments related to the 2022 AQMP. We look forward to continued discussion of this important Plan development. If you have any questions, please contact me at (310) 808-2146 or via e-mail at rcromartie@wspa.org.

Sincerely,

Marina Comate

Cc:
Wayne Nastri, SCAQMD
Sarah Rees, SCAQMD
Ian MacMillan, SCAQMD
Sang-Mi Lee, SCAQMD
Elaine Shen, SCAQMD
Patty Senecal, WSPA

[16] Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition. The World Bank. Available at: https://pubdocs.worldbank.org/en/961711588875536384/Minerals-for-Climate-Action-The-Mineral-Intensity-of-the-Clean-Energy-Transition.pdf.

[17] CARB Advanced Clean Cars (ACC) II Workshop, May 6th, 2021. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-05/acc2_workshop_slides_may062021_ac.pdf. Accessed: June 2021

Response to Comment 43-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP.

Response to Comment 43-2: South Coast AQMD acknowledges your concern regarding the emission reduction burden being disproportionately shifted to stationary sources, most of which are already subject to the most stringent controls in the nation. It is clear that significant federal and State regulatory actions on mobile sources are needed. Additionally, South Coast AQMD will continue to use its available regulatory authority to further control mobile source emissions where federal or State actions do not meet regional needs and will supplement and/or expedite the implementation of State and federal measures.

While all sources are required to reduce emissions to meet the 2015 ozone standard, some sources have historically accounted for a larger share of the emission reductions. This is due to the challenges of regulating certain sources such as area sources which consist of millions of smaller sources of different types. Additionally, the lack of regulatory authority over some sources (e.g., for ships, aircraft and locomotives) shifts the burden to sources over which South Coast AQMD and CARB have authority. On-road and stationary point source emissions have been reduced by 82 percent and 68 percent since 2000, respectively. Off-road sources have accounted for comparatively fewer reductions due to the lack of new standards targeting primarily-federally regulated emission sources. Although on-road emissions have experienced the greatest rate of decline, the 2022 AQMP calls for significant further reductions from the on-road sector. Thus, it is clear that further reductions from all sources, including stationary sources, are needed to attain the 2015 ozone standard.

Response to Comment 43-3: Please refer to the general response to Black Box Measures. Air quality regulatory agencies have traditionally set policies and requirements that are performance-based which allow operators to select the control option that meets the standard without specifying the technology or fuel. This is a policy that the South Coast AQMD uses and intends to continue. The applicability, implementation schedule, and requirements for any zero emission standard will be developed during rulemaking, through a public process that includes stakeholder input.

Response to Comment 43-4: Concerns regarding grid capacity and reliability to support a widespread transition to zero emission technologies are the reason why the South Coast AQMD developed MOB-15. This control measure is a commitment to engage with stakeholders involved in every aspect of the transition to zero emission technologies with the goal of identifying challenges in energy and/or resource availability while assisting in a collaborative effort to assure the readiness of zero emission infrastructure to meet the expected deployments of zero emission vehicles and equipment. The South Coast AQMD is actively engaged with the California Energy Commission (CEC), California Public Utility Commission (CPUC), California Air Resources Board (CARB), local utilities, fleets and other stakeholders to help address the challenges related to grid capacity and reliability in the region. For example, South Coast AQMD will host an infrastructure summit focused on zero emission freight that will bring together state agencies, utilities, OEMs, fleets, and other stakeholders to discuss the challenges in installing infrastructure, understand grid constraints, develop plans for public charging, and identify interim technologies to support charging infrastructure in fall 2022.

South Coast AQMD will continue to share information that can be used to better inform forecasting and energy analyses which are used to plan grid capacity upgrades. Current forecasting and energy analyses are primarily focused on the state ZEV goals and do not fully address all emission categories that will need

to transition to zero emissions to reach attainment goals. The challenges related to the electrical grid and infrastructure availability are significant and will require collaborative problem solving involving all stakeholders. South Coast AQMD will continue to advise partner organizations through information sharing and close coordination of efforts to remove barriers to zero emission infrastructure and technology deployments.

Agencies and organizations throughout the state that are involved in energy distribution such as the CEC, CPUC, and local utilities such as Southern California Edison, are aware of the challenges ahead in terms of energy and infrastructure availability and are actively engaged in planning to anticipate future demand as the state moves toward a zero emission future. Engagement with these and additional partners involved in this transition through the direction detailed in MOB-15 will help articulate the region's needs and challenges to anticipate potential shortfalls in energy and technology availability, and grid readiness and reliability.

In addition to electric technology options, fuel cells and possibly other new technologies will be used to support the transition to a zero emission future. The state of California, through various programs, has allocated significant funding to advance the development and deployment of zero emission technologies, including electric charging and hydrogen fueling infrastructure. As part of MOB-15, South Coast AQMD will continue to track available funding sources for zero emission infrastructure and share this information with fleets and other stakeholders to provide financial assistance and encourage early planning for transitioning to zero emission technologies. Early planning and collaborative problem solving involving all stakeholders will be necessary to assure grid readiness and infrastructure availability. South Coast AQMD will also actively support and advocate for new funding sources that will accelerate the deployment of zero emission infrastructure in the South Coast AQMD. This effort will encourage consumers to plan early with support from the local utilities to streamline the process for approving installations and interconnection with the grid.

Response to Comment 43-5: Staff's proposal to initiate the rule development associated with Proposed Control Measure L-CMB-7 between 2025 and 2027 is to account for the length of time necessary for rule development. The rule development process for Rule 1109.1 took approximately three and a half years due to the complex technical analysis required. A similar timeframe for the rule development associated with Proposed Control Measure L-CMB-7 will be needed to achieve further reductions by 2037. Staff acknowledges that the petroleum refining industry is in the process of designing and installing equipment to meet the requirements of Rule 1109.1 and has added the following paragraph in to CMB-07, "During rule development staff will consider the requirements by the other rules associated with the transition of NOx RECLAIM facilities to a command-and-control regulatory structure, including technical feasibility; cost-effectiveness and incremental cost-effectiveness; identify industry-specific affordability issues; and may consider alternative compliance mechanisms."

Next generation ULNBs are currently available and being considered by some petroleum refineries as potential NOx control options in their compliance plans for Rule 1109.1, which is an indication that next generation ULNB can potentially gain wider market acceptance in the future. Much like any new technology, improvements and advancements of next generation ULNBs occur over time, and the purpose of 2029 technology evaluation that staff discussed during the development of Rule 1109.1 was to evaluate the status of the technology in refinery applications and not due to concerns of commercialization.

Dual stage or multi-reactor SCR systems evaluated during the development of Rule 1109.1 are technically feasible and are commonly used in other industries, such as nitric acid plants, where NOx emissions level can be over 2,000 ppmv (measured at 3 percent oxygen), to achieve up to 99 percent NOx reduction efficiency. However, the FERCo report acknowledged that site specific space constraints for certain units in refineries may make installations of dual stage or multi-reactor SCR systems very challenging and costly. Staff agrees that space constraints and the associated costs to retrofit certain units may be a concern for some refinery units and thus, the statement "however, a case-by-case evaluation will be needed to assess the feasibility due to the additional footprint requirements associated with a dual stage arrangement" was originally included in the CMB-07.

Please see responses to comments 41-1 to 41-10.

Response to Comment 43-6: Turbines evaluated for L-CMB-05 would not include those utilized at refineries or facilities associated with refineries that are subject to Rule 1109.1. For those turbines that are required to provide heat in addition to electricity, an analysis will be conducted to ensure the technical feasibility of the zero or low NOx replacement technology.

Response to Comment 43-7: Staff acknowledges the critical need for reliable emergency backup power at essential public services. As described in L-CMB-04, a priority of the rule development process would be to consider the reliability requirements for emergency backup power for such uses. Future rulemaking activities will also include an assessment of the viability and cost effectiveness of alternative technologies, with the understanding that as technologies evolve, improve, and become more available, zero and low NOx technologies may become more cost-effective.

Response to Comment 43-8: Rule developments arising from the 2022 AQMP will account for stranded asset costs, if applicable, into cost-effectiveness calculations to establish future BARCT emission limits.

Response to Comment 43-9: Proposed Control Measure FUG-01 discusses improved leak detection and repair (LDAR) on process and storage tanks along with other operations covered by LDAR-related rules. South Coast AQMD continues to explore technologies that will help in the identification of leaks more quickly and efficiently. The 50 percent reduction was a goal established in the development of the Community Emissions Reduction Plan process for the Wilmington, Carson, West Long Beach communities. The technical basis, including the emission reduction strategy and associated rule language, will be developed through the ongoing rule development process which allows public participation to question and provide alternative strategies.

Response to Comment 43-10: The use of battery technologies has increased in recent decades and prices of critical minerals for Li-ion batteries have risen due to strong demand for electric vehicles, energy storage, and consumer electronics. South Coast AQMD has been actively partnering with public and private stakeholders to develop battery technologies focused on improving battery design, control, chemistries, and composition to store more energy per unit of materials. In addition, reuse and recycling technologies can relieve the pressure on demand of critical minerals. Changes in battery chemistries that are not as heavily reliant on critical minerals will help lessen the need for these minerals. However, as noted in the comment, it will be important to be actively engaged in the market for batteries with added focus on mineral commodity prices, resource management, and recycling. South Coast AQMD will monitor and, when appropriate, collaborate with research institutes and academia to develop advanced battery

technology using alternative minerals which are more abundant and have less impact on the environment.

Comment Letter #44

From: sitefinity@aqmd.gov <sitefinity@aqmd.gov>
Sent: Saturday, June 18, 2022 5:54 AM
To: Sang-Mi Lee <slee@aqmd.gov>
Subject: Contact Form

Contact Form

Name: George Allen

Email: allengc@cox.net

Message:

I am against removing natural gas for home heating and cooking. I worked at San Onofre Nuclear Plant. Nuclear power is carbon free and California was against it. I do not support letting solar and wind be considered clean and nuclear not.

Comment 44-1

Response to Comment 44-1: The Draft 2022 AQMP contains measures to reduce NOx emissions across all sectors. While most of the NOx in the region is from mobile sources such as trucks, ships, trains and airplanes, stationary sources also contribute NOx emissions and must be reduced.

Residential fuel combustion contributes significant levels of NOx emission in the region. Staff forecasts that by 2037 emissions from residential fuel combustion will be one of the two top emitters among stationary sources. Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption. For discussion on residential gas use and the need for emission reduction, please refer to the general response to Need for Zero Emission Technology in Residential and Commercial

Building Appliances. The South Coast AQMD will continue to work with developers and other agencies to deploy other types of clean energy. The South Coast AQMD will conduct more in-depth analyses on clean energy deployment during the rulemaking process. Please refer to Response to Comment 3-1 for further discussion on nuclear energy.

Comment Letter #45

Email to South Coast AQMD re Draft 2022 AQMP 19 June 2022

Hello,

Susan Shelley penned an editorial captioned REGULATORS TILT AT WINDMILLS which was published in the Sunday 12 June 2022 issue of the Long Beach Press Telegram. Such op-eds tend to polarize the extremes and are usually not unifying. I am open-minded. I read your Air Quality Management Plan (AQMP) 2022 Executive Summary and Overview and have conducted limited additional research. I hope you can assist with answers and consider my views.

I was born/raised in CA and have lived in Long Beach, CA continuously since 1986. I have a distinct memory of air quality in 1986, when there were many days the Long Beach skyline from the top of the Gerald Desmond Bridge was not visible due to smog. This is not the case now (and has not been for many years) and my experience echoes the following copied from your AQMD 2022 Overview:

> Improvements in cleaner technology and strict regulations have reduced ozone levels since its peak in the mid-twentieth century.

The Overview continues as follows:

> However, ozone levels have remained unacceptably high over the past decade despite significant reductions. This trend is due to the changes in climate and other weather conditions such as the increase in hot, stagnant days that can lead to the formation of ozone that we have experienced in recent years

Comment 45-1

I do not know what the "mid-twentieth century" is but if interpreted literally it was before 1986. What is indicated is ozone levels hit a peak, reduced since the peak, and then over the past decade have remained "unacceptably high" despite significant reductions due to "climate and other weather conditions." This is confusing – too much is stated with too little explained:

- When did ozone levels peak and what were ozone levels at the time of the peak?
- What was the goal ozone level between when ozone levels peaked and ten years ago?
- Between when ozone levels peaked and ten years ago, was the goal ozone level ever met?
- Have "high" ozone levels caused climate change, or has climate change caused "high" ozone levels.

Now, nitrogen oxides (NOx) – the key pollutant that creates ozone – will need to be reduced by 71% by 2037 to meet adopted rules and regulations, even though NOx emissions are expected to decline by nearly 36 percent from 2018 to 2037. Somehow through "air quality modeling" and a host of other techniques which, to the uninitiated such as myself are too mystical to understand, you can now determine that in 2037 in your South Coast Air Quality Management District area of operation (western portions of Riverside and San Bernardino Counties, the southern two-thirds of Los Angeles County, and all of Orange County–area covers 6,729 square miles out of California's total of 163,696 square miles and is home to more than 40 percent of California's population)

Comment 45-2

42 percent of NOx emissions will come from federal sources

39 percent will come from State regulated sources

19 percent will come from South Coast AQMD regulated sources

Thus the federal government and state of California have responsibility for about 81% of the pie. South Coast AQMD has jurisdiction over the remaining 19% of the NOx emitters which you have referred to as "stationary sources – such as power plants, refineries, and factories". These "such as" sources seem to be reasonable targets for reasonable standards...but there apparently are other stationary sources not named in your *such as* examples. Your overview goes on to explain:

> The magnitude of such an emission reduction (the 71% beyond that which will be achievable through current programs in 2037) means that **all sources of emissions** must be controlled as stringently as possible...

The *all sources of emissions* sounds like it encompasses those sources subject to federal and state jurisdiction and South Coast AQMD's *named* and ***unnamed*** stationary sources. All of this evokes a series of additional questions.

- Have federal/state emissions control goals been met?
- If YES, did federal/state authorities implement measures different than South Coast AQMD measures and, if so, what were said measures and if they could have been implemented by South Coast AQMD and were not, why were they not implemented?
- What were South Coast AQMD ozone levels in the years 2001, 2010, 2011, and 2020? These answers will reveal decade-long changes:

  2001 ozone level - 2010 ozone level = change occurring during 1st decade

  2011 ozone level - 2020 ozone level = change occurring during 2nd decade

- Over the decades 2001-2010 (1st decade) and 2011-2020 (2nd decade) what were the total South Coast AQMD area ozone levels changes attributable to:

  Federal regulatory action: (EPA$_\Delta$)

  State regulatory action: (CA$_\Delta$)

  South Coast AQMD regulatory action: (SCAQMD$_\Delta$)

  For each decade, ozone level change occurring during the decade = EPA$_\Delta$ + CA$_\Delta$ + SCAQMD$_\Delta$

Comment 45-2 Con't

- What were the total costs (i.e., permits, expenses to upgrade, penalties and fees such as cap-and-trade credits, etc.) incurred by regulated entities to comply with

  1st decade EPA△:
  2nd decade EPA△:

  1st decade CA△:
  2nd decade CA△:

  1st decade SCAQMD△:
  2nd decade SCAQMD△:

Comment 45-3

- What were the 2021 ozone levels and what are the projected 2037 ozone levels?
- Of the 2021 ozone levels and projected 2037 ozone levels, what amounts were from/are projected to come from:

  Federal sources 2021:
  Federal sources 2037:

  State sources 2021:
  State sources 2037:

  South Coast AQMD sources 2021:
  South Coast AQMD sources 2037:

Comment 45-4

- Of the 2021 ozone levels and projected 2037 ozone levels emitted/projected to be emitted from South Coast AQMD sources, what amounts are attributable to:

  Power plants 2021:
  Power plants 2037:

  Refineries 2021:
  Refineries 2037:

  Factories 2021:
  Factories 2037:

- For 2021 and 2037

  ozone levels from South Coast AQMD sources (SCAQMD△) - ozone levels from power plants - ozone levels from refineries - ozone levels from factories = ozone levels from unnamed stationary sources (SCAQMD△ 2021X and SCAQMD△ 2037X)

Comment 45-5

- What other unnamed stationary sources (sources besides power plants, refineries and factories) will South Coast AQMD be regulating to address SCAQMD▵ 2021X and SCAQMD▵ 2037X, and what amounts of NOx emissions were/will be emitted from each?

Comment 45-5 Con't

Susan Shelley's article relays South Coast AQMD has already regulated power plants, refineries and factories, and now is looking at regulating "residential combustion", which reportedly accounts for only a fraction of a fraction of NOx emissions, by requiring the replacement of gas water heaters, furnaces and stoves in up to 5.3 million residences. She also noted, and I think this is the crux of the matter, that decision-making seems driven by federal (EPA) requirements which appear to be impossible to meet.

It seems like insanity to impose a standard impossible to meet and, in lieu of a monetary penalty or shut-down order offer a power plant, refinery, or factory a "mitigation fee" (which sounds like "cap and trade" by another name) and then use it to entice home dwellers to dump natural gas appliances and go green with zero emissions electric appliances. Notwithstanding that we already have a perilously fragile electric infrastructure that seems not to be upgrading as fast as EV's and charging stations are being built, if SCAQMD▵ 2021X and SCAQMD▵ 2037X happened to be a significant contributor of emissions this could be a sound program...but it appears SCAQMD▵ 2021X and SCAQMD ▵ 2037X represent infinitesimal amounts.

Comment 45-6

Subsidizing residents to dump natural gas appliances would result in minuscule environmental improvement (and is not justified). Additionally, a "mitigation fee" would end up on a power plant, refinery, or factory financial balance sheet somewhere as an expense (as is cap and trade) and be factored in to its pricing. A "mitigation fee" is not free money, but instead a cost of business such as regulatory compliance, which with all other costs, determines the price of a product (and in today's climate adds to inflation).

My sense is South Coast AQMD faces a mandatory impossible-to-meet federal standard and is looking at all options. If orchestrating "mitigation fees" on those who simply cannot emit less to fund free or subsidized appliances to make it look like doing something is better than doing nothing, even if it will not accomplish meaningful change, please change your course.

I am trying to be reasoned and not negative. This does not make sense...and a bee is not a fish.

Don't take away my propane BBQ! If you need to pursue something go after something else such as bovine, swine and equine flatulence. I'll be happy to grill veggie burgers and fish (but not bees).

Sincerely,

PAUL J. LARSON
plarsonmarine@aol.com

Response to Comment 45-1: South Coast AQMD staff appreciates your comments. It is somewhat difficult to assign a specific year that ozone levels peaked as the peak likely occurred before modern ozone monitoring programs began. However, for context, the peak 1-hour ozone value measured was 0.68 ppm in 1955, which is approximately 3.7 times higher than the peak 1-hour ozone value measured in the 2020s (0.185 ppm). The first federal ozone standard that relied on ozone measurements was established in 1979

at 0.12 ppm (1-hour daily maximum). The U.S. EPA established subsequent standards addressing 8-hour daily maximum ozone concentrations (meaning levels are averaged over an 8 hour period instead of 1 hour) in 1997, 2008, and 2015 at 0.08, 0.075, and 0.070 ppm, respectively. None of the federal ozone standards have been met in the South Coast Air Basin and only the 1979 1-hour ozone standard has been met in the Coachella Valley. A summary of these standards and their attainment status are presented in Chapter 2 and Appendix 2.

Federal air quality standards are health-based standards – meaning that they are set at levels that protect public health. Levels of air pollution that are above the federal standards impact public health. In the case of ozone, health impacts include increased incidences of respiratory diseases. Although levels of ozone have decreased dramatically over the past several decades, levels are still above federal standards and continue to impact public health.

Reducing NOx with controls on combustion sources will also reduce concentrations of greenhouse gasses that contribute to climate change. Ozone itself is also a greenhouse gas and does influence climate, but it has a much smaller impact than other greenhouse gases such as carbon dioxide and methane. On the other hand, changes in weather caused by climate change can influence ozone levels. For example, a reduction in atmospheric ventilation or the increased frequency and intensity of heat waves may increase ozone levels in the region. Chapter 2 contains a summary of the 2020 air quality and describes how atypically hot and stagnant weather in 2020 influenced ozone levels.

Response to Comment 45-2: You correctly point out that the bulk of NOx emissions that need to be reduced to meet federal ozone standards are from sources beyond South Coast AQMD's direct regulatory authority. Mobile sources of emissions, in particular heavy-duty trucks, ships, airplanes, locomotives, and construction equipment, contribute the bulk of the emissions that must be controlled. These sources are subject to either state or federal regulatory authority.

In the 2016 AQMP, CARB committed to measures that would have achieved 113 tons per day of NOx emission reductions in the Basin by 2023 as part of their 2016 State SIP Strategy. The commitment reflected a combination of State actions, petitions for federal action, as well as actions that outlined a pathway for emission reductions from the deployment of the cleanest technologies in each sector. As of 2022, CARB has fallen short of this commitment. This is primarily due to the lack of federal action – the federal government has not taken the steps to reduce emissions from the mobile sources subject to federal regulation.

Ozone trends are presented in Chapter 2 and Appendix 2. However, ozone concentrations are not directly proportional to emissions as the chemistry of ozone formation is a complex function of sunlight intensity, NOx, VOC, and the ratio of NOx and VOC levels.

While air quality modeling is a useful tool to project future changes in air quality in response to emission reductions, it is extremely challenging to retrospectively attribute changes in measured ozone levels to specific regulations. Thus, South Coast AQMD staff cannot parse out the change in ozone levels attributable to U.S. EPA, CARB, or South Coast AQMD regulations.

Response to Comment 45-3: South Coast AQMD staff conducts a socioeconomic impact assessment for each iteration of AQMP (encompassing both CARB and South Coast AQMD control measures). The assessment quantifies projected costs to implement the control measures necessary to achieve sufficient

emission reductions for regional attainment of federal air quality standards. Following AQMP adoption, staff conducts more detailed and refined cost analyses for the implementation of South Coast AQMD control measures during rule development process with stakeholders' participation. Similarly, CARB staff conducts standardized regulatory impact assessments (SRIA), inclusive of cost analysis, for the proposed regulations promulgated by CARB, whereas U.S. EPA staff prepares regulatory impact analyses (RIA) for federal air pollution regulations.

Response to Comment 45-4: This AQMP uses 2018 as the base year per U.S. EPA's 2015 ozone implementation rule. Measured ozone levels in 2018 and projected levels in 2037 are displayed in Chapter 5, Tables 5-1 and 5-2. Historical ozone trends are also presented in Chapter 2 and Appendix 2. A complex source apportionment analysis would be required to attribute modeled ozone levels to U.S. EPA, CARB, or South Coast AQMD regulated emission sources.

Response to Comment 45-5: See response to 45-4. In addition to power plants, refineries, and factories, South Coast AQMD regulates emissions from a wide range of stationary sources. These include combustion sources from residential and commercial buildings (e.g., furnaces, hot water heaters, etc.), backup generators and landfills. The NOx emissions for these sources are shown in the corresponding control measures in Appendix IV-A.

Response to Comment 45-6: The Draft 2022 AQMP contains measures to reduce NOx emissions across all sectors. While most of the NOx in the region is from mobile sources such as trucks, ships, trains and airplanes, stationary sources also contribute NOx emissions and must be reduced.

Residential fuel combustion contributes significant levels of NOx emission in the region. Staff forecasts that by 2037 emissions from residential fuel combustion will be one of the two top emitters among stationary sources. NOx emissions from the residential sector are primarily generated by natural gas appliances for water and space heating and cooking. Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption. Please refer to the general response to The Need for Zero Emission Technology in Residential and Commercial Building Appliances for more discussion on residential gas use and emissions. Please see Response to Comment 9-1 for discussion on the ozone standard.

Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emission Building Measures and Electricity Supply and Demand for more details.

The Draft 2022 AQMP proposes control measures which later will be developed as rule. During the future rule making, staff will conduct further in-depth analysis on the all the relevant subjects with public participation. The subjects could include cost-effectiveness, power supply, off-ramps when zero emission requirement would not be feasible, applicability of mitigation fee, etc. Any new rule requirement must be deemed cost-effective and feasible before it would be adopted.

Comment Letter #46

From: sitefinity@aqmd.gov <sitefinity@aqmd.gov>
Sent: Monday, June 20, 2022 9:45 AM
To: Sang-Mi Lee <slee@aqmd.gov>
Subject: Contact Form

Contact Form

Name: Curtis Cribbs

Email: cribbscurtis@yahoo.com

Message:

This plan is absurd, population is the problem and the rest of the world will never help. China. India. Russia, Saudi's and more will not change. Wildfires destroy anything we have tried for years. What do think the war in the Ukraine is doing to air quality around the world. California is NOT going to solve the pollution problem of the world and I guarantee removing my gas appliances is not going to solve anything. I'm very tired of this state government pushing people around, stop it please it's doing nothing but overpowering people

Comment 46-1

Response to Comment 46-1: The Draft 2022 AQMP contains measures to reduce NOx emissions across all sectors. NOx is the key pollutant that must be controlled to meet the federal ozone standard.

Residential fuel combustion contributes significant levels of NOx emission in the region. Staff forecasts that by 2037 emissions from residential fuel combustion will be one of the two top emitters among stationary sources. Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption. However, note that none of the control measures in the AQMP ban the use of natural gas. For discussion on residential gas use and the need for emission reduction, please refer to the general response to The Need for Zero Emission Technology in Residential and Commercial Building Appliances.

The South Coast AQMD does consider the emissions from wildfires, which can affect air quality through increased emissions of the pollutants that form ozone. The South Coast AQMD's mobile source measures

are categorized into five broad categories, one of which involves the consideration of wildfire prevention and enhanced public outreach and education. Proposed control measure MCS-02 for wildfire prevention will seek to reduce the impacts of wildfires on particulate matter (PM) and ozone levels from efforts to reduce wildfire fuel. For further discussion on wildfire emissions, please refer to Response to Comment 14-1.

Comment Letter #47



AFFILIATED AGENCIES

Orange County Transit District

Local Transportation Authority

Service Authority for Freeway Emergencies

Consolidated Transportation Service Agency

Congestion Management Agency

June 20, 2022

South Coast Air Quality Management District
California Environmental Quality Act Section
21865 Copley Drive
Diamond Bar, CA 91765

Subject: **South Coast Air Quality Management District Draft 2022 Air Quality Management Plan**

To Whom It May Concern:

Thank you for providing the Orange County Transportation Authority (OCTA) the opportunity to comment on the Draft 2022 Air Quality Management Plan. The following comment is provided for your consideration:

- In Appendix IV-C ('SCAG's Regional Transportation Strategy and Control Measures'), on Pages IV-C-50 and IV-C-51, OCTA Project IDs ORA130099 and ORA030612 should have the completion date revised to "Undergoing TCM Substitution" to reflect the correct project status.

Comment 47-1

Throughout the development of this project, we encourage communication with OCTA on any matters discussed herein. If you have any questions or comments, please contact me at (714)-560-5907 or at dphu@octa.net.

Sincerely,

Dan Phu
Manager, Environmental Programs

Orange County Transportation Authority
550 South Main Street / P.O Box 14184 / Orange / California 92863-1584 / (714) 560-OCTA (6282)

Response to Comment 47-1: South Coast AQMD staff have updated the OCTA Project IDs in Appendix IV-C on pages IV-C-50 and IV-C-51 to reflect the current project status.

Comment Letter #48

From: ladyofkent@verizon.net <ladyofkent@verizon.net>
Sent: Tuesday, June 21, 2022 8:56 AM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: Draft 2022 AQMP

I am against California's plan on getting rid of gas run everything. It is just another attempt at CONTROLLING people.

You want electric everything, just how do you propose to have enough electricity to run everything, when we don't have enough electricity now, ie: outages from storms, A/C usage during excessive heat, population growth that can't be supported.

Don't give me windmills, that just Don Quiote thinking.

Electric cars, appliances what a joke. You KNOW that residential gas usage is miniscule. When smog was bad better emission cars were created, now you come up with "the sky is falling!!! scare tactics trying to get people to comply.

Oh yea, you say you'll give incentives, going to grow the money on trees or just keep printing money like the Democrats are doing now causing havoc on our State/Nation?

Comment 48-1

No to your 2022 AQMP proposal.

Susan Spongberg
La Habra, Ca.

Response to Comment 48-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP. The 2022 AQMP is the blueprint as to how the region will meet the 2015 8-hour National Ambient Air Quality Standard (NAAQS or standard) for ozone. Federal law requires that the South Coast AQMD and CARB develop and submit plans to attain NAAQS to the U.S. Environmental Protection Agency (U.S. EPA) for approval. The U.S. EPA can then impose mandatory economic sanctions and other consequences in the event the plans are not implemented, or the region fails to meet the standard by the date required.

The Draft 2022 AQMP proposes control measures across all sectors that emit NOx. NOx is the key pollutant that must be controlled to meet federal ozone standards. Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption. For discussion on residential gas use and the need for emission reduction, please refer to the general response to The Need for Zero Emission Technology in Residential and Commercial Building Appliances.

Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emission Building Measures and Electricity Supply and Demand for more details.

The South Coast AQMD mission is to improve air quality, public health and to ensure that socioeconomic status or other factors will not pose obstacles for the equitable protection from air pollution. The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing all-electric appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost.

In addition, staff understands the need to address incentive funding. Please refer to the general response to Impact of Zero Emission Technology on Inequity. Funding sources identified through previously collected mitigation fees have been used in existing rebate programs such as the South Coast AQMD's Clear Air Furnace program. Funded by Rule 1111 mitigation fees, the program provides rebates to those installing a residential electric heat pump to replace a natural gas furnace. The South Coast AQMD has also been implementing a number of incentive programs to accelerate the deployment of clean technologies, for example, the Lower-Emission School Bus Program, the Carl Moyer Program, and other diesel mitigation programs. The South Coast AQMD will continue to identify more funding sources for future zero emission building measures incentive programs and address access to zero emission technologies. The South Coast AQMD will work with stakeholders involved in zero emission infrastructure to ensure that zero emission technologies are distributed affordably and equitably and will further consider these factors during the future rulemaking or incentive program development process.

Comment Letter #49

From: Gerald Pilger <pilgergrj@gmail.com>
Sent: Tuesday, June 21, 2022 9:21 AM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: 2022 AQMP public comments

I am opposed to Control Measures R-CMB-01, R-CMB-02, and R-CMB-03 in the proposed 2022 AQMP.

The cost to benefit of these Control Measures for the people of California is a burden to all of us and especially to the lower income demographic. There are better ways to achieve reductions in polluting emissions.

I hope your technical and financial advisors are aware of the significant time and cost challenges associated with the time frame of implementation and they are honestly reporting them to your decision making personnel. For example, home heating, water heating, and cooking equipment will require new wiring and associated electrical equipment to support that equipment in practically all residential dwellings. In many dwellings the electric service

Comment 49-1

and distribution panels will need to be upgraded. Electric utility distribution infrastructure will also need upgrades. If these new loads are to be sourced with solar power then additional electrical equipment will be required.

Full disclosure, I am a retired electrical engineer and worked as an engineering manager for Southern California Edison. I would be happy to respond to any questions the SCAQMD staff may have on my comments.

Comment 49-1 Con't

Thanks for the opportunity to comment.

Response to Comment 49-1: Thank you for your comment. The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing all-electric appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost. For consumers in disadvantaged communities, the South Coast AQMD and other state and local agencies recognize that cost and socioeconomic factors also pose an inequity concern. In addition, the South Coast AQMD recognizes there is still much work to be done for communities that are disproportionately impacted by pollution and are more vulnerable to the health effects of pollution. Please refer to the general response to Impact of Zero Emission Technology on Inequity for further discussion.

Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emission Building Measures and Electricity Supply and Demand for more details.

Comment Letter #50

From: Ruth Boersma <rbkb8925@gmail.com>
Sent: Tuesday, June 21, 2022 11:30 AM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: Air Quality nitrogen oxide emissions (NOx emissions)

What an expensive and stupid idea. No Are the electric appliance manufactures in your pockets? When our gas appliances only produce a FRACTION of a FRACTION of a percent of our NOx ozone.

I am very opposed to

Sent from my iPhone

From: Ruth Boersma <rbkb8925@gmail.com>
Sent: Tuesday, June 21, 2022 11:46 AM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: Air Quality Control Plan

Opposed to:
RMB-C-01
RMB-C-02
RMB-C-03

REASONS:
INEFFECTIVE: negligible results
TOO EXPENSIVE in the most over regulated and taxed state in the country Already OVER BURDENED antiquated electrical grid

TOPOGRAPHY of area creates weather conditions contributing to most of our jozone

A STUPID IDEA.
VERY OPPOSED TO THESE MEASURES!

YOU HAVE to consider public input. Enough negative comment from consumers YOU have to delete this from their plan.

Sent from my iPhone

Comment 50-1

Response to Comment 50-1: The Draft 2022 AQMP contains measures to reduce NOx emissions across all sectors. NOx is the key pollutant that needs to be controlled to meet federal ozone standards. Residential fuel combustion contributes significant levels of NOx emission in the region. Staff forecasts that by 2037

emissions from residential fuel combustion will be one of the two top emitters among stationary sources. NOx emissions from the residential sector are primarily generated by natural gas appliances for water and space heating and cooking. Staff recognizes the significant impact of and the need for emission reductions from residential gas consumption. Please refer to the general response to Need for Zero Emission Technology in Residential and Commercial Building Appliances in the introduction for more discussion on residential gas use and emissions.

Staff understands the cost concern for consumers associated with the adoption of zero emission appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances in the introduction for discussion on the cost.

Staff understands that electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand in the introduction for more details. Federal law requires South Coast AQMD to develop all feasible measures to attain the 2015 8-hour ozone standard by 2037 and submit the plan to U.S. EPA for approval. Failure to submit an attainment plan, implement the control measures or attain the standard by 2037 will impose mandatory economic sanctions and other consequences by EPA.

Comment Letter #51

What Powers You

June 21, 2022

Bloom Energy Comments
Stationary and Mobile Source Control Measures
Draft Air Quality Management Plan
June 21, 2022

I. Introduction

Bloom Energy Corporation (Bloom Energy) develops on-site distributed generation using innovative fuel cell energy technology that is fuel flexible. Our unique on-site power generation utilizes an advanced fuel cell technology with roots in NASA's Mars mission program. Derived from a sand-like powder, and leveraging advances in materials science, Bloom's technology is able to produce clean, reliable, affordable energy practically anywhere from a wide range of traditional or renewable fuel sources.

Bloom Energy appreciates the opportunity to provide feedback on the South Coast Air Quality Management District's (SCAQMD) Air Quality Management Plan (AQMP). As the AQMP serves to guide adoption of cleaner energy solutions within the air basin, it offers a path forward that will ensure increased deployment of technologies that are capable of meeting reliability standards and clean energy goals. Bloom Energy respectfully submits comments related to the following control measures:

- **L-CMB-03**: NOx Reductions from Permitted Non-Emergency Internal Combustion Engines
- **L-CMB-04**: Emission Reductions from Emergency Standby Engines
- **L-CMB-05**: NOx Emission Reductions from Large Turbines
- **L-CMB-06**: NOx Emission Reductions from Electricity Generating Facilities
- **MOB-01:** Emission Reductions At Commercial Marine Ports

More broadly, Bloom Energy applauds the 2022 AQMP's ambitious goal of a 71 percent reduction in NOx emissions in the LA Basin by 2037. This sober assessment notes that, in order to achieve this goal, a broader deployment of zero and/or near-zero emission technologies for both stationary and mobile sources will be required. To that end, Bloom Energy's comments are primarily focused on stationary source emissions, where Bloom Energy has delivered a near zero emissions solution. Fuel cells, as a technology, are capable of producing the largest quantity of clean, near-zero criteria air pollutant, electricity in proportion to their equipment footprint compared to any technology currently on the market.

Comment 51-1

Bloom Energy Corporation
4353 North First Street, San Jose, CA 95134
408 543 1500
www.bloomenergy.com

What Powers You

II. **Comments**

- **L-CMB-03:** NOx Reductions from Permitted Non-Emergency Internal Combustion Engines
- **L-CMB-05:** NOx Emission Reductions from Large Turbines
- **L-CMB-06**: NOx Emission Reductions from Electricity Generating Facilities

Fuel cell technologies rely on an electrochemical process to create electricity. This process avoids the combustion of any resource, and creates a zero or near zero emission profile that is capable of meeting the California Air Resources Board's rigorous Distributed Generation Certification process[1]. As evidenced in the 2015 Self Generation Incentive Program (SGIP), fuel cells are capable of reducing emissions, and offer a much more favorable emissions profile to traditional internal combustion technologies[2]. Fuel cells in general are designed to be fuel flexible; capable of generating electricity on natural gas, biogas, or hydrogen.

Comment 51-2

Due its highly-modular architecture, there are a number of applications where a fuel cell can be seen as a best fit. As a customer-sited solution, fuel cells are able to easily displace larger, dirtier solutions that would otherwise serve as baseload. As the 2022 AQMP appropriately notes "fuel cells and electrification are ways to shift away from combustion sources generating NOx emissions wherever feasible.[3]" Bloom Energy has found this to be true. A large number of customers are migrating from traditional generation resources to cleaner generation resources such as fuel cells. High capacity factor and availability make fuel cells a logical resource for baseload generation.

An added benefit stemming from transitioning to fuel cells is the increased reliability and resiliency of onsite generation. Bloom Energy has direct experience in deploying resources where resiliency is a key factor. This was the case in Hartford, Connecticut in the wake of Hurricane Sandy. At that time, Bloom Energy was able to work with the community to deploy a large-scale community wide resource that has since provided reliable electric service to a gas station, grocery store, library, senior center, health center and an elementary school[4].

The versatility of deploying a fuel cell stems from the power dense nature of a SOFC. For example, a Bloom Energy fuel cell only requires 0.58 square feet per kW[5] as compared to a PV installation which requires 193.75 feet per kW[6]. This provides for additional benefits to the customer and/or community in

[1] See: https://ww2.arb.ca.gov/our-work/programs/dgcert/exec-orders
[2] Itron. SGIP Impact Evaluation Submitted to PG&E and the SGIP Working Group, April 2015.
[3] See: draft2022aqmp.pdf (aqmd.gov)
[4] Discovery Education and Constellation, "Hartford Microgrid" YouTube 3:51, April 21, 2017 https://www.youtube.com/watch?v=2gMv-Diaxow
[5] http://www.bloomenergy.com/fuel-cell/es-5710-data-sheet/
[6] http://www.nrel.gov/analysis/tech_cap_factor.html

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What Powers You

the form of avoided real estate costs and minimizes impacts to biological resources. Understandably, these are issues outside of the scope of the 2022 AQMP, but it is worth noting that in addition to the reduction in NOx emissions there are additional community level benefits that can be derived from greater adoption of fuel cells as a source of baseload generation.

As a baseload resource, Bloom Energy's Solid Oxide Fuel Cell technology requires less than one gallon of water per kW upon start up and then consume virtually no water during normal operations. As a firm resource, Bloom Energy Servers are capable of displacing generation from thermoelectric plants which make up 49% of water withdrawals in the US as well as nuclear plants which consume vast quantities of water[7]. This dynamic lends itself to deploy Bloom Energy's fuel cells virtually anywhere; there is no need to co-locate with a large body of water for operational purposes. And, given the strong likelihood that the extreme drought conditions will persist, it would seem logical that the State would pursue generation resources that are not dependent on large amounts of water withdrawal and consumption for normal operation.

Comment 51-2 Con't

To this end, Bloom Energy concurs with the proposed adoption and implementation timelines included in the AQMP. In fact, as noted above, the technology to manage emissions in accordance with the control measures exists today.

- **L-CMB-04**: Emission Reductions from Emergency Standby Engines

As noted in the 2022 AQMP, there are Over 12,000 internal combustion engines that are permitted for emergency standby power in the South Coast AQMD[8]. This is a staggering figure. And, unfortunately it is a figure that is trending in the wrong direction. Recent analysis conducted on behalf of Bloom Energy by independent analyst found that the diesel generator population jumped by nearly 22 percent over the previous year[9]. This analysis found that nearly 50 percent of the generators permitted in the district are sited in communities that are between the 80th and 100th percentile of Cal EPA's CalEnviroScreen.

Comment 51-3

These factors suggest that a greater degree of coordination between the state's energy planners and the state's pollution and emissions regulatory bodies is necessary. BUG's, which are often situated in underserved and working-class neighborhoods, are a signal that reliability concerns exist. When energy can be reliably delivered the need for a backup solution, such as a diesel generator is not necessary. Bloom Energy's fuel cells are capable of displacing the need for dirtier, antiquated technologies such as diesel generators. However, absent energy policy decisions designed to foster growth for technologies

[7] http://pubs.usgs.gov/circ/1344/pdf/c1344.pdf
[8] See: draft2022aqmp.pdf (aqmd.gov)
[9] https://www.bloomenergy.com/wp-content/uploads/diesel-back-up-generator-population-grows-rapidly.pdf

Bloom Energy Corporation
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www.bloomenergy.com

What Powers You

that can provide reliability, the proliferation of diesel generators will likely continue. Bloom Energy was encouraged to see that the 2022 AQMP included detail on coordination with other agencies at the State, federal, and local level, and would encourage SCAQMD to work with their partner agencies to adopt policies that encourage low and/or zero NOx emissions for stationary sources.

Comment 51-3 Con't

- **MOB-01:** Emission Reductions At Commercial Marine Ports

Bloom Energy looks forward to working with SCAQMD and stakeholders through the continued development of an indirect source rule designed to address emissions in marine applications. Fuel cells have a proven track record of delivering environmental and energy benefits designed to meet the emissions targets of SCAQMD. Again, the power density and modularity lend themselves to applications in more geographically challenging environments, such as in a port.

The power dense nature of the Bloom Energy's fuel cells have led to several strategic partnerships with ocean going carriers[10][11]. By generating electricity 20 to 30 percent more efficiently than traditional combustion based propulsion and auxiliary based engines, delivering a significant reduction in carbon emissions and emitting virtually no harmful air pollutants like sulfur oxides, nitrogen oxides, and particulate matter. Bloom Energy has developed a future proof platform that is IMO 2040-2050 ready today, and remains capable of fuel flexibility. Bloom Energy looks forward to working with SCAQMD and stakeholders in developing a pathway to cleaner energy solutions for ocean going vessels as well.

Comment 51-4

III. **Conclusion**

Bloom Energy commends the SCAQMD for its continued efforts in creating a roadmap for a cleaner future for the LA basin. The AQMP is a sobering document that reminds us that there is still much work to be done. Bloom Energy looks forward to working with SCAQMD in crafting a regulatory framework that accomplishes the goals set forth in the 2022 AQMP.

Comment 51-5

Respectfully submitted,

/s/
Brady Van Engelen
Senior Manager
Policy and Government Affairs

[10] https://www.travelagentcentral.com/cruises/msc-world-europa-be-powered-clean-energy
[11] https://www.bloomenergy.com/news/samsung-heavy-industries-and-bloom-energy-advance-plans-for-clean-power-ships-with-joint-development-agreement/

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Response to Comment 51-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP control measures and is encouraged by Bloom Energy's commitment to develop fuel cells that produce low NOx on-site electricity.

Response to Comment 51-2: Thank you for reviewing and commenting on the 2022 Draft Air Quality Management Plan (AQMP). As Chapter 4 of the 2022 Draft AQMP elaborates, South Coast AQMD supports the inclusion of fuel cell technologies in NOx control measures for stationary source combustion and mobile source applications where feasible. Fuel cells can provide power to various applications across multiple sectors, including transportation; industrial, commercial, and residential buildings; and long-term energy storage for the grid. The application of fuel cell technologies for power generation and transportation has increased over the years and continues to expand with emerging technologies. However, as the commenters may agree, cost, performance, and durability are still critical challenges with this technology.

It is essential to overcome these challenges to benefit from the advantages of fuel cell technologies over combustion-based technologies, such as higher efficiencies (>60%), zero tailpipe emissions, and lower CO2 emissions. Over the years, South Coast AQMD has partnered with national laboratories, universities, and industry partners to develop low-cost fuel cell stack and balance of plant (BOP) components and advance high-volume manufacturing approaches to reduce overall system cost. In addition, improving fuel cell efficiency and performance is critical to maintaining adequate performance over an extended period of time. High-performance fuel cell technologies can be built through innovative material and integration technologies and identifying and understanding fuel cell degradation mechanisms to develop materials and strategies to mitigate these effects. South Coast AQMD supports such research and development projects through its work in the Technology Demonstration group and the Clean Fuels Fund.

In the transportation sector, the cost of fuel cells, hydrogen production, distribution, and fueling infrastructure at a small scale remain the primary challenges to fuel cell technology adoption. While fuel cell vehicles and infrastructure provide comparable ranges and fueling times to conventional technologies, such barriers can still impact business and consumer models. South Coast AQMD is committed to investing and partnering where appropriate to expand light, medium and heavy-duty hydrogen infrastructure and to advance fuel cell vehicle technologies in specific vehicle categories

Response to Comment 51-3: Staff appreciates the support for fuel cell systems to replace emergency ICEs. The use of zero or low NOx emission fuel cell systems to replace emergency internal combustion engines, including a cost-effectiveness analysis to determine viability as an option, will be explored in future rulemaking processes. Any future rulemaking process would involve the participation of a broad range of stakeholders, including other regulatory agencies.

Response to Comment 51-4: South Coast AQMD staff appreciates the comments regarding the use of fuel cell technologies to reduce emissions at marine ports. Staff will evaluate and discuss the use of fuel cells as part of the public process for the rule development of Proposed Rule 2304 - Marine Port Indirect Source Rule (PR 2304), which seeks to reduce NOx and PM emissions from on-road and off-road mobile sources operating in and out of marine ports. Staff looks forward to working with technology vendors to assess the feasibility and develop pathways for zero and low NOx emission technology implementation at ports.

Response to Comment 51-5: Staff appreciates the comments and your participation in the 2022 AQMP public process.

Comment Letter #52

CALIFORNIA RESTAURANT ASSOCIATION
LOS ANGELES CHAPTER

June 21, 2022

Sang-Mi Lee, PH.D.
Planning & Rules Manager
South Coast AQMD
21865 Copley Drive
Diamond Bar, CA 91765

Re: 2022 Draft Air Quality Management Plan - C-CMB-03 Emission Reductions from Commercial Cooking Devices

Dear Dr. Lee,

On behalf of the California Restaurant Association (CRA), I am writing to raise concerns regarding the proposed control measures on commercial cooking devices. The CRA represents thousands of restaurants statewide, many of which are independent, chef-driven restaurants that call Southern California home.

We greatly appreciate the robust dialogue that is taking place regarding the 2022 Draft Air Quality Management Plan and the various ways in which it looks to reduce NOx emissions. However, targeting restaurants cooking devices should not be one of them.

The restaurant community often leads on energy efficiency and environmental stewardship. Natural gas bans often have a unique- and negative impact- on restaurants.

The use of natural gas- and fire specifically- has traditionally been a tool that enhances the art of cooking for so many of these local restaurants and we want to continue to raise concerns about the impacts of a natural gas ban for existing and future restaurants.

Comment 52-1

Restaurants that use natural gas do so for the practical aspects of its use in their menu development, preparation of a wide variety of cuisines and dishes, coffee roasting, and for the quality of the technique one gets from natural gas cooking methods. After all, one doesn't often hear a chef get excited about firing up an electric wok for instance.

Many restaurants specialize in making products which require the use of specialized gas appliances for preparation, including for example flame-seared meats, charred vegetables, or the use of intense heat from a flame under a wok. Additionally, restaurants specializing in ethnic foods may be unable to prepare many of their specialties without natural gas.

The unique needs of the local restaurant community and its practical needs as it relates to fire as a tool for cooking must be acknowledged. We believe control measures for commercial cooking devices that look to replace gas stoves, ovens, broilers, and other devices with electric cooking devices or induction cooktops should be removed as a control measured.

California Restaurant Association
P.O. Box 32482, Los Angeles, CA 90032

Often during these policy discussions, there is mention (from non-restaurateurs) of technological innovation in cooking methods and cost. While it is true there may be some innovative cooking methods out there- and more being developed- not all restaurants are the same in terms of their culinary specialties. While going all-electric may work for some, it does not work for all restaurant types.

Comment 52-2

A one-size-fits-all approach to energy policy and restaurants is misguided.

We want to remain a productive partner in these efforts and the larger issue.

For these and other reasons, we ask that you remove C-CMB-03 as proposed controlled measure in the 2022 Draft Air Quality Management Plan.

Thank you,



David Juarez
Director of Local Government Affairs
California Restaurant Association

Response to Comment 52-1: South Coast AQMD staff appreciates your comments regarding the control measure C-CMB-03 for NOx reductions from Commercial Cooking devices in the Draft 2022 AQMP. C-CMB-03 seeks nitrogen oxides (NOx) reductions by replacing conventional gas-fired cooking appliances with a combination of zero emission and low NOx emission devices such as electric cooking devices, induction cooktops, and low NOx burner technologies. C-CMB-03 does not seek to impose a "natural gas ban" for restaurants. Specific stakeholder concerns will be considered during the rulemaking process and the California Restaurant Association is welcome to participate.

Response to Comment 52-2: South Coast AQMD agrees that a one-size-fits-all approach is not feasible for all restaurants. C-CMB-03 recognizes that zero emission appliances may not work in all situations and therefore recognizes the potential role for commercially available lower NOx burners. In fact, South Coast AQMD is funding two burner development projects with the Gas Technology Institute to develop, test, and demonstrate (1) a high efficiency and low NOx combo ribbon burner for commercial baking ovens and (2) two new low NOx deep fat fryer designs. South Coast AQMD will seek opportunities to expand such development projects.

Comment Letter #53



June 21, 2022

Zorik Pirveysian
Planning and Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: 2022 Draft Air Quality Management Plan

Dear Mr. Pirveysian:

On behalf of Bradford White Corporation (BWC), we would like to thank you for the opportunity to comment on South Coast Air Quality Management District's (SCAQMD) 2022 Draft Air Quality Management Plan (AQMP).

Comment 53-1

BWC is an American-owned, full-line manufacturer of residential, commercial, and industrial products for water heating, space heating, combination heating, and water storage. In Southern California, a significant number of individuals, families, and job providers rely on our products for their hot water and space heating needs.

While the California Air Resources Board (CARB) has set forth a statewide goal to phase out the sale of NOx producing water heating equipment by 2030, we have concerns that the deadlines set by CARB and subsequent dates established in the AQMP are overly optimistic. The magnitude of the transition will place significantly more stress on an already constrained supply chain under the proposed timelines and fails to take into account several external factors that may hinder the ability of the state and the District to transition successfully. Even though California may be on the forefront transitioning to zero-emission water heating, there are other states and countries developing plans to decarbonize and reduce emissions, resulting in a much larger demand for heat pump water heaters (HPWH) than California alone. SCAQMD must consider global demand for HPWH products, not just the District's demand, in their assessment to determine a feasible timeline for transitioning to only allow the sale and distribution of zero-emission water heating technology.

Comment 53-2

The 2022 Draft AQMP proposes a zero-emission standard for water heating in the control measures R-CMB-01 and C-CBM-01. Additional standards for zero or low NOx are proposed in measure L-CMB-02 for large boilers and process heaters.

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Comments on R-CBM-01 and C-CBM-01

BWC appreciates SCAQMD's recognition that significant barriers will exist that prohibit the installation of a zero NOx water heater. Both measures R-CBM-01 and C-CMB-01 contain language that states:

> "Allow low NOx technologies as a transitional alternative when installing a zero-emission unit is determined to be infeasible."

BWC recognizes that the 2022 Draft AQMP serves as a high-level guide to implementation and future rule amendments, however, we believe that SCAQMD needs to clearly define the rules around "infeasibility" in a timely manner, so industry can prepare accordingly.

Proposed Definition for Project "Infeasibility"

In the absence of a common definition for "infeasibility" across air districts, BWC proposes the following as a starting point for a more comprehensive discussion:

> "Where a project applicant can reasonably demonstrate that all parts and equipment required to retrofit an existing, mixed fuel building with a zero-emission water heater equipment is not:
> - Commercially available;
> - More costly than commercially available gas options (20% or more);
> - Able to fit in the footprint of existing equipment
> - Able to meet the building/home water heating demand; and
> - available from suppliers within the district to replace inoperative equipment on an emergency basis.
>
> In these cases, an exception shall be granted to use readily available gas Ultra Low NOx water heating equipment."

Comment 53-3

Emergency Replacements

Approximately 90% of residential water heater replacements are done on an emergency basis where the water heater has failed and cannot be necessarily easily or cost effectively repaired. It is essential that products are available locally, as customers need to be able to have these products installed in a timely manner to satisfy their needs. Local availability is not likely if manufacturers do not have the right product mix, and those products are not stocked by local distributors and retailers, forcing the consumer or business to go without hot water for an extended period of time.

Having the right products available for the right application is only one piece of the puzzle. Barriers such as electrical infrastructure and space constraints can add to the complexity and cost of replacements and may place a significant and unfair burden on the customer. In particular, low- to medium-income homeowners and small business owners, who are simply trying to restore hot water service will be adversely affected. If SCAQMD chooses to adopt the proposed timelines, then SCAQMD must also ensure there is a robust program and funding in place to help property owners prepare for the transition well in advance of needing a new water heater.

Comment 53-4

While the state is off to a good start increasing adoption of residential HPWH technology, the commercial sector has not been addressed with the same level of attention, increasing the barriers to transition in this sector. The recently adopted 2022 Title 24, California Energy Code does not address HPWHs in existing commercial and nonresidential buildings, largely because there are very few commercially available products on the market today.

A shift to require that existing commercial and nonresidential buildings be retrofitted to use all electric water heating technology will require significant time, money, and collaboration by manufacturers and plumbing trade associations to train the workforce to ensure quality installations. This is an effort that will take many years to come to fruition, as new technology becomes commercially available, likely extending well beyond 2031. Like residential products, commercial HPWH technology will face similar challenges around product footprint, adequate free air space and electrical capacity. In cases where the challenges exist, requiring the water heater to be relocated, or in cases where an emergency replacement is not achievable, the District should have provisions in place to allow an Ultra-Low NOx alternative. While solutions to these challenges may emerge, the market for commercial HPWH equipment is even smaller than residential products and will take significant effort to develop practical solutions.

Comment 53-4 Con't

While it is reasonable to expect a building owner can plan around current laws and regulations surrounding NOx emission standards and commercially available compliant equipment, the cost to change from natural gas water heating to a heat pump water heater will be significant. This is especially the case for low- and medium-income households and small business owners even when they are able to plan the replacement of their equipment. BWC agrees with SCAQMD that incentives and financing programs will be needed to help offset these costs and encourage more early adoption of technology throughout the District. Furthermore, BWC is committed to working with the District to help inform development of programs to incentivize the transition to zero-emission water heating technology.

[Ultra] Low NOx Water Heaters as a Transitional Technology

As mentioned previously, SCAQMD has included language in their 2022 Draft AQMP allowing for Ultra Low NOx transitional technology when installing a zero-emission water heater is determined to be infeasible. BWC supports this strategy if it does not require additional NOx levels below the current rule standards. If the state of California and the District are only allowing zero-emission water heating to be sold and installed, then research and development in achieving further NOx reductions in gas fired water heating equipment is likely not worth the investment as an interim measure. If the District will allow equipment meeting the current NOx standards to be used in cases where zero-emission water heating technology is deemed infeasible, BWC and other manufacturers can focus on development of zero-emission water heating technology where the greatest need exists.

Comment 53-5

Allowing Sales of Ultra Low NOx Water Heaters

Since SCAQMD control measures prohibits the distribution and sales of product in the District territory, allowing a transitional Ultra Low NOx water heater needs to be carefully thought out. If Ultra Low NOx water heating equipment will be allowed for cases where zero-emission water heating technology is determined to be infeasible, then there will need to be available inventory of Ultra Low NOx water heaters at distributors. We support this strategy; though, if SCAQMD chooses to adopt this strategy, we have the following questions regarding enforcement:

- How will the District determine what sales are properly following the infeasibility criteria?
- Which agency(ies) will be responsible for enforcement of the rule?
- Will the District provide clear rules, so contractors are able to confidently and expeditiously make an easy decision in the field and not risk being fined?

Comment 53-6

Comments on L-CBM-02

The proposed implementation date for L-CBM-02 of 2037 should provide time for manufacturers and industry to find strategies to reduce NOx emissions for equipment over 2 million Btu/hr. As the state progresses closer to its emissions reduction goals, there may be alternative fuels available for large boiler and water heating equipment. As we mentioned previously, if the District plans to only allow zero-emission

Comment 53-7

technology, then research and development in achieving NOx reductions in gas-fired water heating or boiler equipment is a significant investment if only permitted for an interim period, and the District should continue to allow equipment under the current rules. BWC suggests that SCAQMD align with the State with respect to the future use of alternative fuels and provide manufacturers with as many options to meet zero or close to zero emissions as possible.

Comment 53-7 Con't

In closing, we would like to reiterate the need for SCAQMD to work with manufacturers to determine how to accomplish transitioning to zero-emission water heating equipment across all sectors. We fully understand the state's goals to reduce emissions and want to play a part in ensuring it is successful in doing so. We welcome continued dialogue on this matter and would be pleased to have further, direct, conversations with District staff.

BWC thanks SCAQMD for the opportunity to provide feedback on the 2022 Draft AQMP. Please let me know if you have any questions or would like to schedule a meeting to discuss our comments further.

Respectfully Submitted,

Bradford White Corporation

Eric Truskoski
Senior Director of Government and Regulatory Affairs

Cc: R. Carnevale; R. Simons; B. Hill; L. Prader; C. VanderRoest; M. Corbett; B. Wolfer

Response to Comment 53-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP.

Response to Comment 53-2: Staff understands the concerns for growing demand and the supply chain challenges. Although the Heat Pump Water Heater (HPWH) has a mature market with existing technology, including retrofit ready products available on the market, staff is aware that implementing zero emission appliances will increase demand in the future, as increased consumer adoption of zero emission appliances and buildings would catalyze the market. Technology continues to evolve to address market barriers and sustain reasonable supply and availability, especially with respect to heat pump appliances. New smaller, more efficient heat pump water heaters are coming to the market quickly. Manufacturers are developing lower voltage heat pump appliances — without a backup electric resistance unit so it relies solely on the heat pump — that can run on lower amperage circuits to reduce the need for upgrading electric service panels. Combination space and water heating technologies are emerging and suitable for many building types. Additionally, manufacturers are making technological advancements to improve heat pump efficiency in cold climates. Additional actions can help build a sustainable market, including increasing affordability and accessibility and increasing consumer education. More detailed analysis during the rulemaking process will consider supply chain and manufacturing capacity concerns, including potential opportunities to sustain workforce development opportunities in the building retrofit market.

Response to Comment 53-3: The Draft 2022 AQMP calls for a rapid transition to zero emission technologies across all sectors where feasible, and the South Coast AQMD commits to working with manufacturers in determining how to accomplish a transition to zero and low NOx emission technology. The commenter suggested definitions are about cost-effectiveness and product availability which are two major criteria that staff evaluate for feasibility. Staff will conduct further in-depth analysis during future rulemaking process to address the feasibility and ensure clean air and the protection of public health.

Response to Comment 53-4: Staff understands that product supply is essential especially when a new regulation would trigger changes to the market demand. With the Title 24 code update for the readiness of new building energy efficiency standards, the implementation for new buildings could occur earlier than that for existing buildings. The phased approach provides an opportunity for the market to adjust accordingly and provide feedback information for future directions of a regulation. For appliances in commercial buildings, staff understands the zero emission market is not as mature as for the residential buildings. Therefore, staff is proposing the implementation year for that control measure at a later time. For the concern of product supply of heat pump water heaters, especially for disadvantaged communities, more discussion can be found in Response to Comments 53-2 and 66-8. Staff will work closely with stakeholders during future rulemaking process regarding the market demand and product availability.

The South Coast AQMD mission is to improve air quality and public health and ensure that socioeconomic status or other factors will not pose obstacles for the equitable protection from air pollution. The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. Please see the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for discussion on the cost. The agency has already begun to address inequity for disadvantaged communities. Please see the general response to Impact of Zero Emission Technology on Inequity. The South Coast AQMD will work with stakeholders involved in zero emission infrastructure to ensure that zero emission technologies are distributed

affordably and equitably. Affordability will be further considered during the future rulemaking or incentive program development process.

Response to Comment 53-5: The control measures have proposed lower NOx natural gas units as an off ramp only when the zero emission technology is deemed infeasible. Staff has identified some potential lower NOx technologies for appliances. Staff will work with stakeholders during the future rulemaking to determine if any new technology could be adopted for water heating and if the current NOx limit should be revised for the gas unit to be used as an alternative to the future zero emission requirement.

Response to Comment 53-6: Please refer to Response to Comment 53-3 regarding the infeasibility criteria. A rulemaking process is a public process when staff works with stakeholders and the public through working group meetings and public meetings. Issues such as feasibility will be evaluated carefully and discussed in those meetings, and consensus will be reached. If the control measures are adopted, staff will proceed for the rulemaking to implement the proposals in a rule, or rules. The South Coast AQMD has an Enforcement and Compliance Division for the enforcement of the rules staff adopts.

Response to Comment 53-7: As noted, the implementation date for L-CMB-02 is 2037 which allows for 15 years of technical innovation. Any change to emission limits will be assessed for cost-effectiveness and technical feasibility. South Coast AQMD commits to working with manufacturers in determining how to accomplish a transition to zero and low NOx emission technology.

Comment Letter #54

From: Denis LaBonge <denislabonge@gmail.com>
Sent: Thursday, June 23, 2022 8:53 AM
To: AQMPTeam <AQMPteam@aqmd.gov>
Subject: "Never never" land, or the story of the AQMD

The AQMD seeks utopia while denying reality. It also suffers from a clear case of rectal myopia-[look it up].
On the one hand, I commend AQMD for its massively successful reduction in cleaning up the LA Basin smog problem. I grew up in LA in the 50's & 60's and choked through the daily "smog alerts". Today I can enjoy infinitely more days of clear skies, enjoying the view of the San Gabriels. Thanks. Job well done.
But … there are pragmatic limits to how rapidly the conflicting goals you set out to achieve can be realized, while avoiding becoming a third rate nation. And this is the crux of the matter.
The math simply doesn't work out. For all its glory, CA is still massively underserved by adequate, essential water power reserves and options. Sacramento is inexcusably wrong in approving or allowing more homebuilding, more commercial building, more demand for electrical consumption to support the digital world and more electrical cars, all of this, without balancing & funding construction of the undeniably essential electrical production capabilities from a variety of all well proven technology & clean sources: water, wind, solar and nuclear.

Comment 54-1

We are now hovering critically close to brown outs, severe water rationing,etc. Sacramento has, without explaining why, delayed, time after time, the construction of critically needed new water storage, which any fifth grader knows simultaneously provides the cleanest source of electricity, eg, gravity powered falling water flowing thru electrical generators !
Not only will these new sources create production of energy, these critically needed facilities will help everybody. They provide long term employment because they require 10+ years to build out. And .. you can't outsource that; you need to dig here, operate here, construct etc etc.
So obvious, yet so entangled in useless byzantine bureaucracy, which the AQMD management and staff seems to foster for its own preservation, instead of the preservation of the taxpayers, large and small who fund it.
How egalitarian & selfish! Shamed on you, AQMD!
Denis LaBonge
92657

Comment 54-1 Con't

Response to Comment 54-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP. Please refer to the general response to General Approach for the 2022 AQMP in the introduction.

Comment Letter #55

South Coast AQMD Form Type: Draft 2022 AQMP Comment Submission Form

Received: 6/28/2022 at 17:47 PDT

Commentor's Name: Maru A.

Organization: No affiliation

Email Address: Marualfaroce@gmail.com

Commentor's Signature: Maru A.

Comments and suggestions on the Draft 2022 AQMP:

I am a first time homeowner. I own a triplex and I am struggling just like everyone else.IM NOT A MILLIONAIRE! My monthly mortgage payment is still due. The bank does not place a hold on payment so why should we forgo the tenants rent ? After spending all my life savings I can't believe I will be at risk of losing my property. The bottom line is that I will not be able to pay for my mortgage and all of us are going to be homeless when I'm the one who worked a lifetime to purchase a multi home property. This is unacceptable!

Comment 55-1

Response to Comment 55-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building Appliances for the 2022 AQMP.

Comment Letter #56

Air Quality Management Plan Team
South Coast Air Quality Management District

June 20, 2022

Dear Air Quality Management Plan Team:

Thank you for this opportunity to comment on the Draft EIR Air Quality Management Plan. We are impressed with the scope of this document. However, we request that the AQMP include more robust land use strategies and active emissions management plans in order to reach attainment of federal air quality standards and to prepare for a future of climate crisis.

The AQMP states that in order to "attain 2015 ozone standards, NO_x emissions need to be reduced to 62.8 tons per day by 2037." The AQMP further recognizes the impossibility of this goal given current emissions, and emphasizes important but technical solutions, as well as black box solutions, to this problem. Key AQMP suggestions include widespread electrification, as well as a reliance on the EPA to tackle the challenge of mobile transport, such as ships, heavy-duty trucks, and trains.

Part of our argument rests upon data collection, modeling, and visualization that have been generated via a collaboration between the Robert Redford Conservancy and Radical Research, LLC. The resultant Warehouse CITY (communitY Cumulative Impact Tool) dashboard is a tool developed to help visualize and quantify the development of warehouses in Southern California. The data is based on County data within the SCAQMD boundary. The project interactively charts warehouse growth through time and allows users to localize regional emissions based on truck trips associated with warehouses. Users can view the entire region or zoom into local areas in order to view cumulative impacts of air pollutants.

Our argument is also informed by work with environmental justice and community partners, whose ground-level view continues to inform our vision.

1

Comment 56-1

Finally, our comment is informed by our ongoing work within land conservation groups, including Sierra Club and other statewide organizations involved in 30x30, which is focused on nature-based solutions to climate change and pollution remediation.

Comment 56-1 Con't

Emissions Reductions Strategy

The beginning of the AQMP states unequivocally that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources." While important, this is demonstrably false, and embeds an implicit assumption of emissions activity growth. There are always two pieces of any emissions reduction strategy when calculating an emissions inventory:

1. Cleaner technology (i.e., emissions rate)
2. Emissions activity (i.e., emissions growth management measures)

Intrinsically, emissions can be reduced by reducing the rate of emissions per activity or by reducing the activity generating the activity, or any combination. The AQMP does an admirable job of advocating for cleaner zero emissions technologies, which reduce the emissions rate. The incentives and emissions reductions from the introduction of these programs will be substantial and will achieve substantial emissions reductions over the course of the AQMP.

Comment 56-2

However, zero emissions technologies are only half of the puzzle, and electrification is a downstream solution. In this AQMP, programs that aim to reduce emissions *activity* do not appear to be part of any of the proposed solutions for some industrial emissions. In fact, all emissions inventories in the main body of the report are without any context of the growth in emissions activity for individual emissions source categories. Along with its partner agency SCAG, the SCAQMD needs to address the growth in emissions activity for key sources that will otherwise undermine this AQMP.

Emissions activity that grow faster than population

The AQMD does not explicitly discuss its data projecting that individual emissions sectors will grow faster than the rate of population growth in the basin. Most importantly, diesel VMT is projected to grow by 55% over the course of the AQMP, a rate that exceeds population growth by a factor of 5 and gasoline VMT by a factor of 20. We found the diesel VMT data in Appendix III, Tables D-1 through D-15, and have shown the growth of diesel VMT relative to gasoline vehicle VMT and population growth in **Figure 1.** Our analysis has found that in the past 5 years, heavy-duty and medium-duty diesel VMT grew by almost 20%, almost completely offsetting the cleaner vehicles being introduced into the fleet through cleaner vehicle incentive programs and vehicle turnover, which decreased NOx emissions by 28% per VMT. **The growth in diesel VMT is fueled by the growth in warehouse construction in the Inland Empire.**

Comment 56-3

2

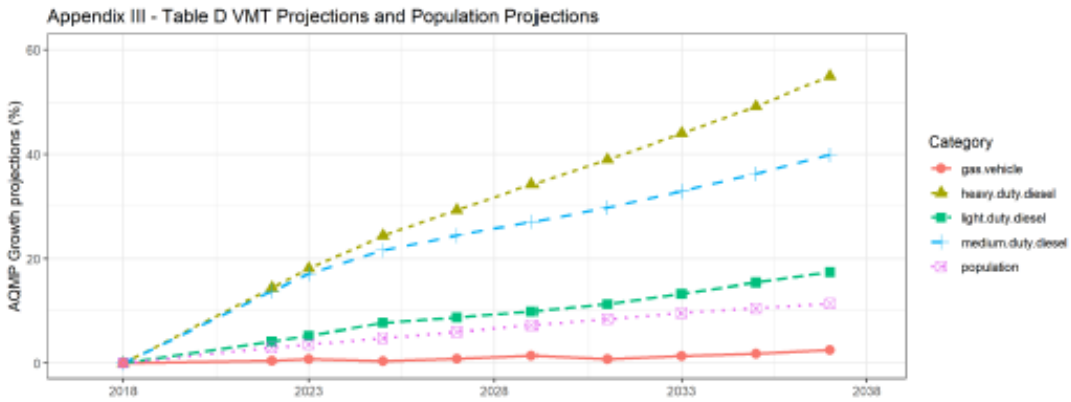


Figure 1 - Chart projecting annual growth rates in vehicle VMT from AQMP Appendix III Tables D-1 through D-15 and population estimates from the executive summary.

Comment 56-3 Con't

An analysis of EMFAC 2021 v1.0.2 SCAQMD specific activity and emissions rates demonstrated that multiple other off road emissions subcategories had activity growth that exceeded population growth rates. These subcategories include Ocean Going Vessels, Locomotives, and a large number of off-road subcategories that are related to goods movement and construction (cargo handling equipment, airport ground support, construction, and portable equipment).

The AQMP should consider population-level growth scenarios for Goods Movement and construction emissions sectors. For example, if diesel VMT tracked population growth (~11%) in the air basin instead of growing by ~55%, NOx emissions in 2037 would be 33.0 tons per day, rather than the projected 44.5. Given a total budget of 63 tons per day, savings of 11.4 per day of NOx is extremely significant. Since diesel trucks are the largest source of NO_x emissions and inhalation cancer risk (MATES V; http://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-v), the air quality and climate co-benefits of reduced emissions activity growth are substantial.

Comment 56-4

The AQMP currently only provides two scenarios in Chapter 3 - Growth and No-Growth (p 3-29 & 3-30). **We request an additional scenario to quantify NO_x and diesel PM reductions when goods movement activity growth is limited to an intermediate level that would align goods movement growth with the underlying population growth of the region:**

- Population limited growth rates - If emissions activity growth is limited to the population growth rate of ~11% by 2037, how much additional NO_x reductions are achieved for these off-road and Diesel VMT categories that exceed population growth rates (e.g., as shown in Table 3-5 for existing two scenarios)?

3

Issues of Equity

Currently, the AQMP does not justify the "exceptional" growth in activity rates of any goods movement related emissions sectors. We believe this is problematic for two reasons. First, there is the issue of **equity in emissions reductions sectors**. Commuters and stationary sources should not be required to shoulder more emissions activity reductions (and costs) than the goods movement sectors that are allowed to grow at many multiples of the rate of population growth. Secondly, there are **clear environmental justice inequities** in the spatial emissions activity patterns of the goods movement industry, with diesel VMT and ports disproportionately impacting socioeconomically disadvantaged communities. Allowing the goods movement sector emissions activity to grow at rates multiple times the rate of population growth disproportionately harms EJ communities, the Inland counties, and undermines the emissions reductions resulting from technologically based control measures.

Comment 56-5

CEQA has the cumulative impacts rule (15130(b)), where all past, present, and future projects have to be considered; or a summary of projections contained in an adopted local, regional, or statewide plan, or related planning document that describes or evaluates conditions related to the cumulative effect. **We request that the AQMD and SCAG work to include new warehouse construction as an explicit land-use category to be included in this AQMP and in future RTP.** Warehouse land-use is inducing the activity growth of the goods movement sector. Limiting warehouse land-use growth to the rate of population would help to provide more equity among industries for emissions reductions and avoid disproportional EJ impacts.

Related Additional Comments

- AQMD needs to explicitly address how a growth rate of 55% in diesel VMT relative to 11% population growth is consistent with the AQMP in both the executive summary and in Chapter 3 on future emissions, specifically with the statement on p. 1-22 "The magnitude of emission reductions needed also means that no single emissions category can be left uncontrolled, including sources subject to federal authority." Not addressing emissions activity associated with warehouses and the goods moment is leaving many emissions categories "uncontrolled" as a matter of regional transportation policy.
- AQMD should explicitly list gasoline vehicle VMT and diesel vehicle VMT as separate categories in Table 3-3, as these are from different sectors and combining them gives a misleading indication of the very different activity growth trajectories (2.5% vs. 55%).
- AQMD needs to explicitly list activity growth rates of all off-road emissions subcategories that significantly exceed population growth (e.g., ocean-going vessels, locomotives, cargo-handling equipment, airport support equipment, construction equipment, industrial equipment such as forklifts and material handling equipment)
- AQMD should provide figures or tables of activity growth rates for all categories that significantly exceed population growth rates in Chapter 3.

Comment 56-6

- AQMD should provide figures or tables of annualized activity growth rates corresponding to the top 10 emissions sectors for 2037 NO_x in Chapter 4, with a discussion about why the 5 largest emitting sectors grow at rates exceeding population growth.
- AQMD should identify where emissions population limited activity growth rate scenarios could reduce reliance on black box control measures in Chapter 4 and discuss why these are not less expensive and more achievable over the next fifteen years of the AQMP.

Comment 56-6 Con't

Goods movement and warehouse induced growth in goods movement emissions activity

Underlying the growth in Diesel VMT, locomotives, ocean-going vessels, and offroad equipment is the growth in warehouse land-use, 90% of which has occured in the Inland counties over the last decade. Warehouse growth induces growth in Diesel VMT and the other components of the goods movement industry (ocean-going vessels, locomotives, airports, cargo-handling equipment, and construction equipment). Warehouse space growth in the SCAQMD is growing at a rate of more than 5 times population growth. This explicitly tracks with growth in the logistics sector.

Comment 56-7

The AQMD's unwillingness to address logistics growth misses a key opportunity that will allow us to move toward regional attainment of federal air quality standards, thriving ecosystems, and healthier communities.

Regulatory Gray Area

We greatly value the pivotal role that the AQMD has played in bettering air quality in the Southern California region throughout the decades. **We believe that the AQMP is a critical document for the AQMD to claim its proper role in addressing the cumulative impact of the goods movement industry on air quality.**

While we recognize the limits of AQMD authority, we urge you to explore further incorporation of both cumulative impact and land use and transportation elements due to the historic and ongoing relationship between truck traffic and logistics-based land uses, such as warehouses, seaports, airports, intermodal transfer facilities, and freight yards.

Comment 56-8

We urge you to reconsider the framing AQMP statement that the AQMD's "primary authority is over stationary sources which account for less than 20 percent of NO_x emissions." While we agree the "overwhelming majority of NO_x emissions are from heavy-duty trucks, ships and other State and federally regulated mobile sources," we disagree that these must be beyond the South Coast AQMD's purview.

As with dry cleaners, factories, or the port, for example, it is not the building or infrastructure itself that poses a problem, but rather the use of the building or area and the types of activities

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hosted therein. The same principle applies to warehouses: the buildings themselves may be green, but the activity the buildings generate makes them into a toxic source point. This fairly simple logic should be explored in terms of changing the designation and regulatory authority of the AQMP for individual warehouses and warehouse clusters.

In other words, this is not a black and white issue. It is a regulatory gray area that leaves room for planning, action, analysis, incentives, communication, collaboration, and research related to addressing what is perhaps the AQMD's biggest challenge to meeting attainment standards. To continue to separate linkages between goods movement infrastructure, HDDT VMT, and air quality from AQMD's and SCAG's role is an omission of significant proportions that needs to be rectified within the AQMP.

Comment 56-8 Con't

We understand that this approach might be seen as infringing on local land use autonomy through planning commissions and city councils. However, current and projected air quality impacts, combined with the impending climate crisis, mandate approaches that recognize the interconnectedness of systems rather than a continued isolation between systems currently in play.

In order for the AQMD to be the most effective agency it can be in creating a healthy airshed and prioritizing the needs of EJ communities, addressing logistics growth within the AQMP and/or RTP is critical.

We found the *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning* highly informative. However, we note that this document was written in 2005 prior to the explosion of warehouse construction. We request that the issue of land use and transportation planning be revisited in order to account for exponential warehouse growth, the growth of logistics operations as a whole, and the changing climate.

Specific Recommendations for Warehouses and Regulatory Authority

Comment 56-9

1) A robust control measure focused on land use and transportation planning should be included within the AQMP on the basis of cumulative impact;
2) Areas with disproportionate existing development (e.g., >30,000,000 sq. ft. of warehouse space within 3 miles) should require additional permitting requirements including health risk assessments and/or full electric vehicle requirements.This control measure should conduct backup calculations with CEQA analyses/EIRs for new projects;
3) Goods Movement land-uses–especially warehouses–should be included as a specific focus area within the AQMP;
4) The AQMP should propose the development of a Land Use and Transportation Planning Division within the AQMD, or at least should include a feasibility study of such a formation within the AQMP;
5) The AQMP should advocate for more authority related to CEQA land use and transportation planning based on cumulative impact analyses;

6) The AQMP should minimize reference to "black box" solutions and technical strategies, nature-based solutions to climate change and pollution remediation should be considered. With the state-wide and national focus on 30x30, the potential of land-based ecosystems services, such as natural carbon sinks, prime farmland, and trees, contribute to pollution remediation and a healthy airshed. Such analyses could be part of the role of a land use and transportation division within the AQMD;
7) Create a pathway for AQMD's CEQA analysis so AQMD staff can analyze the tools and conclusions of environmental consultants hired by developers; publish all review comment letters on the AQMD website for existing and proposed projects to ensure transparency; Such analyses could be part of the role of a land use and transportation division within the AQMD;
8) Consider land-use planning incentives to subsidize "downzoning" of industrial and warehouse zoned parcels to open-space, community food production, and park/recreation spaces.
9) Add a section to the AQMP that addresses the co-benefits of the AQMP in addressing AB 32 and climate change, specifically addressing goods movement activity growth
10) Consider the cost-benefit calculations of avoided NO_x emissions growth by reducing diesel VMT and warehouse permitting. What is the 'cost per ton' of NO_x emissions saved by reducing warehouse growth to the rate of population growth?
11) We ask that the AQMD demonstrate the spatial variation in emissions reductions as a result of currently planned policies in the Environmental Justice section. We believe the increased truck VMT will disproportionately fall in Inland Counties that are already overburdened with truck trips per capita.

Comment 56-9 Con't

Restricting warehouse growth to population growth rates is the cheapest and most effective emissions control measure to reduce NO_x emissions.

Currently, land use and transportation planning are determined to be a "not significant" portion of the AQMP. However, Emission Growth Management is part of the five broad categories that "addresses emission reductions from new or redevelopment projects by working with developers and local land use agencies on actions that mitigate emissions from affected projects." We request more information about this category.

Comment 56-10

Because of the climate crisis, adding a section that addresses the co-benefits of the AQMP in addressing AB 32 and climate change would help expand the AQMD's orientation toward this category. Disproportionate impacts of existing pollution and GHG emissions based on land use and transportation will contribute to disproportionate exposure among communities already hardest hit by air quality issues. We suggest working closely with community and environmental justice organizations to develop a land use and transportation planning control measure.

Warehouses as Environmental Justice Hot Spots

We argue that the AQMP should outline a pathway for warehouses to be reclassified as Environmental Justice Hot Spots.

Comment 56-11

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In Chapter 2 of the *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*, there is a recommendation that the AQMD "be consulted to obtain facility-specific emissions information and accepted assessment methods for determining relative exposure and health risk of proposed projects" (p 7). Such projects are listed from CARB's Air Quality and Land Use Handbook from 2005 and include

- High traffic freeways and roads
- Distribution centers
- Rail yards
- Ports
- Refineries
- Chrome plating facilities
- Perchlorethylene dry cleaners
- Large gasoline stations

We argue that warehouses (and/or warehouse clusters) need to be listed as a specific category of consideration in addition to other logistics elements. While distribution centers are a specific type of warehouse, warehouses as a generic category are broader and should be named and included within AQMD documents. Not to do so will skew data collection and analysis regarding cumulative impacts into the future due to the way that parcels are labeled in county assessor data. This is one of several places in Chapter 2 where warehouses as a specific category are not considered. Despite the green status of some warehouse buildings, and the ISR ruling passed by AQMD that aims for further electrification, warehouses should be explicitly considered and listed among toxic facilities. This is because they (1) attract diesel trucks and trains and (2) are spatially clustered in high density developments.

Comment 56-11 Con't

In Ch 2 on p 12, regarding Mapping Sources of Toxic Air Contaminants, **we urge the inclusion of warehouses on the list of toxic "hot spot" emitters**. Currently the list includes many types of facilities particularly focused on sites that emit 10 or more tons of toxins per year, all of which are considered on an individual basis for inclusion in the list. The AQMP currently excludes warehouses from the list of stationary sources:

> "The South Coast AQMD has primary authority to reduce local emissions by adopting control regulations for stationary sources. Stationary sources include point sources, such as power plants and refineries, and selected area sources, such as gas stations, dry cleaners, and paints and coatings. The South Coast AQMD also has limited authority to address mobile sources through incentive programs and implementation of indirect source and transportation control measures (e.g., employee ridesharing rules). Mobile source emissions such as cars, trucks, trains, and off-road vehicles and equipment are instead regulated primarily by State and federal authorities. Ships and airplanes are regulated by international authorities."

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Page 1-16 of the AQMP indicates that Warehouses/Distribution Centers: Rule 2305 (Warehouse Indirect Source Rule) was adopted in May 2021 to reduce NOx and diesel emissions associated with warehousing activities, with estimated NOx reductions of 1.5 to 3 tons per day by 2031." We know that many things are happening behind the scenes at the AQMD that are not necessarily recorded in the AQMP, and we were curious about the pending item also listed on page 1-16 entitled "New and Re-Development." We hope that this pending item may include industrial development and request clarity on this category.

Comment 56-11 Con't

The AQMP should outline a pathway to either expand the definition of stationary sources to include warehouses or include warehouses explicitly in the AQMP as a cumulative impact category that requires additional oversight in the CEQA process for both NO_x and diesel PM emissions.

We also urge you to include incentives for cities that halt, minimize, or site appropriately industrial development.

Currently, none of the three bodies responsible for air quality in California (AQMD, CARB, EPA) can address actual warehouse growth because of the way that their roles are currently defined. Collaborations with other agencies and advocacy for more regulatory authority would enable the AQMD to tackle this persistent and growing source of air pollutants within the region.

We know that you are already working on CEQA cumulative impacts and want to request that AQMP include a cumulative impact model. **The AQMP should move beyond the analysis of individual sites into a cumulative model in which hot spot emitters are regionally as well as individually calculated.** Our research shows that the cumulative impact of all warehouses within SCAQMD boundaries has a major polluter footprint directly linked to cancer and other health risks as well as GHG emissions. We need to adopt quantitative measures for the whole regional basin. **Due to the existing move toward cumulative impacts, the logic of including warehouses and truck traffic in tandem is strengthened.**

Comment 56-12

Current warehouse growth has averaged over 50,000,000 square feet of floor space per year for the last five years, with regional patterns disproportionately impacting San Bernardino and Riverside Counties for at least 25 years. For the last ten years, more than 90% of warehouse square footage has been built in the Inland counties, which are already more severely impacted by regional pollution impacts of ozone and PM. Los Angeles and Orange County have more than 12 million residents compared to the 4.7 million of Riverside and San Bernardino, but a disproportionate amount of the regional impacts of warehouse development currently fall on the IE counties. The goods movement industry growth is largely sourced to the poorer counties and communities in the SCAQMD. This has exacerbated existing environmental justice issues and is in violation of the principles of AB 617.

Warehouse growth spurs extra train, plane, truck, and shopping impacts as part of the goods movement industry. Most particularly, warehouses generate extra truck trips. In our data set, truck trips and emissions demonstrate a statistically significant correlation with warehouse

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growth. Assuming 0.67 truck trips per thousand square feet of warehouse space, we estimate that over 30,000 extra truck trips are being generated per year by the growth in warehouse space, almost all of which pass through the inland counties and clogged freeways.

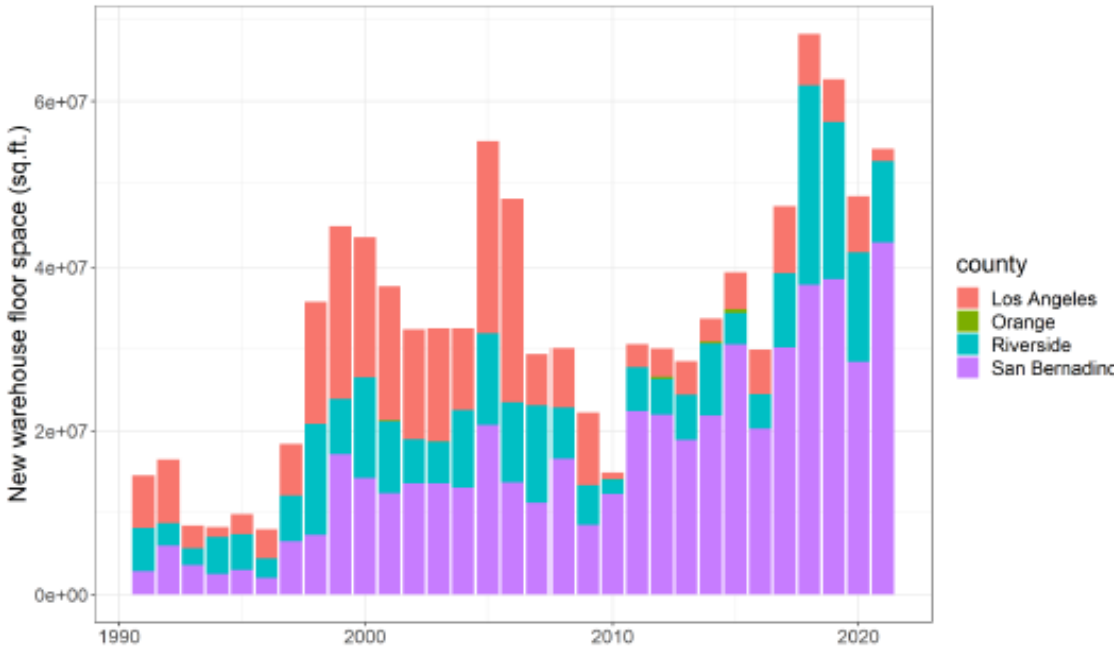


Figure 2. Warehouse building floor space added by year for the four counties of the SCAQMD based on county assessor database information.

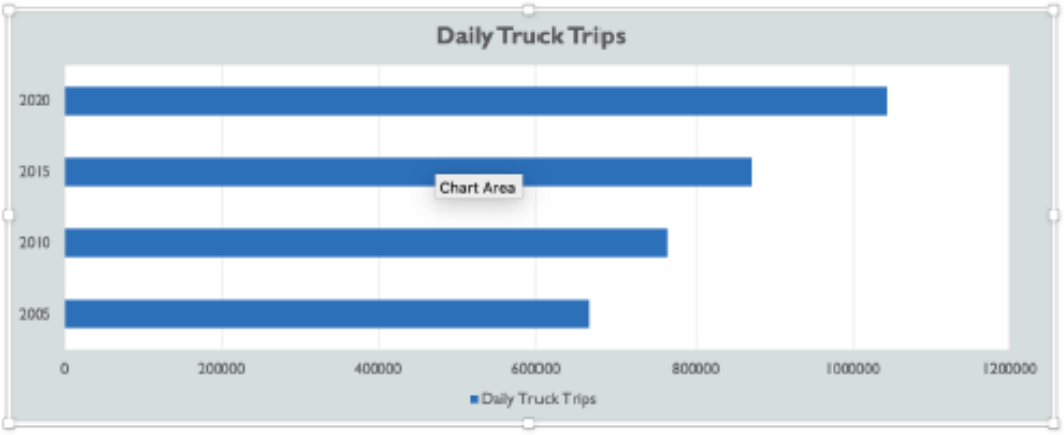
Spatially, these patterns in warehouse siting are immediately evident from assessor database information on warehouses in the four SCAQMD counties.

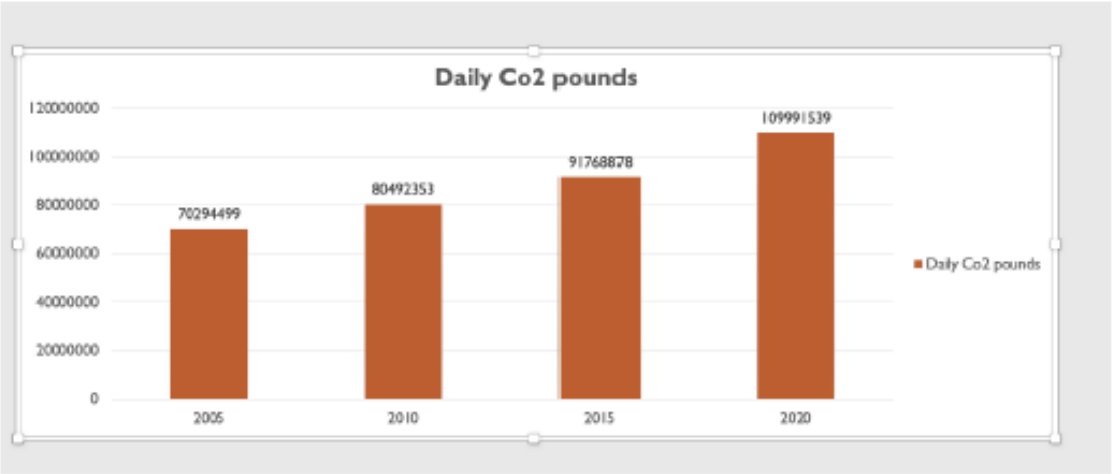
Chapter 2 of the *Guideline* notes that mature communities, such as South Los Angeles, will likely have less control in terms of siting polluting facilities near sensitive receptors–a fact that is repeated several times throughout the document. Our data demonstrate that most warehouse growth within the last twenty years has taken place in areas where this is not the case. In the Inland Empire, open land has encouraged warehouse development within immature communities and has nonetheless failed to avoid the siting of industrial facilities near sensitive receptors such as schools, retirement communities, parks, and housing. New language needs to be developed in order to acknowledge the pivotal role that warehouses are now playing in attracting truck traffic that leads to nonattainment now and in the future. The data we have included in this comment demonstrate this pattern clearly through time.

Comment 56-12 Con't

How do warehouses play out spatially in terms of emissions and non-attainment?

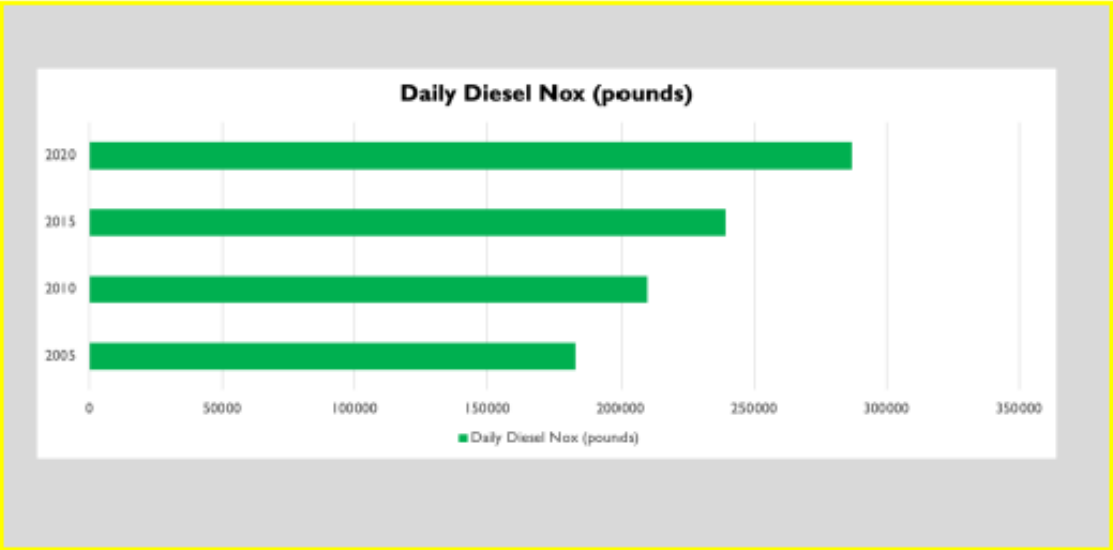
Comment 56-13





Comment 56-13 Con't

11



With over 1.6 billion square feet of warehouse space, the SCAQMD region hosts an estimated 58 square miles of land currently dedicated to warehouses. This number is an undercount and does not include the related square footage of outdoor storage yards, airports, intermodal transfer facilities, or freight yards that are also part of the logistics land use cluster. Municipalities are continuing the growth of warehouses unchecked within what is being called a "land rush" that is particularly focused on the Inland Empire. While some cities, such as Colton and Pomona, have recently adopted moratoriums, these are temporary. Unless political will changes within municipalities, there is no way to hold these cities accountable for their decision-making that is detrimental to the airshed.

Comment 56-13 Con't

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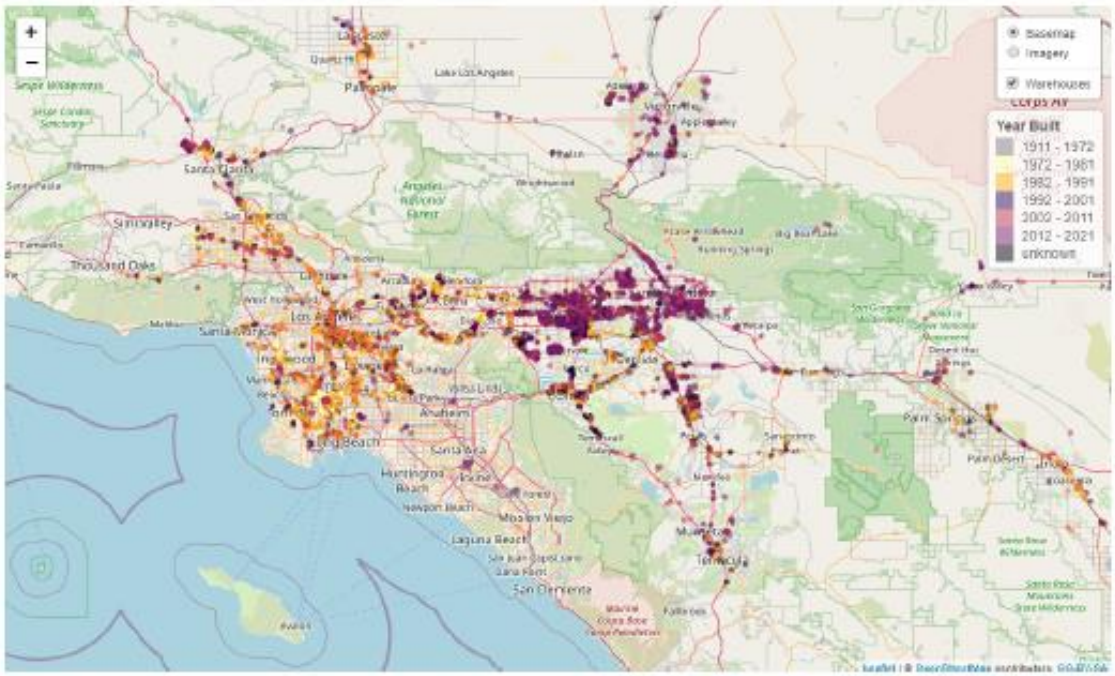


Figure 3. Map of warehouses indicating decade in which a warehouse was built. Individual parcels in the inland counties include 'light industry' classified parcels due to the strong prevalence of warehouses to be misclassified. The spatial pattern in warehouse growth in the past 20 years is clearly inland with very little development in the coastal counties.

Defects in CEQA are permitting explosive growth in a heavily polluting industry that could be considered within the direct purview of the AQMD. The AQMP should advocate for regional coordination of land-use permitting through cumulative impact authority.

Comment 56-13 Con't

Additional Potential Pathways

Since the "stick" is missing structurally and the AQMD lacks teeth beyond consultation regarding its ability to control local land use, we suggest that the AQMP explore the formation of a **Land Use and Transportation Planning Division within the AQMD**.

a) Explore viable policy pathways and incentives that could amplify SCAQMD opinions if not authority within land use decision-making;
b) Monitor and comment upon NOPs, DEIRs, EIRs, general plan amendments and updates, rezoning, and other features of the planning process; AQMD needs to be a consistent, neutral commenting agency for land use and transportation plans. Right now, not taking advantage of this role is allowing the Air Quality Management Plan to be undermined by decisions other agencies and municipalities are making.

Comment 56-14

Linkages between Energy and Climate Change

Include warehouse clusters and natural and working lands within the Energy and Climate Change element and expand that element. We appreciate attention to climate change and energy co-benefits and policies, listed as "ECC-01: Co-Benefits from Existing and Future Greenhouse Gas Programs, Policies, and Incentives; • ECC-02: Co-Benefits from Existing and Future Residential and Commercial Building Energy Efficiency Measures; and • ECC-03: Additional Enhancements in Reducing Existing Residential Building Energy Use." We request the inclusion of two additional measures 1) reducing emissions growth, particularly of industrial development and 2) the importance of natural and working lands..

1) Limiting emissions growth of logistics based industrial development to rates of population growth will reduce projected GHGs as well as pollutants. Our cumulative impact tool shows that the current rate of GHG emissions associated with warehouses is ~114,195,156 pounds of CO_2 per day. This equals ~20,840,616 tons of CO_2 per year. According to current standards, the social cost of carbon is $51 per ton. This calculation was developed to provide guidance for federal clean air policy. This number is based on older mathematical models and there is wide agreement that it is a radical underestimation of carbon's true cost. Utilizing the $51 standard, the annual cost of carbon stemming from warehouse infrastructure already exceeds one billion dollars (or $1,062,871,414) per year. This number will grow by 3.8% per year if warehouse VMT follows current growth projections. It is essential that AQMP consider the co-benefits of right sizing logistics infrastructure to reduce both carbon and pollutant detriments.
2) A second request regarding carbon involves natural and working lands, a category that is not included in the AQMP but that is included in the Bay Area Air Quality Management District's 2017 Clean Air Plan. The BAAQMD's plan includes provisions for carbon sequestration in open lands as well as urban tree planting. We note the omission of regenerative agriculture in that category and urge you to create control measures for open and working lands, including agriculture, that are appropriate to the South Coast region. Right now, agriculture is categorized as creating dust and pollution through offroad traffic. We urge you to note that sustainable agriculture, desert, forests, wetlands, and other open and working lands can create carbon negative/carbon sink scenarios as well as contributing to pollution remediation. This will be particularly important as wildfire events increase, contributing to large-scale carbon emissions and air pollutants.

Due to the severity of the climate crisis, we do not have time for offsets that allow emitters to continue to expand harmful infrastructure. Our data show how critical CCE co-benefits can be for our region. We urge a more holistic accounting of these within the AQMP.

Comment 56-15

Additional Comments

Expand MATES to include cumulative hot spots, such as traffic corridors and warehouse zones, to more properly link the visualization of harm to these emitters. We recognize the

Comment 56-16

power and innovation of the MATES tool, and urge the inclusion of a tab that includes cancer belts. As powerful as the tool is right now, the cancer impact is diluted within MATES visualization. We recommend creating a tab with clear information about the spatial nature of cancer belts and diesel death zones as related to transportation corridors and logistics-based land uses.

Include reproductive health detriments in the Health Consequences portion of the AQMP. "The air pollution levels in the region exceed both National and California Ambient Air Quality Standards for both these air pollutants. The health impacts associated with the high levels of air pollution cause respiratory and cardiovascular disease, exacerbate asthma, and can lead to premature death." This list, as well as the chart on ES-2, should include reproductive health issues.

Comment 56-16 Con't

Create incentives and awards/consequences and/or checks and balances for local municipalities regarding land use and transportation planning. The AQMD could create a series of air quality awards and incentives that would entice municipalities to become part of voluntary, incentivized participation in climate-smart, regional resilience land use and transportation planning for a healthy airshed. These incentives are currently limited to electrification within the AQMP and should be expanded. Broadening this focus could involve trainings and collaboration with other statewide or federal agencies, so that in order to qualify for certain kinds of funding, municipalities will get a higher rating or meet certain criteria in order to be eligible. While just one example, this type of approach might ensure a holistic accounting of the sometimes conflicting roles that cities are playing.

If there is a way to create an AQMD stick, **developing both incentives and punitive measures would provide an important balance**–even if these measures lack direct consequences. For example, the AQMD could publish an annual report of municipal rankings for air quality cumulative impacts and exposure detriments, GHGs and pollutant emissions, cancer and other health measures, and so on. In other words, there are creative ways that need to be explored in terms of how to get cities on board with a stronger AQMD role in land use and transportation decision making that directly impacts the airshed and that could ultimately increase the AQMD's ability to attain federal air quality standards.

Conclusion

Thank you for this opportunity to comment upon the AQMP Draft EIR. We appreciate the amount of work represented in this document and appreciate the additional labor it will take to address our comments. Given our analysis above, we urge the AQMP to take a **whole systems approach** in order to solve air quality problems in the region. Not to do so is akin to attempting to treat diabetes or high cholesterol without taking into account the diet of an individual. Only by recognizing the intimate ties between multiple factors can we begin to move toward attainment of federal air quality standards.

Comment 56-17

Signed,

Michael McCarthy, Radical Research, LLC

Susan A. Phillips, Director Robert Redford Conservancy, Professor of Environmental Analysis, Pitzer College

Sari Fordham, Organizer, 350 Riverside

Response to Comment 56-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP.

Response to Comment 56-2: South Coast AQMD is required to develop an emissions inventory that incorporates the best available assumptions for growth, including regional growth projections from SCAG's adopted Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). While South Coast AQMD participates in SCAG's planning activity on land use, under federal law (23 U.S. Code § 134 and 49 U.S. Code § 5303) and state law (California Government Code § 29532, et. seq.), SCAG is responsible for transportation planning and, under state law, for preparing the portion of the SIP that addresses transportation control measures, land use, and growth projections. Health and Safety Code Section 40460(b). Chapter 3 of the Draft 2022 AQMP includes discussion on the impact of growth on emission activity for major emission source categories. Section "Impact of Growth" discusses the 2037 emission inventory with and without the impact of socioeconomic growth, which reflects the impact of growth in emission activity in 2037 projected by SCAG. Table 3-5 shows that future emission growth for on-road and off-road emission categories is estimated to be by 15 and 20 tons per day for NOx emission in 2037, respectively. This reflects the growth in population, housing, economic activities, etc., and assumes no regulations on emissions reduction. In addition, road dust PM2.5 emissions are estimated to increase 1 ton per day in 2037 due to the increase of vehicular miles traveled and accompanying road construction. A more detailed analysis of the impact of growth for future emission inventory is provided in the section "Impact of Growth – Pre-Base Year Offsets" of Appendix III.

Response to Comment 56-3: As mentioned, South Coast AQMD is not able to modify growth projections (Health and Safety Code Section 40460(b), and must rely on the projections assumed in U.S. EPA approved models such as EMFAC, projections from SCAG's RTP/SCS, or other published publicly available data. As shown in the comment letter Figure 1 based on the vehicle VMT from the Draft 2022 AQMP Appendix III, attachment D Table D-1 through D-15, the uneven pace in VMT annual growth rate by vehicle type is the product of the SCAG's forecast model and reflects the best available socioeconomic development projections in the Greater Los Angeles Area. The heavy-duty diesel vehicle is expected to have faster growth rate compared with other vehicle class sectors, but at the same time, will be subject to significant emission reductions from both CARB regulations and South Coast AQMD incentive programs. Staff is aware of the concerns regarding the projected increase in warehouse developments in the inland Empire and the related increase in heavy-duty truck activity in recent years. Rule 2305 – Warehouse Indirect Source Rule Warehouse Actions and Investments to Reduce Emissions WAIRE Program pursues further emission reductions from warehouse-related activities.

Response to Comment 56-4: See response to Comment 56-3. Per U.S. EPA's Air Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter NAAQS and Regional Haze Regulations, South Coast AQMD is required to use the latest recommended on-road mobile source models, which is currently, the MOVES model for all states but California, and the EMFAC model for California. Vehicular activity data were from SCAG's latest approved 2020 RTP/SCS.

Response to Comment 56-5: Under federal law (23 U.S. Code § 134 and 49 U.S. Code § 5303) and state law (California Government Code § 29532, et. seq.), SCAG is responsible for transportation planning and for preparing the portion of the SIP that addresses transportation control measures, land use, and growth projections. Health and Safety Code Section 40460(b). However, while the regulation of mobile sources is under the purview of the U.S. EPA and CARB, the South Coast AQMD has indirect source authority to be

able to regulate the warehouses that attract mobile source diesel trucks and which are point sources of emissions in local disadvantaged communities but that authority does not extend to land use planning and control decisions under the existing authority of counties and cities. Health and Safety Code Section 40716. South Coast AQMD adopted Rule 2305 - Warehouse Indirect Source Rule Warehouse Actions and Investments to Reduce Emissions WAIRE Program, which is designed to reduce local and regional emissions of NOx and PM, including diesel PM, and to facilitate local and regional emission reductions associated with warehouses and the mobile sources attracted to warehouses in order to assist in meeting state and federal air quality standards for ozone and fine PM. Rule 2305 is applicable to owners and operators of warehouses with greater than or equal to 100,000 square feet of indoor floor space in a single building. As part of the development of Rule 2305, a full CEQA analysis of the potential environmental impacts was conducted in the Final Environmental Assessment which was certified on May 7, 2021.[1]

In addition, 2022 AQMP Control Measure MOB-03 – Emission Reductions at Warehouse Distribution Centers specifically targets NOx emission reductions from on- and off-road vehicles, including cargo handling equipment, associated with warehouses because a large portion of the NOx emission inventory in the Basin comes from the goods movement industry. More than half of the emissions from that sector result from mobile source diesel trucks. Thus, while the South Coast AQMD and SCAG cannot restrict growth from warehouse, MOB-03 and its implementing Rule 2305 will ensure that emission reductions from warehouses will be achieved. While the South Coast AQMD has the authority to adopt indirect source regulations related to warehouses, it cannot require a permit for indirect sources. 76 Ops. Cal. Atty. Gen. 11 (1993).

In accordance with CEQA, the potential environmental effects associated with implementing MOB-03 and the entirety of the various control measures which comprise the 2022 AQMP (the proposed project) will be analyzed in the forthcoming Program Environmental Impact Report (EIR). The term "environmental effects" means the impacts on a project's users or residents arising from the project's effects on the environment, not the environment's effects on a project. Public Resources Code Section 21083(c) generally states that "a project may have a 'significant effect on the environment'" if "[t]he environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly."

The project to be analyzed in the Program EIR is the 2022 AQMP, which is comprised of a full suite of control measures including MOB-03 for warehouses.

CEQA requires the analysis in the Program EIR to focus on the collective effect of the 2022 AQMP's control measures on the environment, and not, as suggested in the comment, the effect of the existing environment of warehouses and other land uses on the proposed project. Chapter 3 of the Program EIR presents the existing setting or baseline conditions while Chapter 4 compares the impacts of the proposed project, which include growth projections from CARB and SCAG, to the existing setting in order to identify which environmental topic areas may have significant impacts. For these reasons, the Program EIR does not conduct a comparative analysis of existing warehouse emissions (which represents a portion of the

[1] South Coast AQMD, 2021. Final Environmental Assessment for Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments To Reduce Emissions (WAIRE) Program and Proposed Rule 316 – Fees for Rule 2305. http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2021/attachment_j_pr2305_finalea.pdf.

overall project's baseline conditions) and their projected growth (which is speculative) against the proposed project. In addition, CEQA generally does not require the analysis and mitigation of existing environmental conditions on a project's future users or residents, except in limited circumstances.[2] However, these limited circumstances do not apply to the 2022 AQMP.

The Program EIR will contain an analysis of the cumulative impacts from implementing the 2022 AQMP as set forth in CEQA Guidelines Section 15130. In particular, CEQA Guidelines Section 15130(a) requires an EIR to discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in CEQA Guidelines Section 15065(a)(3). The 2022 AQMP is a regional air quality plan that includes broad policy criteria and as such, the Program EIR will evaluate the environmental impacts associated with implementing the 2022 AQMP control measures to determine whether or not the impacts of the project are cumulatively considerable when combined with potential impacts associated with other similar regional projects involving regulatory activities or other projects with similar impacts.

As set forth in CEQA Guidelines Section 15130(b)(1)(B), the cumulative analysis in the Program EIR will summarize the project-specific and cumulative impacts analyses from the SCAG's Final Program EIR for the 2020 RTP/SCS (Connect SoCal), as well as the project-specific impacts from the 2022 AQMP, which includes both South Coast AQMD control measures as well as control measures included in CARB's State SIP Strategy. Further, the discussions will also include an evaluation regarding whether or not impacts from the 2022 AQMP contribute to cumulative impacts from SCAG's 2020 RTP/SCS, which have already been evaluated in the 2020 RTP/SCS Program EIR certified by SCAG.

The South Coast AQMD recognizes the significant contribution of emissions from the goods movement to air quality in the region, and that the good movement is expected to expand. As a local air agency, the South Coast AQMD has limited authority to regulate emissions associated with mobile sources; that authority instead rests with CARB and the federal government. However, the South Coast AQMD is able to regulate indirect sources – facilities that do not emit substantial air pollution directly, but that attract large volumes of mobile sources. Examples of indirect sources include rail yards, marine terminals/ports, airports, and warehouses. While ozone is a regional pollutant and this AQMP is a regional blueprint to attain the 2015 ozone standard by 2037, South Coast AQMD recognizes the importance of equitable air quality improvement and included discussions on environmental justice communities in Ch. 8 of the 2022 AQMP and is committed to continue working on the equitable air quality improvement.

Response to Comment 56-6: Vehicle population and VMT by vehicle type are included in attachment D of Appendix III. The emissions increase from VMT growth is offset by technology improvement and transportation control strategies. For example, while there is a 47 percent growth in VMT between 2018 base year and 2037, the total exhaust (start + run + idle) NOx emissions are projected to decrease by 76 percent. CARB has the primary authority to regulate the state on-road emissions and are heavily targeting

[2] The limited circumstances are if the project is located adjacent to an airport (Public Resources Code Section 21096); involves the purchase of a school site or the construction of a new elementary or secondary school (Public Resources Code Section 21151.8); or involves certain types of housing development projects (Public Resources Code Sections 21159.21, subdivisions (f), (h); Public Resources Code Section 21159.22 subdivisions (a), (b)(3); Public Resources Code Section 21159.23 subdivision (a)(2)(A); Public Resources Code Section 21159.24 subdivisions (a)(1), (3); and Public Resources Code Section 21155.1 subdivisions (a)(4), (6)).

emission reductions from heavy-duty diesel vehicle through regulations such as newly adopted Heavy-duty inspection and maintenance program for trucks and buses. South Coast AQMD's mobile source incentive measures promotes accelerated turnover to cleaner vehicles. By 2037, the program is estimated to reduce 82 tons per day of NOx and fine particle diesel pollution statewide (https://ww2.arb.ca.gov/our-work/programs/heavy-duty-inspection-and-maintenance-program).

Growth factors for the point and area source categories under South Coast AQMD regulation are provided in Tables III-2-7 through Table III-2-11 and Tables III-2-12 through Table III-2-16 of Appendix III. Growth projections by NAICS are based on SCAG's 2020 RTP/SCS. The growth surrogates (i.e., industry output growth, employment growth, demographic growth, VMT growth and others) representing businesses (including logistic and goods movement) primary activity are listed in Table 2-5 and Table 2-6. The annual average and summer planning emission inventories for South Coast Air Basin and Coachella Valley in 2018 and future years are also provided in attachment A and B to appendix III, in which the mobile sources, such as aircraft and ocean-going vessels, that stand out in future inventory budget are listed to show the baseline growth rate.

CARB detailed their control strategies for mobile sources including the important off-road emission sectors mentioned in this comment letter here (e.g., locomotives, cargo-handling equipment, forklifts) to assist the South Coast Air Basin to achieve the 2015 8-hour ozone standard in 2037. More details about CARB's mobile source control measures are provided in Appendix IV-B, CARB Strategy for South Coast. South Coast AQMD's commitment to reduced emissions from mobile sources through facility based mobile source measures and incentive approaches are detailed in Appendix IV-A, South Coast AQMD's Stationary and Mobile Source Control Measures. As we repeatedly emphasized in this plan, the participation of all levels of governments and shared responsibility for emission reductions from all sources, including the reductions from black box control measures, are the key to the success of this plan.

Response to Comment 56-7: The South Coast AQMD recognizes the significant contribution of emissions from the goods movement to air quality in the region, and that the good movement is expected to expand. As a local air agency the South Coast AQMD has limited authority to regulate emissions associated with mobile sources; that authority instead rests with CARB and the federal government. However, the South Coast AQMD is able to regulate indirect sources – facilities that do not emit substantial air pollution directly, but that attract large volumes of mobile sources. Examples of indirect sources include rail yards, marine terminals/ports, airports, and warehouses.

In May 2021, the South Coast AQMD's Governing Board adopted a "first-of-its-kind" Warehouse Indirect Source Rule (ISR) to reduce emissions related to warehousing activities. Starting this year, Rule 2305 will require actions to improve air quality in communities near large warehouse distribution centers that have significant emissions from medium- and heavy-duty vehicles. The warehouse rule applies to new and existing warehouse buildings of at least 100.000 square feet. Warehouses are a key destination for heavy-duty trucks and include other sources of emissions like cargo handling equipment, all of which contribute to local pollution, including toxic emissions, to the communities that live near them. Emissions from sources associated with warehouses account for almost as much NOx emissions as all the refineries, power plants and other stationary sources in the South Coast Air Basin combined. The warehouse rule is expected to reduce smog-forming emissions by 10-15 percent from warehouse-related sources.

In addition to regulatory programs, the South Coast AQMD also administers and implements a large portfolio of incentive programs that are designed to assist owners/operators of older, high-polluting

vehicles/equipment to scrap and replace with the cleanest available technologies. Many of the diesel vehicles and equipment used for goods movement in the region are eligible for these incentive programs and can receive funding to purchase cleaner technologies. These incentive programs administered by the South Coast AQMD total more than $200 million each year and achieve significant emission reductions in city jurisdictions and throughout the region.

Response to Comment 56-8: Please refer to Response to Comment 56-7 regarding the limitations of South Coast AQMD's regulatory authority to address mobile source emissions and the steps South Coast AQMD is taking to reduce emissions from those sources. Staff further appreciates the commenter's desire for greater involvement by South Coast AQMD in land use decisions. While Health and Safety Code Section 40716 gives South Coast AQMD the authority to develop indirect source control measures in its efforts to achieve attainment by adopting and implementing regulations, that authority does not extend to land use planning and control decisions under the existing authority of counties and cities. Despite these limitations, in our role as commenting agency, the South Coast AQMD staff reviews the air quality analysis in CEQA documents prepared by other public agencies for wide variety of projects, including logistics projects, and provides comments on CEQA documents, as needed. As part of those comments, staff identifies the air quality impacts associated with those projects and recommend mitigation measures as appropriate.

Response to Comment 56-9: The Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning (Guidance Document) was developed in 2005 as a tool to assist local governments as they update their General Plans and make other planning decisions. Another helpful resource is CARB's Air Quality and Land Use Handbook: A Community Health Perspective (Air Quality and Land Use Handbook).

The Guidance Document, as well as the Air Quality and Land Use Handbook, provide suggested, not mandatory, policies that local governments can use in their General Plans or through local planning to prevent or reduce potential air pollution impacts, to protect public health, and to help reduce community exposure to source-specific and cumulative air pollution impacts. Neither of these documents were intended to include recommendations tailored to specific types of land uses such as warehouses. As explained in Response to Comment 56-5, Health and Safety Code Section 40716 gives South Coast AQMD the authority to develop indirect source control measures in its efforts to achieve attainment by adopting and implementing regulations but that authority does not extend to land use planning and control decisions under the existing authority of counties and cities. For this reason, city and county governments may voluntarily rely upon, but are not required to use, the Guidance Document as a reference. See also Response to Comment 56-12 regarding South Coast AQMD's regulatory authority over warehouse projects.

Regarding the itemized list in response to the specific recommendations for warehouses and regulatory authority:

1) The Draft 2022 AQMP does not contain a control measure specific to land use and transportation planning because, as explained above, South Coast AQMD does not have the authority over land use planning and control decisions which are under the existing authority of counties and cities. See Response to Comment 56-5 regarding the cumulative analysis that will be conducted in the Program EIR.

2) Each warehouse development project is under the jurisdiction of the local planning authority where it is located and a full CEQA analysis of the potential environmental impacts is required. The type of CEQA document to be prepared (e.g., EIR, Negative Declaration, Mitigated Negative Declaration, etc.) is determined by whether the analysis identifies potentially significant impacts and whether those impacts areas can be fully mitigated to less than significant levels. Under CEQA, if significant impacts are identified, the CEQA analysis must include an analysis of project alternatives and mitigation measures, which could include the use of fully electric vehicles as a potential mitigation option.

   The South Coast AQMD is obliged to review the air quality analysis in CEQA documents prepared by other public agencies to ensure that the air quality impacts were accurately identified and analyzed, and that mitigation is applied to lessen or eliminate significant adverse air quality impacts, if any. The South Coast AQMD's role as a responsible agency is for projects that require South Coast AQMD air permits even though the CEQA document is prepared by another public agency acting as lead agency. The South Coast AQMD's role as a commenting agency is for those projects with potential air quality impacts but no South Coast AQMD air permits are required. In both roles, South Coast AQMD staff will review the CEQA document and may prepare comments relative to the air quality impacts and the adequacy of the analysis, and recommend mitigation measures, as appropriate.

3) See Responses to Comments 56-5 and 56-12 regarding Control Measure MOB-03 as it relates to regulating warehouses and goods movement activities.

4) South Coast AQMD's jurisdictional authority is defined in Health and Safety Code Section 40176 but that authority does not extend to land use planning and control decisions under the existing authority of counties and cities, and transportation planning is done by SCAG and the other transportation agencies. As such, there would be little that a new division operating within South Coast AQMD that is dedicated to land use issues could practically do. In 1988, in accordance with Health and Safety Code Section 40448.5, the South Coast AQMD Governing Board established the Technology Advancement Office (TAO) which is dedicated to expediting the development, demonstration, and commercialization of cleaner technologies and clean-burning fuels for mobile sources. As such, a new division dedicated to transportation is not necessary.

5) The objective of the 2022 AQMP is provide a blueprint for how to achieve the federal and state emission standards and cannot alter the jurisdictional authority of the South Coast AQMD which is defined by state law as promulgated in the Health and Safety Code.

6) See also Item 4) for why a new division within the South Coast AQMD organization to address land use issues would not be useful. Item 4) includes the background of the creation of the TAO division which is dedicated to addressing transportation issues. See General Responses to Black Box Measures for the Black Box comment.

7) South Coast AQMD has an established CEQA section within the Planning, Rules, and Implementation Division which, as explained earlier in Item 2), is responsible for reviewing the air quality analysis in CEQA documents prepared by other public agencies to ensure that the air quality impacts were accurately identified and analyzed, and that mitigation is applied to lessen significant adverse air quality impacts, if any. If South Coast AQMD staff determines that a

comment letter is necessary for a given project, a copy of the comment letter is sent to the lead agency. Copies of all South Coast AQMD comment letters sent relative to CEQA documents prepared by other public agencies are posted on South Coast AQMD's website here: http://www.aqmd.gov/home/rules-compliance/ceqa/commenting-agency/Comment-Letters2022. See also Item 4) for why a new division within the South Coast AQMD organization to address land use issues would not be useful. Item 4) includes the background of the creation of the TAO division which is dedicated to addressing transportation issues.

8) The Program EIR will analyze the air quality impacts associated with mobile trips from vehicles, including heavy-duty trucks that may be needed to implement the full suite of control measures proposed in the Draft 2022 AQMP.

Response to Comment 56-10: Three measures under Emissions Growth Management measures are included in this AQMP. Additional information about EGM-01 – Emission Reductions from New Development and Redevelopment, is the continuation of the commitment made in the 2016 AQMP and the progress can be found at http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/facility-based-mobile-source-measures/new-redev-proj-wkng-grp. EGM-02 and EGM-03 are new measures proposed in this AQMP and public participation will be solicited when the measures are developed to rules.

Response to Comment 56-11: South Coast AQMD will continue to prioritize actions to reduce emissions in disadvantaged and low-income communities. Warehouses are a key destination for heavy-duty trucks and have other sources of emissions like cargo handling equipment. All of these sources contribute to local pollution, including toxic emissions, to the communities that live near them. Emissions from sources associated with warehouses account for almost as much NOx emissions as all the refineries, power plants and other stationary sources in the South Coast Air Basin combined. Those living within a half mile of warehouses are more likely to include communities of color, have higher rates of asthma and heart attacks, and a greater environmental burden. Rule 2305 – Warehouse Indirect Source Rule will require actions be taken by warehouse operators to reduce emissions from warehousing activities starting this year. Additionally, staff is developing an update to the CEQA Guidance to include cumulative impacts from air toxics specifically recognizing impacts from operations associated with warehouses when evaluating new and redevelopment projects.

Response to Comment 56-12: As explained in Response to Comment 56-5, one of the control measures identified in the 2022 AQMP is MOB-03 – Emission Reductions at Warehouse Distribution Centers, which specifically targets NOx emission reductions from mobile sources (on- and off-road vehicles) including heavy duty trucks driving to and from warehouses and cargo handling equipment operating at warehouses. The primary source of NOx emissions at warehouses are heavy-duty diesel trucks that visit these facilities to deliver and pick-up goods. In May 2021, the South Coast AQMD's Governing Board took action to adopt a new warehouse rule which will require actions to be taken by warehouse operators to reduce emissions of NOx and particulate matter at these facilities starting this year. Because the nature of emissions associated with warehouses are primarily from mobile sources, MOB-03 is focused on reducing emissions from mobile sources that are operated at these warehouse facilities. However, if a warehouse is operating stationary equipment subject to South Coast AQMD rules and regulations (e.g., a boiler, engine etc.), emissions from those stationary sources will be addressed in the stationary source portion of the emission inventory.

Regarding the suggestion to provide incentives to cities that halt, minimize, or appropriately site industrial development, planning departments consider a myriad of factors when making land use decisions. Although the South Coast AQMD does not have the authority to halt, minimize or impact siting decisions for industrial developments, the agency works closely with cities to provide information on applicable rules, incentives and other programs that aim to reduce emissions from the various emission sources in their jurisdictions. Besides the Warehouse Indirect Source Rule described in our responses above, the South Coast AQMD comments on CEQA documents associated with industrial development. Through those comments staff identifies potential air quality impacts associated with the development and recommend mitigation measures as appropriate. Finally, the South Coast AQMD also administers and implements a large portfolio of incentive programs that are designed to assist owners/operators of older, high-polluting vehicles/equipment to scrap and replace with the cleanest available technologies. These incentive programs total more than $200 million each year and achieve significant emission reductions in city jurisdictions and throughout the region.

Regarding land use authority for siting warehouses, please see Response to Comment 56-5.

Regarding the suggestion to have South Coast AQMD, CARB and U.S. EPA collaborate on controlling future growth from warehouse emissions, please see the portion of Response to Comment 56-5 which explains the limits of regulatory authority regarding land use decisions and the development and adoption of Rule 2305 which is currently in effect and regulates emissions from warehouses.

Regarding the suggestion that the 2022 AQMP rely on a cumulative impact model instead of modeling individual sites, the 2022 AQMP was developed by relying on a regional, not localized, modeling analysis to establish the emissions baseline in order to make growth projections and estimate potential for emission reductions. Regarding the analysis of cumulative impacts in the Program EIR, please see Response to Comment 56-5.

Response to Comment 56-13: The emissions inventory in the AQMP accounts for activities of various stationary and mobile sources, such as trucks, cargo handling equipment, aircraft, airport ground support equipment, airport shuttles etc. Even though emissions are not estimated for each facility such as warehouses, intermodal facilities or airports, facility total emissions are included in the AQMP by aggregating the emissions from each activity. South Coast AQMD is required to rely on SCAG's land use planning and associated demographic projections.

Response to Comment 56-14: As mentioned in Response to Comment 56-2, while South Coast AQMD participates in SCAG's planning activity on land use, under federal law (23 U.S. Code § 134 and 49 U.S. Code § 5303) and state law (California Government Code, § 29532, et. seq.), SCAG is responsible for transportation planning and for preparing the portion of the SIP that addresses transportation control measures, land use, and growth projections. Health and Safety Code Section 40460(b). Moreover, while South Coast AQMD has authority to develop indirect source control measures in its efforts to achieve attainment by adopting and implementing regulations, that authority does not extend to land use planning and control decisions under the existing authority of counties and cities. Health and Safety Code Sections 40414, 40716. Thus, the creation of a "Land Use and Transportation Planning Division" within South Coast AQMD would conflict with local government and SCAG's responsibilities.

Response to Comment 56-15: SCAG is the regional planning agency responsible for projecting growth in various economic and industrial sectors including land use projections. AQMPs are required to rely on

growth projections included in SCAG's Regional Transportation Plan. While South Coast AQMD participates SCAG's land use planning activities, the South Coast AQMD has no direct authority to limit the growth of logistics-based industrial development. However, recently adopted and upcoming Indirect Source Rules and Facility Based Mobile Source Measures (MOBs 01-04) include strategies to reduce emissions from this sector in addition to CARB's regulations targeting various mobile sources of which activities occur within the perimeter of this sector.

Thank you for bringing to our attention Bay Area AQMD's Natural and Working Lands Control Measures. South Coast AQMD recognizes that natural and working lands have the potential to serve as carbon sinks. However, while the South Coast AQMD recognizes the critical importance of addressing climate change, our mandate is to protect public health by controlling criteria pollutants and air toxics. This AQMP is aimed at attaining the NAAQS and does not specifically control climate pollutants. Measures regarding natural and working lands do not provide NOx emission reductions which are needed to meet federal ozone standards.

Regarding Bay Area AQMD's Urban Tree Planting Measure, staff would like to make you aware of 2022 AQMP control measure BIO-01. As explained in BIO-01, South Coast AQMD is exploring biogenic emissions and their impacts on air quality. BIO-01 discusses the potential for future programs that promote urban tree planting, focusing on tree species that emit lower quantities of reactive VOCs which have the potential to degrade air quality in the region.

Finally, natural and working lands can also serve as sources of carbon and air pollution due to wildfires. Control measure MCS-02 seeks to promote responsible forest management practices at the urban-wildland interface to reduce wildfire impacts on air quality.

Response to Comment 56-16: South Coast AQMD staff appreciates the suggestions, and can consider these as time and resources permit. This plan focuses on the 2015 federal ozone standard, but recommendations on cancer impacts of toxics can be addressed during the development of the next MATES study.

Staff acknowledges that there is a growing field in the scientific literature relating air pollutant concentrations and quantifiable effects on reproductive health. The 2016 review conducted by Industrial Economics, Inc., an independent consultant and subject matter expert, concluded that the evidence was strongly suggestive of a causal relationship between PM exposure and low birth weight, but the evidence is not consistent enough to allow for a robust inference and subsequent quantification of the said effect. The Draft 2022 AQMP Appendix I: Health Effects provides a comprehensive and updated review of the studies investigating reproductive health effects. Appendix I also references U.S. EPA's latest causal determinations for health effects of PM and Ozone. The strongest evidence supporting the causality determination for PM2.5 comes from studies on low birth weight and developmental outcomes including infant mortality, especially due to respiratory causes during the post-neonatal period. There also continues to be supporting evidence for low birth weight from PM2.5 exposure (US EPA, 2019). As for ozone exposure the strongest evidence supporting the causality determination comes from studies of sperm quality and birth weight. There is also new evidence supporting effects on preterm birth with exposures to ozone, particularly in the first and second trimesters (US EPA, 2020). As far as reproductive health effects are concerned, the effects identified in the literature remain suggestive of, but not sufficient to infer a causal relationship. Consequently, this AQMP continues to focus the health effects discussion mainly on respiratory and cardiovascular effects.

The South Coast AQMD has no authority regarding land use and transportation planning development, so it cannot regulate such activities. However, South Coast AQMD does provide funding and incentives to deploy cleaner technologies, and some of the measures proposed are based on incentivizing early adoption of cleaner technologies (MOB-11).

Response to Comment 56-17: Thank you again for your thoughtful comments.

Comment Letter #57

PQ Corporation

Via E-Mail
Kevin Ni
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178
kni@aqmd.gov

RE: Comments on Notice of Preparation of Draft Program Environmental Impact Report 2022 Air Quality Management Plan

Dear Mr. Ni,
PQ LLC (PQ) is writing to submit comments on the South Coast Air Quality Management District's (SCAQMD's) Notice of Preparation of a Draft Program Environmental Impact Report (DEIR) regarding the 2022 Air Quality Management Plan (AQMP), in regards to the 2015 ozone national ambient air quality standard (NAAQS). PQ operates a sodium silicate manufacturing facility in South Gate, CA and is regulated by the SCAQMD. PQ offers the following comments:

1. SCAQMD proposed in the AQMP nitrogen oxides (NOx) emission reductions by "replacing or retrofitting boilers and process heaters used in industrial, institutional, and commercial operations with zero and low NOx emission technologies." The AQMP estimates an emission reduction of 0.5 tons/day by 2037 under this control strategy.

   PQ does not believe that zero emission boilers are available at commercial scale or with adequately demonstrated reliability in industrial applications such as at PQ's facility. PQ encourages SCAQMD to carefully examine the availability of zero emission boilers on an industry and facility-specific basis before incorporating it as a strategy for attaining the 2015 ozone NAAQS. Moreover, for many facilities, revisions to SCAQMD Rule 1146 required implementation of additional NOx reductions in as recently as 2018, which is well after the 2015 ozone NAAQS. It is not clear whether the AQMP's quantification of NOx reductions to achieve the 2015 ozone NAAQS factors these emission reductions from revisions to Rule 1146. Reductions of NOx that have been achieved recently by many facilities, such as use of low-NOx burners, should be factored into the AQMP in determining the need for additional NOx reductions.

2. The AQMP proposes to achieve additional NOx reductions from RECLAIM facilities through implementation of best available retrofit control technology (BARCT). PQ notes that AQMD recently determined in the development of amendments to Rule 1117 that ceramic catalytic filter systems such as the Tri-mer control system that PQ currently uses on its sodium silicate furnace would constitute BARCT. At this time, PQ is not aware of other technologies that are commercially available that reasonably achieve a greater level of NOx emissions reduction. Therefore, for sources such as sodium silicate manufacturers, the AQMP should not include additional NOx reductions.

Comment 57-1

Comment 57-2

PQ Corporation

PQ appreciates the opportunity to comment on the 2022 AQMP DEIR. IF you have any questions, please contact me at 484-402-0791 or Jim Olivier at our Southgate plant at 323-326-1100.

Best Regards,

Joseph P. Lala
Sr. Environmental Manager

Response to Comment 57-1: Thank you for your comment. Staff seeks out new technology that may provide emissions reductions for pollutants such as NOx, SOx, and PM. Staff recognizes that there may be technical limitations in replacing existing boilers with cleaner technologies. The use of zero or low NOx emission boiler technologies to replace existing boilers will be explored as part of the formal rule development process. This process involves a technology feasibility and a cost-effectiveness analysis. As noted in the Executive Summary of the 2022 Draft AQMP, the baseline emissions in 2037 include the implementation of existing regulations and programs, including Rule 1146. However, these baseline emissions exclude the actions proposed in the 2022 Draft AQMP, and thus the NOx reductions attributed to boilers to achieve the 2015 ozone NAAQS would be realized exclusively from the implementation of zero and low NOx emission boiler technology.

Staff may consider the useful life of boilers such that if a boiler were newly replaced or retrofitted and emission limits were reduced, a subsequent implementation schedule may be developed to address these boilers. The cost-effectiveness for any new requirements will also account for stranded assets, which would incorporate those boilers that were recently replaced or retrofitted.

Response to Comment 57-2: L-CMB-01 targets emission reductions from the remaining source categories that require RECLAIM landing rules to be amended or adopted as part of the transition to a command-and-control regulatory structure. Metal melting and heating furnaces (Rule 1147.2), food ovens (Proposed Amended Rule 1153.1), and nitric acid tanks (Proposed Rule 1159.1) are the source categories for L-CMB-01, not sources subject to Rule 1117. However, BARCT is continuously revised as new technologies become available and are determined to be cost-effective.

Comment Letter #58



July 5, 2022

Sarah Rees, Ph.D.
Deputy Executive Officer
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765

Re: Comments on 2022 AQMP Draft Control Measures

Dear Dr. Rees:

As Executive Director of the Southern California Air Quality Alliance and a member of the AQMP Advisory Group, I am providing the following comments regarding the proposed SCAQMD control measures contained in Appendix IV-A of the draft 2022 AQMP.

The 2022 AQMP relies heavily on switching many technologies that rely on fuel combustion to electric power. As I stated in my December 8, 2021 comment letter,
although this may be a necessary strategy there are several major "high level" concerns that must be addressed before an electrification strategy can be implemented. These issues include:

- There must be assurances that the electrical grid in California will be able to supply the electrical power needed to meet the vastly increased demand that will result from the implementation of these measure (and similar measures that will undoubtedly be imposed by CARB in the transportation sector and other air districts that also are faced with meeting the NAAQS for ozone). California currently is not able to supply sufficient electrical power during certain times of the year and there is no clear indication that this will be getting better any time soon. If new power generating facilities are to be built to meet the anticipated demand, you should be aware that siting and construction of such facilities is extremely difficult, and siting and construction of new electric transmission lines is equally, if not more, challenging.

Comment 58-1

- There needs to be a careful analysis of how and when zero emission technologies are imposed. There must be assurances that the electrical power will be available by or before the date that any control measure requiring conversion to electricity is required Additionally, the District should fairly tailor compliance schedules and electrical or other type of technology conversion in recognition of the fact that most of the larger NOx emitting facilities in the SCAQMD are in the process of upgrading their current combustion equipment to meet BARCT standards for NOx, in many cases at huge cost. To require facilities to install add on control equipment (e.g., SCR) and the related support equipment only to be required to "junk" that equipment in favor of zero emission technology

Comment 58-2

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soon after installation of the BARCT level emission controls could result in an immensely costly and unaffordable stranding of assets at best, and closure of businesses at worst.

Comment 58-2 Con't

- Finally, there needs to be a recognition that there will continue to be a need for reliable and instantaneously available emergency power if grid or other base load power fails or is not available. Fuel cells are a very promising technology to address distributed power generation for base load situations and some back up generation scenarios (when adequate notice of an outage is given). Battery storage technology is very immature, and it is not clear that it can be scaled to meet the demand for emergency power during long duration outages or outages at large facilities. This is especially critical for essential public services such as water treatment facilities, fire pumps, and other critical health and safety applications. Natural gas, propane or diesel emergency generators may still be required in some applications. Given the limited hours of operations and current emission control technologies, the resultant NOx emissions from these applications should be low. The SCAQMD will need to carefully analyze what types of equipment will work in specific applications due to the critical need for emergency backup power.

Comment 58-3

We note that the draft Appendix IV-A includes measure MOB-15: Zero Emission Infrastructure for Mobile Sources. Implementation of this measure will at least start the process of analyzing the capacity needs and potential sources of supplying that capacity for the ambitious electrification infrastructure that will be required. However, this should not be viewed as merely a mobile source measure. The draft 2022 AQMP calls for large scale electrification of stationary, commercial and residential sources as well. There does not yet appear to be any reality-based analysis of how much additional electrical capacity will be needed, nor where or how it will be generated. Neither wind, solar nor battery storage is capable of being scaled up to a level to meet the likely demand that will be imposed on the grid, let alone provide 24 hour per day reliable service. The lead time for constructing the new generation capacity and transmission lines is such that it is unlikely that the capacity can be on-line by the necessary attainment dates.

Comment 58-4

The draft plan does include such sources as hydrogen fuel cells which can provide base load power. However, it requires significant energy to extract hydrogen, either from methane (natural gas) or water. There seems to be a push to restrict the source of hydrogen to water, yet California is currently suffering through water shortages and usage restrictions. A desalination plant was rejected by the California Coastal Commission. It is not at all clear that there will be enough energy OR water to provide the substantial amounts of hydrogen necessary to implement fuel cell technology on a widespread basis.

Comment 58-5

In summary, we are concerned that the ambitious emission reduction measures proposed not only by SCAQMD, but also by CARB, will run head on into reality and leave us well short of attainment of the ozone ambient air quality standard. An over reliance on zero emission technologies (vs. near-zero emission technologies) will likely result in little to no progress being made in

Comment 58-6

Sara Rees, Ph.D.
July 5, 2022
Page 3

achieving healthier air. Near-zero technologies can result in significant improvements in air quality, which is preferable to standing still while awaiting zero-emission technologies that either don't arrive on time or don't arrive at all.

We believe that the draft plan could have a lot more caveats and urgent warnings regarding the need for scalable, reliable, and affordable energy as a prerequisite for critical portions of the plan being implementable.

Comment 58-6

We look forward to continuing to work with you and SCAQMD staff on these and other issues that we will confront as you move ahead with the 2022 AQMP.

Very truly yours,

Curtis L. Coleman
Executive Director
Southern California Air Quality Alliance

Response to Comment 58-1, 2: Thank you for your comments. Concerns regarding grid capacity and reliability to support a widespread transition to zero emission technologies are the reason why the South Coast AQMD developed MOB-15. This control measure is a commitment to engage with stakeholders involved in every aspect of the transition to zero emission technologies with the goal of identifying potential shortfalls in technologies and/or energy availability while assisting in a collaborative effort to address these concerns. The South Coast AQMD is actively engaged with the CEC, CPUC, CARB, local utilities, fleets and other stakeholders to help address the challenges related to grid capacity and reliability in the region. South Coast AQMD will continue to share information that can be used to better inform forecasting and energy analyses which are used to plan grid capacity upgrades. Current forecasting and energy analyses are primarily focused on the state ZEV goals and do not fully address all emission categories that will need to transition to zero emissions to reach attainment goals. The challenges related to the electrical grid and infrastructure availability are significant and will require collaborative problem solving involving all stakeholders. South Coast AQMD will continue to advise partner organizations through information sharing and close coordination of efforts to remove barriers to zero emission infrastructure and technology deployments.

Agencies and organizations throughout the state that are involved in energy distribution such as the California Energy Commission, the California Public Utilities Commission, and local utilities such as Southern California Edison, are aware of the challenges ahead in terms of energy and infrastructure availability and are actively engaged in planning to anticipate future demand as the state moves toward a zero emission future. Engagement with these and additional partners involved in this transition through the direction detailed in MOB-15 will help articulate the region's needs and challenges to anticipate potential shortfalls in energy and technology availability, and grid readiness and reliability.

In addition to electric technology options, fuel cells and possibly other new technologies will be used to support the transition to a zero emission future. The state of California, through various programs, has allocated significant funding to advance the development and deployment of zero emission technologies, including electric charging and hydrogen fueling infrastructure. As part of MOB-15, South Coast AQMD will continue to track all available funding sources for zero emission infrastructure and share this information with fleets and other stakeholders to provide financial assistance and encourage early planning for transitioning to zero emission technologies. Early planning and collaborative problem solving involving all stakeholders will be necessary to assure grid readiness and infrastructure availability. South Coast AQMD will also actively support and advocate for new funding sources that will accelerate the deployment of zero emission infrastructure in the South Coast AQMD. This effort will encourage consumers to plan early with support from the local utilities to streamline the process for approving installations and interconnection with the grid.

Response to Comment 58-2: South Coast AQMD staff recognizes the potential concern for stranded assets if there were a requirement imposing a replacement technology for a source that still have its useful life. Rule development to implement control measures from the 2022 AQMP will account for stranded asset costs, if applicable, as part of the cost-effectiveness and incremental cost-effectiveness calculations to establish future BARCT standards.

Response to Comment 58-3: While emergency standby engine use is limited by Rule 1110.2 and permit conditions, emissions are notable due to the large quantity of this equipment, many which do not have emission control technologies and are older and high emitting. Staff acknowledges the variability of emergency backup power needs at facilities. As described in L-CMB-04, a priority of the rule development process would be to consider the reliability requirements for emergency backup power at essential public services. Future rulemaking activities will include an assessment of the viability and cost effectiveness of alternative technologies, with the understanding that as technologies evolve, improve, and become more available, zero and low NOx technologies may become a viable source of reliable backup power.

Response to Comment 58-4: The infrastructure needed to support a widespread adoption of zero emission technologies will take many years to develop and deploy. The proposed strategies and actions in this control measure will be adaptable and updated as new information becomes available to address both near-term and long-term air quality goals. The workplan will initially focus on the infrastructure needs for mobile sources with the earliest dates for transitioning to zero emission, however the South Coast AQMD will closely coordinate and share information with the CEC, CPUC, local utilities and other stakeholders to assure forecasting and energy needs assessments fully address the grid capacity needs for a widespread adoption of zero emission technologies across all sectors where feasible. This control measure is intended to help agencies responsible for planning grid capacity and infrastructure deployments develop analyses that will anticipate where and when infrastructure development should occur in advance of need, while recognizing that much of this infrastructure will be shared by mobile and stationary users.

Response to Comment 58-5: Hydrogen has the potential to significantly contribute to overall emission reductions from power generation, transportation, and industrial sectors in the Basin. With the rapid growth of different sources for hydrogen production and California's intention to create renewable Hydrogen Hubs, it is expected that new sources will replace conventional sources for hydrogen production. Therefore, as the commenter stated, water use, demand, and management are essential to

consider, study, and evaluate. An integrated approach is needed to source and dispose of water and reduce overall water demand. There are specific sustainable hydrogen-water scenarios that, if pursued, can reduce water demand for hydrogen production. As carbon-neutral hydrogen production projects evolve, South Coast AQMD will partner with other entities to find and propose sustainable and integrated approaches and ensure that increasing carbon- neutral hydrogen production does not stress the water supply system in our communities.

Response to Comment 58-6: South Coast AQMD recognizes the significant benefits afforded by low NOx technologies where zero emission technologies are not readily available. South Coast AQMD has multiple federal air quality standards to meet with different attainment years. The 2015 8-hour ozone standard, with an attainment year of 2037, is the most stringent standard to date and requires broad deployment of zero emission technologies wherever feasible. However, other standards have earlier attainment years including the 2012 annual PM2.5 standard (2025) and 2008 ozone standard (2031). Achieving near-term emission reductions from low NOx technologies will be critical to meet these standards. South Coast AQMD staff is committed to aggressively pursuing emission reductions as soon as possible.

Comment Letter #59

California Council for Environmental and Economic Balance
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July 5, 2022

Sang-Mi Lee, Ph.D.
Planning and Rules Manager Planning, Rule Development and Implementation
South Coast Air Quality Management District

Submitted Electronically to: AQMPteam@aqmd.gov

RE: Comments on the Draft 2022 Air Quality Management Plan (AQMP)

Dear Dr. Lee,

On behalf of the members of the California Council for Environmental and Economic Balance (CCEEB), we appreciate the opportunity to comment on the draft 2022 Air Quality Management Plan (AQMP). CCEEB recognizes the significance of this AQMP and the necessity of significant action by federal sources. It is with this in mind that CCEEB offers the following comments.

Overall, the draft plan is a well-organized and informative discussion of both the challenges and opportunities in reaching attainment of the federal 2015 24-hour ozone standard in the South Coast and Coachella Valley air basins. CCEEB appreciates the robust technical analysis and extensive stakeholder engagement conducted by staff in preparation of the draft plan. CCEEB also supports the overall goals of the plan to reduce criteria pollutant and co-pollutant emissions and protect public health.

Comment 59-1

While CCEEB finds no fault, broadly speaking, with the technical work of the South Coast Air Quality Management District (SCAQMD), we are concerned with the 2022 AQMP in that the federal Clean Air Act (CAA) did not anticipate a situation which we now find in the South Coast. Enacted nearly two generations ago in 1963, it did not envision today's realities of air pollution and air pollution control. Two major challenges are now evident. First, the District and its partner the California Air Resources Board (CARB) have determined that traditional combustion controls—i.e., reducing emissions directly from tailpipes and exhaust stacks—have gone about as far as possible but still are not enough. Even at maximum feasible control, the South Coast falls far short of attainment. As the draft plan concludes, "Therefore, there is no viable pathway to achieve the needed reductions without widespread adoption of zero emission (ZE) technologies across all mobile sectors and stationary sources large and small" [Page ES-5]. While CCEEB recognizes the need to transition to zero emission (ZE) and low-NOx technologies where feasible, we also recognize these strategies are far more complex and costly to implement than any other strategies in the previous air plan. Importantly, we recognize that much of the support structure needed to ensure success with this new strategy lies beyond the ability of the District and CARB to control.

Comment 59-2

The second major challenge is that the regulatory structure of the CAA itself has not kept pace with changes in source contributions to emissions. Jurisdictional roles and responsibilities that may have worked in the past now seem misaligned and, at times, irrational. Put simply, the federal government has all the power of sanction and administrative oversight, but has not adequately controlled federal emission sources under its sole authority to the degree needed for attainment. As the draft plan aptly points out, the estimated 92 tons per day (tpd) from federal sources in 2037 well exceeds the basin's carrying capacity of 63 tpd. Thus, California faces the conundrum that, without federal action to reduce emissions, the South Coast won't reach attainment. And yet, by failing to attain, federal sanctions and penalties against California may be triggered.

Comment 59-3

Looking at the combined impact of these two challenges, we see that mobile, industrial, commercial, and residential sources are now being called upon by the SCAQMD and CARB to make historic levels of investment in an aggressive transition to newly emerging ZE technologies – and yet, even with those measures, the region still may not meet the 2037 goal. CCEEB believes this makes the principles of fairness and feasibility all the more important during implementation of the AQMP and 2022 State Implementation Plan (SIP).

Given the Catch-22 of these twin challenges, CCEEB makes the following main points:

- Efforts to electrify combustion sources under CARB and District control must recognize that these measures alone will not result in attainment. That is, while electrification begins to reduce some NOx emissions, it does not solve the problem of federal source emissions.

Comment 59-4

- Mandates to deploy ZE technologies must be closely aligned and coordinated with development of energy infrastructure and maintaining system reliability. This is particularly important for the state's electrical grid, which must respond to several equally important but overlapping mandates, such as the shift to 100% renewable and carbon-free electricity generating resources and a "hardening" of the system to prevent and protect against catastrophic wildfires.

Comment 59-5

- Coordination and extensive planning between the CEC, the CPUC, and stakeholders is critical to ensure that the state's electrical grid is prepared to meet the needs for all ZE technologies.

Comment 59-6

- A transition to ZE technologies often involves far more than switching one piece of equipment for another, and may require major changes to duty cycles and business practices. For example, shifting heavy-duty vehicles from diesel internal combustion engines (ICE) to a battery electric vehicle (BEV) requires installation of high-powered chargers, which will require significant upstream infrastructure investments, as well as downstream operational changes to allow time for charging. This has its own set of ancillary impacts, such as a larger truck fleet if the BEV is not a one-for-one replacement for the diesel-fueled vehicles, the need for a larger depot or vehicle yard to charge vehicles, a shift in hours of operation to align with time-of-use electric utility rates, (re)training of

Comment 59-7

maintenance and repair workers, smaller payload capacities, and adjusted routes and operations when limited by battery range. Currently, there is no consistent method at CARB or the SCAQMD to reliably estimate these ancillary costs. Moreover, much of the technology is untested in real world conditions or in large-scale deployments, and rapid changes in energy system costs and accessibility make total costs uncertain and unpredictable over the near term. With that said, low-NOx natural gas trucks powered by renewable natural gas have been utilized at scale and can replace their diesel counterparts at a closer to one-to-one ratio, reducing NOx emissions by 90 percent for every diesel truck replaced.

Comment 59-7 Con't

- Given the range of costs associated with ZE technology and the significant degree of uncertainty, the District will need to work closely with stakeholders and other partners in developing a reliable way to assess a fair scope of costs. An added challenge is the robustness of low-NOx controls, which lowers the marginal benefit of ZE strategies. How the District will apply its cost-effectiveness thresholds will be important. Similarly, staff assessments of technological feasibility will be more complicated than ever before. In its work, the District can serve as an important model for other jurisdictions.

Comment 59-8

- Differences in the degree of regulatory control over each source category matter in terms of fairness. Permitted stationary sources regulated by the District and mobile sources regulated by CARB must meet emission targets. Failure to do so results in penalties, possibly both civil and criminal. The same is not true for non-permitted sources, which are primarily controlled indirectly by building measures and incentives. The 70 percent reduction goal[1] in the draft plan for these non-permitted and unregulated sources is ambitious; shortfalls should be addressed with reductions from the same source category as much as possible. On the other hand, stationary sources controlled by the District have historically been reliable in terms of emission reductions. For example, from the 2016 AQMP, CMB-05 and the RECLAIM facilities outperformed targets and are poised to deliver 11.7 tpd by 2031, more than double the 5 tpd assigned to them. CCEEB believes that sources meeting their reduction targets should not penalized because others do not.

Comment 59-9

What follows are more detailed comments on these main points, organized broadly in a discussion first of the transition to zero-emission technologies, followed by a discussion of Clean Air Act structural challenges. Finally, we include comments on specific control measures.

[1] Page ES-7.

Transition to Zero Emission Technologies

Feasibility Assessments and Cost-Effectiveness for ZE Measures

ZE technologies must be "feasible" upon implementation, with a clear compliance pathway articulated during rulemaking. This may call for a rethinking of how feasibility is determined, given the long timeframes and system complexity involved in most of the ZE measures. For example, under L-CMB-04, determining whether replacing a permitted emergency engine with a ZE alternative is feasible will entail more than determining the commercial availability of battery banks, microturbines, and fuel cells. How long can a battery bank power operational loads, and is there physical space to install equipment? Is the equipment reliable as compared to existing permitted emergency engines and are the proposed ZE alternatives widely/commercially available? Can hydrogen be piped or stored onsite for fuel cells, and how secure are supply chains in the near term? Solutions suitable for one facility's configuration may not suit another, and costs will initially be very high and in some cases prohibitive. These concerns are all the more sensitive for essential public services, especially during emergencies that can potentially last for extended periods (i.e. days) and backup emergency power is needed to maintain water pressure for firefighting or water distribution with safe drinking water. As staff move into rule development, starting as soon as 2024 for many ZE measures, many new questions will arise. CCEEB recommends that staff convene a working group to help identify factors and inputs that should be part of the District's ZE assessments.

Comment 59-10

Infrastructure Needed to Support Adoption of ZE Technologies

The District and CARB should explore adaptive management approaches to measures that require a transition to ZE technologies so that programs can adjust over time and be responsive to changes in cost, reliability, and availability of energy resources. As a first step, the agencies should work with public stakeholders, researchers, and legislative leaders to establish a set of clear economic and energy metrics that can be routinely monitored and evaluated. Regulatory programs can then be designed with periodic check-ins to assess whether and how well energy and other ancillary support systems are functioning. In the end, a business or household cannot reasonably replace a combustion device, whether an engine or an oven, if it doesn't meet their needs.

Comment 59-11

It is also key to look at infrastructure needs for all ZE technologies. We agree with the District where in its Infrastructure/Energy Outlook Policy Brief for the 2022 AQMP, it states the following:

> "Preliminary estimates of the statewide ZE infrastructure needs have been developed by the CEC and the California Air Resources Board (CARB) based on existing state goals and mandates. These preliminary estimates are largely based on a transition to ZE vehicles for on-road transportation sources, and do not fully address the adoption of ZE technologies by other emission sources, including stationary, locomotives, and off-road equipment. These preliminary estimates will need to be further refined to include the ZE infrastructure needs of all sources and address the unique needs of the South Coast and Coachella Valley Air Basins."

Comment 59-11 Con't

Infrastructure planning and readiness are critical. If the agencies do not coordinate and plan properly, the District could find itself short of reaching attainment of the 2015 standard.

Potential for Stranded Assets

Companies have submitted air permit applications to the District to comply with the NOx BARCT emission limits of the Landing Rules associated with the sunset of RECLAIM (2016 AQMP CMB-05). For example, one company is in the process of undertaking a large-scale effort of retrofitting 18 engines and replacing 5 engines and retiring 9 engines and replacing 4 turbines across four facilities for compliance with Rules 1110.2/1100 for engines and Rule 1134 for gas turbines. Over $1.4 billion is planned for this effort. Similarly, Rule 1109.1 for petroleum refineries and related equipment was recently adopted in November 2021, with approximate industry costs of $2.3-2.9 billion and implementation timelines that extend to 2036, overlapping with the timeline currently proposed in L-CMB-07. Since permitting, design and engineering and construction of these projects are well underway, we request that ongoing projects being conducted in response to the sunset of the RECLAIM program be given consideration regarding the equipment life of new assets. The life of replacement and retrofit equipment will extend well beyond 2037. Should the South Coast AQMD decide to require electrification or other emerging technologies that have been previously found unproven or cost effective for equipment associated with these ongoing projects, stakeholders may be left with expensive stranded assets.

Comment 59-12

Natural Gas System Reliability

Converting compressor stations from all gas or hybrid configurations to 100% electric-driven compressor configurations is not feasible from a reliability perspective. The gas utilities have a mandate to provide gas service to customers within the entire service area. The reliability of compressor stations is critical to meet that obligation. If compressor stations were equipped with only electric compressors, this could impact customers due to the potential inability to serve customer demand. This demand includes gas engine-driven water pumping for fire suppression and flood control, as well as gas driven emergency generators at hospitals and other critical care facilities. With increasing frequency, Public Safety Power Shutoff (PSPS) events on the electric grid destabilize the energy delivery system and compromise reliability. Additionally, wildfire risk is an ever-present threat. In order to reliably provide gas to customers, even during power outages, sufficient electrical back-up equipment would be needed to

Comment 59-13

operate a compressor station with 100% electric driven compressors. This magnitude of electrical back-up equipment is not currently available. As a compressor station, the station's ability to continue to serve customers at a rate sufficient to avoid a widespread disruption is paramount.

Comment 59-13 Con't

Clean Air Act Issues

CARB Measures and Commitment to Achieve Emission Reductions

CCEEB appreciates the discussion in the CARB 2022 SIP and the SCAQMD 2022 AQMP that clarify CARB's responsibility to act on SIP measures adopted by its Board and, more importantly, to achieve aggregate emission reductions regardless of the implementation status of any individual measure. Moreover, as the SIP notes, "As part of each SIP needing emission reductions from the State, the total aggregate emission reductions and the obligation to make certain proposals to the CARB Board or take other actions within CARB's authority specified in the 2022 State SIP Strategy would become enforceable upon approval by U.S. EPA."[2]

The District helpfully summarizes CARB's aggregate commitments in Table 4-8 of the draft 2022 AQMP, shown below.[3]

TABLE 4-8

SOUTH COAST NOX EMISSION REDUCTIONS FROM CARB PROGRAMS

CARB Programs in South Coast	2037 Emission Reductions	Percent of Needed Reductions
Current Control Program[11]	151.1	55%
2016 State SIP Strategy Measures (Not yet adopted)	5.8	2%
New Proposed Measures	72.9	26%
Total Reductions	**229.8**	**83%**

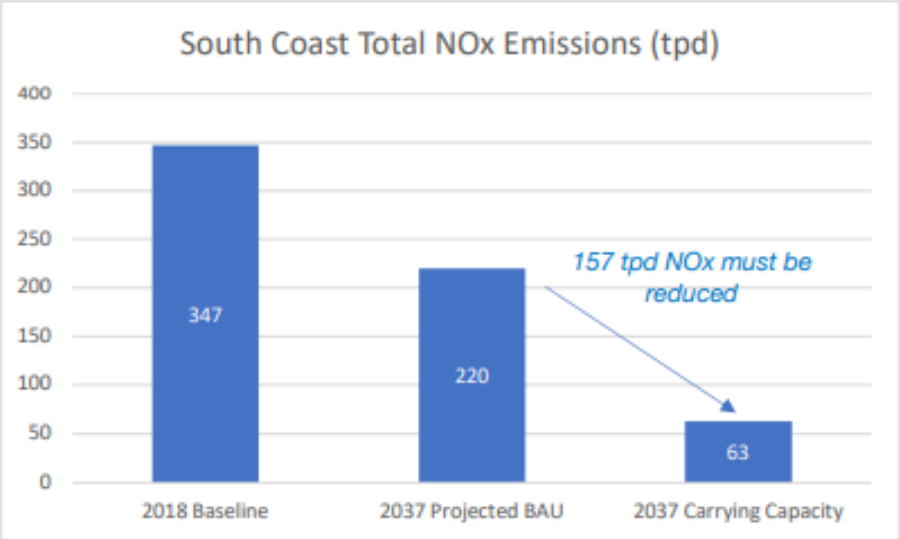
Comment 59-14

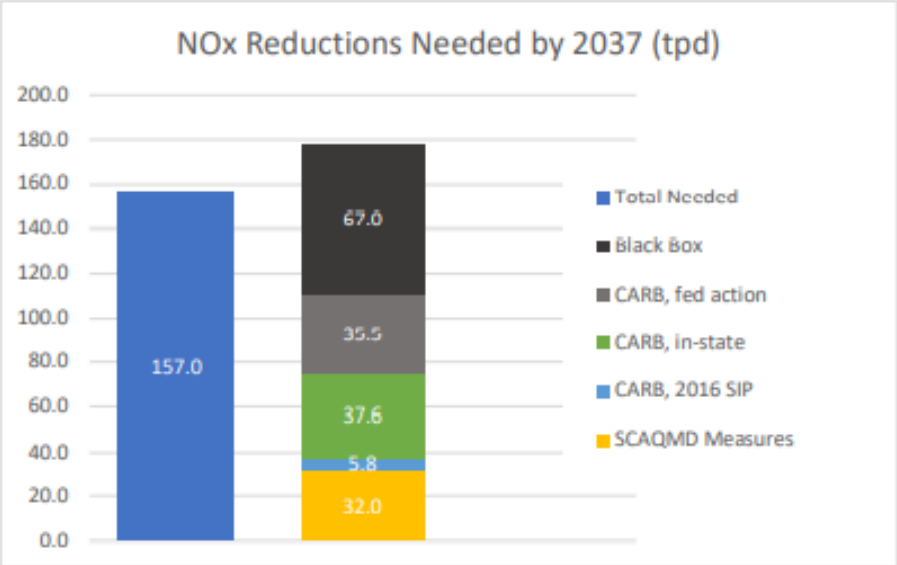
What is less clear is how CARB would achieve all 72.9 tpd of its commitment, particularly if there should be a shortfall from "Primarily-Federally and Internationally Regulated Sources," which certainly seems plausible. These "federal action needed" measures in the SIP account for almost half of CARB's commitment, or 35.3 tpd of NOx reductions by 2037, and are separate from and in addition to the so-called "black box" reductions, which amount to another 67 tpd of reductions.[4] Together, these reductions account for 65 precent of all reductions described in the AQMP and SIP. CCEEB believes these uncertain federal and black box reductions will be more challenging to achieve than the ZE measures being put forward by CARB and the District, which calls into question how "viable" a ZE pathway to attainment really is. That is, even if and

[2] CARB Draft 2022 State Strategy for the State Implementation Plan, January 31, 2022. Page 29.
[3] Table 4-8 shows that current controls will reduce 151.1 tpd of NOx by 2037. Table 4-6 indicates that 138.1 tpd of these NOx reductions will come from current mobile source programs, suggesting an additional 13 tpd will come from stationary or area sources under CARB control.
[4] Page ES-8 of the Executive Summary explains that of the 67 tpd of black box reductions, 3 tpd are for stationary sources, 10 tpd are for mobile source incentives, 19 tpd are for aircraft, and 35 tpd are other federal sources.

when California successfully transitions combustion sources under CARB and District authority to zero emission technologies, attainment may be achieved.

To better illustrate this point, we take a high-level view of the numbers, based on information given in the draft AQMP.[5]

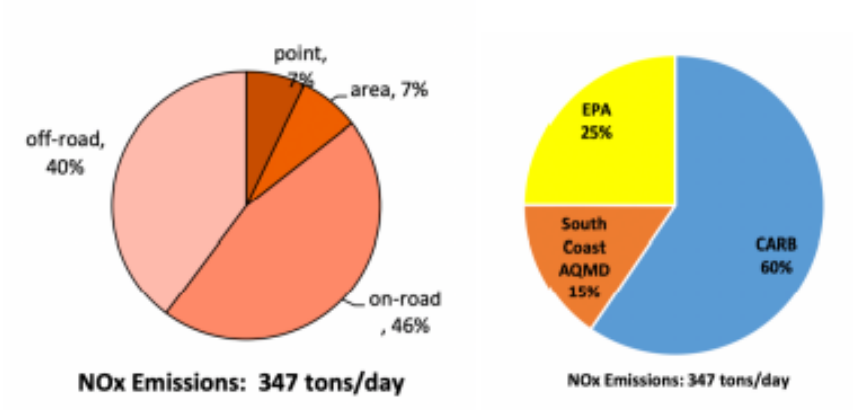




[5] Total NOx Emissions are from Figure 5-9. Black Box data is from Figure ES-7. CARB measures are calculated from Tables 4-8 and 4-9. SCAQMD measures are calculated from Tables 4-2 and 4-3. However, we note there are several seeming discrepancies across the figures and tables provided for CARB emissions. For example, Figure ES-7 indicates that "Defined Measures" total 90 tpd, but it is unclear how this was calculated based on quantified reductions for each measure. Also, Figure 4-5 shows 6 tpd of reductions from "passenger vehicles" but Table 4-9 indicates only 0.9 tpd from "On-Road Light-Duty," a possible discrepancy of 5 tpd. Adding to this data confusion is that fact that CARB uses a 2012 baseline inventory in its *Draft Environmental Assessment: Attachment A, Environmental and Regulatory Setting*.

Comment 59-14 Con't

To understand why CARB and federal sources are at the core of any attainment strategy, we look at the relative contribution of different source categories and jurisdictional responsibilities, as shown in Figures 3-3 and 3-4, respectively (2018 inventory).[6]



This disconnect between who controls the sources most needed for attainment (the federal government) and who ultimately bears responsibility (South Coast and the State) poses a major challenge to the AQMP.

Comment 59-14 Con't

Contingency Measures

CCEEB appreciates the background discussion of CAA requirements for contingency measures in section 172(c)(9), as well as the summary and analysis of recent court decisions affecting EPA review of and guidance for states that must include contingency measures in their air plans. We also support and agree with staff's conclusion that, "In their updated guidance, the U.S. EPA needs to recognize that many State control programs are mature and opportunities to withhold measures for contingency are scarce."[7] CCEEB believes this topic is appropriate for consideration at the Home Rule Advisory Group (HRAG), if and when this committee is reconvened. Importantly, the HRAG includes representatives from CARB and EPA, Region 9, and in the past has been a useful forum to discuss interagency issues and coordination.

Comment 59-15

[6] Notably, RECLAIM sources account for about a third of all stationary source emissions, but only 5 percent of total NOx emitted in the basin. Moreover, with the recent adoption of RECLAIM landing rules to implement best available retrofit control technology (BARCT) on these sources, and the mandate to adopt "all feasible control measures" for all permitted sources in the region, there are limited additional opportunities to achieve significant NOx reductions from this category for the purpose of reaching attainment.
[7] Draft Plan, Page 4-55.

Cost Effectiveness

TABLE 4-14

PROPOSED COST-EFFECTIVENESS THRESHOLDS TRIGGERING ADDITIONAL ANALYSIS DURING SOUTH COAST AQMD CONTROL MEASURE IMPLEMENTATION

Source Type	Cost-Effectiveness Threshold[a,b]
Stationary Sources	$59,000/ton NOx / $36,000/ton VOC
Mobile Sources	$200,000/weighted ton *[NOx+ROG+(20 x PM)]*

[a] Thresholds are in 2021 dollars and will be inflated to the dollar year used in a socioeconomic analysis for each specific control measure as it is implemented.

[b] The threshold for stationary sources is based on the Discounted Cash Flow method, as traditionally used in South Coast AQMD rulemaking. In comparison, the threshold for mobile sources is based on the Levelized Cash Flow method to be consistent with CARB practice for statewide mobile source regulations. The Socioeconomic Report for each AQMP will continue to present the cost-effectiveness values using both methods for each control measure with quantified emission reductions.

The draft plan proposes to use two monetized values for its cost effectiveness (CE) threshold. For stationary sources, this would be $59,000 per ton of NOx reduced and $36,000 per ton of VOC, which is based on the adjusted value of past AQMP thresholds (2012 and 2016). We note that this CE threshold is well above the cost effectiveness of most recently adopted rules, as shown in Table 4-11 of the draft plan, and CCEEB supports staff's proposal. For mobile sources, staff used the average weighted cost effectiveness of CARB mobile source incentive programs, or $200,000 per weighted ton. CCEEB also supports this proposal and staff's approach to setting cost-effectiveness thresholds in general, recognizing that these thresholds are only used to inform and rank options for control strategies, as per Health & Safety Code requirements, and do not bar the District or CARB from adopting measures that exceed CE thresholds.

Comment 59-16

For CARB measures and cost presented at the May 31, 2022 meeting of the Scientific, Technical & Modeling Peer Review (STMPR) Advisory Group, CCEEB is interested to see the cost assumptions used for these estimates, as well as CE calculations. For example, we have not seen the detail behind CARB's estimate that its Advanced Clean Fleets rule will have a total cost of $3.4 billion through 2037. We look forward to reviewing this information when it becomes available, presumably before the AQMP and SIP are approved by the District and CARB.

Comments on Specific SCAQMD Control Measures

In reference to all large combustion source control measures: what is the duration of equipment life being considered by AQMD for each of the equipment categories?

Comment 59-17

L-CMB-03: NOx Reductions from Permitted Non-Emergency Internal Combustion Engines

Do the projects that have been proposed and air permit applications submitted to replace/retrofit for compliance with Rules 1110.2/1100 satisfy this control measure or will additional NOx control projects be required for these new/retrofit engines? Which units are included in the phrase "older, higher emitting engines"?

What are the District's thoughts regarding the proposed 6 ppm NOx limit, (the 0.29-0.31 tpd NOx reduction in 2037 appears to be from the 2019 amendment), and how would the District determine the timeline for rulemaking (as it currently is written, it appears to be based upon natural turn-over)?

A potential lower NOx emission limit in Rule 1110.2 will be challenging for compressor engines to meet due to variable load operations. Additionally, higher ammonia slip limits will be the trade-off to achieve lower NOx emission limits. Longer averaging times will be needed for the lower NOx limit.

Comment 59-17 Con't

L-CMB-04: Emission Reductions from Emergency Standby Engines

How will the regulatory strategy to replace older, higher emitting emergency standby engines with cleaner engines be implemented? Will the regulatory strategy include a phase-in approach or case-by-case at the time of replacement approach? In addition, will there be any exemptions or special regulatory considerations made for essential public services, such as water utilities that are required to maintain pressure in the water distribution system for firefighting purposes and safe treated drinking water in the event of an emergency such as a power outage, breakdown of electric water pumps/treatment equipment, or natural disaster, such as an earthquake, that can potentially last for days? Furthermore, will SCAQMD be working with existing engine manufacturers to certify use of the proposed lower emission fuels in emergency standby engines that may operate less than 20 hours per year and guarantee reliability, availability, and compatibility with the existing fueling system/engine?

It is vital that the emergency standby engines for water utilities and other critical infrastructure needs are reliable with proven technology that is capable of fast response and operation for an extended period of time to ensure continued supply of safe drinking water to customers and for critical firefighting purposes. In general, CCEEB supports control measures that provide emission reductions so the basin can meet the 2015 8-hour ozone standard. However, control measure provisions that may potentially jeopardize the reliability and safety of water supply to utility customers, and public safety concerns including life and property during fire events, should be carefully evaluated and considered for unintended impacts.

Comment 59-18

Estimated reductions for this measure have increased from 0.78 tpd, from the November 10, 2021 workshop presentation, to 2.0 tpd in the draft plan. CCEEB would like to discuss with staff what changed in terms of implementation assumptions, including the degree of penetration of ZE technologies over time.

Exemptions or accommodations for emergency power to essential public services during electrical outages should be considered. We are supportive of having a variety of options to reduce emissions from this source category, including replacing older high-emitting diesel engines with cleaner engines when necessary. We are also supportive of other technologies such as fuel cells and linear generators to support auxiliary base load electricity needs and thereby reduce emergency power to peaking needs at locations where these options are feasible. However, emergency engines pose a unique challenge for SCAQMD and industry, because so many different industries rely upon emergency generation solutions. The diversity of users, the economics of their

industries, and the broad geography in which emergency solutions are operated may require that all solutions, including newer-generation diesel engines, should remain a part of the discussion.

Comment 59-18 Con't

L-CMB-05: NOx Emission Reductions from Large Turbines

Do the projects that have been proposed and air permit applications submitted to replace turbines for compliance with Rule 1134 satisfy this control measure, or will additional NOx control projects be required for these new/retrofitted turbines? Which units are included in the phrase "older, higher emitting turbines"?

On page IV-A-106, the AQMP language for L-CMB-05 mentions that "staff assumes that approximately 10% of the total wattage of Rule 1134 units will be replaced by zero emission technologies." Would it be possible for AQMD to specify which category or categories of turbines are being included in that 10%? For example, could AQMD list the units by their size/wattage, age, emissions (since there are 75 units currently covered by the rule) that would be generating the estimated emissions reductions needed by 2037? What is the rulemaking/rule implementation timeline to achieve these emissions so that the reductions will contribute to attainment (i.e., they are needed well before 2037)?

Comment 59-19

L-CMB-06: NOx Emission Reductions from Electricity Generating Facilities

Rule 1135 compliance is mandated by December 31, 2023. Utilities are implementing projects to meet compliance, which are often costly and involve unit shutdowns. To require further emission reductions would be difficult for facilities still trying to meet Rule 1135 goals, and may result in stranded assets as mentioned previously. This is shown in SCAQMD's high cost-effectiveness of this measure of $722,000 per ton of NOx reduced. In addition, units fueled by non-fossil energy sources (e.g., hydrogen-fueled turbines), fuel cells for power generation, or gas-fired units that meet CARB's Distributed Generation Certification Regulation standards are not used at most electric generating facilities. In addition, there are often spatial and grid constraints that would prevent such a transition from natural gas turbines, which are already achieving low NOx concentrations. Furthermore, retaining dispatchable local electricity generating units is necessary to balance variable renewable energy resources as well as ensure electric system reliability and resiliency. The electric grid cannot be totally dependent upon imported electricity. In the event of a wildfire that affects long-distance transmission lines, the supply of imported electricity can cut off, resulting in black-outs in the absence of dispatchable local electricity generating units.

Comment 59-20

CTS-01: Further Emission Reductions from Coatings, Solvents, Adhesives, and Lubricants

Several utilities are required to use denatured alcohol, a high VOC substance, for cleaning high-voltage SF6 gas-insulated electrical equipment, ozone generators, and other water treatment equipment that requires oxygen cleaning. The manufacturers of this equipment require the use of denatured alcohol for cleaning due to its ability to dry quickly and not leave any residue, which is conductive and therefore hazardous in electrical equipment. If the equipment is not cleaned as prescribed, the equipment's warranty would be declared void, compelling equipment owners/operators to use

Comment 59-21

denatured alcohol to ensure continued warranty coverage. For the ozone generator and other drinking water treatment equipment, parts to be used with gaseous or liquid oxygen require preventative maintenance and inspection prior to returning to service. Special care must be taken in the selection of equipment and materials, which need to be oxygen-compatible and free from contaminants. The main contaminants to be eliminated through the oxygen cleaning process with denatured alcohol are hydrocarbon oils and greases, which are easily combustible; and particulate matter, which can easily ignite depending on the oxygen content and/or pressure in the treatment system, potentially causing workplace hazard. An exemption in Rule 1171 to use denatured alcohol for these specific purposes is crucial to ensuring continued operation and proper maintenance of this electrical and oxygen enriched drinking water treatment equipment; and to ensure health & safety of utility employees by eliminating potential workplace hazards.

Comment 59-21 Con't

L-CMB-07: Emission Reductions from Petroleum Refineries

- Rule 1109.1 for petroleum refineries and related equipment was adopted in November 2021, with approximate industry costs of $2.3-2.9 billion and implementation timelines that extend to 2036. The rule is estimated to deliver 7.7-7.9 tpd in NOx reductions once fully implemented.

- The proposed timeline in L-CMB-07 overlaps with the implementation of Rule 1109.1, and creates a potential for stranded assets despite the significant investment being made by stakeholders in NOx controls and emission reductions.

- The technologies described in L-CMB-07 were found to not be technically feasible or cost-effective for refinery installations during the Rule 1109.1 BARCT analysis by third-party consultants (Norton Engineering Consultants and Fossil Energy Research Corporation).

Comment 59-22

We hope these comments are helpful to District staff as it considers this important AQMP. We thank staff for considering our comments. Should you wish to follow-up with me, please contact me at (925) 997-9077 or billq@cceeb.org.

Sincerely,



Bill Quinn
President & CEO
CCEEB

cc: Members of the CCEEB South Coast Air Project and Statewide Air Project
Edie Chang, CARB
Ariel Fideldy, CARB
Austin Hicks, CARB

Response to Comment 59-1: South Coast AQMD staff appreciate your comments on the Draft 2022 AQMP.

Response to Comment 59-2: South Coast AQMD acknowledges your concern regarding the challenges associated with broad deployment of zero emission technologies across all sectors. The 2015 ozone standard is the most stringent ozone standard and requires the most complex and aggressive strategy, including adoption of zero emission technologies where feasible and the cleanest possible technologies where not. While it is true that there are already stringent regulatory controls in place for stationary sources, staff has identified additional technologies that can provide further NOx reductions. The South Coast AQMD has an obligation to take all feasible measures to reduce emissions and this AQMP is designed to do so across all source categories.

Response to Comment 59-3: South Coast AQMD acknowledges your concern regarding federal emission sources. Please refer to the Response to Comment 43-2.

Response to Comment 59-4: Staff concurs with this assessment. Please refer to the general response to Black Box Measures and general response to Need for Federal Actions.

Response to Comment 59-5, 10, 11: Concerns regarding grid capacity and reliability to support a widespread transition to zero emission technologies are the reason why the South Coast AQMD developed MOB-15. This control measure is a commitment to engage with stakeholders involved in every aspect of the transition to zero emission fueling with the goal of identifying potential shortfalls in technologies and/or energy availability while assisting in a collaborative effort to address these concerns. The South Coast AQMD is uniquely positioned to actively engage with the CEC, CPUC, CARB, local utilities, fleets and other stakeholders to help address the challenges related to grid capacity and reliability in the region. South Coast AQMD will continue to share information that can be used to better inform forecasting and energy analyses which are used to plan grid capacity upgrades. Current forecasting and energy analyses are primarily focused on the state ZEV goals and do not fully address all emission categories that will need to transition to zero emissions to reach attainment goals. The challenges related to the electrical grid and infrastructure availability are significant and will require collaborative problem solving involving all stakeholders. South Coast AQMD will continue to advise partner organizations through information sharing and close coordination of efforts to remove barriers to ZE infrastructure and technology deployments.

Response to Comment 59-6: Agencies and organizations throughout the state that are involved in energy distribution such as the California Energy Commission, the California Public Utilities Commission, and local utilities such as Southern California Edison, are aware of the challenges ahead in terms of energy and infrastructure availability and are actively engaged in planning to anticipate future demand as the state moves toward a zero emission future. Engagement with these and additional partners involved in this transition through the direction detailed in MOB-15 will help articulate the region's needs and challenges to anticipate potential shortfalls in energy and technology availability, and grid readiness and reliability for all zero emission fuel such as electricity and hydrogen fuel cells.

Response to Comment 59-7: The workplan proposed in MOB-15 is envisioned to be adaptable and updated as new information becomes available. It is expected to involve iterative actions whereby as new information becomes available stakeholder responses can evolve to adapt to the changing needs in the zero emission infrastructure environment. This will not only involve information on energy availability, but also information on costs, accessibility, development and reliability of new technologies, as well as

innovative energy storage/management practices such as charging management systems and battery swapping programs. This information would be used to help stakeholders in their decision-making but will also help guide the South Coast AQMD as to when and where regulatory, incentive, or advocacy actions are appropriate.

Response to Comment 59-8: Staff fully acknowledges the complexity and the inherent uncertainties in evaluating technological feasibility and accurately quantifying costs of emerging technologies. The development status of zero emission technologies varies greatly from sector to sector, and within the same sector, it also varies by duty cycle, applications, and other factors. Staff will work closely with stakeholders, technology developers, and agency partners on technological feasibility assessments and in developing reasonable and informed cost estimates. Staff welcomes stakeholder feedback on the proposed application of cost-effectiveness thresholds as outlined in Chapter 4 of the 2022 AQMP.

Response to Comment 59-9: Please refer to the Response to Comment 59-3.

Response to Comment 59-10: Please refer to the Response to Comment 59-5.

Response to Comment 59-11: Please refer to the Response to Comment 59-5.

Response to Comment 59-12: The South Coast AQMD recognizes the potential for stranded assets if there were a requirement imposing a replacement technology for a source that had recently installed controls and there is equipment life remaining. Rule development to implement control measures from the 2022 AQMP will account for stranded asset costs, if applicable, as part of the cost-effectiveness and incremental cost-effectiveness calculations to establish future BARCT standards.

Response to Comment 59-13: Under certain circumstances there is a need for back up support systems to ensure places like hospitals or critical care facilities have continual power if and when electricity is not available. These back up systems however can be provided in a number of ways such as natural gas systems as well as non-combustion methods such as battery storage or fuel cells. During the rule development process, staff will work with stakeholders to establish the applicability, control approach, and implementation schedule. In establishing the control approach, a technology assessment will be conducted to identify potential technologies that can achieve the emission standard.

Response to Comment 59-14: CARB's commitments have substantial emission reductions. The emission reductions assigned to primarily-federally and internationally regulated sources in CARB's State SIP Strategy are included in the 61 tons per day of black box reductions, reflecting the uncertainty in the State's authority to achieve the reductions and demonstrating the need for federal agencies to commit to their share of the reductions. For more details, refer to the general response to Black Box Measures.

Response to Comment 59-15: U.S. EPA is currently in the process of developing revised national guidance for contingency measures in the wake of recent court decisions. Staff is also in communication with U.S. EPA regarding the constraints faced in the region and why the current policy on contingency is not workable in our region. Once there is clear direction from U.S. EPA, contingency measures will be developed through a public process.

Response to Comment 59-16: Staff appreciates the commenter's feedback on both how the cost-effectiveness thresholds would be updated, as well as how the thresholds would be applied during the rulemaking process. In response to feedback from commenters and members of our Governing Board,

staff is proposing a revised approach to cost-effectiveness that considers the monetized health benefits per ton of emissions reduced. Please see Chapter IV of the AQMP for the revised cost-effectiveness proposal.

Regarding CARB measures, quantified costs for each measure, along with a description of the associated cost methodology and assumptions, were provided in the Proposed State SIP Strategy Appendix A: Economic Analysis, released on August 12, 2022, which is subject to revision before approval by the CARB Board. If applicable, costs of each SIP measure are also apportioned to the South Coast AQMD region and to be included in the upcoming Draft 2022 AQMP Socioeconomic Report.

Response to Comment 59-17: Rule 1110.2 was recently amended to reduce NOx emissions and transition NOx RECLAIM facilities to a command-and-control regulatory structure. Rule 1100 provides an implementation schedule to transition engines from the RECLAIM universe to a command-and-control regulatory structure. In some cases, the requirements in Rule 1110.2 may require lead facilities to decide to replace or retrofit engines to be replaced or retrofitted.

During the rulemaking process staff will evaluate current exemptions and conduct a technology assessment to identify if there are certain categories or applications of engines that can meet a zero or near-zero emission standard. In addition, for those engines where it is not technically feasible or cost-effective to meet a zero-emission standard, staff will be assessing through a technology assessment if the NOx limit for traditional combustion engines is feasible and cost-effective.

BARCT technology assessments are based on class and category of equipment. Whether a potential lower NOx emission limit in Rule 1110.2 would be challenging for compressor engines to meet, or would require higher ammonia slip as a trade-off, or would require longer averaging times are factors that staff may consider as part of the BARCT technology assessment and implementation approach during the rulemaking process. Useful life of engines is also a consideration in the implementation approach and stranded assets, if any, are included in the cost-effectiveness analysis.

Response to Comment 59-18: As described in L-CMB-04, a priority of the rule development process would be to consider the reliability requirements for emergency backup power at essential public services and for critical infrastructure. Staff acknowledges the variability of emergency backup power needs at facilities. During the rulemaking process, staff will conduct a technology assessment and will work with stakeholders to understand issues that are unique to their industry and use of emergency backup power.

Changes of estimated emission reductions from the workshop presentation to the L-CMB-04 write-up are due to refining of the emissions inventory. Future rulemaking activities will further refine the inventory based on the best available information.

Future rulemaking activities would assess the viability of requiring the use of renewable diesel in emergency diesel engines, which CARB has verified as having the same chemical composition of conventional diesel fuel and meets the same ASTM International standard specification (ASTM D975-12a). Future rulemaking activities would also assess the viability and cost effectiveness of alternative technologies, with the understanding that as technologies evolve, improve, and become more available, zero and low NOx technologies may become a viable source of reliable backup power.

Response to Comment 59-19: Emission reductions from L-CMB-05 are in addition to emission reductions from the 2019 amendment to Rule 1134. The rule development process will determine which specific

units or categories of equipment will be targeted to achieve additional emission reductions, as well as the implementation timeframe.

Response to Comment 59-20: Rule developments arising from the 2022 AQMP will account for stranded asset costs, if applicable, into cost-effectiveness calculations to establish future BARCT standards.

Low NOx and zero emission technologies with be assessed for technical feasibility and cost-effectiveness. The reliability of the electrical grid will also be a consideration for future rule development efforts.

Response to Comment 59-21: The determination as to whether there will be an exemption for denatured alcohol use in cleaning high-voltage electrical equipment, ozone generators, and other water treatment equipment that requires oxygen cleaning will be conducted through the rule development process for Rule 1171 - Solvent Cleaning Operations. Amendments to Rule 1171 will be conducted through a public process which will include a working group that includes all stakeholders.

One of the considerations in the assessment will be the Electric Power Research Institute's Evaluation of Cleaners for SF6 Circuit Breakers[3] provided to staff by CCEEB. That report found suitable alternatives including the use of semiconductor grade acetone which has other desired solvent characteristics including: 1) To be safe to store and use, 2) Not require specialized training or equipment to use 3) Be commercially readily available at a reasonable cost. It is recognized that acetone has a lower flashpoint than denatured alcohol. Nonetheless, acetone is widely used in many industries and many organizations have developed and implemented procedures for its safe handling and use.

Response to Comment 59-22: The technologies described and presented by the third-party consultants, Norton Engineering Consultants and Fossil Energy Research Corporation during the development of Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations were considered technically feasible but may have operational challenges such as space constraints at the facilities. In addition, during the rulemaking for Rule 1109.1 although not a requirement, the rule proposal was designed to maintain an average cost-effectiveness generally below $50,000 per ton. There may be opportunities where units below 40 MMBtu/hour that are using low NOx burners can install SCR or other technologies to further reduce NOx emissions. The control measure includes the caveat that "a case-by-case evaluation will be needed to assess the feasibility due to the additional footprint requirements associated with a dual stage arrangement." In addition, over time technologies evolve, new technologies may emerge, and associated costs will likely change. Staff will reassess what is technically feasible, cost-effective, and incrementally cost-effective during rule development. Please see responses to comments 41-1 to 41-10.

In addition, staff recognizes that petroleum refineries are currently in the process of designing and installing equipment to meet the requirements of Rule 1109.1 and has added the following paragraph in CMB-07, "During rule development, staff will consider the requirements by the other rules associated with the transition of NOx RECLAIM facilities to a command-and-control regulatory structure, including technical feasibility; cost-effectiveness and incremental cost-effectiveness; identify industry-specific affordability issues; and may consider alternative compliance mechanisms." The timeline for the rule

[3] *Evaluation of Cleaners for SF6Circuit Breaker Interrupters: Laboratory Investigation of Alternatives to Denatured Ethyl Alcohol.* EPRI, Palo Alto, CA: 2019.

development was established to account for the time it takes to develop or amend a rule that regulates petroleum refineries and the timeline it takes for the refineries to complete the NOx reduction projects. The rule development process for Rule 1109.1 took approximately three and a half years due to the complex technical analysis required. Thus, a similar timeframe will be required for the rule development and achieve further reductions by 2037.

Comment Letter #60

COALITION FOR CLEAN AIR

July 5, 2022

The Honorable Ben Benoit
Chair of the Governing Board
South Coast Air Quality Management District (SCAQMD)
21865 Copley Drive
Diamond Bar, CA 91765

RE: Comments on the Draft 2022 SCAQMD Air Quality Management Plan (AQMP)

Dear Chair Benoit,

Coalition for Clean Air (CCA) submits the following comments in response to the SCAQMD's Draft 2022 AQMP. Unfortunately, the current draft 2022 AQMP does not provide a viable path towards clean air. While it has long been apparent that SCAQMD had given up on meeting the 2023 attainment deadline, it is concerning that the district is already relying on "black box" reductions to meet both the 2031 and 2037 deadlines. Relying on speculative black box measures at this early stage would lock in failure for the next two decades. We recognize that SCAQMD faces significant challenges in reducing air pollution; however, these challenges do not absolve the district of its role in Southern California's air quality crisis.

Several factors contribute to Southern California's persistently poor air quality. While some of these factors, including Federal action, are not under the district's control, other factors are. Drawn-out rulemaking processes, slow implementation of new rules and reliance on voluntary and market-driven compliance have all contributed to Southern California's persistent air quality challenges. While air quality has improved over the past three decades, progress has slowed considerably. So much so, the South Coast Air Basin has begun to experience backsliding as ozone levels have increased in recent years. This is before considering recent events, such as the 2021 ship backlog that erased years of progress. It is also concerning to see SCAQMD seeking to re-designate the Eastern Coachella Valley as being in "extreme nonattainment" of the 2015 federal 8-hour ozone standard (currently, the Coachella Valley region is in "severe-15 nonattainment.") Given this, SCAQMD must use every tool at its disposal to reduce pollution.

Comment 60-1

General comments:

- **The Draft 2022 AQMP does not demonstrate a realistic plan to meet air quality standards:** The 2022 Draft AQMP estimates that baseline NOx emissions in 2037 will be 220 tons per day. As such, SCAQMD will need to eliminate another 157 tons per day to reach attainment. Yet, the AQMP's defined measures will only reduce NOx emissions by ninety tons per day. The remaining sixty-seven tons per day – nearly half – are

Comment 60-2

undefined "black box" reductions stemming from future technologies. Further, the size of the "black box" exceeds the South Coast Air Basin's entire 2037 carrying capacity.

Additionally, we are concerned about the possibility of the AQMP's defined measures not generating the expected amounts of emission reductions. The SCAQMD Board has long shown a preference for incentives, voluntary agreements and compromise with industry instead of command-and-control regulations. Further, some of the recently passed command-and-control regulations took years to develop and will take even longer to implement because of rule design (Rule 1109.1) and/or legal challenges from industry (Rule 2305.) Meanwhile, rules currently in development, such as the ports and railyard indirect source rules, are already facing delays due to SCAQMD staffing shortages. To ensure the AQMP's defined measures achieve, at minimum, a ninety tons per day reduction, both the SCAQMD Governing Board and staff will need to commit to getting every ounce of emissions reduction possible over the next two decades.

Comment 60-2 Con't

- **SCAQMD's reliance on "black box" reductions in the past have not resulted in clean air:** Every SCAQMD AQMP since 1997 (the earliest AQMP available online) has relied on "black box" reductions (also referred to as "long-term emission reduction measures and strategies" or "182(e)(5) measures".) While the estimated "black box" in the draft 2022 AQMP is smaller than in prior AQMPs, it still comprises over 40% of the AQMP's NOx reductions. It is also worth noting other AQMPs made commitments to stop relying on "black box" reductions in the future. Further, the 1997 AQMP also anticipated meeting attainment of the ozone federal air quality standards by 2010.

Comment 60-3

- **SCAQMD should be clearer about which commitments from prior AQMPs have not been implemented:** Given the lengthy rule development and implementation process, SCAQMD should be clear about which control measures from prior AQMPs that have not yet been implemented. For example, the 2007 AQMP includes a control measure committing to reducing indirect emissions from the ports. Yet, fifteen years later, SCAQMD is only just beginning to develop a ports indirect source review rule. The draft 2022 AQMP lists ten control measures from the 2016 AQMP without an adoption date. As such, the AQMP is unclear as to if SCAQMD has implemented those control measures yet. Any control measures that are being carried over from prior AQMPs (or new control measures that are nearly identical to commitments from earlier AQMPs) should list when they were first proposed.

Comment 60-4

- **The Draft 2022 AQMP relies heavily on California Air Resources Board (CARB) measures to achieve emission reductions:** Transportation is the largest source of emissions in both California and the South Coast Air Basin. As such, it is not surprising to see the largest portion of emission reductions coming from CARB measures. Yet, the disparity between reductions stemming from CARB measures and SCAQMD measures is

Comment 60-5

concerning. In 2032, SCAQMD's actions will account for only a fourteen tons per day reduction in NOx and one ton per day reduction in VOCs. CARB's actions, meanwhile, will account for a sixty-six tons per day reduction in NOx and thirty-nine tons per day reduction in VOCs. In 2037, SCAQMD actions will result in a thirty-one tons per day reduction in NOx and another one ton per day reduction in VOCs. Meanwhile, CARB's SIP strategy will result in a 104 tons per day reduction in NOx and sixty-nine tons per day reduction in VOCs in 2037. Given this, we urge SCAQMD to maximize the emission reductions it can achieve through the expedient development and effective implementation of rules, dismantling of RECLAIM and deployment of the cleanest available technology and support infrastructure.

Comment 60-5 Con't

Mobile source comments:

- **SCAQMD should expedite the development and passage of the ports and railyard indirect source rules, as well as prioritize deployment of clean technologies:** We strongly support the inclusion of the ports and railyard indirect source rules (ISRs) in the draft 2022 AQMP. These rules are long overdue, especially considering the squandered opportunities for emission reductions during the attempt to develop a memorandum of understanding with the San Pedro Bay Ports. Yet, we are concerned that the timeline for both ISRs has already slipped by several months. Additionally, SCAQMD should implement ISRs for both new and existing railyards as soon as possible. While we understand why SCAQMD is developing an ISR for new railyards first, communities near existing railyards are experiencing pollution today and have immediate needs.

  Specific to railroads, we urge SCAQMD to work with CARB and the federal government to accelerate the deployment of clean locomotives in the South Coast Air Basin. Though CARB has stated the locomotive fleet in Southern California meets the requirements of the 1998 and 2005 Memorandum of Understanding with Class I railroads, it is still concerning that much of the rail fleet in the South Coast Air Basin consist of older, highly polluting locomotives. As the goods movement industry increasingly invests in rail (such as on-dock rail and railyard projects), cleaning up the locomotive fleet will be imperative in the immediate future.

Comment 60-6

- **Emission reductions from aircraft are not a credible "black box" measure:** The 2022 draft AQMP anticipates a nineteen tons per day reduction in NOx emissions from aircraft due to future technologies. Yet, SCAQMD's draft Aircraft Emissions Inventory Report projects an increase in aircraft movements at airports, as well as increased NOx emissions from aircraft engines due to changes in engine design. Similarly, numerous SCAQMD documents (including the draft 2022 AQMP) and staff reports project aviation emissions to stay the same or increase slightly between 2018 and 2037. While the draft AQMP does identify operational practices that could result in emission reductions (auxiliary power unit usage as well as changes in landing, take-off and taxi operations), it does not identify a credible technological pathway for large-scale emission reductions.

Comment 60-7

Unless SCAQMD can clearly identify a credible, enforceable path for emission reductions from aircraft, the district should not include reductions from aircraft in the draft AQMP's "black box."

Comment 60-7 Con't

- **Incentive programs have uncertain funding streams and limited reach:** SCAQMD relies heavily on incentives as part of its emissions reduction strategy. The draft AQMP anticipates SCAQMD needing over $200 million a year for its mobile source incentive programs, totaling $1.32 billion by 2037. Yet, funding for incentive programs can vary wildly. While both the 2021 and 2022 State Budgets provided significant amounts of funding for incentive programs, prior budgets were far less generous. As such, SCAQMD cannot rely on continued funding for incentive programs, especially if California experiences an economic downturn that impacts the state's revenue streams. If SCAQMD adopts incentives as one of the AQMP's measures, it should indicate how it will secure funding. Additionally, the AQMP should also consider how inflationary trends will impact its funding needs for incentive programs. SCAQMD also needs to identify how incentive investments will result in the expected emission reductions, including the cost-effectiveness of the investments in emission reduction technologies, as well as benefit the communities most impacted by poor air quality.

Comment 60-8

- **The deadline to turnover pre-2010 trucks is a missed opportunity and raises concerns about the transition to cleaner trucks:** Trucks manufactured before 2010 will either need to be repowered or replaced by the beginning of 2023. Unfortunately, most pre-2010 trucks are being replaced with more diesel trucks (most often, used diesel trucks.) As a result, millions of Southern Californians will continue to be exposed to highly carcinogenic diesel particulate matter. Further, trucks are a significant emitter of NOx pollution, which will make attainment of air quality standards more difficult. Moving forward, SCAQMD should consider how to improve deployment of both near-zero and zero-emissions trucks and expedite the transition away from diesel.

  It is worth noting that SCAQMD's proposed Trade Up Program for On-Road Heavy-Duty Vehicles appears promising. Not only will this help owners of pre-2010 trucks upgrade to a 2014 or newer truck, but it will also help transition the owner of the 2014 or newer truck to a near-zero emissions truck. Yet, this program's inclusion in the 2022 AQMP begs a question: why is SCAQMD only proposing this now? As SCAQMD develops this program, we urge the district to maximize the program's benefits for disadvantaged communities and communities most impacted by goods movement corridors. We also urge to follow the requirements established by AB 794 (Carrillo, 2021) and other relevant legislation.

Comment 60-9

- **Mobile source credit programs must address environmental justice impacts and incentivize surplus emission reductions:** We appreciate the draft AQMP including proposals designed to support the deployment of near-zero and zero-emission trucks

Comment 60-10

and off-road equipment. Offering credits as an alternative compliance mechanism, however, raises environmental justice concerns. Specifically, credits should not be used to avoid upgrades and retrofits at facilities, particularly at facilities in highly polluted, socioeconomically vulnerable communities. Failing to address these concerns would, in effect, concentrate pollution in the community where the facility is located and dilute the localized benefits of the clean vehicle. Additionally, credits should not be used in lieu of facility-based emission reductions. Rather, credits should be used to incentivize emission reductions beyond what is required. These same concerns also apply to Vehicle Miles Traveled (VMT) credit banking.

Comment 60-10

Lastly, Rules 1612 and 1612.1 currently allow mobile source credits to be converted to RECLAIM trading credits. Mobile source credits should not be a backdoor way of delaying the dismantling of the RECLAIM program. Rather, SCAQMD should disallow the use of mobile source credits for the RECLAIM program.

Stationary Source Comments:

- **SCAQMD should expedite the dismantling of the RECLAIM program and implementation of Best Available Control Technology (BACT) and Best Available Retrofit Control Technology (BARCT) requirements:** SCAQMD's 2016 AQMP committed to dismantling the RECLAIM program by 2025. AB 617 (C. Garcia, 2017) accelerated this deadline to December 31, 2023. As of today, there are still five BARCT-related NOx landing rules that are in various states of development. SCAQMD should expedite the completion of the final five rules to ensure the expedient dismantling of the RECLAIM program.

  Comment 60-11

  Additionally, we remain concerned about SCAQMD's implementation of AB 617's BARCT requirements. SCAQMD has defined "implemented" as having all RECLAIM- and BARCT-related rules updated by December 31, 2023. Yet, some rules (such as Rule 1109.1) will not be completely implemented until the 2030s, long after the BARCT deadline set in law. While we understand there are design, construction and technological challenges with BARCT implementation, the lengthy rulemaking process has also contributed to delayed BARCT deployment. As such, SCAQMD should expedite the deployment and installation of BARCT equipment to ensure that needed emission reductions are achieved as quickly as possible.

- **AB 617 implementation should re-focus on reducing air toxics and other pollutants:** Since the beginning of the AB 617 process, SCAQMD has closely tied implementation of AB 617 to the RECLAIM transition process. As such, most of the rules SCAQMD has passed under AB 617 have been tied to NOx reductions. Of the 18 SCAQMD rules identified for expedited BARCT, fifteen are related to NOx emissions. To address longstanding environmental justice concerns, SCAQMD should refocus AB 617

  Comment 60-12

implementation on addressing air toxics and other pollutants that have an adverse impact on local community health.

- **Building decarbonization should also include air quality benefits, address sources of electricity and prioritize equity:** The draft 2022 AQMP rightly expands on SCAQMD's prior efforts to decarbonize the building sector. Not only do carbon-intensive buildings cause significant amounts of climate pollution, but they also generate significant amounts of smog-forming and other pollutants. As such, SCAQMD should use building decarbonization as an opportunity to also address NOx emissions. To this end, SCAQMD should consider emissions from electricity generation in California and maximize renewable sources of electricity. Though renewable electricity has become a significant source of California's energy, non-renewable sources still generate the bulk of the state's power. Ensuring that clean electricity is powering clean buildings is vital in maximizing emission reductions.

  Additionally, SCAQMD must give careful consideration of potential impacts to low-income residents and disadvantaged communities during the transition to clean buildings and appliances. Vulnerable residents often live in older, carbon-intensive housing due to affordability reasons. Additionally, transitioning to electrical appliances is costly, as property owners will need to purchase new appliances and potentially upgrade electrical infrastructure. As such, SCAQMD will need to prioritize equity-focused incentives and assistance to minimize the impact on vulnerable residents.

Comment 60-13

Thank you for your consideration of our comments.

Sincerely,

Christopher Chavez
Deputy Policy Director

Response to Comment 60-1: South Coast AQMD remains committed to adopting all feasible measures to improve air quality in the region. Our use of Black Box measures to achieve emission reductions is not in lieu of further reductions from stationary sources. Instead, it is in recognition of the substantial magnitude of emission reductions required, which can only be achieved through federal action and the future deployment of advanced technologies. Even though large industrial stationary sources will only contribute about 8 percent of the NOx in the 2037 business as usual case, we are still proposing measures that would reduce this sector a further 60 percent.

While it is true that progress in improving ozone levels has slowed in recent years, this is attributable to adverse meteorology and complex atmospheric chemistry that does not always respond proportionally to emission reductions. As we continue to reduce NOx emissions in the region we will move beyond the NOx

disbenefit regime that we are currently experiencing. Please refer to the General Approach for the 2022 AQMP for more information on the rationale behind the NOx-dominated control strategy.

Staff agrees that more needs to be done to reduce emissions at the ports, especially in light of recent increases in throughput at the ports. Staff is currently developing a proposed indirect source rule (PR 2304) that seeks to reduce emissions from the ports. This proposed rulemaking is consistent with the approach described in control measure MOB-01 in the Revised Draft 2022 AQMP.

Finally, regarding the redesignation of the Coachella Valley for the 2015 8-hour standard, the Coachella Valley's ozone levels are primarily due to the transport of ozone and its precursors from the South Coast Air Basin. The Coachella Valley does not have substantial manmade emission sources and, even if all those sources were eliminated, ozone levels would still exceed the standard without further controls in the South Coast Air Basin. In addition, a significant portion of the reductions to meet the 2015 ozone standard are expected to occur shortly prior to 2037 due to the challenges associated with zero emission technology and infrastructure to support the transition. Therefore, additional time will be required to attain the standard in the Coachella Valley.

Response to Comment 60-2: Please refer to the general response to Black Box Measures. Staff agrees that there are multiple challenges associated with achieving emission reductions from control measures, and South Coast AQMD remains committed to maximizing reductions wherever feasible. The only voluntary measure adopted since the 2016 AQMP, apart from voluntary incentive measures, was the Facility Based Mobile Source Measure for Commercial Airports.

South Coast AQMD has a strong record of adopting robust command-and-control rules as evidenced by the 68 percent reduction in stationary point source emissions since 2000. South Coast AQMD's recently adopted Rule 1109.1 achieves significant further reductions from sixteen petroleum refineries and facilities with operations related to petroleum refineries as part of five ton per day NOx reduction commitment in CMB-05 of the 2016 AQMP. Fully implemented, Rule 1109.1 will reduce 7.7 – 7.9 tons per day of NOx compared to a baseline inventory of 12.4 tons per day resulting in an over 60 percent reduction for this sector. Developing rules that are well-informed, technologically feasible, and can withstand legal scrutiny involves an extensive process that requires substantial time and resources. In all, the landing rules associated with CMB-05 will reduce at least 13.38 tons per day of NOx from RECLAIM facilities; well over the 5 tons per day of NOx reductions committed to in CMB-05.

Rule	NOx Emission Reductions (tons per day)
Rule 1109.1 - Refinery Equipment	7.7
Rule 1110.2 - Liquid-Fueled and Gaseous Engines	0.29
Rule 1117 – Container Glass Melting/Sodium Silicate Furnaces	0.57
Rule 1118.1 - Non-Refinery Flares	0
Rule 1134 – Gas Turbines	1.8

Rule 1135 – Electricity Generating Facilities	1.7
Rules 1146, 1146.1, 1146.2 - Boilers, Process Heaters, and Steam Generators	0.27
Rule 1147 – Miscellaneous Combustion Sources	0.54
Rule 1147.1 - Aggregate Facilities	0.04
Rule 1147.2 - Metal Melting and Heating Furnaces	0.47
Total	13.38

In addition, South Coast AQMD is pursuing novel approaches to regulations with its indirect source rulemaking. Rule 2305 was adopted in May 2021 and is currently being implemented despite ongoing litigation. In addition, more proposed indirect sources are in development on rail yards and ports, and staff resources have been dedicated specifically to these efforts.

Response to Comment 60-3: This AQMP proposes to implement zero emissions technology where feasible and low NOx technology for units where it is not technically feasible or cost-effective to implement zero-emission technologies by 2037. While zero emission technologies for some stationary sources are either not fully developed or available at scale transition yet, the federal Clean Air Act (CAA) recognizes that clean technologies continually evolve over time and technologies that may be commonplace in 20 years may not be available today. Therefore it is necessary to rely on the flexibility allowed under the Clean Air Act 182(e)(5). See general responses to Black Box Measures for details. South Coast AQMD also recognizes that black box measures included in previous AQMPs have fallen short of the committed reductions for the 1997 8-hour ozone standard. Still, the South Coast Air Basin has made great strides to reduce NOx and VOC emissions. In 2018, NOx and VOC emissions were both 64 percent lower compared to 2000 levels. However, the sources subject to federal and international authorities have not kept pace with the progress in stationary and mobile sources subject to the South Coast AQMD and CARB's authority, indicating inaction at the federal level. South Coast AQMD is actively engaging with the federal government to encourage action on their share of emission reductions. See general response to Need for Federal Actions.

Response to Comment 60-4: Summaries of prior AQMP commitments are provided in Chapter 1 (Table 1-2) and Appendix III (Tables III-1-2A and III-1-2B). While an AQMP is a blueprint to improve air quality and serves to identify measures for rulemaking, multiple obstacles unforeseen when developing an AQMP invariably arise during the implementation of control measures, which could delay implementation. At the same time, sources addressed in previous AQMPs are included in subsequent AQMPs since newer technologies with lower emission rates become available and further emission reductions become feasible.

Response to Comment 60-5: Staff disagrees that CARB's measures have larger percent reductions than the South Coast AQMD measures. South Coast AQMD's stationary and mobile source measures are expected to bring 29 tons per day (tpd) of NOx reductions. This excludes the Black Box reductions in the stationary sector. CARB's control measures for mobile sources, target 93 tpd of reductions out of which 30 tpd is from the sources under CARB's direct authority, 11 tpd from CARB's locomotive measures and

51 tpd is from the sources subject to federal authorities. Excluding federal sources, South Coast AQMD's commitment is similar to the reductions under CARB's direct authority. The principle authority to establish emission standards for mobile sources is with CARB and U.S. EPA. While the South Coast AQMD does not possess direct authority to establish emission standards for mobile sources, the South Coast AQMD is pursuing opportunities to reduce emissions from facilities which attract mobile sources as indirect sources of emission. Indirect sources such as warehouses, commercial marine ports, and intermodal railyards attract significant sources of air pollution, and the proposed rulemaking seeks further emission reductions from these mobile sources compared to the CARB mobile source strategies. The South Coast AQMD is currently developing Proposed Rule 2304- Marine Port Indirect Source Rule (PR 2304) and Proposed Rule 2306 - New Intermodal Railyard Indirect Source Rule (PR 2306).

Response to Comment 60-6: Staff aims to bring PR 2306 and PR 2304 to public hearing in Q1 and Q3 2023, respectively. Initiation of rule development for Proposed Rule 2306.1 - Existing Intermodal Railyard Indirect Source Rule (PR 2306.1) will shortly follow in Q4 2023. South Coast AQMD staff is working closely with local, state and federal agencies in the development of PR 2306 to accelerate deployment of clean locomotive technologies in the South Coast AQMD such as zero emission alternatives.

Response to Comment 60-7: Aviation measures are included in CARB's Revised Draft 2022 State SIP Strategy. Several measures describe strategies to achieve the needed reductions including petitioning for federal action on engine standards, introducing an aviation emissions cap, and cleaner aircraft fuel and visit requirements.

Response to Comment 60-8: The 2022 AQMP relies on a variety of strategies to achieve emission reductions including incentives. Although there are potential uncertainties in funding, $200 million per year is a reasonable projection based on current funding. In addition, incentives remain a critical tool that enable greater near-term reductions by expediting the deployment of cleaner technologies. Based on comments received and feedback from several Governing Board members, staff are proposing a revised framework for cost-effectiveness that is based on the monetized benefit associated with emission reductions. Please refer to Chapter IV of the Revised Draft 2022 AQMP for more details and Appendix IV-A MOB-11 for emission reductions associated with mobile source incentive programs.

The South Coast AQMD has been implementing a number of incentive programs to accelerate the deployment of clean technologies with a particular emphasis on benefits to EJ communities. For example, under the Lower-Emission School Bus Program, the Carl Moyer Program and other diesel mitigation programs, not less than 50 percent of the funds appropriated are expended in a manner that directly reduces air contaminants and/or associated public health risks in disadvantaged and low-income communities. In implementing existing incentive programs and for the development of future programs, the South Coast AQMD will continue to prioritize incentive funding in EJ areas and seek opportunities to expand funding to benefit the most disadvantaged communities.

Response to Comment 60-9: Replacing diesel trucks with zero emission and low NOx trucks is a priority for the South Coast AQMD. To significantly reduce emissions from in-use diesel trucks, a combination of regulations and incentive programs will be needed to continue to bring emissions down in this category. Incentive programs like Proposition 1B, Carl Moyer, and Voucher Incentive programs are effective in replacing diesel trucks with zero and low NOx emission technologies. However, the total amount of funding for incentive projects is limited and projects with higher cost effectiveness – greater amount of emission reductions per cost ($) - are often prioritized. These are typically locomotives, off-road or marine

projects. The South Coast AQMD along with other air Districts spend considerable effort in trying to get to get state and federal funds allocated towards truck incentive programs that will help with the replacement of diesel trucks with low NOx or zero emission trucks. This past year the state legislature did allocate $45M specifically towards replacing diesel trucks into the Carl Moyer program; of the $45M the South Coast AQMD received $30M. Unfortunately, the $30M in funding amount was significantly less than the several hundred million dollars that has been requested for several budget cycles and was quickly oversubscribed. All the incentive programs that South Coast AQMD implements will abide by all relevant laws and regulations. Over 90 percent of Carl Moyer funding has been awarded in the disadvantaged communities in recent years and South Coast AQMD will continue to prioritize disadvantaged communities in implementing incentive programs.

The Trade-Up Program discussed in the draft MOB-06 measure, which has been already completed, was a pilot program to replace up to 50 Class 8 heavy-duty diesel trucks with low-NOx CNG trucks. In terms of eligibility, fleets with a compliance status in the CARB's Truck Regulation Upload, Compliance, and Reporting Systems (TRUCRS) were qualified to participate. South AQMD staff will evaluate the Program's outcome and apply any lessons learned in the development of similar programs. Staff also intends to solicit feedback from regional stakeholders in the program development to address any issues and concerns including consideration of economically feasible timeline to minimize any disruptions with the fleets' operations.

Response to Comment 60-10: Although the proposed MOB-07 seeks to amend Rule 1612 and/or 1612.1 to provide greater flexibility in terms of eligible vehicle and project types, the measure also sets very stringent requirements for the generation and use of these credits in part to address environmental justice concerns that are raised. First, in order to qualify for MSERCs, fleets must demonstrate that they are not leveraging any public funding assistance to purchase their zero and low NOx emission vehicles, which may cost as much as otherwise needed retrofits and upgrades for compliance. The reductions must be real and surplus, going above and beyond the local, State and federal regulatory requirements. Also, these credits can't be used to offset emissions from stationary sources, which means these MSERCs can't be converted to RTCs for use by RECLAIM facilities. Finally, these credits can only be used by entities that are affected by our Facility Based Mobile Source Measures, including MOB-01 through MOB-04, and EGM-01 through EGM-03.

In addition, as noted in the Proposed Method of Control, South Coast AQMD staff intends to establish a working group for the rule amendment(s), inviting a variety of stakeholders, including environmental and community groups to participate in the discussion of the proposed amendments to ensure that the amended rule language will include appropriate enforcement mechanisms to address any environmental justice concerns, including concentrating local pollution in environmentally disadvantaged communities.

Response to Comment 60-11: Control Measure CMB-05 of the Final 2016 AQMP included a five tons per day NOx emission reduction as soon as feasible but no later than 2025, and a direction to transition the RECLAIM program to a command-and-control regulatory structure requiring BARCT as soon as practicable. AB 617, requires air districts to develop, by January 1, 2019, an expedited schedule for the implementation of BARCT no later than December 31, 2023 for facilities that are in the State greenhouse gas cap-and-trade program. While AB 617 requires implementing BARCT by December, 31, 2023, it would be unreasonable and unfeasible to fully implement, such as achieving BARCT limits, for all BARCT projects. If time is not provided for the implementation, then some emission reductions are not feasible because

implementing complex emission reduction projects in such a short period of time is not possible. Feasibility is a parameter in determining BARCT and emission reductions would be foregone if implementation were required by December 31, 2023.

The South Coast AQMD is transitioning the NOx RECLAIM program to a command-and-control regulatory structure requiring BARCT as soon as practicable, pursuant to the 2016 AQMP. As of July 25, 2022, there are two remaining landing rules – Proposed Amended Rule 1153.1 (PAR 1153.1) and Proposed Rule 1159.1 (PR 1159.1) – that need to be amended or adopted as part of the transition to a command-and-control regulatory structure. PAR 1153.1 and PR 1159.1 are currently scheduled for Public Hearings in December 2022. The South Coast AQMD aims to implement BARCT as quickly as possible, while accounting for technological feasibility and cost-effectiveness, pursuant to Health and Safety Code Section 40920.6.

Response to Comment 60-12: South Coast AQMD has worked closely with each of the Community Steering Committees (CSCs) in all six AB 617 designated communities to develop actions and strategies to address their identified air quality priorities. For each AB 617 designated community, a CSC is formed as the foundation of the community-lead process and provides valuable insight into the development of each Community Emissions Reduction Plan (CERP); the CERPs were developed closely with each CSC. The CSC is made up of active residents, community leaders, local business owners or workers, community-based organizations, local agencies, schools, universities, and other community stakeholders. The CERPs were developed closely with each CSC. Each CERP outlines actions and specific strategies to reduce emissions and exposure to the air pollution and air toxics. These strategies include rules and regulations, air monitoring, focused enforcement, collaboration, outreach, and incentives.

As part of CERP implementation, rule development and/or assessments will be conducted to further reduce air pollutants (NOx, VOCs, PM10, and air toxics (e.g., DPM, toxic metals) that have an adverse impact on local community health. NOx, in combination with VOCs and sunlight, contribute to ozone. As noted in the Revised Draft 2022 AQMP, NOx reductions are necessary to reach ozone attainment for the South Coast Air Basin. Inhaling ozone can cause health effects, such as coughing, inflaming and damaging airways, making lungs more susceptible to infection, aggravating lung diseases (e.g., asthma), and increasing the frequency of lung attacks. Beyond the CERP and CAMP requirements, AB 617 also requires an accelerated deadline of December 31, 2023 for BARCT, for facilities in the California Greenhouse Gas Cap-and-Trade program. 4 South Coast AQMD's REgional CLean Air Incentives Market (RECLAIM) program includes facilities within the California Greenhouse Gas Cap-and-Trade program. The adoption resolution of the 2016 AQMP directed staff to achieve additional NOx emission reductions and to transition the RECLAIM program to a command-and-control regulatory structure requiring BARCT as soon as practicable. As a result, South Coast AQMD began to develop new or amend existing rules to update or add emission limits that reflects BARCT to ensure as facilities transition out of RECLAIM there is a "landing rule" that regulates NOx emissions for each unit or process. The NOx limits are based on a BARCT analysis, consistent with the Health and Safety Code, that evaluates not just technological feasibility but cost-effectiveness and incremental cost-effectiveness to achieve the NOx emission limits.

All six communities identified diesel mobile sources as an air quality priority as DPM is a carcinogen and has other non-cancer health effects such as asthma and other respiratory ailments. South Coast AQMD has limited jurisdiction to address mobile sources; however, the CERPs recognize through various actions South Coast AQMD ability to regulate mobile sources through indirect source rules (ISRs). CARB has jurisdiction over majority of mobile sources and the CERPs outline rules and regulations that CARB is

expected to complete during CERP implementation to further reduce DPM. Another example, the East Los Angeles, Boyle Heights, West Commerce (ELABHWC), Southeast Los Angeles (SELA), and South Los Angeles (SLA) CERPs include actions to assess rules for metal processing facilities, which will further reduce air toxics, such as toxic metals.

Air monitoring can provide valuable information such as air pollution sources, types of pollutants, and air quality impacts on the community, including insight for areas where focused enforcement may need to occur. The primary goal of enforcement is to ensure that regulated entities (e.g., facilities) comply with permit conditions and air quality rules and regulations. Enforcement activities such as truck idling sweeps, complaint responses, and inspections can reduce emissions where non-compliance occurs. As an example, conducting truck idling sweeps, ensures that trucks are not idling near sensitive receptors as outlined by the regulation. This will result in a reduction of emissions and exposure from idling trucks.

Collaboration is an important aspect of implementing the CERPs. In areas where South Coast AQMD may not have authority (e.g., pesticides, mobile sources), through collaboration, South Coast AQMD can work to reduce emissions and/or exposure to emissions (e.g., addressing pesticides in the Eastern Coachella Valley (ECV) community). South Coast AQMD is working with the appropriate agencies (Department of Pesticides Regulation (DPR), Office of Environmental Health Assessment (OEHHA), CARB, and County of Riverside Agricultural Commissioner) to address pesticide emissions that may affect local community health.

Outreach can include information on best management practices, rules and regulations, and available incentive programs. Outreach provides useful information to support the public in making informed decisions and implementing cleaner practices and technologies and can help reduce emissions and/or exposure to emissions.

Incentives can be provided to owners and operators to replace older, heavier polluting equipment, with cleaner technologies which directly results in emission reductions. As an example, the replacement of heavy-duty diesel trucks with cleaner trucks reduces NOx and DPM emissions.

The AB 617 program, through the CSC developed CERPs, focuses on a number of strategies to reduce air pollutants and air toxics that have an adverse impact on local community health.

Response to Comment 60-13: Staff agrees that building electrification can achieve substantial NOx emission reductions, especially when combined with renewable, non-combustion power generation. In 2020, about 55 percent of electricity generation serving California came from renewable and zero-carbon resources. Although fossil fuels still comprise a significant portion of the resource mix, the state's electric system is in a period of transition. Nearly 6,000 MW of firm and dispatchable resources are expected to be retired over the next five years. At the same time, the state continues to rapidly expand deployment of renewable resources and plan for increased electrification. Senate Bill 100 (De León, Chapter 312, Statutes of 2018) mandates that the California Public Utilities Commission, California Energy Commission, and Air Resources Board plan for 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. The bill also updated the state's Renewables Portfolio Standard to include the interim target of 60 percent of retail sales procured from eligible renewable sources by December 31, 2030. In addition to the state's goal on renewables, the South Coast AQMD is dedicated to NOx emission reductions from electricity generating facilities. The 2022 Draft AQMP includes control measure L-CMB-06 which proposes to develop a rule to

implement low NOx and zero emission technologies at electricity generating facilities. The target of this approach is to replace boiler units with lower-emitting turbines, implement zero emission technologies such as fuel cells or electrification for 10 percent of gas-fired sources and other lower NOx emission technologies for the rest of gas-fired sources, and require stricter emission requirements from diesel internal combustion engines. This control measure reduces NOx emissions from electric generating units regulated by Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities. The South Coast AQMD mission is to improve air quality and public health with a focus on disadvantaged communities and to ensure that socioeconomic status or other factors will not pose obstacles for the equitable protection from air pollution. Please refer to the general response to Impact of Zero Emission Technology on Inequity for further discussion on equity for disadvantaged communities.

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July 5, 2022

Dr. Sang-Mi Lee, Planning and Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

Dear Dr. Lee:

The Ontario International Airport Authority (OIAA) has submitted this comment letter on the Draft 2022 Air Quality Management Plan (Draft 2022 AQMP) to request that the 2022 AQMP be updated to accurately reflect the Ontario Airport (ONT) emissions inventory. Through the recent review of projected fleet mixes and operational levels, it was determined that some inputs included in the Draft 2022 AQMP are not indicative of the current or future operations at ONT (notably the forecasted aircraft activity and taxi time assumptions). Notably, the current assumptions underrepresent the emissions at ONT. We appreciate the effort that the South Coast Air Quality Management District (AQMD) has made to date, and the ongoing effort to address this issue.

Comment 61-1

The OIAA provides overall direction for the ownership, management, operations, development and marketing of ONT for the benefit of the Southern California economy and the residents of the airport's four-county catchment area (San Bernardino, Riverside, Orange, Los Angeles). ONT is located in San Bernardino County, approximately 35 miles east of Downtown Los Angeles in the center of Southern California and is considered part of the Inland Empire. Facilities on the Airport include two passenger terminals, general aviation facilities, air freight buildings, parking lots, and numerous airport and aircraft maintenance and support services.

OIAA has made and is continuing to make efforts to reduce emissions at the airport. In 2019, OIAA agreed to a Memorandum of Understanding to address air emissions from ground support equipment. Currently, OIAA is in the process of developing a Blueprint for integrating Medium and Heavy Duty (MHD) Zero Emission Vehicle (ZEV) infrastructure throughout the airport over the coming decade. The goal is to develop an actionable roadmap towards 100% MHD ZEV infrastructure equipment at ONT, which will significantly improve local air quality, promote job growth, and bolster the economy of this disadvantaged community (DAC). The Blueprint will serve as a replicable model that can be deployed at all major transportation hubs throughout California, including other airports, seaports, and urban centers.

Comment 61-2

OIAA began a review in late 2021 due to the ongoing COVID recovery trends and anticipated projects at ONT. These projects will provide emission reductions basin wide by providing additional transportation pathways to the inland empire. ONT airport's ability to address the current and growing demand will help minimize truck and vehicle traffic going from the inland empire to other airports in the basin. In the process of this review, OIAA discovered that data previously provided to AQMD was inaccurate and grossly outdated. These inaccurate assumptions lead to a severe underrepresented emissions inventory for ONT, and would impede OIAA from obtaining approvals from the Federal Aviation Administration (FAA) for even the most basic improvements to ensure the continued operation of ONT. In order to align the 2022 AQMP with the existing and anticipated future operations of ONT, OIAA is requesting an update to the Draft 2022 AQMP for the fleet mix and taxi time assumptions for ONT.

Comment 61-2 Con't

OIAA looks forward to working with AQMD to resolve this issue that currently exists in the Draft 2022 AQMP. We believe that the accurate reflection of ONT emissions inventory is important to allow AQMD to properly address the air quality issues in the South Coast Air Basin, and to ensure that ONT can continue to operate to provide important services for the benefit of the region.

Sincerely,

Michelle Brantley
Chief Capital Development Officer
Ontario International Airport

www.flyontario.com

Page 2 of 2

Response to Comment 61-1: Staff received the OIAA's concern on aircraft operation projections and taxi times. The aircraft emissions inventory was developed through an extensive public process that began in May 2020 and included multiple Aircraft Mobile Source Working Group Meetings. A Revised Draft Aircraft Emissions Inventory Report was posted on South Coast AQMD's website in October 2021. ONT initially contacted South Coast AQMD in January 2022 to provide notice that operational forecasts were being

revised to accommodate upcoming projects. During this process, it was found that aircraft taxi times originally provided by ONT were no longer valid. South Coast AQMD agreed to incorporate the updated taxi time assumptions in the Revised Draft 2022 AQMP. In May 2022, ONT provided South Coast AQMD with a memo regarding the proposed changes to the aircraft operations forecasts associated with the South Airport Cargo Center (SACC). However, South Coast AQMD was unable to incorporate the revised operation forecasts because, as of August 19, 2022, ONT had yet to initiate public review or solicit comments on the emissions associated with SACC project. Furthermore, this AQMP relies on SCAG's regional growth projection, which is conducted by county or by air basin level. It is unclear how the ONT's requested changes in aircraft operation affects the growth reflected in other airports, such as LAX. ONT has not provided a clear response on this question. Changes to the aircraft emissions inventory at this late stage of AQMP development, especially without a solid explanation on how the requested changes affect other airport's operation, are extremely difficult to accommodate due to multiple dependencies.

Response to Comment 61-2: South Coast AQMD is encouraged by ONT's commitment to zero emission equipment and infrastructure through their Zero Emission Blueprint. We look forward to seeing this roadmap translate to actual emission reductions at ONT. See the response above for emissions inventory update.

Comment Letter #62

Airlines for America®
We Connect the World

July 5, 2022

Submitted electronically to: AQMPteam@aqmd.gov

Re: Airlines for America® Comments on the South Coast Air Quality Management District's Draft 2022 Air Quality Management Plan

Dear Sir/Madam:

Airlines for America® (A4A), the trade association for the leading U.S. passenger and cargo airlines,[1] appreciates the opportunity to provide comments on the South Coast Air Quality Management District's (District or SCAQMD) *Draft 2022 Air Quality Management Plan* (Draft 2022 AQMP). Along with our members, we fully support the District's efforts to achieve the National Ambient Air Quality Standards (NAAQS) and recognize the unique challenges the District faces as an extreme nonattainment area for the federal NAAQS Ozone standards and a serious nonattainment area for the federal fine Particulate Matter (PM 2.5) standards. In that spirit, we offer the comments below.

Comment 62-1

A4A and our members embrace our responsibility to address the environmental impacts associated with aviation operations and, as detailed in the "Background" section below, have a very strong environmental record that demonstrates our commitment to reducing impacts even as we continue to provide air transportation services critical to maintaining the growth and vitality of the national, California and local economies.

In the context of these comments on the Draft 2022 AQMP, we highlight that A4A's commitment to reducing the environmental impacts associated with aviation extends to reducing emissions that can affect local air quality. Indeed, we have a long history of working with the District and the California Air Resources Board (CARB) to address this pressing concern. We are proud of the role we took in working with the District to implement measures in accordance with its 2016 Air Quality Management Plan (2016 AQMP) to reduce emissions of oxides of nitrogen (NOx) associated with aviation activity. Specifically, we worked for many months with our airport partners and the District to develop voluntary measures that were eventually incorporated into five memoranda of understanding (MOUs) between each of the South Coast airports and the District.[2] All of these MOUs included a voluntary measure to achieve reductions in emissions of ozone precursors from airport ground support equipment (GSE) more rapidly than would otherwise be achieved under State regulations. As reported to the District's Mobile Source Committee at its January 22, 2021, meeting, despite the extraordinary challenges airports and airlines have faced in the wake of the COVID-19 pandemic, together with our airport partners we have successfully implemented this voluntary program and achieved real NOx reductions that have brought the District closer to attainment.

Comment 62-2

[1] A4A's members are Alaska Airlines, Inc.; American Airlines Group Inc.; Atlas Air, Inc.; Delta Air Lines, Inc.; Federal Express Corporation; Hawaiian Airlines, Inc.; JetBlue Airways Corp.; Southwest Airlines Co.; United Airlines Holdings, Inc.; and United Parcel Service Co. Air Canada, Inc. is an associate member.

[2] These airports are Hollywood-Burbank Airport (BUR), Long Beach International Airport (LGB), Los Angeles International Airport (LAX), Ontario International Airport (ONT), and John Wayne Santa Ana Airport (SNA).

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A4A and our members remain committed to working with the District and CARB on attainment of the NAAQS. We hope these comments will be helpful in assisting the District as it works to refine the Draft 2022 AQMP.

Comment 62-2 Con't

Comments

As an initial matter, we note that the Draft 2022 AQMP does not formally propose regulatory actions or measures, but rather describes potential measures or actions prospectively and often as commitments to ask another entity to develop the measure that would result in emissions reductions. For example, under proposed measure "MOB-04: Emissions Reductions at Commercial Airports," the District suggests that "[o]pportunities for additional feasible emissions reductions will be explored through the Airport Working Group."[3] In the same vein, the Draft 2022 AQMP points to "future measures for aircraft emissions reductions" that may be pursued by CARB, stating that CARB "would evaluate federal, State and local authority in setting operational efficiency practices to achieve emissions reductions" and "would similarly work with U.S. EPA, Air Districts, airports, and industry stakeholder in a collaborative effort to develop regulations, voluntary measures and incentive programs."[4] The Draft 2022 AQMP also states CARB "would petition and/or advocate to" U.S. EPA to take various actions (e.g., promulgating more stringent engine emission standards, "cleaner fuel and visit requirements for aviation," and "zero-emission on-ground operation requirements at airports").[5] The District repeatedly presents its view that the "bulk" of emissions reductions necessary to attain the NAAQS for Ozone must "com[e] from federally regulated sources" and as such "the South Coast AQMD and [CARB] cannot sufficiently reduce emissions to meet the standard [i.e., the NAAQS for Ozone] without federal action."[6] In fact, the District identifies all measures that would affect aircraft emissions as "black box" measures it relies upon pursuant to Clean Air Act (CAA) section 182(e)(5).[7] We underscore that any as yet undefined or prospective measures, actions or initiatives could not be adopted unless they were first formally proposed and subject to full notice and comment requirements under applicable law. A4A and our members expressly reserve any and all rights

Comment 62-3

[3] *Draft 2022 AQMP* at p. 4-25.

[4] *Id.* at pp. 4-44 to 4-45.

[5] *Id.* at pp. 4-47 to 4-48.

[6] *Id.* at p. ES-6. *See also 2022 AQMP Policy Brief – Federal Approach*; *Final Contingency Measure Plan – Planning for Attainment of the 1997 80 ppb 8-Hour Ozone Standard in the South Coast Basin* (December 2019), section 5.

[7] *2022 AQMP Policy Brief – Black Box Measures* at p. 3 (one "type of 'black box' measures are those that seek reductions from emission sources under federal and international regulatory authority, namely aircraft, ships, preempted off-road equipment, and interstate trucks. . . . While the U.S. EPA has not adopted aggressive controls targeting these sources, emission reductions from all sources — including federal sources — are necessary to meet the ozone standard. Thus, the 2022 AQMP includes a 70 percent NOx emission reduction from aircraft, which is approximately 19 tons per day.").

to comment on any such regulatory measure, policy or other "mechanism" described in the Draft 2022 AQMP.[8]

That said, we will certainly support efforts to develop potential approaches to addressing aviation emissions, including through the District's Airport Working Group and/or a CARB process to collaborate with various stakeholders including industry. Again, we fully support the efforts to achieve the NAAQS and – as was the case during the process to implement the 2016 AQMP – we will look forward to participating in these efforts.

Comment 62-3 Con't

Similarly, we support the view that more stringent technologically feasible and economically reasonable standards for aircraft engines can and should be developed at the international level and adopted into U.S. law. In this connection, we welcome the District's and CARB's recognition regarding their lack of authority to regulate aviation and the need to develop emissions standards for aircraft engines at the international level (through the International Civil Aviation Organization / Committee on Aviation Environmental Protection (ICAO/CAEP)) and adopted into U.S. law pursuant to section 231 of the CAA.[9] A4A and our members have committed the time and resources needed to support the development of economically reasonable, technologically feasible and environmentally beneficial international standards for aircraft engines and aircraft governing noise, NOx, particulate matter (PM) and CO_2 (carbon dioxide) through ICAO/CAEP. In 2020, the ICAO Council adopted emissions standards for non-volatile particulate matter (nvPM) for both mass and number applicable to both in-production and new type aircraft engines. A4A supported that effort within ICAO/CAEP and has strongly supported the incorporation of the nvPM standards into U.S. law. In addition, A4A worked for years in the ICAO/CAEP process to support development of a CO_2 Certification Standard for aircraft which ICAO adopted in 2017, and we strongly supported the U.S. Environmental Protection Agency's (EPA) recent adoption of GHG emissions standards for aircraft engines pursuant to CAA section 231 that are equivalent to the ICAO CO_2 Certification Standard. ICAO/CAEP has focused a great deal of effort on NOx and we have strongly supported this effort – as is noted in CARB's *Draft 2020 Mobile Source Strategy*, significant progress has been made and as a result of successive, increasingly stringent NOx standards, aircraft engines produced today must be about 50% cleaner than under the initial standard adopted in 1997.[10] Importantly, A4A strongly supported the U.S. Government's proposals to ICAO/CAEP to develop new, more stringent standards for CO_2, NOx and PM in the present CAEP/13 cycle.

Comment 62-4

We will also continue our long-standing commitment to working with CARB on the development of reasonable regulations to address GSE emissions, despite continuing concerns regarding the State's authority to adopt and enforce such regulations. Accordingly, while A4A and its members obviously cannot commit to supporting such measures before they have even been developed much less formally proposed, we will look forward to engaging with CARB as it seeks

Comment 62-5

[8] Our comments are not intended to constitute a comprehensive or final response to any policy, project, action or measure identified in the Draft 2022 AQMP and do not address each and every proposed action or program identified in the Draft 2022 AQMP that may affect aircraft, GSE or other sources of interest to airlines.

[9] 42 U.S.C. § 7521.

[10] CARB, *Revised Draft 2020 Mobile Source Strategy* (April 23, 2021), at 149.

to develop such regulations, including amendments to the In-Use Off-Road Diesel Fueled Fleets Regulation.

We do have significant concerns regarding a number of concepts for action identified in the Draft 2022 AQMP, particularly the calls for aircraft "when travelling through California" to use "cleaner fuel" and "require visits from "cleaner aircraft" and "zero emission on-ground operation requirements at airports." These concepts were put forward in CARB's Draft 2020 Mobile Source Strategy and we explained our concerns at length in comments on that document, which we incorporate here by reference.[11]

Comment 62-5 Con't

For further context on the above comments, we provide more detailed background on our very strong environmental record and commitment to advancing environmental progress in the section below.

Background

Commercial aviation has been an indispensable pillar of our national, state, and local economies for decades. Prior to the onset of the COVID-19 pandemic, commercial aviation helped drive over 10 million U.S. jobs and over 5 percent of U.S. Gross Domestic Product (GDP). In California, according to the most recent Federal Aviation Administration (FAA) analysis, civil aviation accounts for about 5 percent of jobs (over 1.15 million in 2016) and drives over 4 percent of State GDP ($109.1 billion in 2016).[12] Economic impact studies likewise have affirmed the critical importance to local economies of aviation activity at California's major airports.[13]

Comment 62-6

The record of the U.S. airline industry demonstrates that we can grow and help the country prosper even as we continue to improve our environmental performance. For example, between

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[11] *See Airlines for America Comments on Draft 2020 Mobile Source Strategy (dated November 24, 2020)* (December 7, 2020), available at https://www.arb.ca.gov/lists/com-attach/1-mobilesourcestrat20-BWRdbwdnBAhRNABv.pdf; *Airlines for America Comments on Draft 2020 Mobile Source Strategy (dated September 28, 2021)* (October 18, 2021), available at https://www.arb.ca.gov/lists/com-attach/6-2020moblesourcestrat-BmBSPQRrU2FQOgVa.pdf.

[12] *See* FAA, *The Economic Impact of Civil Aviation on the U.S. Economy – State Supplement* (November 2020), at 10, available at https://www.faa.gov/about/plans_reports/media/2020_nov_economic_impact_report.pdf

[13] *See, e.g., Economic Impact Analysis – Los Angeles International Airport in 2014* (April 2016) (620,610 jobs in Southern California, $37.3 billion in labor income, $126.6 billion in economic output and $6.2 billion in state and local taxes), available at https://laedc.org/wp-content/uploads/2016/04/LAWA_FINAL_20160420.pdf; *2019 Economic Impact Study – San Francisco International Airport* (direct impact of 188,111 jobs, $14 billion in labor income and 42.5 billion in total revenues; total impact of 330,215 jobs, $25 billion in labor income and $72.7 billion in total revenues), available at https://www.flysfo.com/sites/default/files/SFO_Economic_Impact_Report_2019.pdf; *San Diego International Airport Economic Impact Study – June 2018* (direct impact of 67,200 jobs, over $2 billion in payroll and $6 billion in economic output; total impact of 116,571 jobs, $3.9 billion in payroll and $11.7 in annual output), available at https://timesofsandiego.com/wp-content/uploads/2018/09/2017-01-06-economic-impact-study.pdf.

1978 and 2021, the U.S. airlines improved their fuel efficiency (on a revenue ton mile basis) by more than 135 percent, saving over 5.5 billion metric tons of CO_2 – equivalent to taking more than 28 million cars off the road on average *in each of those years*. Similarly, since 1975, even as we quintupled the number of passengers served in the U.S., we have reduced the number of people exposed to significant levels of aircraft noise by 94 percent. The U.S. airlines have continually demonstrated their ability to contribute to the nation's economic productivity, while minimizing their environmental footprint.

This environmental record is not happenstance, but the result of a relentless commitment to driving and deploying technology, operations, infrastructure, and SAF (or as CARB refers to it under the Low Carbon Fuel Standard Program, alternative jet fuel (AJF)) advances to provide safe and vital air transport as efficiently as possible within the constraints of the air traffic management system. Indeed, for the past several decades, airlines have dramatically improved their fuel efficiency and reduced their CO_2 and other emissions by investing billions in fuel-saving aircraft and engines, innovative technologies like winglets (which improve aerodynamics), and cutting-edge route-optimization software.

We are committed to limiting and further reducing our industry's GHG emissions. On March 30, 2021, A4A, together with our member carriers, pledged to work across the aviation industry and with government leaders in a positive partnership to achieve net-zero carbon emissions by 2050 (2050 NZC Goal).[14] This pledge continues our longstanding commitment to embracing our responsibility to address climate change and reduce commercial aviation's GHG emissions footprint.[15] With consistent analyses showing that tremendous quantities of SAF must be deployed for the industry to meet its climate goals, A4A carriers also pledged to work with the government and other stakeholders toward a rapid expansion of the production and deployment of commercially viable SAF to make 2 billion gallons available to U.S. aircraft operators in 2030. On September 9, 2021, as a complement to the federal government's announcement of the SAF Grand Challenge,[16] A4A and our members increased the A4A SAF "challenge goal" by an additional 50 percent, calling for 3 billion gallons of cost-competitive SAF to be available to U.S. aircraft operators in 2030.[17] Notably, this SAF challenge goal and the 2050 NZC Goal represent collective minimums, and some A4A members have in fact established even more ambitious SAF and climate goals.

Comment 62-6 Con't

[14] *See* https://www.airlines.org/news/major-u-s-airlines-commit-to-net-zero-carbon-emissions-by-2050/. On October 4, 2021, the International Air Transport Association and its member airlines followed suit by also committing to achieve net-zero carbon emissions by 2050. *See* https://www.iata.org/en/pressroom/2021-releases/2021-10-04-03/.

[15] Since 2009, A4A and our members have been active participants in a global aviation coalition. Prior to strengthening our commitment in 2021, we had committed to 1.5 percent annual average fuel efficiency improvements through 2020, with goals to achieve carbon-neutral growth beginning in 2020 and a 50 percent net reduction in CO_2 emissions in 2050, relative to 2005 levels.

[16] *See* https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/09/fact-sheet-biden-administration-advances-the-future-of-sustainable-fuels-in-american-aviation/ and https://www.energy.gov/eere/bioenergy/sustainable-aviation-fuel-grand-challenge.

[17] *See* https://www.airlines.org/news/u-s-airlines-announce-3-billion-gallon-sustainable-aviation-fuel-production-goal/.

Our airlines' efforts to address GHG emissions are designed to reduce their fuel consumption, GHG contribution, and potential climate change impacts responsibly and effectively, while allowing commercial aviation to continue to serve as a key contributor to the U.S., global, California, and local economies. At the same time, we continue to build upon our strong record of reducing conventional air pollutant emissions. Airlines' primary focus is realizing further fuel efficiency and emissions savings through increasing levels of SAF deployment, modernization and optimization of the air traffic management system, public-private research and development partnerships, and a vast array of additional operational and infrastructure initiatives being undertaken by airlines together with regulators, airports, manufacturers, and other aviation stakeholders. A4A and our members have been particularly focused on developing low-carbon, sustainable liquid fuel alternatives, understanding that the deployment of tremendous quantities of SAF will be key to the achievement of our climate goals.

As drop-in fuel that currently reduces lifecycle GHG emissions by up to 80% compared to conventional, petroleum-based jet fuel while also helping to improve local air quality, SAF is absolutely vital to our sector. Unlike the on-road transportation sector (cars, trucks, buses, etc.), energy alternatives like electricity and hydrogen will not be sufficiently advanced in the near- or medium-term to make a meaningful contribution to the decarbonization of the aviation sector, meaning that commercial aviation will remain reliant on high energy density liquid fuels for years to come.[18]

Fortunately, we are in a position to succeed because we are not just getting started now. A4A and our members have been working diligently for many years to lay the groundwork for the establishment of a commercially viable SAF industry. In 2006, A4A was instrumental in co-founding the Commercial Aviation Alternative Fuels Initiative® (CAAFI), which seeks to facilitate the development and deployment of SAF.[19] CAAFI has been integral in obtaining the certification of the seven SAF "pathways" that are now recognized under the ASTM International specification for aviation turbine fuel from alternative, non-petroleum sources (i.e., ASTM D7566) as well as the two co-processing pathways recognized under the ASTM D1655 jet fuel specification. Nearly all of A4A's member carriers, moreover, have entered into offtake agreements over the years with SAF producers in a concerted effort to spur the SAF industry and utilize the fuel. These offtakes include (but are not limited to) those of United Airlines, which has been procuring SAF from the World Energy facility in Paramount, CA for use at LAX since 2016, and Alaska Airlines, American Airlines, Delta Air Lines, JetBlue, and Southwest Airlines, which have been using SAF at San Francisco International Airport since as early as 2020 (and in JetBlue's case, also at LAX since 2021). It bears noting, too, that A4A was the original proponent and a key supporter of CARB's addition of AJF as a credit-

Comment 62-6 Con't

[18] *See* FAA, *United States 2021 Aviation Climate Action Plan*, at 18-19 (Nov. 2021) (*U.S. 2021 Aviation CAP*) ("there is no realistic option that could replace liquid fuels in the commercial aircraft fleet in the coming decades"), available at https://www.faa.gov/sites/faa.gov/files/2021-11/Aviation_Climate_Action_Plan.pdf.

[19] *See* https://caafi.org/.

generating fuel under the LCFS Program on a voluntary, opt-in basis.[20] In sum, we have been and remain deeply committed to the development of a commercially viable SAF industry -- in California, throughout the country, and throughout the world.

A4A's commitment to reducing the environmental impacts associated with aviation extend to reducing emissions that can affect local air quality. A4A and its members fully support the District's efforts to attain the NAAQS and ensure public health. Commercial airlines are dedicated to providing air transportation services to the public that, above all, ensure the safety of our passengers, crew and the larger public. Accordingly, we view responsible environmental stewardship as essential to our business and have embraced the need to work proactively to address environmental concerns and achieve concomitant public health objectives. As noted above, we are proud of the role we took in working with the District to implement measures in accordance with its 2016 AQMP to reduce NOx emissions associated with aviation activity.

Our effort to work with the District to ensure the viability and effectiveness of its 2016 AQMP is not unique. As noted above, A4A and our members, despite continuing concerns regarding the State's authority to adopt and enforce such regulations, have worked for almost two decades with CARB to develop reasonable regulations to address GSE emissions. These rules include the Large-Spark Ignition, In-Use Off-Road Diesel, Portable Equipment Registration Program and Air Toxics Control Measure for Diesel Particulate Matter from Portable Engines. In addition, A4A and its members have committed to working with CARB to develop a new "Zero-Emission GSE" regulation consistent with the State's Mobile Source Strategy. We also continue our long-standing record of working with the District (and the State) to adopt reasonable measures to achieve attainment of the Ozone NAAQS as it develops its 2022 AQMP through active participation in and support of its Aviation Working Group.

Also as noted above, A4A and our members have committed the time and resources needed to support the international standards for aircraft engines and aircraft through ICAO/CAEP that are consistent with its Terms of Reference.

Comment 62-6 Con't

* * *

Thank you for your consideration of our feedback. Please do not hesitate to contact us if you have any questions.

[20] Since becoming creditable under the LCFS Program in 2019, almost 15 million gallons of AJF have been uploaded to aircraft in California. *See* https://ww2.arb.ca.gov/sites/default/files/2022-04/Q4%202021%20Data%20Summary_042922.pdf.

SCAQMD
A4A Comments on Draft 2022 AQMP
July 5, 2022
Page 8

Sincerely,





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Response to Comment 62-1: South Coast AQMD appreciates A4A's commitment to reducing the aviation industry's environmental impacts.

Response to Comment 62-2: South Coast AQMD recognizes A4A's role in developing the MOUs with the five commercial airports and looks forward to A4A's cooperation in achieving the performance targets.

Response to Comment 62-3: Thank you for your input regarding MOB-04 Emission Reductions at Commercial Airports. A4A is also encouraged to review CARB's Revised Draft 2022 State SIP Strategy which details several concepts for achieving emission reductions from the aviation sector. Any measure or rule would be developed through a public process with ample opportunity for stakeholder engagement.

Response to Comment 62-4: Thank you for expressing your support for more stringent, technically feasible aircraft engine standards. The 2022 AQMP recognizes the need to reduce emissions from all sectors including aircraft. However, U.S. EPA has a history of adopting aircraft engine standards that are technology following and designed to align with standards established by the International Civil Aviation Organization (ICAO). Rules that are technology following are not expected to result in additional, surplus reductions from aircraft engines. South Coast AQMD is therefore concerned that U.S. EPA has missed opportunities to switch to a technology forcing approach to further reduce aircraft emissions. Technology forcing rules coupled with rigorous testing of new technologies represent a viable strategy to maximize emission reductions without compromising public safety.

Response to Comment 62-5: The aviation measures have been incorporated into CARB's Revised Draft 2022 State SIP Strategy. As such, A4A is encouraged to participate in CARB's public process for the State SIP Strategy.

Response to Comment 62-6: Thank you for explaining A4A's historical involvement in developing regulations and initiatives to address aviation emissions.

Comment Letter #63

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Submitted electronically: AQMPteam@aqmd.gov

July 5, 2022

***RE:* Comments on Air Quality Management Plan (AQMP)**

Dear AQMP Staff,

On behalf of the Associated General Contractors (AGC) of California, we are submitting comments to the South Coast Air Quality Management District (SCAQMD) in response to the Air Quality Management Plan (AQMP).

AGC of California is a member-driven organization that statewide consists of over 950 companies. Our members provide commercial construction services on a broad range of projects within vertical building, highway & transportation, and utility. We believe the construction industry is vital to the success of California. Together, our members actively create opportunities to build and strengthen our state. We are passionate about shaping policy, improving industry relationships, and developing our workforce.

Our members utilize strategies that produce some of the lowest carbon footprints in the United States. California's building codes result in construction that is more efficient than construction projects in other states. For instance, new homes come with solar panels and electric vehicle ready charging capabilities; they will also include heat pump water heaters and be prewired for all-electrical appliances. Additionally, water efficiency measures are utilized that save energy consumption and reduce water usage.

AGC of California appreciates the opportunities to submit a comment letter to address concerns and provide feedback. While AGC of California supports the efforts for cleaner air in California, there are several concerns we would like to address, such as the need for a reliable electrical grid, inequitable access to energy, and burden of increased costs on low-income communities and businesses. Please read below for more

Comment 63-1

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information.

1. **Need for a prepared electrical grid to sustain increase in electrical energy demands.**

AGC of California urges that South Coast AQMD provide assurances that the electrical grid in California will be able to supply the increased needs of electrical power that will be attributed to the AQMP. According to the CalMatter's article, "California's electric grid is not ready to meet climate goals," California's electrical grid was largely developed in the last century and was designed with natural gas fired generation located in urban areas, supplemented by remote hydro, nuclear, and geothermal energy (2022). The electrical grid was *not* designed to accommodate phasing out urban gas-fired generation and tripling the among of energy delivered from remote wind and solar energy.

The National Renewable Energy Laboratory conducted a low carbon grid study that analyzed a 50% emission reduction in California and the associated impacts. They found that 3 million electric vehicles add 13 TWh of load and if half of the vehicles are assumed to be optimally charged it will create a potential for up to 3,000 MW of load during times of curtailment. They conclude that less flexible institutional frameworks and a less diverse generation portfolio could lead to higher curtailment (up to 10%), operational costs (up to $800 million higher), and carbon emissions (up to 14% higher).

The peer-reviewed article, "Translating Climate Change and Heating System Electrification Impacts on Building Energy Use to Future Greenhouse Gas Emissions and Electric Grid Capacity Requirements in California," analyzed climate change and electrification impacts to system-wide endpoint impacts on future electric grid configurations (Tarroja, et al., 2018). They concluded that although electrification may decrease greenhouse gas emissions, it requires significant increases in electrical grid capacity. Specifically, that the large loads do not temporally align with daily renewable generation and therefore require increases in dispatchable electric grid capacity to support the electric grid configuration.

Comment 63-2

Additionally, the most recent 10-year plan developed from the Public Utilities Commission does not take shutting down gas power plants into account from now to 2031. This is concerning because rolling blackouts have been increasing over the years which will drastically impact to Californians especially if they become even more dependent on electricity due to imposed regulations.

Bloom Energy released a California Power Outage Map based on data collected between 2017 and 2019. During that time there were over 50,000 significant power outages across the state that impacted approximately 51 million customers. Although it is commonly perceived that blackouts happen primarily in rural communities, they are becoming more common in cities as well. For instance, California's 5 largest cities including Los Angeles, San Diego, San Jose, San Francisco, and Fresno, experienced 10,417 outages impacting approximately 20% of the state's population. Additionally, San Bernadino alone experienced 1,208 backouts impacting 1.4 million customers. What is perhaps more concerning is that electrical power outages are steadily increasing. In October 2019, the blackout events increased by 80% compared to the year before and the individuals it impacted increased by 204%.

On January 13, 2021, the California Independent Systems Operator, California Public Utilities Commission, and California Energy Commission released a report regarding the root-cause analysis

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of the mid-August extreme heat wave power blackouts. This report states that the root-cause was attributed to "extreme weather conditions, resource adequacy and planning processes, and market practices". Additionally, it states "[t]he energy markets can help fill the gap between planning and real-time conditions, but the West-wide nature of this extreme heat wave limited the energy markets' ability to do so". Therefore, it expresses the need to have a carefully thought-out AQMP that take California's current resources into consideration, as opposed to initiating a plan that may not practical.

Comment 63-2 Con't

The sustainability of power drastically impacts the construction industry. Without reliable access to power, this will interfere with projects being completed on time and on budget. Since the construction industry is the foundation of California's infrastructure, this will have negative repercussions on everyone throughout the state. These detrimental impacts should be considered in the development of the AQMP.

2. **Inequitable access to energy.**

While AGC of California understands the need for renewable energy, it is important that it is readily available for everyone, not just a select few. UC Berkley published the peer-reviewed article, "Inequitable access to distributed energy resources due to grid infrastructure limits in California," where the authors analyzed grid limits to new distributed energy resources integration across California's two largest utility territories (Brockway, Conde, & Callaway, 2021). They found that "grid limits reduce access to solar photovoltaics to less than half of households served by these two utilities and may hinder California's electric vehicle adoption and residential load electrification goals." This stresses the need to address the limits of the electrical grid prior to implementing a plan that imposes unrealistic goals. Furthermore, they evaluated the relationship between demographic characteristics and access. They found that the grid limits exacerbate existing inequities, particularly that disadvantaged census block groups have disproportionately less access to new solar photovoltaic capacity based on circuit hosting capacity.

Comment 63-3

Additionally, rural job sites may not have adequate access to electric charging stations that may be necessary for the adoption of electrical vehicles. There are several factors that are contributing to the scarcity of vital charging stations, such as the global shortage of essential EV charger components and precious metals (i.e. lithium). Many construction sites are in rural areas that may have reduced access to charging stations. That would result in the vehicles going back and forth between the job site and charging stations which would prolong the duration of the project. It would also increase miles on the vehicle, requiring the need for a replacement battery that much sooner. Lastly, the increased vehicle miles traveled would also influence tire wear emissions, thereby contradicting the goals of this plan.

All in all, AGC of California urges South Coast AQMD to consider upgrading the electrical grid prior to implementing the Scoping Plan so that energy can reliably get to all consumers that would make this plan obtainable.

3. **Burden of increased costs on low-income communities and businesses.**

Comment 63-4

The California Public Utilities Commission (CPUC) released a report in May 2021 that evaluated

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electric costs, rates, and equity issues. CPUC expresses the importance of carefully thought-out policy: "[i]f handled incorrectly, California's policy goals could result in rate and bill increases that would make other policy goals more difficult to achieve and could result in overall energy bills becoming unaffordable for some Californians. Electrification goals [...] are among the near-term needs, for example, that place upward pressure on rates and bills." Additionally, they explain that without proper subsidies and low-cost financing options, this may create equity concerns for low- to moderate-income households and exacerbate existing disparities in electricity affordability.

ACEEE's research report, "How High Are Household Energy Burdens? An Assessment of National and Metropolitan Energy Burdens across the U.S." demonstrate a persistent challenge especially across all metro areas, low-income, Black, Hispanic, Native American, and older adult households (Drehobl & Ayala, 2020). Specifically, that they have disproportionally higher energy burdens than the average household. Therefore, it is possible that the regulations that South Coast AQMD seeks to implement may harm the very communities they swore to protect.

In the Foundation for Research on Equal Opportunity (FREOPP) article, "The High Cost of California Electricity Is Increasing Poverty," Robert Bryce explains that 18.1% of California residents are experiencing poverty and that the cost of electricity largely contributes to that (Bryce, 2020). Even though the average Californian household uses less than half the energy of the average American household, Californians are paying some of the highest energy bills in the nation. Restrictions on the use of natural gas will increase the cost of electric bills which will put already disadvantaged communities even more at a disadvantage. Since South Coast AQMD is an organization that values equity, AGC of California encourages this to be taken under consideration in the development of this AQMP.

Comment 63-4 Con't

Although there may be some incentive programs, such as California's net energy metering (NEM) program, there are additional equity concerns associated with such programs historically. For instance, in comparison to California's general population, NEM customers were found to be disproportionately older, located in high-income areas, likely to own their home, and less likely to live in a disadvantaged community (CPUC, 2021). Furthermore, non-NEM customers shoulder an additional rate burden because of the cost shift from NEM customers. While incentive programs are well-intentioned, it is important that they are performing in the way that it was intended for: to assist low to medium-income households, businesses, and other disadvantaged communities.

As the price of electricity and materials continues to escalate, this is will dramatically affect the construction industry's ability to do their job. Manufacturers will be unable to absorb all of the increased costs that will result from the AQMP, therefore, contractors are likely to experience sharp increases in prices. Due to these increase in prices, this will result in more expensive building that may negatively affect consumers. For example, Enterprise Equity Partners found that 214 affordable housing projects in the Bay Area that are shovel-ready but are still in pre-construction phases of development simply due to a lack of funding. There are at least nine California counties dramatically impacted by this phenomenon resulting in 18,920 units stuck in predevelopment and needs over $4 million to be able to resume construction. Furthermore, the California Housing Agencies released a report in 2020 that states how local jurisdictions may create barriers that make it harder to build affordable housing, such as restrictions on the number of units developers can build on a portion of land or lengthy processes for approving developers' projects. This resulted in

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local jurisdictions issuing building permits for only about 11 percent of their needed affordable housing units as of June 2019. Since more affordable housing is a goal of California, the AQMP contradicts those goals.

Comment 63-4 Con't

4. AQMP control measures & standards.

EGM-03: Emission Reductions from Clean Construction Policy states this control measure will seek to develop a Clean Construction Policy (CCP) which can be utilized for reference and voluntary implementation by local municipalities and public agencies. AGC of California appreciates that South Coast AQMD will be collaborating with the construction industry as well as consider existing control measures and best management practices that are currently being implemented by entities throughout California. We assert that this policy will remain practical and feasible for all contractors, including smaller and diverse businesses.

MOB-06: Accelerated Retirement of Older On-Road Heavy-Duty Vehicles states that South Coast AQMD will start up a new pilot program utilizing a three-way exchange approach. Specifically, that qualified participants can trade in their MY 2014 or newer heavy-duty diesel truck to a South Coast AQMD approved dealership and receive an incentive toward the purchase of a new low NOx emission (0.02 g NOx) natural gas-powered truck. AGC of California would like to receive some clarification on this control measure. First, what would a qualified participant be? We assert that contractors and their fleets be incorporated as a qualified participant so that they may be able to reap the benefits of this measure. Second, what would the incentive be? Additionally, as the language is currently written, it is uncertain of the timelines in which the acceleration retirement of vehicles turned over will be implemented. AGC of California asks that South Coast AQMD continue to collaborate with stakeholders to determine a time that is economically feasible and pose the least number of disruptions to construction projects.

Comment 63-5

In Appendix IV-B, Tier 5 Off-Road New Compression-Ignition Engine Standards are expressed, specifically for vehicles to utilize exhaust aftertreatment such as diesel particulate filters (DPFs) and selective catalytic reduction (SCR). DPFs can cost up to $10,000 per vehicle, according to UTI.edu, and SCRs can cost up to $9,600 per vehicle, according to Fleetowner.com, not including labor and maintenance costs. Therefore, if a fleet has 100 vehicles, it can cost up to $960,000 - $1 million. These additional costs are not economically feasible, especially with other increased cost burdens, such as fuel inflation. AGC of California encourages South Coast AQMD to offer financial incentives that would make this standard more feasible and practical. If a fleet cannot meet this standard, this may result in businesses either being shut down or moved across state lines which would severely disrupt the development of the state.

Conclusion

AGC of California appreciates South Coast Air Quality Management District (SCAQMD) for allowing AGC of California to comment on Air Quality Management Plan (AQMP). We assert that SCAQMD consider the concerns we have expressed above. If you have any questions regarding the comments,

please contact Brian Mello at 603-770-9264 (email: mellob@agc-ca.org). We appreciate the opportunity to comment and hope these concerns are addressed.

Sincerely,

Brian Mello

Brian Mello
Associate Vice President of Engagement & Regulatory Affairs
Associated General Contractors of California

Response to Comment 63-1: South Coast AQMD appreciates AGC's support of clean air in California.

Response to Comment 63-2: Please refer to the general response on Zero Emissions Infrastructure.

Response to Comment 63-3: The South Coast AQMD will consider equity implications when engaging with stakeholders on zero emission infrastructure planning and development through MOB-15. Unequal access to zero emission technologies runs counter to air quality attainment goals. South Coast AQMD will prioritize affordability, accessibility and equity concerns when partnering with stakeholders to help anticipate potential inequity in zero emission technology deployments. Strategy 7 described in MOB 15 and the AQMP Infrastructure Policy Brief specifically addresses the need to ensure that zero emission technologies are distributed affordably and equitably, which includes consideration of access in rural and off-road environments. South Coast AQMD will continue to support the prioritization of disadvantaged and low-income communities in accessing incentives and other funding programs for zero emission vehicles and associated infrastructure wherever feasible.

Response to Comment 63-4: The South Coast AQMD is committed is to improve air quality and public health and ensure that socioeconomic status or other factors will not pose obstacles for the equitable protection from air pollution. The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. Please refer to the general response to Cost of Zero Emission Technology in Residential and Commercial Building appliances for discussion on the cost. The agency has already begun to address inequity for disadvantaged communities. Please refer to the general response to Impact of Zero Emission Technology on Inequity. The South Coast AQMD will work with stakeholders involved in zero emission infrastructure to ensure that zero emission technologies are distributed affordably and equitably. Affordability will be further considered during the future rulemaking or incentive program development process.

Response to Comment 63-5: As noted in the Proposed Method of Control of EGM-03, the Clean Construction Policy (CCP), which will be a voluntary measure, will be developed through a public process, in collaboration with stakeholders including construction industry representatives. This will help to ensure that the CCP will be practical and technically and operationally feasible for most, if not all, contractors.

The Trade-Up Program discussed in the draft MOB-06 measure, which has been already completed, was a pilot program to replace up to 50 Class 8 heavy-duty diesel trucks with low-NOx CNG trucks. In terms of eligibility, fleets with a compliance status in the CARB's Truck Regulation Upload, Compliance, and Reporting Systems (TRUCRS) were qualified to participate. South AQMD staff will evaluate the Program's outcome and apply any lessons learned in the development of similar programs. Staff also intends to solicit feedback from regional stakeholders in the program development to address any issues and concerns including consideration of economically feasible timeline to minimize any disruptions with the fleets' operations.

Tier V off-road new compression ignition engine standard is the CARB's commitment. South Coast AQMD will work closely with CARB and pursue opportunities to utilize incentive funding, if feasible, especially for EJ and disadvantaged communities.

Comment Letter #64

Los Angeles County Business Federation
Strengthening the Voice of Business Since 2008

July 5, 2022

Wayne Nastri
Executive Officer
South Coast Air Quality Management District

Via email AQMPteam@aqmd.gov

Re: South Coast AQMD – Draft Air Quality Management Plan

Dear Mr. Nastri:

We are contacting you on behalf of BizFed, the Los Angeles County Business Federation. We are an alliance of over 220 business organizations who represent over 450,000 employers in Los Angeles County. We are writing to comment on the South Coast Air Quality Management District (SCAQMD) Draft 2022 Air Quality Management Plan (AQMP).

Comment 64-1

First, we would like to thank the district for its tireless work improving air quality in the South Coast Air Basin. Like you, we desire to see continued emissions reduction while maintaining the region's economic vitality. This is not an easy feat. We appreciate the staff and board's diligence in bringing diverse groups to the table to map out the most effective AQMP as possible.

Second, we appreciate the district responding to our request and extending the comment period deadline to July 5 for the AQMP initial draft chapters and July 22 for the Appendices. We offer this letter as a high-level overview of the AQMP and will submit a more technical letter addressing the appendices at the later date.

Comment 64-2

As you are aware, BizFed represents businesses large and small from a wide range of industries throughout the South Coast Air Basin. Many will be writing their own individual comment letters that specifically address the impacts to their industries. Our letter addresses the impacts of the business community as a whole and presents a high-level regional observation of the Draft AQMP. We have done our best to highlight the overarching concerns of our diverse membership, and we hope you take them into consideration.

Limited Stakeholder Participation

Comment 64-3

While we are grateful for the extension of the initial comment period deadline, we are still concerned that the AQMP is being rushed with limited stakeholder engagement. The workshops conducted by staff over the past year presented a broad overview of what to expect in the AQMP but gave little direction or details until the actual draft was released. What's more, staff released the document the same time the California Air Resources Board (CARB) released their Draft 2022 Scoping Plan Update, and LA County released their Draft 2045 Climate Action Plan. Conducting a thorough review of all these documents and supporting materials take a significant amount of time, stakeholder outreach, feedback, and collaboration to provide the most effective comments.
Many of our members do not have the resources to effectively comment on each draft and have had to "pick-and-choose" where to focus their response or they have

Los Angeles County Business Federation / 6055 E. Washington Blvd. #1005, Commerce, California 90040 / T: 323.889.4348 / www.bizfed.org

had to submit premature comments that could have been more thorough had they had the extra time. We recognize the SCAQMD is limited in resources and have their own deadlines, however, something as significant as the AQMP need not be rushed or in competition with other jurisdictions, and enough time should be taken to get it right.

Comment 64-3 Con't

Draft Stationary and Area Sources Control Measures

We have great concern with the staff placing "everything on the table" for stationary source control measures. As mentioned in the draft, the AQMD has already passed or in development of significant regulations, such as RECLAIM reform, Warehouse, Port and Railyard Indirect Sources Rules and others. What's more, most of the emission impacts come from mobile sources in CARB's jurisdiction. Considering a residential and commercial natural gas phase out of water heaters and cooking equipment will likely not get the South Coast Air Basin into attainment but will instead increase the costs of housing, living, and conducting business throughout the region. Local jurisdictions are already considering similar regulations and alter language as determined to make the most sense for their municipality. Considering the geographic size and diversity (economic, population and other) of the South Coast Air Basin, the district needs to be careful in imposing "one size fits all" restrictions that would likely have significant, detrimental impacts in some communities when compared to others.

Comment 64-4

Out of Date Data

Much of the data used in the draft AQMP are based on MATES V, with data collected in 2018, four years ago. This data is out of date and with rapid advancements in technology, effects of the two-year pandemic, new rules from the AQMD, CARB and SCAG, it would make sense for the district to not consider additional sweeping control measures until MATES VI has been completed with more up-to-date data to determine where the next round of emission reductions should be targeted.

Comment 64-5

All-the-Above-Approach and Zero-Emissions Infrastructure

BizFed supports an all-the-above approach to our energy needs. We believe that a diversified energy portfolio is necessary to meet our clean air and GHG goals while also balancing equity and most importantly - energy reliability. We therefore support hydrogen, clean and renewable natural gas, electrification, solar, wind, the ongoing, albeit more clean and efficient use of petroleum, and other means to ensure we are lowering greenhouse gas emissions (GHG) while keeping costs low, supporting jobs, and meeting our economic demands.

The impacts to the grid from a one-size-fits all strategy would be devasting and both businesses and consumers would be impacted. Adopting policies without a thorough assessment of existing infrastructure, technology and energy alternatives is a risky proposition.

As the AQMD continues to push forward on its goal of achieving emission reductions, it is important that the AQMD adequately account for the development of the infrastructure necessary to support desired zero-emissions technologies. At present, the infrastructure for both leading options (electricity and hydrogen) is

Comment 64-6

insufficient and the implementation of any Control Measures that rely on zero-emissions technologies must analyze the feasibility of both the technology and the infrastructure. Any feasibility determination of a Control Measure, including the implementation date of the control strategy as well as the cost to comply, must also incorporate an infrastructure analysis. It is insufficient to simply analyze the demand of the AQMD's measures, as the ability of utilities to build infrastructure and supply adequate electricity and hydrogen is also impacted by the demand the zero-emission measures that CARB and other agencies are adopting during the same time frame, as well as the necessary agency approvals it will take to permit the infrastructure.

Comment 64-6 Con't

Finally, the AQMP's socioeconomic analysis as a whole must account for the infrastructure costs. We look forward to working with you to ensure the AQMP includes a robust and accurate zero-emissions determination.

Conclusion

The district has made significant strides in air reductions during the past 30 years, despite a significant population increase, and it should be proud of its accomplishments. These reductions were done in collaboration with many stakeholders, in particular the business community. We respect that AQMD is placed in a uniquely challenging situation to reach attainment. The business community stands ready to help the district achieve reductions as possible. As a reminder, sustainability isn't just about the environment. It's also about the sustainability of communities, the region's economy, and good-paying jobs. All needs to be taken into consideration and balanced to effectively address the region's challenges.

We look forward to continuing our work with the district to see more reasonable reductions made in a way that is equitable, lasting and duplicatable.

Thank you for your consideration of our letter. If you have any questions, please contact BizFed's Director of Policy and Advocacy Sarah Wiltfong at sarah.wiltfong@bizfed.org.

Sincerely,



Brissa Sotelo-Vargas
BizFed Chair
Valero



David Fleming
BizFed Founding Chair



Tracy Hernandez
BizFed Founding CEO
IMPOWER, Inc.

BizFed Association Members

7-11 Franchise Owners Association for SoCal
Action Apartment Association
Alhambra Chamber
American Beverage Association
Apartment Association of Greater Los Angeles
Apartment Association, CA Southern Cities, Inc .
Arcadia Association of Realtors
AREAA North Los Angeles SFV SCV
Armenian Trade & Labor Association
Associated Builders & Contractors SoCal (ABC SoCal)
Association of Club Executives
Association of Independent Commercial Producers
Azusa Chamber
Beverly Hills Bar Association
Beverly Hills Chamber
BioCom
Black Business Association
BNI4SUCCESS
Bowling Centers of SoCal
Boyle Heights Chamber of Commerce
Building Industry Association - LA/Ventura Counties
Building Industry Association of Southern California
Building Industry Association- Baldyview
Building Owners & Managers Association of Greater Los Angeles
Burbank Association of Realtors
Burbank Chamber of Commerce
Business and Industry Council for Emergency Planning and Preparedness
Business Resource Group
CABIA California Business and Industrial Alliance
Calabasas Chamber of Commerce
CalAsian Chamber
CalChamber
California Apartment Association- Los Angeles
California Asphalt Pavement Association
California Bankers Association
California Business Properties
California Business Roundtable
California Cannabis Industry Association
California Cleaners Association
California Contract Cities Association
California Fashion Association
California Gaming Association
California Grocers Association
California Hispanic Chamber
California Hotel & Lodging Association
California Independent Oil Marketers Association (CIOMA)
California Independent Petroleum Association
California Life Sciences Association
California Manufacturers & Technology Association
California Metals Coalition
California Natural Gas Producers Association
California Restaurant Association
California Retailers Association
California Self Storage Association
California Small Business Alliance
California Society of CPAs - Los Angeles Chapter
California Trucking Association
Carson Chamber of Commerce
Carson Dominguez Employers Alliance
Central City Association
Century City Chamber of Commerce
Cerritos Regional Chamber of Commerce
Chatsworth Porter Ranch Chamber of Commerce
Citrus Valley Association of Realtors
Claremont Chamber of Commerce
Coalition for Small Rental Property Owners
Commercial Industrial Council/Chamber of Commerce
Compton Chamber of Commerce
Construction Industry Air Quality Coalition
Construction Industry Coalition on Water Quality
Covina Chamber
Crenshaw Chamber of Commerce
Crescenta Valley Chamber
Culver City Chamber of Commerce
Downey Association of REALTORS
Downey Chamber of Commerce
Downtown Center Business Improvement District
Downtown Long Beach Alliance
El Monte/South El Monte Chamber
El Segundo Chamber of Commerce
Employers Group
Encino Chamber of Commerce
Energy Independence Now EIN
Engineering Contractor's Association
EXP Future
FastLink DTLA
Filipino American Chamber of Commerce
Friends of Hollywood Central Park
FuturePorts
Gardena Valley Chamber
Gateway to LA
Glendale Association of Realtors
Glendale Chamber
Glendora Chamber
Greater Antelope Valley AOR
Greater Bakersfield Chamber of Commerce
Greater Lakewood Chamber of Commerce
Greater Leimert Park Crenshaw Corridor BID
Greater Los Angeles African American Chamber
Greater Los Angeles Association of Realtors
Greater Los Angeles New Car Dealers Association
Greater San Fernando Valley Chamber
Harbor Association of Industry and Commerce
Harbor Trucking Association
Historic Core BID of Downtown Los Angeles
Hollywood Chamber
Hong Kong Trade Development Council
Hospital Association of Southern California
Hotel Association of Los Angeles
Huntington Park Area Chamber of Commerce
ICBWA- International Cannabis Women Business Association
Independent Cities Association
Industrial Environmental Association
Industry Business Council
Inglewood Board of Real Estate
Inland Empire Economic Partnership
International Franchise Association
Irwindale Chamber of Commerce
La Cañada Flintridge Chamber
LA Coalition
LA Fashion District BID
LA South Chamber of Commerce
Lancaster Chamber of Commerce
Larchmont Boulevard Association
Latin Business Association
Latino Food Industry Association
Latino Restaurant Association
LAX Coastal Area Chamber
League of California Cities
Long Beach Area Chamber
Long Beach Economic Partnership
Los Angeles Area Chamber
Los Angeles County Board of Real Estate
Los Angeles County Waste Management Association
Los Angeles Economic Development Center
Los Angeles Gateway Chamber of Commerce
Los Angeles Gay & Lesbian Chamber of Commerce
Los Angeles Latino Chamber
Los Angeles Parking Association
Los Angeles World Affairs Council/Town Hall Los Angeles
MADIA
Malibu Chamber of Commerce
Marketplace Industry Association
Monrovia Chamber
Motion Picture Association of America, Inc.
MoveLA
MultiCultural Business Alliance
NAIOP Southern California Chapter
NAREIT
National Association of Minority Contractors
National Association of Tobacco Outlets
National Association of Women Business Owners
National Association of Women Business Owners - LA
National Association of Women Business Owners- California
National Federation of Independent Business
Owners California
National Hookah
National Latina Business Women's Association
Orange County Business Council
Pacific Merchant Shipping Association
Panorama City Chamber of Commerce
Paramount Chamber of Commerce
Pasadena Chamber
Pasadena Foothills Association of Realtors
PhRMA
Pico Rivera Chamber of Commerce
Planned Parenthood Affiliates of California
Pomona Chamber
Rancho Southeast REALTORS
ReadyNation California
Recording Industry Association of America
Regional Black Chamber-San Fernando Valley
Regional Hispanic Chambers
Regional San Gabriel Valley Chamber
Rosemead Chamber
San Dimas Chamber of Commerce
San Gabriel Chamber of Commerce
San Gabriel Valley Economic Partnership
San Pedro Peninsula Chamber
Santa Clarita Valley Chamber
Santa Clarita Valley Economic Development Corp.
Santa Monica Chamber of Commerce
Sherman Oaks Chamber
South Bay Association of Chambers
South Bay Association of Realtors
South Gate Chamber of Commerce
Southern California Contractors Association
Southern California Golf Association
Southern California Grantmakers
Southern California Leadership Council
Southern California Minority Suppliers Development Council Inc.
Southern California Water Coalition
Southland Regional Association of Realtors
Sportfishing Association of California
Sunland/Tujunga Chamber
Sunset Strip Business Improvement District
Torrance Area Chamber
Tri-Counties Association of Realtors
United Cannabis Business Association
United Chambers - San Fernando Valley & Region
United States-Mexico Chamber
Unmanned Autonomous Vehicle Systems Association
US Green Building Council
US Resiliency Council
Valley Economic Alliance, The
Valley Industry & Commerce Association
Venice Chamber of Commerce
Vermont Slauson Economic Development Corporation
Veterans In Business Network
Vietnamese American Chamber
Warner Center Association
West Hollywood Chamber
West Hollywood Design District
West Los Angeles Chamber
West San Gabriel Valley Association of Realtors
West Valley/Warner Center Chamber
Western Electrical Contractors Association
Western Manufactured Housing Association
Western States Petroleum Association
Westside Council of Chambers
Whittier Chamber of Commerce
Wilmington Chamber
Women's Business Enterprise Council
World Trade Center

Response to Comment 64-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP.

Response to Comment 64-2: South Coast AQMD staff were pleased to accommodate the public comment deadline extension to increase public participation in the 2022 AQMP development process. Staff looks forward to hearing from individual stakeholders regarding specific impacts the 2022 AQMP could potentially have on the business community.

Response to Comment 64-3: South Coast AQMD has offered multiple opportunities for public involvement during the 2022 AQMP development process. Staff convened the 2022 AQMP Advisory Group to provide feedback and recommendations on the development of the plan, including development of policy and control strategies. In addition, a Scientific, Technical, and Modeling Peer Review (STMPR) Advisory Group convened to make recommendations on air quality modeling, emissions inventory, and socioeconomic modeling and analysis. Both Advisory Groups met periodically throughout the AQMP development and the public was provided an opportunity to comment during those meetings. Several Working Groups were convened, including one stationary source Working Group (Residential and Commercial Buildings) and five mobile source Working Groups (Aircraft, Ocean-Going Vessels, Construction and Industrial Equipment, Heavy Duty Trucks, and Zero Emissions Infrastructure). These Working Groups conducted several in-depth public meetings throughout the AQMP development process in order to facilitate more specialized discussions. Staff also held a Control Measures Workshop on November 10, 2021 to provide an overview of the control measures and strategies being developed/considered for the 2022 AQMP and to solicit input from all stakeholders on control strategies. Five policy briefing papers were developed and released to provide policy background information supporting adoption and implementation of the 2022 AQMP. They are Black Box Measures, Climate Change and Decarbonization, Federal Approach, Infrastructure-Energy Outlook and Residential and Commercial Building Appliances. Several Regional Public Workshops were held for the Draft 2022 AQMP and Regional Public Hearings for the Draft 2022 AQMP are tentatively scheduled in October 2022. Finally, an additional public comment period will accompany release of the Revised Draft 2022 AQMP.

Response to Comment 64-4: South Coast AQMD is aware of recently adopted regulations and the challenges of pursuing further reductions from regulated sources. To achieve the emission reductions needed to meet the 2015 ozone standard will require emission reductions across all sectors. Under the California Code of Regulations Title 17 § 70600, South Coast AQMD must "require the adoption and implementation of all feasible measures as expeditiously as practicable." While an AQMP serves as a blueprint to attain air quality standards, the unique characteristics of specific source categories will be reviewed and reflected in proposed rules. Public participation and input will be important and encouraged during working group meetings and public venues such as South Coast AQMD's Governing Board meetings, public hearings, and workshops.

Residential and commercial buildings are expected to contribute 14 percent more NOx than large industrial sources in 2037, if no action is taken. Approximately a quarter of the total baseline stationary source emissions in 2037 are from residential buildings. Several feasible zero emission and low NOx technologies have been identified that can reduce emissions from this sector. There are important considerations that still need to be addressed, such as costs, that will be resolved in the rule development process. Staff will be working with other agencies that are also considering measures for residential buildings and are seeking to coordinate our efforts with these developing measures. For example, CARB

proposed requiring zero emission space and water heating in residential and commercial buildings and Los Angeles passed a motion to require all new residential and commercial buildings to achieve zero-carbon emissions by January 1, 2023. Bay Area AQMD is also developing regulations to require all residential and commercial appliances for space and water heating to be zero emission as early as 2027.

Response to Comment 64-5: Under the Clean Air Act, South Coast AQMD is obligated to develop the 2022 AQMP to address the 2015 8-hour ozone standard and submit the Plan to U.S. EPA by the due date set by U.S. EPA. Each AQMP incorporates the best information available at the time of plan development. MATES V, which studied air quality in 2018-2019, is the latest MATES, while MATES VI measurements will be considered in future. South Coast AQMD cannot simply wait for new data to become available to develop an AQMP. Waiting would further delay creation and implementation of a control strategy, jeopardizing our ability to meet the standard. Furthermore, the 2022 AQMP control strategy is based on the best available emissions inventory as the baseline already accounts for the emission reductions from adopted rules and programs.

Response to Comment 64-6: The infrastructure needed to support a widespread adoption of zero emission technologies will take many years to develop and deploy. This control measure and associated workplan will be adaptable and updated as new information becomes available, including new technologies that will support the South Coast AQMD's attainment goals. The AQMP calls for a rapid transition to zero emission technologies across all sectors where feasible. The goal is zero emission. South Coast AQMD has a long-standing history of supporting research, development, demonstration and deployment of advanced cleaner technologies using a diversified energy portfolio approach. The South Coast AQMD remains technology neutral and is supportive of all zero emission technologies that are available to achieve attainment goals. Please refer to the general response to Zero Emissions Infrastructure, Zero Emission Building Measures and Electricity Supply and Demand.

South Coast AQMD is developing a socio-economic impact analysis to evaluate the cost associated with the control measures and monetized benefits of cleaner air. In addition, during a rule development process, in-depth analysis will be conducted on socio economic impact of an individual rule. Public participation and input will be solicited during the process.

Comment Letter #65

SAN PEDRO BAY PORTS
CLEAN AIR ACTION PLAN

July 5, 2022

Ian MacMillan, Assistant Deputy Executive Officer
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Submitted electronically at AQMPteam@aqmd.gov

Dear Mr. MacMillan:

SUBJECT: SAN PEDRO BAY PORTS COMMENTS ON THE DRAFT 2022 AIR QUALITY MANAGEMENT PLAN

The Port of Los Angeles and Port of Long Beach (Ports) appreciate this opportunity to provide comments on the Draft 2022 Air Quality Management Plan (AQMP) prepared by the South Coast Air Quality Management District (SCAQMD). The Draft 2022 AQMP lays out a suite of measures targeting emission reductions from the goods movement sector, chief among them being indirect source rules (ISRs) directed towards ports and intermodal railyards. Unfortunately, the Draft 2022 AQMP does not address important questions and concerns that the Ports have raised about previous concepts for a Port ISR to regulate maritime freight mobile sources.

The Ports remain firm in our position. First, outside of our own limited fleet of vehicles, the Ports do not control and do not have authority to regulate mobile sources. Therefore, the Ports cannot be held accountable for mobile sources under an ISR. Second, SCAQMD also has no authority to regulate mobile sources, whether directly or indirectly under the guise of an ISR program.[1] As a result, SCAQMD's attempt to regulate the Ports as "indirect sources" is unlawful, unproven, and unnecessary given the success of voluntary programs among industry to reduce emissions of port-related sources. The Ports hereby incorporate by reference our past comments dated August 19, 2016, November 7, 2016, February 2, 2017, and February 27, 2017 related to SCAQMD's concepts for a Port ISR in SCAQMD's Draft 2016 AQMP. Further details regarding the Ports' concerns with respect to a Port ISR are included in the Attachment.

Comment 65-1

[1] The Ports relayed this position in multiple letters to the SCAQMD in connection with the 2016 AQMP. See, e.g., November 7, 2016 letter from the Ports to SCAQMD, pp. 10-14, 21-24.

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The San Pedro Bay Ports Clean Air Action Plan was developed with the participation and cooperation of the staff of the US Environmental Protection Agency, California Air Resources Board and the South Coast Air Quality Management District.

More Details Needed

While the proposed measures are mentioned as important avenues for achieving "fair share" emission reductions from freight facilities, the Draft 2022 AQMP lacks details on how these emission reductions are to be achieved, the amount of emission reductions expected, and the timeline for achieving emission reductions. For example, greater detail is needed on the proposed Off-Road Mobile Source Emission Reduction Credit Generation Program (MOB-10) and how that program will work in conjunction with the facility-based measures to achieve early, surplus emission reductions. Additionally, while the Ports' Clean Trucks Programs and the California Air Resources Board's (CARB) Advanced Clean Fleets rule advance the turnover towards zero emissions drayage trucks, it is unclear from the Draft 2022 AQMP what additional emissions reductions SCAQMD could achieve by regulating these sources. Further, trucks are federally preempted sources that are beyond SCAQMD's regulatory jurisdiction.

Comment 65-2

The Ports appreciate the detailed analysis on the challenges with achieving emission reductions from federally preempted sources as laid out in the Draft 2022 AQMP. Federally preempted sources, namely ocean-going vessels and locomotives, contribute the majority of the emissions from the Ports. While the Ports have multiple, successful voluntary programs to incentivize emission reductions from federally-preempted ocean-going vessels (e.g., Vessel Speed Reduction Program, Green Ship Incentive Program, Environmental Ship Index, Green Shipping Corridor), it is unclear from the Draft 2022 AQMP what additional emission reductions SCAQMD hopes to achieve from these federally preempted sources through either the Port ISR or its own ship incentive program referenced as the Pacific Rim Initiative for Maritime Emission Reductions (PRIMER). Rather than introducing a new vessel incentive program, such as PRIMER, the Ports propose that SCAQMD partner with the Ports in enhancing our current vessel programs in order to further encourage voluntary emission reductions from this challenging source category by utilizing funding structures that are already in place.

Comment 65-3

Ensure Incentives Programs (MOB-11) Are Available

In addition to lack of important details, some measures are duplicative and raise questions about accounting for emission reductions under the State Implementation Plan (SIP). For example, we believe SCAQMD's Proposed Rule 2304, Commercial Marine Ports Indirect Source Rule (AQMP Measure MOB-01 or Port ISR) is unnecessary given that CARB, the United States Environmental Protection Agency (USEPA), and the International Maritime Organization (IMO) have recently passed or proposed aggressive measures for the five mobile sources for which reductions are sought (on-road heavy duty vehicles, ocean going vessels, cargo handling equipment, locomotives, and harbor craft) as listed on Table 4-4.[2] Given these recently passed and proposed regulations on multiple source

Comment 65-4

[2] AQMD acknowledges on pages 4-58 and 4-59 of the AQMP that AQMD has limited options to regulate the few sources that remain unregulated by other entities by stating, "There are few sources remaining

categories, further discussion is needed in the Draft 2022 AQMP regarding how SCAQMD is going to ensure that emissions and their associated reductions from the goods movement sector are not double counted as credits under the SIP.[3]

Comment 65-4 Con't

As highlighted in the Draft 2022 AQMP, both voluntary measures and incentive programs are necessary components of a comprehensive emission reduction strategy, particularly given the large amount of emission reductions needed from preempted sources. The Ports in particular rely on these types of programs to achieve emission reductions because we lack regulatory authority over maritime freight mobile sources. While the Ports have made, and continue to make, large investments into emission reduction incentive programs such as our vessel incentives and the CAAP Technology Advancement Program, the only way to fund further turnover to zero-emission equipment, vehicles, and vessels, is to ensure that public funding from federal, state and district grants remains accessible. Given the aggressive timetable from CARB regulations to transition to zero emission, it is critical that the regulatory agencies do not place undue limitations on grants availability to comply with current and future zero-emission laws for port-related mobile sources, under theories of gift of public funds or otherwise. For instance, grant funding from government sources would not be available for activities taken to comply with regulations, so a Port ISR could be counterproductive to efforts to minimize emissions and achieve community health benefits, as opposed to voluntary measures, which would allow for continued use of government funding sources. At a minimum, the 2022 AQMP must outline under MOB-11 how incentive funding will remain a viable pathway for achieving emission reductions when transitioning to zero emission is required by regulation.

Comment 65-5

In closing, the Ports believe that SCAQMD's attempt to regulate the Ports as "indirect sources" is unlawful, unproven, and unnecessary. Further, we strongly encourage the SCAQMD to consider the issues identified herein.

Comment 65-6

without a control measure implemented by CARB, and those that do remain are primarily-federally regulated sources (Figure 4-7). This includes interstate trucks, ships, locomotives, aircraft, and certain categories of off-road equipment, constituting a large source of potential emission reductions. Since these are primarily regulated at the federal and, in some cases, international level, options to implement a contingency measure with reductions approximately equivalent to one year's worth of emission reductions are limited."

[3] On page IV-A-212, under a paragraph entitled, "Rule Compliance", AQMD acknowledges the possibility of duplicate counting by stating, "If other enforceable mechanisms are established outside of the South Coast AQMD public process, or the State or federal government implement regulatory actions, that achieve equivalent emission reductions, compliance will be enforced through the provisions of those actions."

We look forward to continuing to work with the SCAQMD on advancing our shared goals for clean air in the South Coast region. Should you have any questions regarding this comment letter, please reach out to Morgan Caswell, Manager of Air Quality Practices at the Port of Long Beach, at morgan.caswell@polb.com, or Tim DeMoss, Environmental Affairs Officer at the Port of Los Angeles, at tdemoss@portla.org.

Comment 65-6 Con't

Sincerely,

MATTHEW ARMS
Director of Environmental Planning
Port of Long Beach

CHRISTOPHER CANNON
Chief Sustainability Officer
Port of Los Angeles

MA/CC:LW:TJD:TP:AC: yo

Attachment: Ports' 2022 AQMP Detailed Comments

Ports' 2022 AQMP Detailed Comments

These comments are a part of the joint comment letter submitted on July 5, 2022, by the Port of Los Angeles and Port of Long Beach (Ports) on the 2022 Draft Air Quality Management Plan (AQMP). These comments largely focus on a major concern for the Ports, the South Coast Air Quality Management District's (SCAQMD) Proposed Rule 2304, the Indirect Source Rule for Commercial Marine Ports, to the extent that it is proposed to be included in the 2022 AQMP and 2022 State Implementation Plan (SIP). When SCAQMD releases more information on Proposed Rule 2304, the Ports will provide more specific comments to SCAQMD on the proposed rule.

Background: Proposed Port Indirect Source Rule (PR 2304 or Port ISR)

- SCAQMD is proceeding with the following Indirect Source Rules (ISRs) under its Facility-Based Mobile Source Measures, listed by AQMP control measure number in the 2022 AQMP and Appendix IV-A thereto:
  - MOB-01 - Proposed Rule 2304: Commercial Marine Ports Indirect Source Rule (rulemaking beginning in 2022)
  - MOB-03 - Rule 2305: Warehouse Indirect Source Rule (adopted in 2021 by the SCAQMD Board and currently in litigation)
  - MOB-02A - Proposed Rule 2306: New Rail Yards and Intermodal Facilities Indirect Source Rule (rulemaking targeted for SCAQMD Board decision in 2022)
  - MOB-02B - Proposed Rule 2306.1: Existing Rail Yards and Intermodal Facilities Indirect Source Rule (SCAQMD expressed intention to commence rulemaking after Rule 2306 adoption)
  - EGM-01 - Proposed Rule 2301: New and Redevelopment Projects (rulemaking status unknown)
- SCAQMD ISRs Generally: Indirect Source Rule authority in the Federal Clean Air Act is limited and may have taken on a broader concept by SCAQMD in its application in the above AQMP measures, particularly the Port ISR. The Rule 2305 Warehouse ISR was legally challenged in 2021 on federal preemption and authority grounds in *California Trucking Association (CTA) v. SCAQMD*[1] (CTA Warehouse Litigation), which litigation remains pending. Many of the concerns reflected in the CTA Warehouse ISR Litigation apply to proposals to implement ISRs with respect to Ports and marine terminals.
- Port ISR Background: For many years, SCAQMD's Port ISR concept purported to address regulation of mobile sources transiting the Ports, operated by the marine freight industry at the Ports' harbor properties by imposing obligations jointly and severally on the Ports as municipal landlords who do not own/control the mobile source equipment. For years in comment letters to SCAQMD, the Ports have objected to this proposed Port ISR structure as improper for various substantive reasons, including without limitation, jurisdiction, authority and preemption.[2] These concerns continue, after either no response or insubstantial responses from SCAQMD in the past.
- In 2020 discussions of potential Port ISR concepts, SCAQMD Staff changed this concept and suggested that SCAQMD may impose the Port ISR on terminal operators rather than the Ports. However, SCAQMD only recently (June 11, 2022) posted a Port ISR working group presentation stating the

Comment 65-7

Comment 65-8

Comment 65-9

[1] *California Trucking Association v. SCAQMD, et al.*, U.S. District Court, California Central District Case No. 2:21-cv-6341, Complaint for Declaratory Judgment and Injunctive Relief (2021).

[2] For instance, the Ports filed joint comments on August 19, 2016, November 7, 2016, February 2, 2017, and February 27, 2017 related to AQMD's concepts for a Port ISR in SCAQMD's Draft 2016 AQMP.

Potential Rule Applicability is "TBD," among possible regulated entities listed as Terminal Operator, Terminal Owner and Port Authority.

- Whether an ISR is imposed on POLA/POLB as a single source, or on marine terminals within a port area, none of these SCAQMD regulatory approaches to date has satisfactorily resolved answers to important questions and concerns that the Ports have previously raised over several years to CARB and SCAQMD about their previous concepts for a Port ISR to regulate maritime freight mobile sources. Therefore, the Ports again provide comments opposing SCAQMD's Port ISR and intent to include it in the 2022 AQMP and 2022 SIP.

Comment 65-9 Con't

MAJOR CONCERNS

The Ports have consistently supported federal and authorized State mobile source regulations and the Ports' voluntary measures to help the maritime freight industry reduce mobile source emissions at the Ports. However, the specific requirements of the federal Clean Air Act, various federal statutes and international commitments that govern trucking regulation and maritime issues, and California state law all underscore that the SCAQMD lacks authority to regulate mobile sources, either directly or under the guise of an ISR program. While the Ports have expressed these concerns previously in various contexts, we recapitulate our concerns here.

EPA and CARB are the Appropriate Authorities for Regulation of Mobile Source Emissions.

- Since 2020, CARB has used its mobile source regulatory authority under EPA authorizations and waivers to adopt significant mobile source regulations. The Ports support these regulations which attempt to control emissions from mobile sources in and around the Port leveraging the appropriate authority. Under the Biden administration, potential federal regulations are expected to require even more emissions reductions that will extend to various aspects of the marine freight industry.

Comment 65-10

Among measures taken by CARB to date are:

  - Heavy-Duty Low NOx Omnibus Regulation – adopted August 2020
  - Advanced Clean Trucks Regulation with zero-emission targets – adopted June 2020
  - Ocean-Going Vessels At Berth Regulation -- adopted June 2020
  - Commercial Harbor Craft Regulation – adopted November 2021, and pending final action from the Office of Administrative Law

Regulations under development by CARB include:

  - Proposed Advanced Clean Fleets Rule (includes proposed in-use zero-emission heavy-duty truck requirements for port and railyard drayage fleets)
  - Transport Refrigeration Units (TRU) Regulation (specific to Ports)

- SCAQMD notified the U.S. EPA, via a letter dated April 15, 2022, of ongoing violations under the federal Clean Air Act for failure to take timely action on a State Implementation Plan (SIP) and urged EPA to take action to regulate and reduce federal emissions in order to meet National Ambient Air Quality Standards. It would be impossible to attain the standard without the required reductions from federal sources.

Neither the Clean Air Act nor the Health and Safety Code authorizes the SCAQMD to adopt a Port ISR.

- SCAQMD has identified no law that expressly grants it authority to impose an Indirect Source Rule on seaports operating as shipping harbor locations as though they are new or modified "indirect sources," as defined by section 110 of the federal Clean Air Act.
- The Clean Air Act defines an indirect source as "a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution." (42 U.S.C. § 7410(a)(5)(C).) An "indirect source review program" is "the facility-by-facility review of indirect sources of air pollution, including such measures as are necessary to assure, or assist in assuring, that a new or modified indirect source will not attract mobile sources of air pollution" that would contribute to the exceedance of the National Ambient Air Quality Standard (NAAQS). (42 U.S.C. § 7410(a)(5)(0)(i).) The Ports and terminals located at the Ports are not explicitly defined as indirect sources. Each consists of multiple indirect sources, as do the cities themselves. (*See, e.g.,* 39 Fed. Reg. 25,292, 25,300 (July 9, 1974) (which did not list ports as possible indirect sources).) Given the multiplicity and diversity of activities at the Ports, it makes as little sense to consider the Ports to be indirect sources as it would to consider any other large geographic or municipal area to be an indirect source. The Ports of Los Angeles and Long Beach were developed as adjacent natural harbors of the San Pedro Bay more than a century ago (Port of Los Angeles was founded in 1907 and Port of Long Beach was founded in 1911), with each City granted the statutory duty to "promote maritime commerce" at their respective ports. That seaports attract ships and require inland cargo transportation to ultimate destinations does not create authority to the SCAQMD to regulate all mobile sources used in maritime commerce that may visit the Ports. This misguided theory has no support in law.[3]
- SCAQMD has previously argued that it has the authority to issue a Port ISR pursuant to several provisions of the Health & Safety Code. Health & Safety Code, §§ 40000, 40001(a), 40410, 40440, 40716, and 39602. In fact, SCAQMD's authority to adopt regulations is limited, and neither the cited statutory provisions nor any cases interpreting their provisions provide SCAQMD with direct authority to adopt an indirect source review program with respect to the Ports. Constraints on SCAQMD's statutory latitude to impose ISR regulation on major seaports are at least as extensive as those identified in the CTA Warehouse ISR litigation.
- Continuing to rely on general "police powers" and on *Cal. Sch. Bds. Ass'n v. State Bd. Of Equalization*, 191 Cal. App. 4th 530, 544, for the proposition that specific language is not necessary to support its authority to enact a Port ISR implies that SCAQMD's lawful authorities are limited only by internal self-dispensation of powers not expressly granted by statute. The Ports continue to disagree on whether the "plain meaning" of SCAQMD's enabling statutes provide the necessary authority to SCAQMD to issue a Port ISR.

Comment 65-11

[3] SCAQMD's original ISR premise generally defined the two Ports as a single indirect source against which specific emission reductions targets would be set with deadlines. The San Pedro Bay Ports are two distinct ports (POLA and POLB), owned separately by two independent cities (Los Angeles and Long Beach), operated under separate Tidelands grants, and operated separately on more than 7,500 acres and 7,600 acres of property, respectively. The Ports include numerous emissions sources -- mobile sources, buildings, and facilities -- just like any other large geographic area or governmental entity. Therefore, the Ports are fundamentally different entities than those lawfully regulated as indirect sources.

- *National Association of Home Builders v. San Joaquin Valley Unified Air Pollution Control District,* 627 F.3d 730, 736-737 (9th Cir. 2010) ("*National Association of Home Builders*") does not support an ISR for the Ports. *National Association of Home Builders* involved mobile sources (construction equipment) at geographically limited construction sites involving single stationary sources. Geographic areas like ports and their terminals do not constitute a single facility and, therefore, no facility-by-facility review, as contemplated by the indirect source review program provisions of CAA, is possible for the Ports. POLA and/or POLB (either individually or collectively) are no more "indirect sources" than the cities of Los Angeles and/or Long Beach (either individually or collectively) are indirect sources. In addition, POLA and POLB are not "new or modified indirect emissions sources" for which an indirect source review program may be appropriate. *Id.* at 731-2. Despite SCAQMD's past arguments, *National Association of Home Builders* and the Clean Air Act's provisions relating to indirect source review programs set the bounds of SCAQMD's authority.

Comment 65-11 Con't

The Proposed Ports ISR would improperly regulate mobile sources and other emitting activities *(e.g., vessels)* outside of SCAQMD's authority.

- Congress did not intend or authorize the use of the indirect source review program provisions of the Clean Air Act as a way to circumvent federal authority to regulate mobile sources. (42 U.S.C. § 7410(a)(5)(C).) Congress vested the federal government with the authority to set nationwide emissions standards for mobile sources, including non-road mobile engines and vehicles. (42 U.S.C. §§ 7521, 7547.) Congress expressly and impliedly preempted states from setting standards or other requirements relating to the control of emissions for mobile sources. (42 U.S.C. § 7543, (a) & (e).) The Clean Air Act allows California to seek authorization from EPA to adopt "standards and other requirements related to the control of emissions" for some, but not all, mobile sources. (42 U.S.C. §§ 7543 (b) [on-road sources] & (e)(2)(A) [off-road sources].)
- Although a Port ISR would purport to cover all mobile sources, regulation of some mobile sources at the Ports would remain preempted under the Clean Air Act. A Port ISR could also unlawfully require the Ports to regulate emissions outside of their jurisdictional boundaries and vessels subject to the international MARPOL Treaty. (U.S. Const. art. 6, cl. 2; 33 U.S.C. §§1901 et seq.).
- Unlike the regulation at issue in *National Association of Home Builders*, a Port ISR would in fact regulate emissions from mobile sources located within the larger Port areas, not the Port sites or the terminals themselves. The SCAQMD's intent in adopting a Port ISR is to obtain emissions reductions from mobile sources beyond the reductions achieved pursuant to EPA or CARB regulations. Such regulation by SCAQMD of mobile sources is clearly preempted under the Clean Air Act. *See, e.g., Engine Manufacturers Association v. South Coast Air Quality Management District*, 541 U.S. 246, 253 (2004) (finding that regulations prohibiting the purchase or lease of motor vehicles that do not comply with emission standards were preempted); *see also Metropolitan Taxicab Board of Trade v. City of New York (Metro. II)*, 633 F.Supp.2d 83, 99 and 102-05 (S.D.N.Y.2009), *aff'd on other grounds by* 615 F.3d 152 (2d Cir.2010) (finding that an Ordinance that created incentives to increase taxi owners' use of hybrid or clean-diesel vehicles and disincentives to decrease their use of Crown Victoria model taxicabs "constitutes an offer which cannot, in practical effect, be refused" and was preempted); *Pacific Merchant Shipping Association v. Goldstene*, 517 F.3d 1108, 1114 (9th Cir. 2008) (Marine Vessel Rules were found to be "emission standards" preempted by the Clean Air Act); and *American Automobile Manufacturers Association v. Cahill*, 152 F.3d 196, 200 (2d Cir. 1998) (finding a New York law requiring that a percentage of cars sold be zero emissions vehicles had the purpose of "effect[ing] a general reduction in emissions" and was "in the nature of a command having a direct effect on the

Comment 65-12

level of emissions", and thus was preempted by Section 209(a) of the Clean Air Act).

Comment 65-12

Major Mobile Pollution Sources in Port Operations are Extensively Regulated at the Federal Level. Trucking, Rail and Ocean Shipping Activities are Subject to Regulatory Structures that Create a Highly Preemptive Regulatory Environment Constraining Action by non-federal Actors.

The primary mobile sources of air pollution in the Ports are subject to a matrix of regulatory controls that are strongly weighted in favor of federal action. Where non-federal action is permitted, it is by virtue of express Congressional authorization (*e.g.*, CAA § 116 -state regulation of stationary sources) or the grant of federally-issued waivers (*e.g.*, CAA § 209(b) – California (CARB) authority to seek EPA waiver for mobile source emission standards that equal or exceed federal standards). Additionally, the trucking industry frequently and successfully invokes the Federal Aviation Administration Authorization Act of 1994 (F4A) as a shield against non-federal impositions that have the "force and effect of law." 49 U.S.C. § 14501(c). The Ports, as "marine terminal operators" defined in the Shipping Act of 1984, are also required "to observe and enforce just and reasonable regulations and practices (46 U.S.C. §41102(c)) and are prohibited from imposing undue or unreasonable prejudice or disadvantage with respect to any person" (46 U.S.C. § 41106). The extent to which a Port ISR that applies to the adjacent Ports of Long Beach and Los Angeles would implicate these federal statutes has not been previously litigated. However, the 2007 CAAP was the subject of considerable litigation activity under the Shipping Act and F4A. The strong preemptive presence of federal statutory constraints on Port action, whether self-initiated or as required by non-federal authorities, cautions against strained and novel applications to mobile sources.

The Ports agree with this below 2022 AQMP statement:

Comment 65-13

> "Given the bulk of the Basin's NOx emissions in 2037 will be coming from federally regulated sources, the South Coast AQMD and the California Air Resources Board (CARB) cannot sufficiently reduce emissions to meet the standard without federal action. It is therefore imperative that the federal government act decisively to reduce emissions from federally regulated sources of air pollution, including interstate heavy-duty trucks, ships, locomotives, aircraft, and certain categories of off-road equipment.
>
> Emissions from federal and international sources are estimated to be 92 tons per day in 2037 (see Figure ES-4). Even if all sources regulated by CARB and the South Coast AQMD were zero emissions, federal sources alone would emit substantially more than the 63 tons per day NOx limit, thwarting any other actions to meet the standard."[4]

The Ports do not Control all Emitting Activities Within the Ports and thus Lack Authority to Enforce an ISR.

POLA and POLB are "landlord ports" that lease their land to approximately 50 marine terminal operators. Each marine terminal operator operates its own terminal and has contracts with shipping lines, railroads, logistics companies, and other parties in the goods movement chain. The Ports do not own, operate, or control through contracts, the actual purchase, operation, or deployment of mobile sources used in goods movement. The Ports are also not U.S. air regulatory agencies and lack authority to regulate mobile source or stationary source emissions. POLA and POLB, therefore, have no authority to enforce an ISR even if such regulations were within SCAQMD's authority to enact, which they are not.

Comment 65-14

[4] 2022 AQMP, Executive Summary, p.ES-6.

SCAQMD Attempts to Usurp the Ports' Authorities.

The Ports are separate governmental entities that have received separate Tidelands grants from the State of California. SCAQMD's attempts to control the Ports' discretionary decision to set the Ports' cargo rates, or a Port ISR covering the Ports, directly conflict with the Ports' own jurisdictions as governmental agencies and violate their Public Trust obligations as Tidelands Trustees. If a Port ISR requirement resulted in cargo diversion (thereby limiting cargo ships, trucks, or trains), it would also violate Public Trust obligations to provide access for and facilitate maritime cargo shipping facilities to the marine freight industry under the statutory Tidelands grant, the Los Angeles City Charter, the Long Beach City Charter, and, possibly, the federal Shipping Act.

- SCAQMD's imposition of a Port ISR that implements policies that differ from the Ports' own respective Board of Harbor Commissioners' decisions would essentially amount to a self-grant by SCAQMD of a superior or veto authority over policy judgments made by public officials charged by law with responsibility for overseeing Port activities. This directly conflicts with the Ports' own jurisdictions and obligations as governmental agencies to manage properties within their jurisdictions to promote maritime commerce.
- SCAQMD cannot lawfully act in a manner that impinges on the Ports' duties under their Tidelands Trust obligations, and cannot dictate cargo fee amounts or direct expenditures of Tidelands funds such as Clean Trucks Fund (CTF) Rate revenues. In addition, SCAQMD cannot use its indirect source authority to control marine freight growth or overrule local land use decisions. (Health & Safety Code, § 40716 [Air Districts cannot infringe on the existing authority of counties and cities to plan or control land use]; *see also* Health & Safety Code, §§ 40000, 40414, 40440.1, 40717.5(c) (1).)

Comment 65-15

CAAP Sustainable Freight Action Plan Requires Collaboration and Improving California Freight System Competitiveness – The Successful CAAP Collaborative Approach

A voluntary approach to emissions reductions reflected in the San Pedro Bay Ports Clean Air Action Plan (CAAP) 2017 has been proven to work to minimize emissions and adverse community health impacts. The Ports successfully met all past CAAP emission reduction targets both in the original 2006 CAAP and the 2010 CAAP Update. The Ports have a strong track record of CAAP achievement as evidenced in their 2020 Emissions Inventories: Diesel Particulate Matter ("DPM") reduced by 89%, NOx reduced by 64%, and SOx reduced by 98%. The CAAP voluntary approach has achieved more than 10 years of successful emission reductions as a result of extraordinary cooperation and collaboration between and among the Ports, the maritime industry, and the air agencies (EPA, ARB, and SCAQMD). Any pivot to SCAQMD rulemaking affecting the Port facilities will have a chilling effect on the ongoing cooperative voluntary activities, put the CAAP's success in peril, and result in counterproductive challenges and delays.

Comment 65-16

The Ports' strategy in their 2017 CAAP Update is aligned with the California State Sustainable Freight Action Plan (SSFAP).[5] The SSFAP directed the State agencies to work with the public, industry, and stakeholders in collaboration to establish a sustainable freight system in California, with goals to improve freight efficiency, transition to zero emission technologies, and increase the jobs and competitiveness of

[5] https://cleanairactionplan.org/documents/final-2017-clean-air-action-plan-update.pdf/

California's freight transport system. The Ports' obligations to execute their legal mandates require them to manage the Ports' business utilizing a balance of their goals including promotion of maritime commerce, environmental conditions and security of their properties and facilities - making the SSFAP particularly relevant as the Ports' guiding principle in the CAAP Update and the CTF Rate decision.

The 2017 CAAP Update also outlined strategies to reduce pollution from on-road drayage trucks through updates to each Port's Clean Trucks Program. The 2022 $10/TEU rate that went into effect in April 2022 is based upon a balanced approach to achieving the Ports' objectives of reducing emissions for reducing impacts to community health and to meet their criteria pollutant and greenhouse gas reduction goals, while minimizing unintended consequences related to economic impacts and disruption to the industry.

Comment 65-16 Con't

A Port ISR may compromise the ability of the Ports to obtain CAAP-related grant funding from governmental sources.

The Ports' CAAP voluntary approach has been successful in part due to grant funding available from governmental sources. Such funding is not available for "compliance with regulation" activities. If successful voluntary activities at Port facilities are replaced by a Port ISR regulatory approach requiring specific Port actions and results, such governmental sources of funding such Port actions will become unavailable. Thus, the Port ISR regulatory approach could in fact be counterproductive to the efforts to minimize emissions and achieve community health benefits of the CAAP voluntary approach.

Comment 65-17

Conclusion

The Ports submit that Staff's recommendation to adopt an ISR regulating Port facilities is ill-advised for all of the above reasons. The Ports have expressed these concerns and raised similar questions to the air agencies for several years, but neither CARB nor SCAQMD has provided meaningful responses. The Ports, therefore, request that SCAQMD reject imposition of an ISR on the Ports or their facilities. SCAQMD should continue to urge EPA to regulate federal emissions sources. SCAQMD and CARB should continue to rely on CARB's mobile source authority, to support the Ports by directing staff to increase efforts to secure funding for zero and near zero truck technology and infrastructure, and to maintain the success of the voluntary and collaborative CAAP.

Comment 65-18

Response to Comment 65-1: Thank you for the detailed comments provided by the Ports on the Draft AQMP. Many of the questions that are raised in this letter will be addressed during the development of Proposed Rule (PR) 2304, which would implement AQMP control measure MOB-01. Additional details regarding the authority of South Coast AQMD to adopt PR 2304 will included in the staff report for PR 2304 when details of the proposed rule have been developed.

The Ports claim they have no authority to regulate mobile sources, but do not deny here that they have wide latitude to strongly influence mobile sources. A key example is the Ports' Clean Truck Program, which requires drayage trucks to be cleaner than U.S. EPA or CARB requirements, or instead the shippers must pay a mitigation fee. The Ports have also authorized their executive officers to assess container dwell fees to ensure movement of cargo through the port complex.

See Response to Comment 65-11 for discussion of South Coast AQMD legal authority.

Response to Comment 65-2: South Coast AQMD is currently developing Proposed Rule 2304 and Proposed Rule 2306 to seek further emission reductions from mobile sources operating in and out of commercial marine ports and intermodal railyards. Rule concepts would seek to reduce emissions from these indirect sources, including through approaches that would implement the cleanest available ocean-going vessels, on-road heavy duty trucks, cargo-handling equipment, locomotives, and harbor craft, and the necessary

infrastructure to support zero emission technologies. These measures will be designed to work together with existing and proposed state and federal regulations, and will seek to further reduce emissions beyond those regulations. Details on the amount of emission reductions expected and the timeline for achieving reductions are being determined through the proposed rulemaking processes currently underway.

Control measure MOB-10 is included as a potential mechanism to complement MOB-01 through MOB-04, EGM-01 and EGM-03. It would be designed to provide strategies for operators of off-road emission sources to achieve early and/or additional emission reductions that go beyond what is required by U.S. EPA, CARB, or South Coast AQMD regulations. Mobile Source Emission Reduction Credits (MSERCs) generated through this activity could then be used as an alternate compliance mechanism within South Coast AQMD indirect source rules. South Coast AQMD Regulation XVI includes several rules designed to provide MSERCs. Although not all of these rules have been approved by U.S. EPA for inclusion into the SIP, Regulation XVI overall provides a potential framework that can be used to develop new programs that would be SIP creditable.[1] MOB-10 would seek to either amend rules within Regulation XVI or develop new rules to generate MSERCs. The development of control measures MOB-01 through MOB-04, EGM-01, and EGM-03 is not dependent on the development of MSERC programs. Rather it is a potential approach to provide additional flexibility to achieve emission reductions from mobile sources. As noted in the measure, the details of potential amendments will be discussed and developed through a public process, in collaboration with a variety of stakeholders. The amendment process will also include the examination of relevant current and future facility-based measures to ensure that the enforcement mechanisms will be sound and feasible, and provide intended benefits without increasing localized pollution in environmentally disadvantaged communities.

The Ports' Clean Truck Programs and the CARB Advanced Clean Fleets rule aim for drayage trucks to be zero emission by 2035. The 2022 AQMP seeks additional emission reductions through regulatory and voluntary measures to accelerate deployment of zero emission drayage trucks and associated infrastructure earlier than the 2035 target date.

The commenter's statement that "trucks are federally preempted sources that are beyond South Coast AQMD's regulatory jurisdiction" implies more sweeping restrictions than is supported by federal law. South Coast AQMD is prohibited from setting emission standards for trucks under Section 209(a) of the federal Clean Air Act. That provision prohibits state or local regulations adopting standards relating to the control of emissions from new motor vehicles, and is also limited by the Federal Aviation Administration Authorization Act ("FAAAA"), which preempts state and local laws "related to a price, route, or service of any motor carrier . . . with respect to the transportation of property." Proposed rules that would implement mobile source control measures within the 2022 AQMP will be developed in a manner that takes these federal restrictions into account. Mobile source reduction strategies proposed in the Draft 2022 AQMP applicable to freight facilities do not impose a standard for emissions from trucks or any other mobile sources (including ocean-going vessels) and would neither compel nor prohibit the provision of a service. These proposed mobile source reduction strategies may encourage behaviors (e.g., converting to zero emission or low NOx emission vehicles), shift incentives, or make certain routes or services more expensive than others, but such effects do not necessarily bring these strategies within the scope of

[1] Rules 1610, 1612.1, 1631, 1632, 1633, and 1634 have been approved into the SIP by U.S. EPA (https://www.epa.gov/sips-ca/epa-approved-south-coast-air-district-regulations-california-sip#xvi).

federal preemption. Furthermore, the Ninth Circuit upheld another indirect source rule program against a claim of preemption by the Clean Air Act in National Association of Home Builders v. San Joaquin Valley Unified Air Pollution Control District, 627 F.3d 730 (9th Cir. 2010).

Response to Comment 65-3: Staff appreciates the efforts the Ports are making to incentivize deployment of the cleanest ocean-going vessels entering the ports. Implementation of the Ports' Clean Air Action Plans in 2006, 2010 and 2017 as well as regulations from CARB, led to significant early emission reductions of Diesel Particulate Matter, SOx, and NOx in particular from the Vessel Speed Reduction Program and at-berth controls. However, slow deployment of lower polluting equipment and the inability to reach agreements on further emissions reductions, along with record-breaking congestion and cargo volume during the COVID-19 pandemic, has shown that progress made over the past decade can be reversed in a very short time. Incentive programs are expected to continue to play an important role in reducing emissions, however there is no indication that incentive measures alone will be sufficient to achieve the reductions needed to meet air quality standards. In particular, the Green Ship Incentive Program, the Environmental Ship Index, and the Green Shipping Corridor as currently designed are not expected to provide sufficient incentive to encourage most shipping lines to deploy low NOx technologies (i.e., Tier III, Tier II+, etc.).

The proposed PRIMER incentive program (MOB-12) is being designed with a different focus than existing Port programs. For example, its focus is to encourage international ports that serve as origins of ships coming to POLA/POLB to develop parallel incentive programs so that the cost and benefits of these programs can be shared, and thus made more affordable for the region. While somewhat similar to the Green Shipping Corridor, PRIMER also seeks to encourage low NOx technologies that could be implemented at broader scale well before zero emissions technologies. The PRIMER program could potentially be folded in with existing programs at the Ports once it is more fully developed, however additional program development is needed beyond funding. This includes development of retrofit technologies that are cost-effective and can be made commercially available, and continued partnership development with international port authorities. South Coast AQMD hopes to continue to work with the Ports on incentive programs, including PRIMER, to make them more effective. Staff intends that Proposed Rule 2304 and any new incentive funding programs for ocean-going vessels enhance emission reductions from these sources and encourages the Ports to work with South Coast AQMD during the rule development process to ensure that these programs will facilitate additional emission reductions.

Response to Comment 65-4: MOB-1 (and the resulting marine port indirect source rule, Proposed Rule 2304) is not a duplicative measure, as it is part of a more comprehensive strategy for reducing emissions in the region and in the state. The measures proposed by U.S. EPA and CARB that are referred to by the commenter are considered already in the Revised Draft 2022 AQMP (e.g., U.S. EPA's proposed Clean Truck Rule, CARB's Advanced Clean Fleets Rule, etc.). However even after considering all of these measures, another 62 tons per day of NOx emission reductions will be needed to meet federal air quality standards (i.e., 'black box' reductions). MOB-01 is being pursued to provide additional emission reductions towards this shortfall, both within rule requirements and as a facilitating measure to enhance other regulations and programs. Because any Indirect Source Rule (ISR) will overlap with existing and proposed engine and fleet standards, there is the possibility for emission reductions to be double counted. However, the detailed accounting to ensure that emission reductions are not double counted in the SIP will occur after rules are adopted. There are many potential methods to address double counting, however the form, structure, and stringency of each specific rule must be considered before detailed SIP accounting can

occur. One potential approach could include observing how all adopted rules and programs are actually achieving emission reductions in practice collectively, and then forecasting their effectiveness into the future based on this past activity. Regardless of the calculation approach used, the detailed accounting process for SIP creditable emission reductions will go through a public process to ensure that stakeholders can review and provide input. In addition, ISR rule development will include an analysis of potential future emission reductions, including the interaction with existing and proposed rules, to the extent possible with information that's available during rulemaking.

Response to Comment 65-5: Staff agrees that additional public funding is needed to implement zero and low NOx emission technologies to meet air quality standards. South Coast AQMD has aggressively pursued new funding sources in the past and will continue to do so in the future. However, incentive funding alone is an insufficient approach to achieve all of the emission reductions needed. For example, the 2016 AQMP called for about one billion dollars of new incentive funding per year to meet air quality standards in 2023 and 2031. While there has been some success in increasing the level of funding available after significant advocacy at the state and federal level, the current amount of funding is far short of what is needed to meet air quality standards. Additional actions are needed beyond incentive funding to meet air quality standards, including new regulations that will accelerate the deployment of zero emission and low NOx technologies. It is possible that Proposed Rule 2304 will limit how incentive funding can be used. However, during rule development staff will seek to identify rule concepts that will still allow some incentive funding to be used. As an example, the warehouse ISR (Rule 2305) was developed to allow many incentive programs to continue to continue to be used, even while complying with the ISR.

Response to Comment 65-6: Staff will continue to consider the issues expressed in the comment letter as the rule development of Proposed Rule 2304 continues. See Response to Comment 65-11 for discussion of South Coast AQMD legal authority.

Response to Comment 65-7: Staff encourages the Ports to participate in the rule development process of Proposed Rule 2304.

Response to Comment 65-8: See Response to Comment 65-2 for discussion of federal preemption. See Response to Comment 65-11 for discussion of South Coast AQMD legal authority.

Response to Comment 65-9: The Ports have implemented programs such as the Clean Truck Program as well as requiring practices such as shore power for ships and other mitigation measures through lease agreements with the terminal operators to reduce emissions from port-related mobile sources. Therefore, South Coast AQMD staff disagrees that the Ports have no control over mobile sources or operations associated with their terminals. See Response to Comment 65-2 for discussion of federal preemption. See Response to Comment 65-11 for discussion of South Coast AQMD legal authority.

For the Proposed Rule 2304 rulemaking, staff is developing rule concepts in consideration of the business models of the maritime freight industry and terminal-specific operations, and which entities are most appropriate to include within the rule. The Ports are encouraged to continue to engage in the rule development to provide feedback that will ensure that rule concepts ultimately brought to the Board for consideration have the greatest opportunity for success if adopted.

Response to Comment 65-10: The comment cites recently adopted and on-going rulemaking from CARB and U.S. EPA to indicate that additional rulemaking should not be undertaken by South Coast AQMD. These activities by CARB and U.S. EPA are welcome, and South Coast AQMD is strongly encouraging even

more actions by these agencies to achieve even greater and earlier emissions reductions. In particular, attainment of air quality standards is not possible without significant federal action. However, as indicated in the 2016 AQMP and this Draft 2022 AQMP, all of the regulatory actions cited by the commenter are not sufficient to meet federal or state air quality standards. For example, the Revised Draft 2022 AQMP projects that even after considering all rulemaking, an additional 62 tons per day of NOx emission reductions are still needed (i.e., the 'black box'). In order to meet air quality standards, South Coast AQMD is required to implement all feasible measures (e.g., Health and Safety Code 40914 and 40920.5). While South Coast AQMD has been meeting with CARB and U.S. EPA and will continue to advocate with all levels of state and federal governments to take further actions to reduce emissions within their authority, this Draft 2022 AQMP proposes to also continue pursuing all feasible actions within South Coast AQMD's authority.

Response to Comment 65-11: The comment questions South Coast AQMD's authority to adopt an Indirect Source Rule (ISR) for marine ports. While U.S. EPA and CARB have direct authority to establish emission standards and in-use requirements for mobile sources, South Coast AQMD may adopt and implement regulations that control emissions from indirect and areawide sources in order to meet state ambient air quality standards as recognized by Health and Safety Code Section 40716. Multiple provisions of the Health and Safety Code give South Coast AQMD authority to adopt rules and regulations for sources of air pollution other than mobile sources as necessary to attain state and federal ambient air quality standards. See Health and Safety Code Sections 40001(a), 40440(a), 40703; see also section 40000 ("The Legislature finds and declares that local and regional authorities have the primary responsibility for control of air pollution from all sources, other than emissions from motor vehicles."). These provisions are not limited to direct sources, but also include indirect sources. Nor are they limited to new as opposed to existing indirect sources. According to the California Attorney General, indirect sources are a type of nonvehicular source. 76 Ops Cal. Atty. Gen. 11 (1993) p.3. Therefore, indirect sources are within the air districts' authority. California Health and Safety Code Section 39002. These provisions are sufficient to authorize the South Coast AQMD to adopt an indirect source rule program.

In addition, the Clean Air Act allows a state to include "…as part of an applicable [state] implementation plan, an indirect source review program which the State chooses to adopt and submit as part of its plan." (Clean Air Act section 110(a)(5)(A)(i); 42 U.S.C. §7410(a)(5)(A)(i).) An indirect source is defined as "…a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution." (Clean Air Act section 110(a)(5)(C); 42 U.S.C. §7410(a)(5)(C).) The Clean Air Act also considers that indirect sources could include large geographic areas, for example section 110(b) refers to airports explicitly as a type of indirect source. For comparison, Los Angeles International Airport (owned by the city of Los Angeles) comprises more than 3,600 acres and Long Beach Airport (owned by the city of Long Beach) comprises more than 1,100 acres.

Further, the commenter's reference to a formerly proposed federal ISR (i.e., 39 FR 25292, 25300) not referring specifically to ports does not indicate that ports are not indirect sources. First, this formerly proposed regulation is not the basis for South Coast authority to develop indirect source rules. It is a specific regulation developed by U.S. EPA using its own statutory authority at the time. Even if this formerly proposed federal rule were determinative of South Coast AQMD authority, the definition in the rule itself states that the specific types of indirect sources listed in the rule are not exclusive ("The term "indirect sources" means a facility, building, structure, or installation which attracts or may attract mobile source activity that results in emissions of a pollutant for which there is a national standard. ***Such indirect***

sources include, but are not limited to: (b) Parking facilities. (c) Retail, commercial and industrial facilities. (d) Recreation, amusement, Sports and entertainment facilities. (e) Airports. (f) Office and Government buildings. (g) Apartment and condominium buildings. (h) Education facilities." 39 FR 25297, ***emphasis added***). However, recognizing that the port operations are complex, the rule development for Proposed Rule 2304 is considering how it could apply to different entities that exert various control over the port. Specific approaches to this rule will be developed during rulemaking and outside of the 2022 AQMP. Finally, the Clean Air Act acknowledges that states and their subdivisions have the right to "adopt or enforce any standard or limitation respecting emissions of air pollutants" and also "any requirement respecting control or abatement of air pollution" so long as it is not less stringent than a federal requirement. (Clean Air Act section 116; 42 U.S.C. § 7416.)

The South Coast AQMD Governing Board approved the 2016 Air Quality Management Plan (2016 AQMP) in March of 2017. The 2016 AQMP was subsequently approved by CARB, included into the State Implementation Plan (SIP), and approved by U.S. EPA in 2019. The 2016 AQMP included MOB-01, a facility-based mobile source control measure to reduce mobile source emissions associated with commercial marine ports. The MOB-01 included in the 2016 AQMP sought port-related emission reductions as a result of voluntary actions to deploy clean technologies and accelerate emission reductions. MOB-01 also stated that if sufficient action was not taken to implement the voluntary actions, South Coast AQMD staff would recommend to the Board whether to consider development of rules that are within the SCAQMD's legal authority or other enforceable mechanisms to achieve emission reductions to help attain federal air quality standards.

By approving MOB-01 into the 2016 AQMP, the South Coast AQMD and CARB have committed to, and the U.S. EPA has authorized, the consideration of an indirect source rule to achieve emission reductions from mobile sources attributed to marine ports, in order to assist attaining the federal ozone NAAQS in 2023 and 2031. The 2022 AQMP is proposing to achieve emission reductions from a potential port ISR to also assist in meeting the federal ozone standard in 2037.

An indirect source rule program seeks further emission reductions from mobile sources compared to existing and upcoming state and federal mobile source measures. South Coast AQMD staff is working closely with local, state and federal agencies in the development of a marine ports indirect source rule to maximize reduction of NOx and PM emissions as part of a larger comprehensive strategy described in the Draft 2022 AQMP designed to meet both federal and state air quality standards. South Coast AQMD will continue to strongly support federal regulations to further reduce emissions from mobile sources.

Response to Comment 65-12: See Response to Comment 65-2 for discussion of preemption. See Response to Comment 65-11 for discussion of South Coast AQMD legal authority. The comment claims that South Coast AQMD does not have authority to adopt a port ISR based on several previous cases that apply to specific regulatory concepts that may not be applicable to the regulatory concept that will ultimately be considered by the Board. Staff is aware of these cases and statutes cited by the commenter (as well as other cases and statutes), and will consider these as the proposed port ISR is developed.

Response to Comment 65-13: See Response to Comment 65-2 for discussion of preemption. See Response to Comment 65-11 for discussion of South Coast AQMD legal authority. The comment correctly points out that there are federal limits to South Coast AQMD authority with respect to developing an ISR for the ports, however there are some inaccuracies in the comment. For example, CAA section 116 is not limited just to stationary sources, and non-federal action is not only permitted through express Congressional

authorization (states also retain substantial authority under the tenth amendment to the U.S. Constitution). The comment's statement that 'The strong preemptive presence of federal statutory constraints…cautions against strained and novel applications to mobile sources' does not consider that the decades of policy actions taken to date at the federal, state, and port authority level have resulted in high port emissions that continue to harm public health (e.g., by contributing substantially to exceedances of air quality standards). It is untenable to continue to wait for traditional policy approaches to achieve the necessary emission reductions, especially considering the imminent deadlines in the Clean Air Act. Novel approaches therefore must be developed in order to accelerate emission reductions from the largest source of emissions in the South Coast Air Basin. Indeed, the ports themselves continue to develop novel approaches to reducing emissions, however the approaches that have been proposed are not adequate to achieve the level of emission reductions required. Additional action is needed, and the port ISR is one potential approach to assist in accelerating and achieving even greater emission reductions.

Response to Comment 65-14: See Response to Comment 65-1 on Port authority, and Response to Comment 65-11 on South Coast AQMD authority.

Response to Comment 65-15: See Response to Comments 65-11 for discussion of South Coast AQMD authority. As the Ports have demonstrated through their measures implementing the CAAP, including the Clean Trucks Program, measures to reduce the adverse health effects of Port related operations due to air pollution are completely consistent with the Ports' obligations under their Tidelands grants, city charters, and Shipping Act. Further, staff does not believe that these obligations require the Ports to discriminately prefer the interests of emission sources over the health of nearby and downwind residents. As a regional authority South Coast AQMD promulgates and enforces many rules that are applicable to cities, counties, and other local government agencies within its jurisdiction. These existing rules do not conflict with these agencies' obligations or land use authority, and the proposed port ISR will be developed to similarly take these concerns into consideration.

Response to Comment 65-16: See Response to Comment 65-3. Further, while the Ports claim to balance the needs for continued growth of maritime commerce with environmental conditions, the past achievements in reducing emission have fallen far short of the requirements under federal law to meet ambient air quality standards. If the requirements under the Clean Air Act are not achieved, the region will continue to suffer the worst air quality in the nation and the associated negative public health outcomes, and looming federal sanctions on highway funding will significantly harm the promotion of maritime commerce that the Ports seek. Significant action is needed beyond the limited approaches proposed by the Ports.

Response to Comment 65-17: See Response to Comment 65-5.

Response to Comment 65-18: See Response to Comment 65-11 regarding legal authority for South Coast AQMD to adopt a marine ports indirect source rule. South Coast AQMD will continue to strongly support federal regulations to further reduce emissions from mobile sources.

Comment Letter #66

July 5, 2022

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: A.O. SMITH COMMENTS TO SOUTH COAST DRAFT 2022 AQMP

A. O. Smith appreciates the opportunity to submit comments to the South Coast Air Quality Management District (SCAQMD) regarding the Draft 2022 AQMP. The Draft 2022 AQMP serves as the blueprint for how the region will meet the 8-hour ozone National Ambient Air Quality Standard (NAAQS) and fulfills U.S. EPA's nonattainment area requirements and includes a variety of strategies relying on NOx emissions reductions through economy-wide transition to zero emission technologies. A. O. Smith's comments focus on the proposed measures for residential and commercial buildings.

Comment 66-1

The Draft 2022 AQMP proposes zero NOx emission standards for space heating, water heating, and cooking appliances for installation in new buildings and replacement at the end of useful life for units in existing buildings. Implementation is projected to begin in 2029 for residential buildings and in 2031 for commercial buildings.

As the state and local government agencies develop policies to reduce greenhouse gas (GHG) emissions and move toward building electrification, it is imperative that these policies that will be put into place are in alignment. A. O. Smith recommends a stepwise and pragmatic approach to reach electrification goals, and we look forward to working with the SCAQMD, other local agencies as well as the state in this regard. Recognizing the various challenges to building electrification, A. O. Smith respectfully requests that SCAQMD consider the following:

Comment 66-2

- **Align Implementation Dates:** Align the effective date for new construction as well as retrofitting existing buildings to 2031.
- **Develop a System of Prioritization for Retrofits**: Create a process by which homes that do not require main panel upgrades can be retrofitted first.
- **Include Electric Storage Resistance Water Heaters as an Eligible Upgrade for Incentive Program:** The Draft 2022 proposes to provide incentives to promote replacement of zero emission appliances. The states of Oregon and Washington include electric storage resistance water

heaters as well as HPWHs as eligible for electrification programs. California and SCAQMD can follow suit.

Comment 66-2 Con't

ABOUT A. O. SMITH

A. O. Smith is a global leader applying innovative technology and energy-efficient solutions to products manufactured and marketed worldwide. Our company is one of the world's leading manufacturers of residential and commercial water heating equipment and boilers, as well as a manufacturer of water treatment and air purification products. Along with its wholly owned subsidiaries, A. O. Smith is the largest manufacturer and seller of residential and commercial water heating equipment, high efficiency residential and commercial boilers, and pool heaters in North America.

As a leading manufacturer of both residential and commercial heat pump water heaters (HPWHs), A. O. Smith has a keen interest in this Draft 2022 AQMP. The path to achieving carbon neutrality will require several changes in California. HPHWs will play a vital role in two key California policy priorities – reducing the carbon footprint of our buildings as the state transitions water heaters from primarily gas-fired to electricity and helping to manage the integration of increasing amounts of renewable energy as HPWHs may shift load and serve as thermal energy storage devices.

Comment 66-3

HPWHs and grid-interactive electric storage water heaters offer the ability to provide thermal storage serving as a battery for assisting the integration of renewable energy into local distribution grids in both residential and commercial applications. Flexible demand [or smart] water heaters, which include grid-enabled electric resistance storage water heaters and HPWHs, have additional controls that allow the utility or third-party aggregator to control their energy use (e.g., load shifting) during the course of the day. Within a given local territory, a fleet of water heaters can be controlled to be a flexible energy storage system that can adjust the load on the grid. Given that every home in the state has a water heater, smart water heaters can play a key role in load management and carbon reduction within the built environment.

BUILDING ELECTRIFICATION REQUIRES SIGNIFICANT INVESTMENTS

In California, about 75 percent of homes (or 9.75 million) were built before 1990. Older homes are less likely to have adequately sized electric panels to accommodate all electric appliances.[1] In addition to the cost of the electric appliance, an older home may also require an electric panel upgrade. The California Energy Commission (CEC) estimates that a panel upgrade can cost between $2,500 - $4,000[2] and would likely be borne by the home or property owner. In a scenario where every house built before 1990 requires an electric panel upgrade, an investment between $25 - $40 billion dollars would be required. Another study on building electrification by the not-for-profit organization, Pecan Street, found that it would cost approximately $100 billion to upgrade electric panels in the residential sector across the

Comment 66-4

[1] California Energy Commission. *California Building Decarbonization Assessment - Final Commission Report*, August 13, 2021, pg 109.

[2] Building Decarbonization Coalition. *Towards an Accessible Financing Solution*. June 2020, pg 14.

country. Regardless of the exact amount, it's important to note that just one component of electrification, updating the main electrical panel of a home, will require a tremendous financial investment. The figures shared here do not even account for the cost of upgrading electric appliances that in many cases are more expensive than their gas counterparts. According to the Building Decarbonization Coalition, the cost to electrify low-to-moderate income (LMI) households in California would require investments in the magnitude of $72 - $150 billion over the next several decades.

A. O. Smith is pleased that the Draft 2022 AQMP Draft also proposes to provide incentives to promote replacement with zero emission appliances in existing buildings with a focus on disadvantaged communities. Consistent and long-term funding for GHG reduction programs and incentives is essential in aiding consumers in making different purchasing decisions and accepting new technologies.

Comment 66-4 Con't

DEVELOPMENT OF PRIORITIZATION FOR REPLACEMENTS IN EXISTING BUILDING STOCK

A. O. Smith recommends a pragmatic approach to reach electrification goals, and we look forward to working with SCAQMD and other state agencies in this regard. As noted during the California Air Resources Board (CARB) Scoping Plan Update workshop, the age, and characteristics of some of the existing building stock can prove challenging to completely electrify. In addition to a panel upgrade, space constraints of an older home can make it difficult to install a HPWH. Most gas water heaters are placed inside a small closet, whereas a HPHW requires more space for the appliance to function efficiently and as intended. Given that some homes may lend themselves to a cheaper, faster, and overall easier transition to electrification, A. O. Smith recommends a system of prioritization to help target homes that are immediately ready for replacement while continuing to develop plans for buildings that are harder to electrify. In the State of New York, for example, some local jurisdictions are pursuing a stepwise approach for building electrification by completing energy audits of buildings (residential and commercial) as a first step to identify, tier, and prioritize which buildings can transition to all-electric end-uses ahead of others.

Comment 66-5

Retrofitting existing commercial buildings has similar issues as retrofitting a residential home: type and size of equipment, age of the building, and space constraints. However, the primary challenge in commercial applications is being able to match the customers hot water needs (i.e., load) in converting from a gas-fired product to a HPWH. In certain applications, the economics of the conversion will not be favorable, including the potential to increase the annual operating costs to the business owner or property owner. According to a report on the assessment of building decarbonization by the CEC, small business owners and property owners of small and medium size commercial buildings could incur retrofit costs of up to $40,000.[3] Therefore, ensuring the correct application of the equipment will be critical. A. O. Smith recommends a stepwise approach to reaching electrification goals by allowing high efficiency gas condensing equipment to be used in limited cases where there is no viable electric alternative. Using hybrid heat pumps with options for gas/electric back-up may also be necessary for certain space constrained and larger thermal load applications, such as health care facilities, in certain areas of the state.

[3] CEC Draft 2021 Integrated Energy Policy Report Volume I: Energy Efficiency and Building, Industrial, and Agricultural Decarbonization, pg 16.

STREAMLINED PROCESS FOR ELECTRIFYING EXISTING BUILDINGS

Californians need a streamlined, easy-to-use program to assist homeowners and property owners in embracing electrification. Programs developed to incent customers to switch from gas water heaters to electric ones must be easy to use. Inspections of installations are critical to ensure that work was performed to required specifications and that appliances are working efficiently. Nevertheless, in-person inspections can further delay projects. A. O. Smith is encouraged that the City of San Jose has implemented an online permitting and inspection program for HVAC with heat pump technology which includes training for inspectors on heat pump technology installations so that they have the knowledge of what to look for in a quality heat pump installation. An online permitting process and remote inspections through virtual verification through pre and post pictures of installations should be considered as it continues to build out its electrification programs.

Comment 66-6

ADDRESSING THE SHORTAGE OF EXPERIENCED HPWH INSTALLERS

There is currently a shortage in California of plumbing contractors that have HPWH experience because most water heating systems in California are gas-fired. The current pool of trained contractors and installers is limited which keeps the HPWH market from growing a consistent and stable workforce. As such, we recommend that local and state agencies work together to explore barriers to the market, including licensing requirements which can help to address the HPWH contractor shortage that many manufacturers see taking place currently.

Comment 66-7

PROVIDING MANUFACTURERS WITH BUSINESS CERTAINTY

The CEC assumes a turnover rate of 7 percent in water heaters in existing single-family homes and multi-family units, which equates to 861,000 water heaters being replaced annually.[4] To capture even 10 percent of this market means installing 86,000 units per year. The number of HPWH units sold annually across the entire country in 2020 was approximately 100,000.[5] To convert the entire annual California market of water heaters to HPWHs would require a ten-fold increase of nationwide HPWH manufacturing capacity. These figures are meant to illustrate that meeting California's demand for HPWHs at even a modest pace would require significant ramp up of manufacturing and have vast impacts on the supply chain. This sort of increase takes time to orchestrate as new manufacturing capacity and production lines must be created. Therefore, having a clear and reliable policy scheme will be necessary to provide manufacturers with the business certainty needed to make the massive investments required to increase manufacturing capacity at this unprecedented scale.

Comment 66-8

CONCLUSION

The transition away from utilizing natural gas for space and water heating, to electricity exclusively, presents significant challenges from funding and consumer awareness and acceptance to physical infrastructure and electricity grid modernization. A. O. Smith urges the SCAQMD, state and other local agencies to take a pragmatic, clear and reliable approach as they build upon GHG reduction goals.

Comment 66-9

[4] ibid.
[5] ENERGY STAR® Unit Shipment and Market Penetration Report Calendar Year 2020 Summary, pg 6.

In addition to having consistent programs that provide incentives and consumer awareness and education on electric water heaters, we recommend that SCAQMD also focus on:

- Streamlining processes for installations;
- Providing manufacturers with the business certainty needed to make the necessary investments required to increase manufacturing capacity; and
- Continuing agency coordination to align federal, state, and local policies and rules to help achieve a smooth transition to reaching carbon neutrality.

Comment 66-9 Con't

We appreciate the opportunity to provide comments to the Draft 2022 AQMP. We look forward to continuing the dialogue and working with the SCAQMD to design a program that helps achieve our GHG reduction goals as effectively as possible.

Sincerely,



Joshua C. Greene
Corporate Vice President, Government and Industry Affairs
A. O. Smith Corporation
jcgreene@aosmith.com

Response to Comment 66-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP.

Response to Comment 66-2: Staff agrees that is it important to align the implementation dates with the State and other local agencies. South Coast AQMD staff has been meeting with California Air Resources Board (CARB) and other air districts to discuss the details of the south Coast AQMD's plans and strategies. More refinement of the implementation schedule, and how it aligns with other regulatory requirements, will be discussed further during the rulemaking.

Staff also agrees that the zero emission appliance implementation should be a stepwise and pragmatic approach. Buildings that do not require main panel upgrade, such as new or newer buildings, can transition to zero emission appliances first. The details of the implementation approach will be developed during the rulemaking process.

Staff acknowledges electric storage resistance water heaters are another zero emission option. Compared to all electric heat pumps, this type of water heater is not as energy efficient. Staff will continue to research and monitor the development of all zero emission options and engage in discussions with the working group during the rulemaking.

Response to Comment 66-3: Thank you for providing background information.

Response to Comment 66-4: Staff agrees that the cost is a major obstacle for implementing zero emission appliances, especially for older buildings that requires an electric panel upgrade. Staff has referenced several studies for the cost evaluation as discussed in the control measures. Please refer to the general response to the Cost of Zero Emission Technology in Residential and Commercial Building Appliances for a brief summary on the cost. Staff will conduct more in-depth analysis, possibly with the assistance of

professional consultants, on the cost during the rulemaking, in order to have a thorough understanding and identify a feasible solution.

The South Coast AQMD and other state and local agencies are aware of the public concern for the cost of implementing zero emission appliances. The agency has already begun to have more focus on the disadvantaged communities with dedicated community outreach and incentive funding to address inequity. Please refer to the general response to the Impact of Zero Emission Technology on Inequity.

Response to Comment 66-5: Staff agrees that the zero emission appliance implementation should be a stepwise and pragmatic approach as stated in the Response to Comment 66-2. The control measures are considering that new buildings implementation can be the first phase. Some other buildings or applications will also be identified for early implementation as part of the stepwise and pragmatic approach.

For appliances in commercial buildings, staff understands the zero emission market is not as mature as for the residential buildings. Therefore, the control measures propose a later implementation time. Please note the control measures for appliances in existing buildings are for replacement at the end of unit useful time. The cost that staff evaluates should be the incremental cost, which is the cost difference from installing a gas unit. But the commenter noted retrofit cost may count the entire installation cost. Nevertheless, cost is a major obstacle in older existing buildings as addressed in Response to Comment 66-4. The control measures have proposed a lower NOx natural gas unit as an off ramp only when the zero emission technology is deemed infeasible. Staff has identified some potential lower NOx technologies for appliances. Staff will work with stakeholders during the future rulemaking to determine if any new technology could be adopted for water heating and if the current NOx limit should be revised for the gas unit to be used as an alternative to the future zero emission requirement.

Response to Comment 66-6: Staff agrees that a streamlined process for inspection and permitting would help incentivize homeowners to switch from gas water heaters to zero emission units. For area sources like residential appliances, the South Coast AQMD rules are applicable to manufacturers, distributors, and installers, and the mandate is focused on unit emission limit. The South Coast AQMD does not require permits for these types of sources or conduct inspection for each installation. The comment is about permit and inspection by cities as part of building code companies. The South Coast AQMD does work closely with the Southern California Association of Governments (SCAG) and local cities and will invite those entities to the future working group to address concerns like this.

Response to Comment 66-7: Staff understand the demand for licensed contractors will increase with the adoption of zero emission appliances. However, as the heat pump is a mature technology, especially for the residential market, most of the contractors for gas units are also licensed for installing zero emission units such as all electric heat pumps. There are also several aspects of the control measures that would prevent the drastic contractor shortage. First, consistent with what the commenter suggested, a stepwise and pragmatic approach should be considered for implementing zero emission appliance that would stagger the installations. Second, the control measures for appliances in existing buildings, which count for 90 percent of building stocks, are for replacement at the end of unit useful time. Staff does not expect the amount of work orders for the appliance market in any time would change. Yet, staff does believe the south Coast AQMD and other agencies should work together to ensure that contractor shortage would not become an issue during the future implementation.

Response to Comment 66-8: Staff understands the concerns for growing demand and the supply chain challenges. Technology continues to evolve to address market barriers and sustain reasonable supply and availability. Additional actions can help build a sustainable market, including increasing affordability and accessibility and increasing consumer education. More detailed analysis during the rulemaking process will consider supply chain and manufacturing capacity concerns. For further discussion, please refer to Response to Comment 53-2.

Response to Comment 66-9: Thank you for your comments. The South Coast AQMD will continue to work with other state and local agencies to ensure an equitable transition and implementation process.

Comment Letter #67



July 5, 2022

Michael Krause
Assistant Deputy Executive Officer
South Coast Air Quality Management District
AQMPteam@aqmd.gov

Re: Public Comments on Draft 2022 Air Quality Management Plan (AQMP)

RadTech International is the premier trade association in North America for Ultraviolet/Electron Beam/Light Emitting Diode (UV/EB/LED) technology. We speak on behalf of our over 800 members who are involved in a myriad of industry sectors ranging from printing and packaging to nail polish. RadTech has been participating in the AQMP development, serving as a member of the advisory committee for over a decade. In that capacity, we have made comments throughout the process and are pleased to submit written comments on the Draft 2022 AQMP and accompanying Policy Briefs.

Comment 67-1

Comments on Policy Briefs

The Climate Change and Decarbonization Policy Brief highlights efforts to reduce Greenhouse Gas (GHG) emissions from various sectors. UV/EB/LED technology can support these efforts because our processes are all electric and can replace add on controls that use fossil fuels thereby eliminating greenhouse gasses and Nitrogen Oxides emissions. According to the AQMP policy briefs, reducing emissions of Nitrogen Oxides (NOx) will be critical to attain the standard by 2037. One of the most significant cost factors when comparing thermal cure to UV cure is the energy cost. Studies have shown that conversion from a large (1.10 MBTU/hr) gas dryer to a UV curing unit can cut the annual energy cost in half for the same production capacity thereby achieving emission reductions; reducing costs to businesses and advancing the state's transition to clean and carbon free energy. Currently, facilities who invest in pollution prevention strategies such as UV/EB/LED are not adequately recognized or rewarded for their NOx and GHG emission reduction efforts. We urge the district to provide incentives in the form of permit exemptions and reduced recordkeeping.

Comment 67-2

Comments on Draft AQMP

CTS-O1 --Further Emission Reductions from Coatings, Solvents, Adhesives, and Lubricants [VOCs].

We appreciate the district's consideration of UV/EB/LED technology as one of the potential ways to achieve VOC reductions and are strongly support the proposal to incentivize the use of zero and near-zero VOC materials. To that end, we suggest amendments to the district's permit exemption rule (Rule 219) to remove regulatory barriers to implementation of low VOC (less than 50 grams/liter in VOC content) materials. Most UV/EB/LED materials emit little to no VOCs or Hazardous Air Pollutants without relying on materials such as tBAc and PCBTF. Since the materials do not "dry" (cure) unless exposed to energy, there is less clean- up. UV/EB users enjoy an increase in up-time and productivity due to the nature of the chemistry (doesn't skin over in applicator, not clean up between shifts/weekends, faster start-ups). Moreover, the materials are not absorbed through the skin like solvents, and they have very low vapor pressures, making inhalation less likely. Technological innovations have overcome past challenges such as substrate penetration, coating of large areas, curved surfaces and line of sight issues.

Comment 67-3

We request the **inclusion of a description of Ultraviolet/Electron Beam/ Light Emitting Diodes (UV/EB/LED) technology in the Plan as it appeared in the 2003 AQMP.** Unfortunately, most of that language was eliminated in the 2016 Plan and is not present in the 2022 Draft Plan. The SCAQMD constituents, especially small businesses who may not have access to in-house environmental professionals, would benefit from a more detailed description of our technology.

We would proposed the following language which, is essentially what appears in the 2003 Plan:

"Energy-*curable products are liquids with low viscosity that are 100 percent reactive solids. The main difference between traditional solvent-based products and radiation-curing products is the curing mechanism. Energy curable products do not dry in the sense of losing solvents to the atmosphere as is the case with solvent-based products. Instead, when they are exposed to energy, a polymerization reaction starts which converts the liquid to a hard, tough, cured solid film in a fraction of a second. This process typically results in significantly lower VOC emissions and a lower carbon footprint as compared to solvent-based products. The most common means used to cure the products are ultraviolet light (UV), electron beam (EB) and light emitting diodes (LED). UV & LED-curing products need a chemical photoinitiator to initiate the polymerization (curing) process when exposed to UV light. EB-cured products do not contain photoinitiators and are cured when electrons generated with the EB equipment react directly with monomers and polymers in the reactive liquid formula to effect full cure. Due to almost instant curing of these products, the concept of drying time is eliminated which allows any post-application operation to commence immediately or in-line. Other advantages include the attainment of very high gloss levels, reduction of VOC emissions and solvent odors, and reduced energy consumption. UV/EB/LED products can be used on virtually all substrates, from metal and wood to glass and plastic. Applications of UV/EB/LED curing products are numerous*

Comment 67-4

and expanding rapidly. Examples include: coatings, inks and adhesives for paper, furniture, automotive components, no-wax flooring, credit cards, packaging, lottery tickets, golf balls, eye glass and contact lenses, CDs, baseball bats, beverage can labels and functional coatings and hundreds of other items. Energy -curing technologies have made significant progress in alleviating technical limitations for field applications such as automotive repair, and efforts are underway for applying this technology in aerospace and military field uses.

Use of super-compliant zero and near-zero VOC materials, such as some ultraviolet light, electron beam, and light emitting diode-cured coatings, eliminate or substantially reduce emissions compared to similar products that are not zero or near-zero products. There are several product categories where these materials perform as well as, or better than traditional products and they are widely available in the market."

Comment 67-4 Con't

FLX-02 Stationary Source VOC Incentives [VOCs]

The Draft Plan (see Appendix IV-A-pg. 165) recognizes that, although regulatory relief incentives have been incorporated into several South Coast AQMD rules, including Rule 109 -- Recordkeeping for Volatile Organic Compound Emissions, "incentivizing the use of cleaner, less polluting, products and equipment requires additional efforts to broaden the scope of stationary source incentives". Removing overly prescriptive permitting and recordkeeping requirements would help the district achieve its incentives goals under Control Measure FLX-02. While we wholeheartedly agree with the incentives concept, we are concerned with how it would be implemented by requiring facilities to "accept permit conditions". Embroiling facilities in the permitting system and demanding acceptance of permit conditions, would defeat the purpose of an incentives program as facilities will not see costly permit modifications as an incentive. We very much support the provision of incentive funding to facilitate the adoption of clean, low VOC emission technologies from stationary sources and believe that eliminating permit fees via permit exemptions would indeed be an incentive.

Oftentimes, the regulated community (especially small businesses) do not have a clear road map on steps they can take to convert to cleaner technologies. We urge the district to add the www.radtech.org link to the district's website so that interested facilities can have access to additional information about UV/EB/LED technology.

Comment 67-5

In summary, there are both tangible and intangible benefits to deciding to go to UV/EB/LED curing. When factoring these benefits into the selection criteria, UV/EB/LED typically becomes the most economical and environmentally safe solution. Our technology can play a vital role in the district's 2022 AQMP. As detailed above, some of the recommendations we have to improve the Draft Plan are:

- Add a more detailed description of UV/EB/LED processes
- Provide funding incentives and ease regulatory burdens by providing exemptions (permit & recordkeeping) for facilities that reduce emissions beyond what district rules currently require.
- We appreciate the opportunity to provide comments and look forward to the development of the AQMP.

Comment 67-6

Sincerely,

Rita M. Loof
Director, Environmental Affairs

Response to Comment 67-1: Staff appreciates the continued participation of RadTech International in the development of the AQMP and accompanying Policy Briefs.

Response to Comment 67-2: Currently, facilities that invest in low pollution technologies such as UV/EB/LED technologies already qualify for limited record keeping and permit exemptions in Rule 109 – Recordkeeping for Volatile Organic Compound Emissions and Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II respectively. Staff is in rule development to assess further permit exemptions for UV/EB/LED technologies in Rule 219.

Response to Comment 67-3: Low pollution UV/EB/LED technologies already qualify for permit exemptions in Rule 219. Staff is currently in rule development to assess further permit exemptions for UV/EB/LED technologies in Rule 219.

Response to Comment 67-4: A similar description for UV/EB/LED and other low and zero emissions technologies has been included in Control Measure CTS-01.

Response to Comment 67-5: Rule 219 already provides exemptions from permitting for low emission uses of UV/EB/LED technologies. For higher emission UV/EB/LED processes, permitting and recordkeeping is appropriate to regulate emissions from these operations. While a technology may be lower emitting in comparison to other technologies, it still is high emitting if volumes are sufficiently high. Rule 219 delineates this threshold. Clean low VOC coatings, solvents, and inks may seek certification as a Clean Air Choices Cleaner to have their products listed on the South Coast AQMD website.

Response to Comment 67-6: Staff appreciates the benefits provided by UV/EB/LED technologies. Please see Responses to Comments 67-4 and 67-5 for discussion on a more detailed description of the technologies and incentives.

Comment Letter #68

From: Hamilton, Priscilla R <PHamilton@socalgas.com>
Sent: Tuesday, July 5, 2022 4:09 PM
To: Wayne Nastri <wnastri@aqmd.gov>; Sarah Rees <SRees@aqmd.gov>; Aaron Katzenstein <AKatzenstein@aqmd.gov>; Michael Krause <MKrause@aqmd.gov>; Ian MacMillan <imacmillan@aqmd.gov>
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Subject: SoCalGas Comments on Draft 2022 AQMP

Hi Wayne,

I hope you had a nice holiday weekend. We appreciate the opportunity to provide comments on the Draft 2022 AQMP. Attached you will find our letter which outlines three key issues:

1. Fuel cells should be a cornerstone of South Coast AQMD's NOx emissions reduction strategy for buildings to ensure equitable access to clean air and resilient energy;
2. A fuel card program can help displace Heavy-Duty (HD) diesel trucks today and provide a pathway for zero-emission fueling infrastructure; and,
3. Proposed stationary source measures, if applied at SoCalGas and SDG&E facilities could delay emission reductions, potentially impact energy system reliability, and result in over $1B in stranded assets, including as necessary for delivering increasingly cleaner fuels.

Comment 68-1

SoCalGas looks forward to collaboratively pursuing our shared interest of achieving both climate and air quality goals in California. Please feel free to reach out if you have any questions.

Best,
Priscilla

Priscilla R. Hamilton (She/Her)
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July 5, 2022

Wayne Nastri
Executive Officer
South Coast Air Quality Management District
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Diamond Bar, CA 91765

Subject: Comments on the Draft 2022 Air Quality Management Plan (AQMP)

Dear Mr. Nastri:

Southern California Gas Company (SoCalGas) appreciates the opportunity to provide public comments on the Draft 2022 AQMP released in May 2022. As the Draft 2022 AQMP notes, most nitrogen oxide (NOx) emissions in the South Coast Air Basin are from heavy-duty trucks, ships and other mobile sources that are beyond South Coast Air Quality Management District's (South Coast AQMD) regulatory control. While NOx emissions in the South Coast Air Basin have reduced significantly in recent years, almost all these reductions come from sources under California Air Resources Board (CARB) and South Coast AQMD authority. In contrast, NOx emissions from federal sources are increasing.[1] In 2037, the attainment year for South Coast AQMD to meet the 2015 8-hour ozone standard of 70 parts per billion, sources that are under South Coast AQMD control will account for less than 20 percent of total NOx emissions, while sources under CARB control will account for 39 percent of the emissions, and sources under federal control will account for 42 percent of emissions.[2]

Comment 68-2

Given this, South Coast AQMD has concluded that attainment is not possible without addressing those federal sources even if all emissions under South Coast AQMD's and CARB's control were eliminated.[3] Requiring significant reductions from these non-federal sources places an

Comment 68-3

[1] *See* South Coast AQMD, "Draft 2022 Air Quality Management Plan (AQMP)" available at draft2022aqmp.pdf (aqmd.gov).
[2] *See* AQMP, p. ES2-ES3.
[3] *See* AQMP, p. ES6.

undue burden on them, given that in most cases they are already strictly regulated.[4] Given the magnitude of emissions reductions necessary to meet the 2015 8-hour ozone standard, SoCalGas supports South Coast AQMD's efforts to compel emissions reductions from federal sources. Such efforts advance the public interest and could reduce the need for AQMP measures that address disproportionately small stationary source emissions at a very high cost.

With a focus on informing the planning process and addressing certain longstanding foundational elements for advancing public welfare in undertaking ozone attainment planning, our comments are as follows:

Comment 68-3 Con't

1) Fuel cells should be a cornerstone of South Coast AQMD's NOx emissions reduction strategy for buildings to ensure equitable access to clean air and resilient energy;

2) A fuel card program can help displace Heavy-Duty (HD) diesel trucks today and provide a pathway for zero-emission fueling infrastructure; and,

3) Proposed stationary source measures, if applied at SoCalGas and SDG&E facilities could delay emission reductions, potentially impact energy system reliability, and result in over $1B in stranded assets, including as necessary for delivering increasingly cleaner fuels.

1) Fuel cells should be a cornerstone of South Coast AQMD's NOx emissions reduction strategy for buildings to ensure equitable access to clean air and resilient energy

The Draft 2022 AQMP proposes zero emission standards for space heating, water heating, and cooking appliances for installation in new buildings and replacement at the end of useful life for units in existing buildings.[5] Providing resilient, increasingly cleaner energy for all Californians should continue to be a critical aspect of California's climate, energy, and clean air goals. The State recognizes the current planning shortfalls of electricity, which under one circumstance is as great 3,500 MW for the summer of 2022.[6] Consequently, the Governor's May Revise Budget includes $4.2 billion to procure and take out of the market 5,000 MW of electric generators for emergency purposes.[7] There is concern that, due to supply chain issues and costs of transportation, this shortfall could be exacerbated over time. This leads to the potential of further increasing adverse reliance on gasoline and diesel backup generation to ensure electric reliability as expressed in the recent University of California, Irvine (UCI) presentation to the South Coast AQMD Governing Board.[8] The UCI presentation illustrates the potential significant air quality degradation

Comment 68-4

[4] *See* AQMP, p. ES5.
[5] *See* South Coast AQMD, "Policy Brief: Residential and Commercial Building Appliances", available at combined-residential-and-commercial-buildings-appliance.pdf (aqmd.gov)
[6] https://www.scientificamerican.com/article/california-faces-summer-blackouts-from-climate-extremes/
[7] Governor's May Revise Budget, available at https://www.ebudget.ca.gov/2022-23/pdf/Revised/BudgetSummary/ClimateChange.pdf
[8] *See* "Energy Future for South Coast Air Quality Management District" Jack Brouwer (University of California, Irvine), May 12, 2022, available at: http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2022/spec-mtg--brd-retreat-agenda-may-2022.pdf?sfvrsn=24.

and increased public health costs in disadvantaged communities from residential, commercial, and industrial gasoline and diesel backup generation during Public Safety Power Shutoff (PSPS) events in the South Coast Air Basin.[9] These impacts have also been top of mind for the Disadvantaged Communities Advisory Group (DACAG), the 11-member group that reviews California Energy Commission (CEC) and California Public Utility Commission (CPUC) policies.[10] In 2021, the DACAG recommended reducing the use of diesel generators, improving communication about the scope and duration of Public Safety Power Shutoff (PSPS) events, and exploring ways the grid can remain energized through islanding in PSPS event communities with no wildfire risk.[11,12]

Comment 68-4 Con't

Fuel cells present an optimal tool for achieving California's air quality, public health, equity, climate, and energy goals. The Draft 2022 AQMP recognizes "fuel cells as an alternative to traditional ICE engines reduces NOx emissions with a co-benefit of reducing other criteria pollutants, toxics, and GHGs."[13] Fuel cells could displace gasoline and diesel backup generation from PSPS events by providing continuous power for electric appliances or equipment. Since fuel cells do not combust the feedstock when generating electricity, they produce negligible to zero associated NOx emissions,[14] and when fueled with 100 percent renewable fuel, they can have negative greenhouse gas emission impacts.[15] Fuel cells could also mitigate strain on the electric grid as more buildings and transportation segments electrify by offsetting electric demand through running "grid parallel" or "islanding." Beyond cleaner air and resilient power, fuel cells could result in cost-savings for residents by reducing their electricity bills. To this end, SoCalGas is engaged in two key efforts to help develop the fuel cell market. Utilizing funding from the 2016 AQMP, SoCalGas is completing lab testing for a small Solid Oxide Fuel Cell (SOFC) and planning to field test four units in the South Coast Air Basin. Each unit will be retrofitted to a single-family home to power electric appliances. In addition, SoCalGas is developing new energy resilience projects for its customers to be deployed across its service territory to spur customer energy resilience investments. This program focuses on providing power resilience and reliability solutions to customers located in Tier 2 or Tier 3 High Fire Threat Districts during unplanned outages or when electric utilities de-energize powerlines during Public Safety Power Shutoff

Comment 68-5

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[9] *Ibid.*

[10] *See* Disadvantaged Communities Advisory Group at https://www.cpuc.ca.gov/dacag/

[11] *See* "DACAG 2021 Annual Report," CEC, p. 8, available at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=240542.

[12] *See* McNamara et al. (2022), "Seeking energy equity through energy storage", The Electricity Journal 35 (2022), available at https://www.sciencedirect.com/science/article/pii/S1040619021001548#bib5

[13] *See* South Coast AQMD, "Draft 2022 AQMP Appendix IV-A" available at http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/appiv-a.pdf?sfvrsn=18

[14] *See* "Catalog of Combined Heat & Power (CHP) Technologies, Section 6. Technology Characterization – Fuel Cells," U.S. Environmental Protection Agency (EPA) CHP Partnership, March 2015, p. 6-1, 6-7, available at: https://www.epa.gov/sites/default/files/2015-07/documents/catalog_of_chp_technologies_section_6._technology_characterization_-_fuel_cells.pdf.

[15] *See* "2016 - 2017 Self-Generation Incentive Program (SGIP) Overall Program Impact Evaluation," CEC, section 6.3.1, p. 6-12 to 6-14 and December 7, 2018, available at: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/self-generation-incentive-program.

(PSPS) events to mitigate the risk of wildfires.[16] These behind-the-meter microgrids will include a long duration fuel cell plus battery storage solution with islanding capabilities. SoCalGas anticipates incorporating hydrogen into this program in the future.

Given the benefits enumerated above, it is in the public interest for South Coast AQMD to accelerate the fuel cell market in California through the 2022 AQMP. To ensure equitable access to clean air and reliable energy, the 2022 AQMP should include fuel cells as a cornerstone of reducing NOx emissions from residential and commercial buildings and should allocate fuel cell incentives on par with electric appliance turnover incentives, especially in disadvantaged communities, and should not require a mitigation fee for fuel cells providing power for electric appliances.

Comment 68-5 Con't

2) A fuel card program can help displace heavy-duty diesel trucks today and provide a pathway for zero-emission fueling infrastructure

The Draft 2022 AQMP states that "incentive funds can facilitate the replacement of older, higher-emitting vehicles and equipment with the cleanest vehicles and equipment commercially available."[17] In your August 3, 2021 letter to environmental justice and advocacy groups, you stated that actions to make progress toward climate goals and reduce air pollution "can and must go hand-in-hand."[18] The letter further stated that heavy-duty trucks fueled with Renewable Natural Gas (RNG) are commercially available today, can "provide substantial GHG emission reductions," and are "at least 90 percent cleaner than new diesel trucks on NOx and 100 percent cleaner on cancer-causing diesel particulate matter."[19] In addition, a peer-reviewed study recently published by the University of California, Riverside, in the journal "Transportation Research Part D" reinforces this point by stating that heavy-duty trucks fueled with RNG should be rapidly deployed in the 2020-2040 timeframe to achieve GHG and NOx emission reduction targets, and "accelerating [the diesel trucks] fleet turnover is a more important NOx control strategy than dividing up vehicle replacements…between near-zero-emissions and zero-emissions vehicles."[20] Unfortunately, CARB's Clean Truck rule does not require all diesel trucks to meet the standard of 0.02 grams of NOx per brake horsepower-hour until 2027 – deferring emission reductions from what can be achieved today by RNG trucks.[21]

Comment 68-6

[16] *See* SoCalGas, "Risk Assessment and Mitigation Phase Cross-Functional Factor Energy System Resilience", May 17, 2021 available at https://www.socalgas.com/sites/default/files/SCG-CFF-2_RAMP-Cross-Functional-Chapter-Climate_Change_62.pdf

[17] *See* South Coast AQMD, "Draft 2022 Air Quality Management Plan (AQMP)" available at http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/draft2022aqmp.pdf?sfvrsn=12.

[18] Nastri, Wayne. "Letter to Partners in Environmental Justice and Environmental Health" August 3, 2021.

[19] *Ibid*.

[20] *See* Achieving NOx and Greenhouse gas emissions goals in California's Heavy-Duty transportation sector, Transportation Research Part D: Transport and Environment, Volume 97, 2021, August 2021, available at: https://www.sciencedirect.com/science/article/pii/S1361920921001826.

[21] *See* CARB Formally Adopts Low-NOx Omnibus Rule, Transport Topics, August 28, 2020, available at: https://www.ttnews.com/articles/carb-formally-adopts-low-nox-omnibus-rule.

However, California may be reaching an inflection point as it now leads the nation in highest on-road diesel prices at nearly $7/gallon as compared to about $4/gallon a year ago.[22] Given that RNG prices are currently $2.14/diesel gallon equivalent, the time is now for a fuel card program that can help accelerate the turnover of diesel trucks.[23] By stating that "[p]rograms and projects that accelerate the commercialization of vehicles and alternative and renewable fuels including buy-down programs through near-market and market-path deployment"[24] are eligible for funding through the Alternative and Renewable Fuel and Vehicle Technology Program, the Legislature has recognized the importance of scaling renewable transportation technologies.

A fuel card program could help offset the upfront costs of owning and operating a Natural Gas (NG)/RNG HD truck to complement existing incentive programs that CARB and air quality management districts manage. This program is similar to how Toyota and Hyundai offer free fuel cards to customers who purchase a Mirai or Nexo to help incentivize leases of new hydrogen fuel cell electric light-duty vehicles. Customers who purchase a new HD class 8 NG NZE truck or hydrogen fuel cell electric truck can be provided with a fuel card pre-loaded with a balance at an amount designed to improve economics and encourage adoption. For example, for an HD Class, 8 NZE truck with a $60,000 incremental cost (compared to Diesel) and traveling 72,000 miles per year, a fuel card of $10,000 could improve the payback period from about 4.4 years to 2.5 years.[25, 26] This is akin to the Natural Gas Vehicle Incentive Program funded out of the Clean Transportation Program, which provided incentives up to $25,000 per vehicle purchased.[27] The difference here would be encouraging NZE natural gas trucks to utilize RNG to simultaneously reduce both their criteria pollutant and GHG emissions greatly. Such a program can also lay the foundation for offsetting the cost of owning a fuel cell HD truck as that technology is commercialized. In conversations with SoCalGas, South Coast AQMD, the San Joaquin Valley Air Pollution Control District (SJVAPCD), and CARB have expressed support for a fuel card program. Such programs have the potential to help further public health and clean air goals, especially in disadvantaged communities located near major trucking corridors and would support South Coast's goal in the 2022 AQMP to "ensure that Environmental Justice (EJ) areas are able to access advanced technologies and also benefit from the transition to zero emission technologies."[28]

Comment 68-6 Con't

[22] On-Road Diesel Price per gallon as of June 9, 2022. https://www.eia.gov/petroleum/gasdiesel/
[23] 100% RNG Prices are 0.____$/kWh. If you choose a 5,10 25, or 50 percent lend, the cost could be lower.
[24] *See* Cal. Health & Safety Code section 44272(e)(7).
[25] *See* Advanced Clean Fleets – Cost Workshop Cost Data and Methodology Discussion Draft, CARB, p. 3, available at: https://ww2.arb.ca.gov/sites/default/files/2020-12/201207costdisc_ADA.pdf
[26] *See* Average Annual Vehicle Miles Traveled by Major Vehicle Category, Available at: https://afdc.energy.gov/data/10309.
[27] *See* The Natural Gas Vehicle Incentive Program, available at: https://afdc.energy.gov/laws/11647
[28] *See* South Coast AQMD "Draft 2022 Air Quality Management Plan (AQMP)" available at http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/draft2022aqmp.pdf?sfvrsn=12.

3) Proposed stationary source measures, if applied at SoCalGas and SDG&E facilities could delay emission reductions, potentially impact energy system reliability, and result in over $1B in stranded assets, including as necessary for delivering increasingly cleaner fuels.

SoCalGas/SDG&E submitted permit applications in 2020, 2021, and 2022 to the South Coast AQMD for retrofit/replacement projects for compliance with Best Available Retrofit Control Technology landing rules associated with the sunset of the NOx Regional Clean Air Incentives Market (RECLAIM) program. More specifically, these projects are being implemented to comply with the requirements in Rules 1110.2/1100 for engines and Rule 1134 for gas turbines.

In addition to the retirement of nine natural gas compressors engines, SoCalGas and SDG&E are collectively retrofitting 18 natural gas engines to comply with Rule 1110.2's 11 ppm NOx limit.[29] The retrofit of one compressor gas lean burn engine is currently in the construction phase. In addition, Permits-to-Construct (PTCs) have been issued for the retrofit of the seven existing rich-burn engine generators and two existing rich-burn engine wet gas compressors. The PTC application packages for the retrofit of the eight-compressor gas lean burn engines are currently being processed by the South Coast AQMD. Should the NOx limit be lowered to six ppm as discussed in the draft AQMP, six compressor gas lean burn ~~and rich burn~~ engines would likely need a higher ammonia limit to achieve compliance with this lower NOx limit. Three of the compressor gas lean burn engines will not be able meet a lower NOx limit of six ppm even with a higher ammonia slip limit.

Comment 68-7

Furthermore, SoCalGas and SDG&E have each proposed modernization projects that go above and beyond the South Coast AQMD requirements by proposing to install a hybrid configuration of natural gas and electric driven compressors. In addition, pending CPUC approval, these projects propose to install advanced renewable energy components including hydrogen electrolyzers and fuel blending equipment to integrate green hydrogen into compressor combustion fuel, new green hydrogen vehicle fleet fueling stations for company vehicles, solar photovoltaic panels, an energy storage system, and hydrogen fuel cells.[30] These projects seek to achieve measurable air quality benefits for SoCalGas' 2045 ASPIRE goals,[31] SDG&E's Path to Net Zero goals,[32] as well as California's climate goals. Given that PTC applications for these projects were submitted in June 2021 and June 2022 and the design and engineering of these facility modernization projects is well underway, we request that ongoing major capital projects being conducted in support of the sunset

[29] SDG&E is retrofitting one compressor gas lean-burn engine at the Moreno Compressor Station; the other units are being retrofit by SoCalGas. SDG&E has also proposed the Moreno Compressor Modernization project to retire five compressor gas lean-burn engines and four turbine compressors and replace them with two turbine compressors and two electric driven compressors.

[30] The implementation of the project components related to advanced renewable energy which include hydrogen electrolyzers, hydrogen storage, and fuel blending equipment to integrate green hydrogen into compressor combustion fuel, as well as a new green hydrogen vehicle fueling station for company vehicles is anticipated to occur subsequent to California Public Utility Commission (CPUC) review and approval via the General Rate Case submitted to CPUC on May 16, 2022.

[31] *See* SoCalGas, "ASPIRE 2045", available at SoCalGas_Sustainability_Strategy_final.pdf

[32] *See* SDG&E, "The Path to Net Zero: A Decarbonization Roadmap for California", available at NetZero | San Diego Gas & Electric (sdge.com)

of RECLAIM be given consideration regarding the equipment life of new assets costing SDG&E and SoCalGas ratepayers over $1.3 billion over the next few years. Should the South Coast AQMD decide to require electrification for equipment associated with these ongoing facility modernization projects, SDG&E and SoCalGas may be left with expensive stranded assets as the life of this new equipment will also extend well beyond 2037.

Moreover, converting compressor stations from all gas or hybrid configurations to 100 percent electric-driven compressor configurations is not feasible from a reliability perspective. SoCalGas/SDG&E are required by law to provide natural gas service to customers within the entire service area which includes large volumes of deliveries to large base-loaded natural gas fired power plants, as well as natural gas-fired peaker plants which are needed to maintain electric grid reliability. The reliability of compressor stations is critical to meet that obligation. If our compressor stations were equipped with only electric compressors, this could impact customers due to the potential inability to deliver high volumes of gas in short periods of time for electric generators. This demand includes gas engine-driven water pumping for fire suppression and flood control, as well as gas-driven emergency generators at hospitals and other critical care facilities. With increasing frequency, PSPS events on the electric grid destabilize the energy delivery system and compromise reliability. Additionally, wildfire risk is an ever-present threat. To be able to reliably provide gas to our customers, even during power outages, sufficient electrical back-up equipment to operate the compressors would need to be accessible to a compressor station if it were to be operated with 100 percent electric driven compressors. This magnitude of electrical back-up equipment is not currently available. A compressor station's ability to continue to serve customers at a rate sufficient to avoid a widespread disruption is paramount. A comprehensive list of SoCalGas' questions and comments regarding proposed large source measures (L-CMB-03, L-CMB-04, and L-CMB-05) can be found in Appendix A.

Comment 68-7 Con't

Conclusion

SoCalGas appreciates the opportunity to comment on the Draft 2022 AQMP. It is imperative that ozone attainment and air quality policies, especially those adopted for widespread implementation and with equally widespread effects, are developed with a thorough and fact-based understanding of prospective consequences and results. A diversified decarbonized energy supply will assure equitable and sustained emission reductions for both stationary and mobile sources in the South Coast Air Basin. SoCalGas looks forward to collaboratively pursuing our shared interest of achieving both climate and air quality goals in California.

Comment 68-8

Respectfully,

/s/ Jawaad A. Malik

Jawaad A. Malik
Vice President, Strategy and Sustainability & Chief Environmental Officer

CC: Sarah Rees, PhD
Aaron Katzenstein
Michael Krause
Ian MacMillan
Chairman Ben Benoit
Vice-Chair Vanessa Delgado
Council Member Michael Cacciotti
Supervisor Andrew Do
Gideon Kracov
Supervisor Sheila Kuehl
Mayor Larry McCallon
Veronica Padilla-Campos
Supervisor V. Manuel Perez
Councilmember Nithya Raman
Vice Mayor Rex Richardson
Council Member Carlos Rodriguez
Supervisor Janice Rutherford

APPENDIX A:

SoCalGas Comments and Questions Regarding Proposed Large Source Measures (L-CMB-03, L-CMB-04, and L-CMB-05)

1. L-CMB-03: Do the existing projects to replace/retrofit for compliance with Rules 1110.2/1100 satisfy this control measure or will additional NOx control projects be required for these new/retrofit engines? In other words, is the equipment included in our proposed RECLAIM Sunset projects for which we have submitted PTC applications included or excluded from this control measure? Which units are included in the phrase "older, higher emitting engines"? Comment 68-9
2. L-CMB-03: What are the District's thoughts regarding the proposed 6 ppm NOx limit, (the 0.29-0.31 tpd NOx reduction in 2037 appears to be from the 2019 amendment), and what timeline would be for rulemaking (as it currently is written, it appears to be based upon natural turn-over). Comment 68-10
3. L-CMB-03: A potential lower NOx emission limit in Rule 1110.2 will have challenges for the compressor engines to meet due to variable load operations. Additionally, higher ammonia slip limits will be the trade-off to achieve lower NOx emission limits. Longer averaging times will be needed for the lower NOx limit. Comment 68-11
4. L-CMB-04: Exemptions or accommodations for emergency power to natural gas utilities during electrical outages should be considered. We are supportive of replacing older diesel engines with natural gas engines. We are also supportive of installing other technologies such as fuel cells and linear generators to support auxiliary base load electricity needs and thereby reduce emergency power to peaking needs at locations where these options are feasible. Comment 68-12
5. L-CMB-05: Does the current project at Moreno (PTC application submitted in June 2021) to replace the existing turbines with new turbines in order to comply with Rule 1134 satisfy this control measure or will additional NOx control projects be required? In other words, is the equipment included in our proposed RECLAIM Sunset project for which we have submitted PTC applications included or excluded from this control measure? Which units are included in the phrase "older, higher emitting turbines"? Comment 68-13
6. L-CMB-05: On page IV-A-106, the AQMP language for L-CMB-05 mentions that "staff assumes that approximately 10 percent of the total wattage of Rule 1134 units will be replaced by zero emission technologies." Would it be possible for AQMD to specify which category or categories of turbines are being included in that 10 percent. For example, could AQMD list the units by their size/wattage, age, emissions (since there are 75 units currently covered by the rule) that would be generating the estimated emissions reductions needed by 2037? What is the rulemaking/rule implementation timeline to achieve these Comment 68-14

emissions so that the reductions will contribute to attainment (i.e., they are needed well before 2037)? Comment 68-14 Con't

7. What is the duration of equipment life being considered by AQMD for each of the equipment categories? Comment 68-15

Response to Comment 68-1: The 2022 AQMP pursues economy-wide zero emission technologies which could be achieved via electric technology options, fuel cells and possibly other new technologies. These control measures will be adaptable and updated as new information becomes available. The AQMP control strategy will require a transition to zero emission technologies across all sectors where feasible, and adoption of the lowest emission standards that will use the cleanest possible technologies where zero emission technologies are not technically or economically feasible. The goal is to reduce NOx emissions to the greatest extent possible. South Coast AQMD has a long-standing history of supporting research, development, demonstration and deployment of advanced cleaner technologies using a diversified energy portfolio approach, including hydrogen fuel cells. The South Coast AQMD remains technology neutral and is supportive of all zero emission technologies that are available to achieve the region's attainment goals. Fuel cells and possibly other new technologies will be used to support the transition to a zero emission future.

Response to Comment 68-2: South Coast AQMD acknowledges your concern regarding the increasing share of primarily-federally regulated emission sources in the Basin.

Response to Comment 68-3: South Coast AQMD has a long history of reducing emissions and improving air quality and acknowledges the costs associated with emission reductions. The emission reductions needed to meet the 2015 8-hour ozone standard are substantial, and implementing this plan will be expensive. Stationary sources are already subject to stringent regulatory controls and have made substantial investments in control technology to meet these requirements. Concerns regarding potential stranded assets and similar impacts will be addressed in the rule development process associated with each control measure.

South Coast AQMD is in the process of preparing a comprehensive socioeconomic analysis to estimate the economic impacts associated with implementation of the 2022 AQMP. That analysis will evaluate both compliance costs, as well as the monetized health benefits associated with meeting federal air quality standards.

Response to Comment 68-4: South Coast AQMD acknowledges the challenges associated with infrastructure need and electrical grid resilience to accommodate the transition to zero emission technology. MOB-15 was developed to demonstrate the agency's effort and commitment to address the infrastructure need by coordinating other agencies and public and private utilities. See general response to Zero Emission Infrastructure for details.

Response to Comment 68-5: As Chapter 4 of the 2022 Draft AQMP elaborates, South Coast AQMD supports the inclusion of fuel cell technologies in addition to any feasible zero emission technology in NOx control measures for stationary source combustion and mobile source applications. Fuel cells can provide power to various applications across multiple sectors, including transportation; industrial, commercial, and residential buildings; and long-term energy storage for the grid. The application of fuel cell technologies for power generation and transportation has increased over the years and continues to expand with emerging technologies. However, as the commenters may agree, cost, performance, and durability are still critical challenges with this technology.

It is essential to overcome these challenges to benefit from the advantages of fuel cell technologies over combustion-based technologies, such as higher efficiencies (>60 percent), zero tailpipe emissions, and lower CO2 emissions. Over the years, South Coast AQMD has partnered with national laboratories,

universities, and industry partners to develop low-cost fuel cell stack and balance of plant (BOP) components and advance high-volume manufacturing approaches to reduce overall system cost. In addition, improving fuel cell efficiency and performance is critical to maintaining adequate performance over an extended period of time. High-performance fuel cell technologies can be built through innovative material and integration technologies and identifying and understanding fuel cell degradation mechanisms to develop materials and strategies to mitigate these effects. South Coast AQMD supports such research and development projects through its work in the Technology Demonstration group and the Clean Fuels Fund.

In the transportation sector, the cost of fuel cells, hydrogen production, distribution, and fueling infrastructure at a small scale remain the primary challenges to fuel cell technology adoption. While fuel cell vehicles and infrastructure provides comparable ranges and fueling times to conventional technologies, such barriers can still impact business and consumer models. South Coast AQMD is committed to investing and partnering where appropriate to expand light, medium and heavy-duty hydrogen infrastructure and to advance fuel cell vehicle technologies in specific vehicle categories

Response to Comment 68-6: Thank you for your suggestion regarding a fuel card program for RNG and zero emission trucks. Staff will take that suggestion into consideration. Such a program may not currently be needed due to the current incentive levels for near zero and zero emission trucks along with the price disparity between diesel and RNG. Recent changes to incentive programs have increased the dollar amounts for low NOx natural gas trucks or zero emission technologies. For example, a small fleet participating in the Voucher Incentive Program is currently eligible for up to $160,000 for a low NOx natural gas truck and $416,000 for zero emission truck. CARB's Low Carbon Fuel Standard (LCFS) regulation is designed to encourage the production of lower carbon intensity (CI) fuels which helps generate credits for energy providers and helps lower energy costs. As the comment letter indicated, diesel fuel costs $7/gallon and the RNG costs $2.14/diesel gallon equivalent currently' providing an added incentive for the operators to choose low NOx trucks for fuel saving. However, this price discrepancy does not currently exist between hydrogen and diesel. As fuel cell trucks become commercialized a fuel card program may provide an added incentive towards purchasing a fuel cell truck much like some of light-duty passenger fuel cell vehicle manufacturers have done.

Response to Comment 68-7: Staff appreciates and acknowledges the efforts taken to comply with Rule 1110.2 and 1134. Ongoing major capital projects conducted to comply with RECLAIM landing rules will be given consideration accounting for the useful life. Cost effectiveness calculations for any new requirement will account for stranded assets, if any. Additionally, technical feasibility will be examined to ensure the reliable function of the equipment.

Response to Comment 68-8: Please view the Response to Comment 68-1.

Response to Comment 68-9: Rule 1110.2 was recently amended to reduce NOx emissions and transition NOx RECLAIM facilities to a command-and-control regulatory structure., Rule 1100 provides an implementation schedule to transition engines from the RECLAIM universe to a command-and-control regulatory structure. In some cases, the requirements in Rule 1110.2 may lead facilities to decide to replace or retrofit engines. Staff will consider the useful life of engines such that if an engine were newly replaced or retrofitted and emission limits were reduced, a subsequent implementation schedule or implementation approach may be developed to address this issue.

Response to Comment 68-10: The control measure commits to reviewing this category of equipment for further emission reductions. Any future rule development will go through a public process to evaluate technical feasibility and cost-effectiveness. Staff will consider industry-specific affordability issues and may consider alternative compliance mechanisms.

Response to Comment 68-11: Whether a potential lower NOx emission limit in Rule 1110.2 would be challenging for compressor engines to meet, or would require higher ammonia slips as a trade-off, or would require longer averaging times are factors that staff may consider as part of any future rulemaking process. In the past, staff has worked with stakeholders to address similar concerns.

Response to Comment 68-12: Staff appreciates the support for the replacement of older diesel emergency standby engines with lower emission technologies. The importance of a reliable source of emergency standby power for essential service providers is also acknowledged. Staff will evaluate zero and low NOx technologies for technical feasibility and cost-effectiveness in future rulemaking processes.

Response to Comment 68-13: Emission reductions from L-CMB-05 are additional to emission reductions from the 2019 amendment of Rule 1134. The rule development process will determine which specific units or categories of equipment will be targeted to achieve additional emission reductions, as well as the implementation timeframe.

Response to Comment 68-14: Please refer the Response to Comment 68-13.

Response to Comment 68-15: Staff used a life expectancy of 25 years for engines, fuel cells, turbines and selective catalytic reduction control equipment.

Comment Letter #69

SOUTHERN CALIFORNIA EDISON
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July 5, 2022

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Submitted Electronically to: AQMPteam@aqmd.gov

SUBJECT: Southern California Edison Company's Comments on South Coast Air Quality Management District's (SCAQMD) Draft 2022 Air Quality Management Plan (AQMP)

Dear Dr. Rees:

Introduction

Southern California Edison (SCE) appreciates the opportunity to comment on the 2022 Draft AQMP to address the attainment of the National Ambient Air Quality Standards (NAAQS) for Ozone in the South Coast Air Basin and the Coachella Valley, in alignment with the 2022 State Implementation Plan.

We want to underscore the significant efforts that staff of the SCAQMD has taken in the many months leading up to the Draft AQMP. We recognize the challenges and difficulties inherent in this process and express our continued support for a strategy that addresses federal requirements to attain the 70 parts-per-billion (ppb) standard by 2037, as well as economically feasible compliance approaches. Through the AQMP public participation process we have offered our support, technical expertise, and partnership to SCAQMD on the development of control measures and inventories.

Comment 69-1

This letter provides SCE's comments on the control measures in the Draft 2022 AQMP.

General Remarks

SCE supports the SCAQMD's Draft 2022 AQMP control measure strategy, which includes a variety of implementation approaches such as regulation, accelerated deployment of available cleaner technologies, best management practices, co-benefits from existing programs (e.g., climate and energy efficiency), incentives, and the Clean Air Act (CAA) section 182(e)(5) "black box" measures. We believe it is an effective set of control measures that if adopted by the SCAQMD, will lead the region toward attainment with the NAAQS for ozone through cleaner transportation and stationary source technologies, including widespread adoption of zero-emission (ZE) technologies and infrastructure.

Comment 69-2

Jurisdictional Boundaries

SCE agrees that without substantial action by the federal government, the South Coast region won't reach attainment of the standard. Emissions of oxides of nitrogen (NOx) from federally regulated sources alone will exceed the target by 50 percent. We need close collaboration with federal, State, and regional governments, businesses, and the public to tackle this challenge. Meeting the standard will also require the federal government to address sources that are beyond the regulatory authority of the SCAQMD and California Air Resources Board (CARB).

Comment 69-3

Control Strategy

SCE recognizes that adopting control measures in the AQMP is the first step in the process through which the SCAQMD will develop the most stringent control measures into proposed rules, and that the rulemaking process is the point at which the detailed examination of issues will occur such as cost-effectiveness, feasibility, total cost, environmental impacts, and "upstream" energy sectors impacts. SCE also recognizes that many control measures will not become rules but instead require the SCAQMD and stakeholder community to secure additional funding sources to enable research, development, and demonstrations as well as education programs and incentive-based commercialization programs. SCE supports this overall direction and effort to bring the region into attainment with the NAAQS.

Comment 69-4

SCE appreciates the Policy Brief to discuss the "black box" approach allowed under CAA section 182(e)(5) for "extreme" ozone nonattainment areas.[1] SCE believes that the 2022 AQMP needs to identify which additional control measures are needed to develop advanced technologies expeditiously and further break down how much reduction would be needed from each technology identified in the black box. It is critical that we identify and develop all feasible specific measures to push technologies to scale and become market ready. If progress is delayed, there will be even less time to develop and implement strategies before the looming deadlines, and thus the resulting necessary measures could be even more burdensome and disruptive. Delaying progress will also provide less certainty and lead time to the regulated community for planning compliance with potential new regulatory requirements. The considerable time it takes for new technologies to be developed, assessed, and implemented widely also underscores the need to begin immediately. We cannot afford to delay implementation of the large black box.

Transformation to ZE Technology

SCE commends the SCAQMD for the formation of a ZE Transportation Infrastructure control measure to study and support ZE infrastructure policymaking and deployment to support the fuel switch. We concur that widespread ZE across all mobile sources and

Comment 69-5

[1] Draft 2022 AQMP, May 2022, p.4-2, Chapter 4- Control Strategy and Implementation

stationary sources (where feasible) is a critical pathway if we are to have any hope of getting to attainment. A strong, resilient grid ready for mass ZE technology adoption that can achieve significant emission reductions is attainable through advanced forward planning, increased industry coordination, and new collaborative approaches in data-sharing and cooperation between public and private stakeholders.

SCE is currently evaluating when and where electric vehicles (EVs) are likely to appear as a charging load, the potential magnitude of that load, and what potential infrastructure and system solutions would be necessary to accommodate that load. SCE is ready to play our part to help and much work is being done behind the scenes to modernize and prepare the grid for extensive electrification and a high distributed energy resources (DER) future. It must be underscored, however, that upgrading the grid to accommodate more customers, more power, and more renewables is a time- and cost- intensive process that requires careful forecasting from utilities, often over five- to ten- year periods and which must be approved by several agencies, including the California Energy Commission (CEC) and California Public Utilities Commission (CPUC). Utilities, the SCAQMD, fleets, and facilities increasingly need to work together to anticipate and assess impacts of growing demand and plan accordingly. This also requires joint efforts from agencies and utilities preparing the grid to accommodate what is expected to be a high-DER future and capture as much value as possible from DERs, as well as mitigate any unintended negative impacts or stranded assets. To address the gap between when widescale ZE infrastructure will be available and the need, SCAQMD must work with State agencies to enable a faster rollout of ZE infrastructure needs.

Comment 69-5 Con't

Cost-Effectiveness

SCE recognizes that the SCAQMD estimates cost-effectiveness for proposed AQMP control measures with the threshold of $50,000 per ton of NOx reduced. SCE appreciates SCAQMD's continued evaluation of cost effectiveness for all technological options. While it is appropriate to consider the rising costs of inflation and supply chain shortages, we assert that the actual values for cost-effectiveness need to be calculated in a manner that estimates the true costs associated with implementing new technologies, which could include capital costs (e.g., purchase costs, direct, and indirect installation costs), as well as annual operating costs (e.g., annual maintenance, replacement parts, insurance, fuel costs including shipping, waste treatment/disposal, and performance testing). SCE supports the formation of a cost-effectiveness working group to help identify factors and inputs that should be considered into the SCAQMD's thresholds.

Comment 69-6

Specific Comments on Individual Control Measures

Stationary Sources

SCE commends the SCAQMD for aiming to reduce NOx emissions through stationary source measures for residential and commercial combustion equipment by requiring a percentage of ZE technologies for applicable sources by 2037. Actions must accelerate now to ramp up technology adoption for heat pumps and other appliances.

Comment 69-7

To achieve the State's ambitious air and climate goals, electrification of stationary sources must play an immediate and vital role. Even considering actions already taken at the state level,[2] SCE's analysis indicates that the 2030 heat pump adoption gap statewide equates to 5.3 million, after projecting today's programs growing through the decade and the adoption of building codes mandating electric water and space heaters for new construction (the 2025 Title 24). This is aligned with the CEC's Final 2021 Integrated Energy Policy Report (IEPR), which recommends a goal of installing at least 6 million electric heat pumps statewide by 2030. As such, SCE supports setting quantifiable targets in the AQMP with implementation dates that are faster and more aggressive than the State's targets for building electrification, electric heat pumps, and other electric end uses. The proposed control measures align with California goals, including decarbonization efforts, and with SCE's Pathway 2045 (our data-driven analysis of the steps that California must take to meet the State's 2045 carbon neutrality goals).

Cost benefits for all residential and commercial building control measures should be evaluated beyond the 10-year forecast through the useful life of residential appliances, which can last 10 to 15 years (e.g., up to 2045 for a 15-year appliance installed in 2030). To properly account for the incremental utility costs related to the conversion from conventional gas cooking appliances to ZE cooking devices, we suggest continuing to use the traditional 10-year electricity and gas rate forecast through 2030, but also to further forecast electric and gas rates using the CEC's long-term rate growth scenarios. A 2019 study by the CEC[3] evaluated long-term potential electric and gas rates through 2050 to meet state decarbonization goals and concluded that gas prices quickly start to rise much faster than electric rates after 2030, depending on the level of building electrification (ranging from 2050 gas prices being 3 times more than 2020 gas prices to greater than 6 times more).[4]

The current NOx analysis for this control measure also does not consider the fact that the State's decarbonization goal forces most gas end uses to switch to electricity. While we understand that the draft 2022 AQMP does not contain any emissions inventories beyond 2037, it would be good to consider the long-term impacts to customer utility costs. If it cannot be addressed in this AQMP, we recommend the inclusion of more specific analysis (including economics) in rulemakings and the next AQMP.

Comment 69-7 Con't

- **CMB-03: EMISSION REDUCTIONS FROM COMMERCIAL AND RESIDENTIAL COOKING DEVICES**

Under control measure CMB-03, SCE recommends setting a NOx emissions limit of 65 parts per million (ppm) for both Residential and Commercial cooking to encourage low-NOx burners and greater adoption of electric appliances (induction where feasible). A report on residential cooking equipment by The Southern California Gas Company from

Comment 69-8

[2] Draft 2022 Scoping Plan, May 2022, Appendix F: Building Decarbonization.
[3] "The Challenge of Retail Gas in California's Low-Carbon Future - Technology Options, Customer Costs, and Public Health Benefits of Reducing Natural Gas Use", California Energy Commission, 2019. https://www.energy.ca.gov/publications/2019/challenge-retail-gas-californias-low-carbon-future-technology-options-customer
[4] *Id.*, pp. 51-52.

May 2003 reported NOx levels of 110 ppm per appliance; residential testing reported NOx levels in the range of 85 ppm.[5]

Comment 69-8 Con't

Facility-Based Mobile Sources

- **MOB-01 through MOB-04 FACILITY BASED EMISSION REDUCTIONS**

SCE supports the facility-based mobile source control measures aimed at reducing emissions from facilities that do not emit air pollution directly, but instead attract mobile sources that contribute significant emissions. The emphasis SCAQMD has placed on ZE technologies is a critical component of achieving significant emissions reductions, from both direct facility operations and indirect truck emissions.

Under the existing Warehouse Indirect Source Rule (ISR), SCE appreciates that facility owners and operators can choose from a flexible menu of technology options and earn points from implementing critical milestone steps such as purchase of Electric Vehicle Supply Equipment, construction mobilization, and charger energization. Allowing this time for advanced planning is especially important for ensuring the grid is ready to support the increased number of EVs in areas affected by the ISR, which may require proactive grid expansion and upgrades to be ready to meet customer needs and regulatory timelines.

Comment 69-9

SCAQMD can help us by continuing to provide the locations of facilities most affected by future ISRs that will drive electrification. The data reported through the ISR will be critical for infrastructure assessment and planning within the South Coast Air Basin. SCE requests that the data be shared to help shape a clearer, more reliable picture of future system needs for large-scale fleet transitions to EVs and ultimately help utilities and other charging support providers confidently plan and make decisions to provide the necessary infrastructure to support fleet and facility plans in the region.

On-Road and Off-Road Mobile Sources

SCE supports SCAQMD's strategy of providing complementary policies and programs to support the transition of on-road and off-road fleets to zero-emission vehicles (ZEVs). Although utility incentive programs (such as SCE's Charge Ready Program) can be available to assist businesses and property owners with the design and installation of EV charging stations, attaining the ZEV targets will require reliable and adequate funding from multiple sources, including federal and state governments, utilities, and private entities. This strategy is especially important because procurement decisions made today will impact California for generations to come. SCAQMD's focus on ZEVs sends an important market signal. Encouraging the transition to ZEVs has proven to be an economic engine for California and our region and in the coming decades, it will continue to create thousands of good-paying skilled jobs.

Comment 69-10

[5] Testing of A Residential Gas Range Broiler, The Southern California Gas Company, May 2003. https://www.socalgas.com/documents/business/gasquality/Broiler.pdf

Incentive-Based Mobile Sources

- **MOB-15 ZERO EMISSION INFRASTRUCTURE FOR MOBILE SOURCES**

SCE supports control measure MOB-15 to develop a workplan to accelerate ZE infrastructure. Planning is important to ensure that sufficient EV charging infrastructure needs are identified and addressed in advance to meet longer-term policy and regulatory timelines, achieving important air quality improvement benefits.

SCE supports SCAQMD's plan to work with regulatory agencies and utilities to ensure alignment with the State's objectives for vehicle incentives and ZE infrastructure funding. SCAQMD should encourage fleet owners to plan early for the timelines involved in obtaining approvals and installing ZE infrastructure. Efforts should be modified, amended, or better aligned among agencies to avoid redundancy as much as possible.

SCE supports SCAQMD's role in further researching specific needs of the South Coast Air Basin. Many of the planning efforts identified in Strategy 1 are underway at the utility level, but SCE agrees that early planning and coordination with agencies are key factors to assuring infrastructure will be ready in time for ZEV deployment.

Comment 69-11

As SCE continues to assess our system and EV infrastructure planning needs in the region, these infrastructure assessment and planning activities will be greatly aided by more and better data related to where, when, and how EVs will charge. SCE requests that data be shared to help shape a clearer, more reliable picture of future system needs when large-scale fleets transition to EVs. This will help utilities and other charging support providers confidently plan and make decisions to provide the necessary infrastructure to support fleet and facility plans in the region.

It should be noted that ZEV projects require site-specific planning and agency approvals. The time it takes to site, permit, build, resolve supply chain issues, and connect to the grid can sometimes exceed one year. SCE is working to optimize our process at every step to shorten the time it takes for a ZEV project to come online. We are also working with other utilities to identify standard timeframes for ZEV projects.

SCE encourages SCAQMD coordination on transportation electrification funding and programs, as SCE continues to offer several funding and rate programs to help customers identify electric infrastructure solutions to meet regulatory compliance commitments while also minimizing costs.

SCE's Charge Ready Transport Program helps accelerate infrastructure deployment and reduce costs for fleet owners by working with customers to install electric infrastructure at eligible sites to support medium-duty heavy-duty (MDHD) electric vehicles.[6] With an

[6] SCE Charge Ready Transport Program: https://crt.sce.com/overview

approved total program budget of $356.4 million, the program will support approximately 8,500 MDHD electric vehicles within SCE's service territory in Southern California. Most of these vehicles are also within SCAQMD's jurisdiction.

SCE's Transportation Electrification Advisory Services Program also provides resources and assistance for customers to navigate challenges associated with electrifying vehicle fleets.[7] SCE offers fleet assessments that provide customers with reports of vehicle options for fleets, associated cost and environmental benefits for going electric, customized rate analyses to help customers understand potential fuel costs, an online public fuel cost calculator,[8] and additional information on utility and non-utility programs and incentives. SCE also works onsite with customers to offer an assessment of the feasibility of installing infrastructure to serve potential EV fleet deployments. By providing consultation on infrastructure needs and siting, rates, charging needs, and optimal siting of required charging infrastructure, SCE stands ready to help support customers utilize electrification. Lastly, SCE has a grant assistance program to provide hands-on support for small and mid-sized commercial fleets in SCE's service territory that apply for competitive funding opportunities to reduce the cost of purchasing EVs. SCE connects fleets with dedicated funding experts who walk customers through this process step-by-step, ensuring they apply to the right funding program and that their application is complete and competitive, at no charge.

Comment 69-11 Con't

SCE actively seeks ways to further transportation electrification through our filings, customer rates, and program offerings. For example, if the recent CPUC Energy Division staff proposal on the Transportation Electrification (TE) Framework is adopted, investor-owned utilities (IOUs) will transition from individual IOU-administered TE programs to a statewide rebate for behind-the-meter (customer-side) infrastructure starting in 2025. The utilities are proposing to have flexibility to request programs to fill gaps, but this would likely be limited. This is where SCAQMD can help fill in gaps to obtain funding where there is insufficient funding for ZE infrastructure planning and development.

Environmental Justice Communities

SCE agrees with SCAQMD that to ensure equity and affordability, we must prioritize working with the communities most impacted by air pollution to ensure the 2022 AQMP addresses their needs. As a result, SCE recommends SCAQMD prioritize disadvantaged communities as the State sets policies toward a ZE technology standard. Air pollution heavily impacts disadvantaged communities, and they will be more negatively impacted if they are addressed last.

Comment 69-12

In Chapter 8, Environmental Justice Communities (EJs), SCAQMD defines EJs as the top 25% highest-scoring census tracts in CalEnviroScreen 4.0. SCE recommends the definition be updated in the 2022 AQMP to be consistent with the State's updated

[7] SCE Transportation Electrification Advisory Services: https://sce.com/TEAS

[8] SCE Electric Fleet Fuel Savings Calculator: https://fleetfuelcalculator.sce.com/

Disadvantaged Communities (DAC) designation (finalized May 3, 2022).[9] CalEPA updated the Senate Bill (SB) 535 DAC designation to include:

- Census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0;
- Census tracts lacking overall scores in CalEnviroScreen 4.0 due to data gaps, but receiving the highest 5 percent of CalEnviroScreen 4.0 cumulative pollution burden scores;
- Census tracts identified in the 2017 DAC designation, regardless of their scores in CalEnviroScreen 4.0; and
- Lands under the control of federally recognized Tribes.

Synthesizing the definition in the 2022 AQMP with the standard DAC definition used for most air quality program targeting would make the information presented in this chapter more useful going forward.

SCE supports incentives and funding in EJ communities for ZE technologies across all emission sources to help them gain access to the major benefits of electrification, including cleaner air, healthier homes, good jobs, and greater access to affordable clean energy and energy efficiency to reduce monthly energy bills.

Comment 69-12 Con't

The AQMP states that regulations alone will not be sufficient to achieve the magnitude of emissions reduction needed. Significant public and private investments and continued innovation and technology advancement will be required to accelerate the deployment of advanced ZE and cleaner technologies and their associated fueling infrastructure. As such, SCE recommends that SCAQMD seek to request more budget and targeted incentives from the State for inclusion in EJs' AB 617 DAC Community Emissions Reduction Plans. We also encourage SCAQMD to work with community-based organizations to ensure the applications for incentives and grants are simple, multi-lingual, easily accessible (to overcome technology barriers) and have quick processing times.

Conclusion

SCE thanks SCAQMD for its consideration of the above comments. We look forward to continuing to work with SCAQMD and its staff on this process. If you have any questions or would like to discuss these issues, please contact me or Bethmarie Quiambao at Bethmarie.Quiambao@sce.com.

/s/

Dawn Anaiscourt

Dawn Anaiscourt
Director, Regulatory Affairs
Southern California Edison

[9] California Climate Investments to Benefit Disadvantaged Communities | CalEPA

Response to Comment 69-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP.

Response to Comment 69-2: South Coast AQMD staff appreciates your comments in support of the Draft 2022 AQMP.

Response to Comment 69-3: Staff concurs with this assessment. Please refer to the general response to Black Box Measures and general response to Need for Federal Actions.

Response to Comment 69-4: CARB's 2022 State SIP Strategy explores potential strategies to achieve the reductions associated with black box measures, including examples of the advanced technologies that are needed. South Coast AQMD agrees with the urgency in addressing the black box, yet many of the technologies that are needed to achieve the reductions are not readily available. This is why Congress wrote Clean Air Act section 182(e)(5) – to enable extreme nonattainment areas to rely on reductions from technologies that are not yet available at the time of plan adoption. Thus, since the precise technologies are not yet known, it is not possible to breakdown "how much reduction would be needed from each technology." Staff acknowledges the multiple hurdles that exist to achieving reductions from further deployment of cleaner technologies including technology development and demonstration, commercialization of the new technology, and conducting outreach to consumers and other entities to promote adoption. South Coast AQMD is fully committed to devoting its resources to overcome these obstacles.

In addition to the further deployment of cleaner technologies, the black box includes emission reductions from sources subject to federal regulatory authority and select incentive measures. Figure 3 of the black box policy brief provides a summary of the reductions by emission source category.

Response to Comment 69-5,2: Concerns regarding grid capacity and reliability to support a widespread transition to zero emission technologies are the reason why the South Coast AQMD developed MOB-15. This control measure is a commitment to engage with stakeholders involved in every aspect of the transition to zero emission fueling with the goal of identifying potential shortfalls in technologies and/or energy availability while assisting in a collaborative effort to address these concerns. The South Coast AQMD is uniquely positioned to actively engage with the CEC, CPUC, CARB, local utilities, fleets and other stakeholders to help address the challenges related to grid capacity and reliability in the region. South Coast AQMD will continue to share information that can be used to better inform forecasting and energy analyses which are used to plan grid capacity upgrades. Current forecasting and energy analyses are primarily focused on the State ZEV goals and do not fully address all emission categories that will need to transition to zero emissions to reach attainment goals. The challenges related to the electrical grid and infrastructure availability are significant and will require collaborative problem solving involving all stakeholders. South Coast AQMD will continue to advise partner organizations through information sharing and close coordination of efforts to remove barriers to zero emission infrastructure and technology deployments.

Agencies and organizations throughout the State that are involved in energy distribution such as the California Energy Commission, the California Public Utilities Commission, and local utilities such as Southern California Edison, are aware of the challenges ahead in terms of energy and infrastructure availability and are actively engaged in planning to anticipate future demand as the State moves toward a zero emission future. Engagement with local utilities and other partners involved in this transition

through the direction detailed in MOB-15 will help articulate the region's needs and challenges to anticipate potential shortfalls in energy and technology availability, and assure the agencies involved are making progress to resolve concerns related to grid readiness and reliability.

In addition to electric technology options, fuel cells and possibly other new technologies will be used to support the transition to a zero emission future. The State of California, through various programs, has allocated significant funding to advance the development and deployment of zero emission technologies, including electric charging and hydrogen fueling infrastructure. As part of MOB-15, South Coast AQMD will continue to track all available funding sources for zero emission infrastructure and share this information with fleets and other stakeholders to provide financial assistance and encourage early planning for transitioning to zero emission technologies. Early planning and collaborative problem solving involving all stakeholders will be necessary to assure grid readiness and infrastructure availability. South Coast AQMD will also actively support and advocate for new funding sources that will accelerate the deployment of zero emission infrastructure in the South Coast AQMD. This effort will encourage consumers to plan early with support from the local utilities to streamline the process for approving installations and interconnection with the grid.

Response to Comment 69-6: The cost-effectiveness threshold in the Draft 2022 AQMP Table 4-12 proposed to update the $50,000/ton of NOx threshold to $59,000/ton, based on inflation adjustments. The $50,000/ton threshold referenced in the comment was set in the 2016 AQMP and based on cost-effective values of past rules. For these and all rules, the estimated compliance costs take into account for both upfront capital and recurring costs (typically operating and maintenance costs of equipment, control device, source testing, etc.). Based on comments received and feedback from several Governing Board members, staff have a revised proposal regarding cost-effectiveness that takes into consideration the monetized benefit of emission reductions. Please refer to Chapter IV of the Revised Draft 2022 AQMP. The socioeconomic analysis for the 2022 AQMP will be presented and discussed at public meetings such as STMPR advisory group meeting, the governing Board meetings, and regional public hearings. Stakeholders including the commenter are encouraged to participate and provide feedback on the analysis.

Response to Comment 69-7: Benefits and costs of the 2022 AQMP implementation will be quantified in the upcoming Draft 2022 AQMP Socioeconomic Report. A preliminary incremental cost/cost-savings analysis is included for C-CMB-03 and R-CMB-03 that relies on a range of incremental utility cost for various cooking appliances as identified in the existing literature. A more detailed analysis which includes energy price projections will be conducted during future rulemaking process.

Response to Comment 69-8: Control measures R-CMB-03 for residential cooking appliances and C-CMB-03 for commercial cooking appliances seek NOx reductions by replacing conventional gas-fired cooking appliances with a combination of zero emission and low NOx emission devices such as electric cooking devices, induction cooktops, and low NOx burner technologies. Future rule development will assess the feasibility of setting a standard for cooking equipment through a technology assessment, including testing of various cooking devices to establish emission rates. More details on NOx reductions from cooking appliances can be found in Appendix IV-A of the Draft 2022 AQMP.

Response to Comment 69-9: South Coast AQMD staff appreciates SCE's support of the facility-based mobile source control measures. Staff can provide locations of facilities affected by existing and proposed

indirect source rules by submitting a Public Records Request: https://www.aqmd.gov/nav/online-services/public-records.

Response to Comment 69-10: This AQMP will require an unprecedented level of new zero emission infrastructure to support a widespread adoption of zero emission technologies across all sectors where feasible. This will require a significant level of coordination involving multiple state agencies, local utilities, fleets and other stakeholders. The workplan establishes a mechanism by which the South Coast AQMD will closely coordinate with SCE (as well as other local utilities in the South Coast AQMD's jurisdiction) to address stakeholder concerns, align efforts, and assure planning assessments sufficiently address the infrastructure needs of the region with the goal of assuring the electrical grid and infrastructure are ready in advance of the need. Given the South Coast AQMD's long history in administering and implementing funding programs for fleets who have purchased advanced cleaner technologies, the South Coast AQMD is uniquely positioned to share information with SCE for assessing grid impacts and planning for the future demand. South Coast AQMD will assist in providing this information as needed to better inform forecasting and energy analyses which are used to plan grid capacity upgrades. Current forecasting and energy analyses are primarily focused on the State ZEV goals and do not fully address all emission categories that will need to transition to zero emissions to reach attainment goals. The challenges related to the electrical grid and infrastructure availability are significant and will require collaborative problem solving involving all stakeholders. South Coast AQMD will continue to advise SCE and other partner organizations through information sharing and close coordination of efforts with the goal of addressing concerns and removing barriers to ZE infrastructure and technology deployments.

In addition, the CEC and CPUC are developing energy and cost projections aligned with the statewide direction on ZE transportation, and the South Coast AQMD anticipates coordination with these agencies to support optimal forecasting for stakeholders within its boundary. In addition to information sharing among ZE infrastructure stakeholders, it is proposed that through the MOB-15 workplan the South Coast AQMD will also help advocate for zero emission infrastructure funding and coordinate resource distribution where appropriate.

Response to Comment 69-11: The South Coast AQMD agrees and has included stakeholder collaboration as an action in MOB-15. This action will involve significant collaboration with state agencies, local utilities and various other stakeholders involved in the planning, design, permitting, construction, operation, and maintenance of zero emission infrastructure in the South Coast AQMD. For example, this action will involve close coordination with CARB and CEC by sharing information, aligning efforts, and providing feedback and input on zero emission vehicle projections and infrastructure assessments and related policies. The South Coast AQMD will also work with CARB and CEC to develop specific estimates of the charging/fueling infrastructure needed to support a widespread adoption of ZEVs across multiple sectors of vehicles and equipment for the South Coast air district. For example, South Coast AQMD will host an infrastructure summit focused on zero emission freight that will bring together state agencies, utilities, OEMs, fleets, and other stakeholders to discuss the challenges in installing infrastructure, understand grid constraints, develop plans for public charging, and identify interim technologies to support charging infrastructure in fall 2022. Current estimates are limited and do not fully consider the infrastructure needs for all sources that are expected to transition to zero emission technologies, such as stationary applications, and many off-road vehicles/equipment. The South Coast AQMD will closely coordinate with

local utilities on their energy demand analyses and identify prioritized locations for zero emission infrastructure, including the level of upgrades needed. In addition, the South Coast AQMD will coordinate with city/county jurisdictions, as needed, on any potential land use issues and propose policy solutions and will continue to collaborate with private industry to understand practical and business model constraints to transitioning to zero emission technologies.

Response to Comment 69-12: South Coast AQMD works with EJ communities through the AB 617 program to determine incentive opportunities for the transition to community-identified alternatives, including low and zero emission technologies.

South Coast AQMD conducts outreach to owners or operators and the community when new incentive opportunities arise from the program. Staff also works with all applicants and assists them in starting applications and also includes language assistance during the application submittal process.

At the time of the Draft 2022 AQMP development, disadvantaged communities (DAC) designation under SB535 did not reflect the latest CalEnviroScreen 4.0. However, since the release of the draft AQMP, CalEPA updated DAC using the latest CalEnviroScreen 4.0 and the Revised Draft 2022 AQMP updated Ch. 8 accordingly with the latest SB535 DAC.

South Coast AQMD, through the rule development process, identifies and notifies all applicable facilities and interested stakeholders (including those in EJ communities) of potential amendments to existing or proposed rules so they may participate in the process. The amended and proposed rules may include requirements for lower-emission or zero-emission equipment for operations. The process involves extensive information gathering and research into available technologies, coordination with stakeholders, and analysis of the economic impact of each proposed rule or rule amendment.

Comment Letter #70

July 5, 2022

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

Submitted via email to:AQMPteam@aqmd.gov

RE: Comments on Residential and Commercial Combustion Source Measures in Draft 2022 Air Quality Management Plan (AQMP)

On behalf of the undersigned organizations, we appreciate the opportunity to comment on the residential and commercial combustion source measures in the Draft 2022 AQMP.

General Comments

Residential and commercial buildings are a major source of nitrogen oxide (NOx) emissions, and reductions in this sector from deploying zero-NOx-emission building appliances will be critical to attaining the 70 ppb 8-hour ozone National Ambient Air Quality Standard (NAAQS). We agree with the District that the "only way to achieve the required NOx reductions is through extensive use of zero-NOx-emission technologies across all stationary and mobile sources," but the 2022 AQMP should also explicitly call for zero-NOx-emissions technology solutions for area sources in addition to stationary and mobile.[1]

Comment 70-1

[1] The 2022 AQMP should take the same approach as outlined in the Air District's 2022 Air Quality Management Plan Policy Brief: Climate Change and Decarbonization, where it states that in order to acheive the 87 percent reduction in NOx emissions below current levels required to meet the 2015 8 hour ozone standard by 2037, "widespread adoption of zero NOx emissions (ZE) technologies accross all stationary, area, and mobile source sectors is needed." *See* Cheung, Kalam, and Yanrong Zhu, Climate Change and Decarbonization , p.5, (June 2022); available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/combined-climate-change-and-decarbonization.pdf?sfvrsn=14

We applaud the District's approach of combining strong regulatory action with incentives. As we noted in a previous letter, incentives without strong regulations, which instead rely on voluntary compliance, have not been effective. While robust incentives are critically important, they must be matched with regulations that move all sources to zero-NOx-emissions to ensure equitable implementation.

With NOx emissions from federally regulated sources outpacing emissions from sources under state and local control, we believe that this should not be a reason for inaction or half measures on local sources, as the District is uniquely positioned given its strong regulatory authority. Given that steep reductions are needed to achieve attainment, due to years of incentive-only approaches and an overreliance on Section 182(e)(5) "black box" measures, the District should change course and lead in regulating sources within its jurisdiction, including appliances. It should focus on deploying zero-NOx-emission-technology through ambitious, feasible, and achievable regulatory action and incentives.

Comment 70-1 Con't

That said, **we strongly support the proposals for zero-NOx-emission appliance rules for residential and commercial appliances**; we outline the below recommendations for their inclusion into the AQMP for their implementation:

1. There must be a stronger commitment to deploy zero-NOx-emission solutions
2. Prioritize environmental justice communities first
3. Accelerate implementation dates starting with new construction
4. Initiate stakeholder working group for existing buildings
5. Zero-NOx solutions foster resiliency, reliability, and societal benefits
6. Eliminate the cost-effectiveness threshold

1. There must be a Stronger Commitment to Deploying Zero-NOx-Emission Solutions

The current proposal to shift to zero-NOx-emissions has tremendous potential, but only if measures set a clear path towards a transition to zero-NOx-emissions appliances through concrete milestones and targeted incentives aimed at helping low-income and environmental justice communities make the transition.

Comment 70-2

Unfortunately, the 2022 Draft AQMP, while claiming to focus on zero-NOx-emissions technology, still sets emissions reduction targets that continue to perpetuate combustion-based alternatives. The Emissions Reductions description for residential space heaters, for example, states "[t]he target of this regulatory approach is to implement zero-NOx-emissions technologies for 50 percent of the applicable sources and implement low-NOx space heating technologies in

conjunction with a mitigation fee for the rest [sic] 50 percent by 2037."[2] Setting this low target for zero-NOx-emission appliance turn over makes little sense, and sets up the District for failure. It is unclear why the District takes this approach, as the District acknowledges the availability of zero-NOx-emission heat pump space heaters, while also acknowledging that certain "alternative" low-NOx technologies, like residential fuel cell water heaters, have yet to be implemented in the United States.[3]

Moreover, there are at least four rules from the 2016 AQMP that are still in the development phase.[4] These include Rules 1147, 1147.2, 1153.1 and 1159.1– all of which are now slated for adoption and implementation in 2022.[5] This backlog of rules creates a ripple effect by crowding the District's rule forecast and making it difficult for rulemaking on new rules to get underway. Perhaps most concerning is that with scarce staff time and resources, these delayed rules fail to set the District up for success when it comes to meeting our clean air mandates—leaving the District on the hook for steep reductions as it is now. To highlight this, as with previously proposed control measure CMB-02, Table 1-2 in the AQMP shows the District's commitment for Rule 1111 was emissions reductions in the amount of 1.1 NOx per day by 2023, yet the projected amount to be achieved from the final adopted rule amounts to a meager 0.01 tpd.

To avoid the failures of the past, the District needs to set a clear course towards zero-NOx-emission solutions. Allowing a loose structure to dole out exceptions will ensure that past failures are repeated. **For this reason, we strongly urge the District to consider revising the language of the proposals related to residential and commercial water heating, furnaces, and other cooking appliances to ensure that regulatory "off-ramps" do not undermine the rule. The target of the regulatory approach should be 100% zero-NOx-emission technology implementation—anything less than that runs the risk of perpetuating the status quo.** While the Draft 2022 AQMP suggests that the details of the rule will be worked out in the rulemaking process, for a zero-emission goal to work, the District must set out the clear expectation that alternatives to zero-NOx emissions will not occupy half the implementation strategy or worse, become the standard.

Additionally, **we call on the District to expedite its rulemaking schedule by prioritizing rules over discretionary programs.** A plan is only as good as the outcomes it is able to achieve. In order to properly set goals and measure success, rules must be set into place and become operational. The District has an opportunity to make good on its promise to do everything within

Comment 70-2 Con't

[2] Draft 2022 AQMP Appendix IV-A, South Coast AQMD's Stationary and Mobile Source Control Measures, p.IV-A-23, (May 2022); available at http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/appiv-a.pdf?sfvrsn=18

[3] Id., at IV-A-11.

[4] *Id.* at 1-15

[5] *Id.*

Comment 70-1

its control to achieve as many emissions reductions across multiple sectors as possible. We therefore ask the District to make good on its commitments to emissions reduction in control measures for the 2022 AQMP by more aggressively committing to zero-NOx-emission goals and expediting the timeline for implementation.

Comment 70-2 Con't

2. Prioritize Environmental Justice Communities

In alignment with District goals on equity, **we must prioritize low-income and environmental justice communities through targeted incentive programs and other investments for the early adoption of zero-NOx-emission technologies.** Targeting incentives in this way will ensure that communities most in need of the affordability, quality of life, and public health benefits of zero-NOx-emissions appliances have access to them.

However, incentives or mitigation fees should not replace strong regulations. Strong regulations and incentives must work in tandem to both force the market to shift while ensuring the market transition is equitable.

We applaud the District's changing eligibility requirements for its CLEANair Furnace Rebate Program to exclude combustion technologies, only funding heat pumps instead. **We recommend the District increase the amount of funding for this program**, but would oppose efforts to secure funding for this program by weakening regulations through weak targets and mitigation fees as suggested by the District in its Policy Brief.

Comment 70-3

We also recommend an increase in the share dedicated to environmental justice and low-income households from 25% to 70%. The program should additionally cover the costs for panel, wiring, and necessary electrical upgrades for low-income and environmental justice households.

3. Accelerate Implementation Dates Starting with New Construction

We appreciate and strongly support staff's proposal on moving forward with a zero-NOx-emission rule for residential and commercial space and water heaters. Given the District's extreme nonattainment status and the risk of sanctions under the Clean Air Act, there is a compelling need to accelerate the timeline on the implementation dates for the space and water heating standards to show that the District is serious about achieving compliance. Additionally, we would recommend bifurcating new construction versus existing construction in rulemaking, with a separate, more expedited effort for new construction. We also believe that the District should address other NOx-emitting appliances, such as gas stoves, especially for new construction.

Comment 70-4

Our recommendations are as follows:

- **New construction: residential/commercial building appliances** should be zero-NOx-emission starting in 2024 to align with already existing all-electric new construction mandates across California and building code updates, and regulations should cover space heating, water heating, cooking appliances, and all other fossil fuel appliances. Failing to address cooking and other appliances for new construction risks continued expansion of the gas system, and exacerbating energy unaffordability while harming public health by allowing buildings to continue emitting, making it harder to achieve clean air mandates.
- **Existing construction: residential water heaters and space heaters** should be zero-NOx-emission no later than 2027. This would align in part with regulations proposed by the Bay Area Air Quality Management District and should help provide needed scale to expand the market for clean technologies.
- **Existing construction: commercial water heaters and space heaters** should be zero-NOx-emission no later than 2030, to align with proposals by the California Air Resources Board under its State Implementation Plan (SIP).

Comment 70-4 Con't

4. Initiate Stakeholder Working Group for Existing Buildings

While regulations on new construction are low-hanging fruit to avoid increasing emissions, regulating existing buildings will require more intentional and cross-cutting planning to address installation barriers and prioritizing equity.

As we mentioned in our previous letter, with the long-term phase in date of zero-NOx-emission standards for appliances, the **District should convene a stakeholder working group process to engage community, environmental, environmental justice, tenants rights, labor, manufacturing, and utility groups, and other local and state entities to develop and implement plans and policies to equitably advance zero-NOx-emission technologies across the District.** Considerations should include, but not be limited to, assessing installation, affordability, grid reliability, and accessibility barriers, anti-displacement and affordability protections, quality installations, and opportunities for local high-road jobs. Engaging with stakeholders to develop equity-centered strategies and programs will help ensure that low-income communities are prioritized in the clean energy transition and can benefit directly from any public investments.

Comment 70-5

This coordination should also include municipalities, such as Los Angeles and Riverside, to ensure the regional effort is informed by local action and leadership.

5. Zero-NOx Solutions Foster Resiliency, Reliability, and Societal Benefits

With extreme weather events more frequent due to the intensifying effects of climate change, there is a greater need to enhance climate resilience and maintain grid reliability. This is especially critical for low-income and environmental justice communities who are disproportionately impacted by extreme weather living in hotter neighborhoods, with inefficient or no air conditioning and scarce access to solar, electricity storage, and other distributed clean technologies that enhance resiliency.

The District can help keep communities safe from extreme heat and reduce energy burden by leveraging building decarbonization strategies. For example, in assessing the need like in Los Angeles County, it is estimated that 3 million people across 1 million households do not have air conditioning. In Riverside County, where the energy burden for low-income and environmental justice is twice the median average in the region, they cannot afford to run cooling systems because of high utility bills, which are exacerbated by inefficient cooling systems.

Comment 70-6

With building decarbonization, we have a unique opportunity to provide solutions that can safeguard reliability, enhance resiliency, and reduce climate emissions. **Building decarbonization through heat pumps is the starting point for creating healthy and resilient homes for vulnerable households that are on the frontlines of climate change and need these benefits the most.** Heat pump investments ought to be leveraged as a vehicle to align additional financial resources to make other investments, such as solar, storage, and insulation.

6. Eliminate the Cost-Effectiveness Threshold

We agree with the District that the Clean Air Act "does not contemplate cost as a consideration in meeting NAAQS and Supreme Court case law expressly prohibits the U.S. EPA from considering costs in establishing NAAQS." While we read the proposed cost-effectiveness thresholds as applying only to stationary and mobile sources, and not area sources, we don't agree that the cost-effectiveness threshold is required by statute. Health and Safety Code § 40922 does require the District to assess and rank the cost-effectiveness of each measure, but having an arbitrary threshold inappropriately elevates one element—related only to costs— among the many required by statute. This would only serve to dilute the importance of public health, social, and climate benefits associated with critical strategies and skew decision-making towards economic considerations.

Comment 70-7

Moreover, given that most cost-effective measures have already been implemented, having an arbitrary threshold puts the District in an unreasonable position of rejecting measures and undermining future rulemakings critical to achieving attainment. **Therefore, we urge the District to eliminate the cost-effectiveness threshold.** Based on statute, meeting the

cost-effectiveness threshold should not be a requirement, but rather a factor that needs to be balanced among others.

The District aptly notes that "while the transition to cleaner technologies will be expensive, the public health benefits associated with meeting the standard will be substantial. There will also be significant co-benefits … resulting in significant climate change benefits". Given the substantial reductions still needed in the region, the District should explore all opportunities to achieve additional reductions from all sectors, while providing robust analysis of public health and climate benefits alongside the socioeconomic considerations.

Comment 70-7 Con't

Conclusion

In summary, we strongly support zero-NOx emission appliance standards for residential and commercial end uses, accompanied by increased and targeted incentives for environmental justice communities. We would oppose efforts to weaken regulations and rely on mitigation fees for increasing funding, however. We encourage the District to accelerate the standards' implementation dates, especially for new construction, and to initiate a stakeholder working group to ensure equitable and affordable rule implementation. The public health benefits of zero-emission appliance control measures, including resiliency and reliability benefits, should be weighed. The arbitrary cost-effectiveness threshold, on the other hand, is not supported by statute and should be eliminated.

Comment 70-8

Thank you again for the opportunity to comment. We look forward to continuing to collaborate with you on this critical plan.

Sincerely,

David Diaz, MPH
Executive Director
Active San Gabriel Valley

Christy Zamani
Executive Director
Day One

Michael Rochmes
Green Buildings Committee Chair
The Climate Reality Project, Los Angeles Chapter

Lexi Hernandez
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Leah Louis-Prescott
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Policy Specialist
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Andrea Vidaurre
Senior Policy Analyst
The People's Collective for Environmental Justice

Fernando Gaytan
Senior Attorney
Earthjustice

Nihal Shrinath
Associate Attorney
Sierra Club

Taylor Thomas
Co-Executive Director
East Yard Communities for
Environmental Justice

Response to Comment 70-1: Thank you for supporting the proposals and providing recommendations.

Response to Comment 70-2: The control measures for residential building appliances are based on a percent emission reduction target. This will pursue approximately 50 percent of household furnaces to operate zero emission technology and overall roughly 58 to 70 percent of NOx emissions reductions generated from those units by 2037. However, further NOx emission reductions are expected to continue to be achieved after that year when residences replace existing natural gas units. The overarching strategy to achieve those emission reductions is from zero emission technologies but lower NOx natural gas units might be necessary in cases, for example, where zero emission technology is deemed infeasible for that application or a particular setting requires a non-zero emission back up. Staff has received comments from the public, including residents and manufacturers, expressing concern regarding cost and product availability for implementing zero emission appliances. During the rulemaking process, staff will conduct a more in-depth analysis including thorough study of cost, product availability, building stock, appliance profile, etc. Staff is committed to making the effort to develop these rule amendments through a proper public process for the Governing Board consideration.

Response to Comment 70-3: Staff agrees with the comments on prioritizing environmental justice communities. The Clean Air Furnace Rebate program set aside a percentage of money to be dispensed only to residences in disadvantages communities in order to assist in the purchase and installation of cleaner technologies in EJ areas. The South Coast AQMD has prioritized to clean the air and protect the health of all residents in the South Coast Air District through practical and innovative strategies. Strategies in the Plan will seek to prioritize low income and environmental justice communities through targeted incentive programs and other investments for early adoption of zero emission technology. The commenter's suggested percentage of incentive funding dedicated to low income and environmental justice communities will be considered for future inventive funds. For further discussion on environmental justice, equity, and incentives and funding for disadvantaged communities, please refer to the general response to Impact of Zero Emission Technology on Inequity. Staff also agrees that the regulatory approach for zero emission appliances is needed along with incentive programs.

Response to Comment 70-4: Staff agrees that the implementation of zero emission technologies for new buildings could occur earlier than that for existing buildings as developers for new construction have the ability to design up front in accordance with the potential needs for electric appliances, such as appropriate voltage, wiring, spacing, etc. Existing buildings need to work from an existing footprint with existing electrical system that most likely will require upgrades. The commentor's suggestion, however, for a 2024 effective date would be ambitious considering the timing to adopt the plan in late 2022, and proper effective rulemaking that could take over one year. The control measures acknowledge the potential of early implementation for new construction. Regarding the comment to address other NOx-emitting appliances such as gas stoves, natural gas units with lower NOx technology would only be allowed when zero emission units are deemed infeasible; such as installations in remote areas or colder climate zones. Further analysis will be conducted during the rulemaking process to determine specific situations where natural gas units with lower NOx technology would be allowed as an alternative. The commenter suggested timelines of 2027 and 2030 for existing construction to align with Bay Area AQMD rulemaking and CARB SIP processes. Staff agrees that aligning the implementation dates with the state and other local agencies would provide consistency for appliance manufacturers but it should be noted that other air agencies, such as Bay Area AQMD has not yet finalized their rules so aligning dates exactly may not be possible. South Coast AQMD has been meeting with CARB and other air districts to discuss the details of

the South Coast AQMD's plans, strategies, and timelines. Further refinement of the implementation schedule will be developed during the rule development process.

Response to Comment 70-5: Staff agrees the South Coast AQMD should convene a stakeholder working group meeting that engages communities, environmental justice, manufacturing, utility groups, municipalities local and state entities, and any other interested or impacted parties. Similar to existing rulemaking efforts and process, staff will conduct outreach to all of the above-mentioned stakeholders and work to build a strong group of stakeholders to inform staff during the development of the rules.

Response to Comment 70-6: Staff understands electricity infrastructure and supply will become more challenging in the future to meet demand and maintain stability and resiliency. Higher usage and load density are expected largely due to the electrification of mobile and stationary sources. To address these challenges and accommodate future electrification needs, state and local agencies have been developing plans and conducting studies on improving the power grid infrastructure. Please refer to the general response to Zero Emission Building Measures and Electricity Supply and Demand for more details. State and local agencies are taking into consideration the needs of the low income and environmental justice communities for power supply, for example, a low utility rate has been provided to low-income families.

The commenter emphasized the need to address energy burden and access to technology for disadvantaged communities. This comment aligns with the South Coast AQMD's effort on equitable protection from air pollution. The South Coast AQMD will work with stakeholders involved in zero emission infrastructure to address concerns that zero emission technologies are distributed affordably and equitably. Affordability will be further considered during the future rulemaking or incentive program development process. Incentives will continue to be a critical component in implementing the control strategies in the 2022 AQMP and will have a heavy focus on disadvantaged communities. The South Coast AQMD will continue to identify more funding sources for future zero emission building measures incentive programs and ensure that disadvantaged communities and Environmental Justice areas can access advanced technologies and benefit from the transition to zero emission technologies. For further discussion, please refer to the general response on Impact of Zero Emission Technology on Inequity.

Response to Comment 70-7: Based on comments received South Coast AQMD is proposing a revised approach to cost-effectiveness that takes into account the monetized benefits associated with the reduction of emissions. Alternatively, cost effectiveness could be based on the implementation cost per tons of emissions reduced from the overall strategies. Please refer to Chapter IV of the Revised Draft AQMP for details.

Both public health benefits and costs of 2022 AQMP implementation will be quantified in the upcoming Draft 2022 AQMP Socioeconomic Report. The climate benefits of zero emission adoption, while not quantified in the report, will be qualitatively discussed.

Response to Comment 70-8: Thank you for your comments. The South Coast AQMD will continue to work with other state and local agencies to ensure an equitable transition and implementation process.

Comment Letter #71

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July 5, 2022

Via email

Sarah Rees, Ph.D.
Deputy Executive Officer
Planning, Rule Development, and Area Sources
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Regulatory Flexibility Group ("RFG") Comments Regarding South Coast Air Quality Management District ("SCAQMD") 2022 Air Quality Management Plan

Dear Dr. Rees:

Thank you for the opportunity to submit these comments on the May 2022 draft of the South Coast Air Quality Management District's Air Quality Management Plan (the "2022 Draft AQMP") on behalf of the RFG, a coalition of California entities whose operations are subject to regulation under the Clean Air Act and corresponding state and regional air quality programs. RFG members include manufacturers, natural gas utilities, oil and chemical companies and other regulated entities. We are very grateful for the SCAQMD staff's careful review of our general comments submitted in March 2022, and the reflection of many of the principles we put forward in the 2022 Draft AQMP and associated Briefing Papers. We look forward to continuing to work with staff in advance of the Governing's Board's consideration of the AQMP later this year. Our remaining general comments follow.

Comment 71-1

Stationary Source NOx Incentives

As RFG members have previously shared with staff in the context of the various RECLAIM landing rules, the regulated community continues to face challenges in obtaining construction and operating permits for required control technology installations. Resolving fundamental New Source Review (NSR) issues as stationary sources transition from RECLAIM Regulation XX NSR to Regulation XIII NSR remains a critical path item to protect against unintended adverse environmental or economic impacts. We appreciate the inclusion of Control Measure FLX-02 (Stationary Source VOC Incentives) and the identified potential incentive concepts included in the Measure, and the stated commitment to investigating incentive funding, permitting and fee incentives and enhancements, NSR incentives and enhancements, CEQA incentives, branding incentives, and recordkeeping and reporting incentives. Appropriately implemented, these types of measures can help businesses offset regulatory compliance costs and

Comment 71-2

advance attainment objectives. Given the potential economic and environmental benefits of these types of incentive programs, we request a similar FLX measure for NOx. Exhibit A to this letter includes a proposed NOx incentive measure for staff's consideration.

Comment 71-2 Con't

Coordination of Control Measures and the RECLAIM Transition

RFG members have and continue to make significant investments to implement recently adopted/amended RECLAIM landing rules. We appreciate that the 2022 Draft AQMP acknowledges the need for technology assessments "to better understand where and when zero emission and low NOx technologies can be implemented." As we have previously indicated, these assessments must demonstrate that the proposed emission reduction can be achieved through technologically feasible means prior to adoption, and any new proposals must be evaluated in the context of controls installed or planned to implement recently adopted/amended RECLAIM landing rules to avoid inconsistent or duplicative regulation of stationary sources and take into account practical considerations such as space constraints within facilities. Applicable rulemakings should also evaluate the potential environmental impacts and legal factors associated with the proposed control measures and the RECLAIM transition to ensure that both programs are effectively and efficiently implemented and do not result in unintended adverse environmental or economic impacts (e.g., stranded assets). We offer proposed language for select draft control measures to address these concerns in Exhibit A.

Comment 71-3

Establishing a Cost-Effectiveness Threshold Cap

We appreciate that the 2022 Draft AQMP proposes cost effectiveness thresholds of $36,000 per ton of VOC and $59,000 per ton of NOx. We also recognize the SCAQMD's note in the 2022 Draft AQMP that, in connection with rulemakings associated with the 2016 AQMP, "emission standards that had controls that were well above the cost-effectiveness threshold were rejected with the goal of keeping the average cost-effectiveness for each class and category for equipment under the cost-effectiveness threshold." However, we are concerned that the 2022 Draft AQMP leaves open the possibility of adopting emission standards that exceed the cost-effectiveness thresholds. Given the economic and employment risk of further burdening stationary sources, we strongly urge staff to amend the 2022 Draft AQMP to indicate that the cost effectiveness thresholds for stationary sources **will function as a hard cap** (as opposed to a trigger for staff to "hold a public meeting to discuss other emission standards with a cost-effectiveness at or below the cost-effectiveness threshold and/or compliance or implementation options to address an emission standard that is above the cost-effectiveness threshold.")

Comment 71-4

Provision of Alternative Compliance Mechanisms When Implementing Control Measures

The final 2022 AQMP should direct that any future stationary source control measures contain appropriate alternative compliance mechanisms (e.g., an alternative compliance fee set at the relevant cost effectiveness threshold level and used to fund clean technologies or mass-based facility caps) to ensure that stationary sources have a ready compliance alternative when costs approach the threshold level. Alternative compliance approaches will also help address the technical feasibility concerns RFG members have communicated to the SCAQMD in the context of the RECLAIM landing rules. The final 2002 AQMP should further direct that the control measure review processes specify incremental cost-effectiveness scenarios and methodology and

Comment 71-5

identify industry-specific affordability issues. We have offered specific language to the draft control measures that we believe will implement these important concepts in Exhibit A.

Comment 71-5 Con't

Fuel Neutrality

As recognized in the 2016 AQMP, "[a]ir quality regulatory agencies have traditionally set policies and requirements that are performance-based, and thus technology- and fuel-neutral. This is a policy that the SCAQMD intends to continue."[1] This is critical. As we have consistently advocated, AQMPs should not pick winners and losers, but instead should force technologies to compete against one another to maximize air quality benefits and provide products that meet residential, commercial and industrial needs at reasonable costs. Technology and fuel neutrality promotes competition, which forces technologies to become cleaner and drives down prices. Importantly, technology and fuel neutrality also protects against price spikes and shortages, which can have devastating impacts on the economy. Based on our review of the 2022 Draft AQMP, we could not identify language expressly confirming that the SCAQMD intends to continue its technology- and fuel-neutral policy, and we respectfully request that the final 2022 AQMP expressly indicate that the SCAQMD in fact intends to continue this important policy. Again, we offer proposed language to address this request in Exhibit A.

Comment 71-6

Infrastructure and Grid Reliability

As previously communicated, we are concerned that the increasing load on the grid at the scale proposed under the 2022 AQMP will adversely impact the affordability, availability and reliability of the regional energy market. We appreciate the Briefing Paper prepared on Infrastructure and its identification of many of the challenges wide-scale deployment of near-zero and zero emission infrastructure faces in the South Coast Air Basin (and California more broadly). We are concerned, however, that the Briefing Paper does not appropriately detail the real cost and timing challenges associated with deployment of the infrastructure needed to achieve the identified emission reductions. These cost and timing challenges will come in many forms, including likely delays in wide-scale implementation driven by strategic litigation brought under CEQA. Given these realities, we recommend that the work plan contemplated by MOB-15 identify and develop proposed legislation and rulemaking to reduce litigation risk and the abuse of the environmental review process when public utilities and private parties make investments into grid reliability and scalable deployment of zero and near-zero emission support infrastructure. And beyond MOB-15, we support and encourage the District to fully explore any and all potential incentive funding sources through the stakeholder process over the next several years that would help offset costs and fund and facilitate grid reliability.

Comment 71-7

[1] SCAQMD, 2016 AQMP, March 2017, pp. 4-9.

Conclusion

Thank you for the opportunity to submit these comments and the proposed language in Exhibit 1. We look forward to further discussions with the SCAQMD staff and other stakeholders in advance of the Governing Board's consideration of the final AQMP.

Sincerely,

Michael J. Carroll

Michael J. Carroll
of LATHAM & WATKINS LLP

Enc.

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EXHIBIT 1: PROPOSED MODIFICATIONS TO THE DRAFT 2022 AQMP

…

The Draft 2022 AQMP builds upon measures already in place from previous AQMPs. It also includes a variety of additional strategies such as regulation, accelerated deployment of available cleaner technologies (e.g., zero emission technologies, when cost-effective and feasible, and low NOx technologies in other applications), best management practices, co-benefits from existing programs (e.g., climate and energy efficiency), incentives, and other CAA measures to achieve the 2015 8-hour ozone standard. **Air quality regulatory agencies have traditionally set policies and requirements that are performance-based, and thus technology- and fuel-neutral. As it has with prior AQMPs, this is a policy that the SCAQMD intends to continue in this AQMP.**

Comment 71-8

…

A. South Coast AQMD Proposed Stationary Source 8-Hour Ozone Measures

…

TABLE 4-2

SOUTH COAST AQMD PROPOSED STATIONARY SOURCE 8-HOUR OZONE MEASURES

Number	Title [Pollutant]	Emission Reductions (tpd) (2032/2037)
South Coast AQMD Stationary Source NOx Measures:		
Residential Combustion Source Measures:		
R-CMB-01	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances - Residential Water Heating [NOx]	0.48 / 1.29
R-CMB-02	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances - Residential Space Heating [NOx]	0.45 / 1.20
R-CMB-03	Emissions Reductions from Residential Cooking Devices [NOx]	0.30 / 0.81
R-CMB-04	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances - Residential Other Combustion Sources [NOx]	1.17 / 3.13
	Total Residential Combustion Source Reductions	**2.4 / 6.43**
Commercial Combustion Source Measures:		
C-CMB-01	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances - Commercial Water Heating [NOx]	0.04 / 0.25

Number	Title [Pollutant]	Emission Reductions (tpd) (2032/2037)
C-CMB-02	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances - Commercial Space Heating [NOx]	0.04 / 0.21
C-CMB-03	Emission Reductions from Commercial Cooking Devices [NOx]	0.21 / 0.62
C-CMB-04	Emission Reductions from Small Internal Combustion Engines [NOx]	0 / 2.1
C-CMB-05	NOx Reductions from Small Miscellaneous Commercial Combustion Equipment (Non-Permitted) [NOx]	0 / 4.24
	Total Commercial Combustion Source Reductions	**0.29 / 7.42**
Large Combustion Source Measures:		
L-CMB-01	NOx Reductions from RECLAIM Facilities [NOx]	0 / 0.28
L-CMB-02	Reductions from Boilers and Process Heaters (Permitted) [NOx]	0 / 0.5
L-CMB-03	NOx Emission Reductions from Permitted Non-Emergency Internal Combustion Engines [NOx]	0 / 0.31
L-CMB-04	Emission Reductions from Emergency Standby Engines (Permitted) [NOx, VOCs]	0.0 / 2.0
L-CMB-05	NOx Emission Reductions from Large Turbines [NOx]	0 / 0.06
L-CMB-06	NOx Emission Reductions from Electricity Generating Facilities [NOx]	0.09 / 0.62
L-CMB-07	Emission Reductions from Petroleum Refineries [NOx]	0 / 0.77
L-CMB-08	NOx Emission Reductions from Combustion Equipment at Landfills and Publicly Owned Treatment Works [NOx]	0 / 0.33
L-CMB-09	NOx Reductions from Incinerators [NOx]	0 / 0.89
L-CMB-10	NOx Reductions from Miscellaneous Permitted Equipment [NOx]	0 / 1.16
	Total Large Combustion Source Reductions	**0.09 / 6.92**
FLX-03	**Stationary Source NOx Incentives [NOx]**	**TBD / TBD**

Comment 71-9

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TABLE 4-2 (CONTINUED)

SOUTH COAST AQMD PROPOSED STATIONARY SOURCE 8-HOUR OZONE MEASURES

Number	Title [Pollutant]	Emission Reductions (tpd) (2032/2037)
South Coast AQMD Co-Benefits from Energy and Climate Change Programs Measures:		
ECC-01	Co-Benefits from Existing and Future Greenhouse Gas Programs, Policies, and Incentives [NOx]	TBD / TBD[b]
ECC-02	Co-Benefits from Existing and Future Residential and Commercial Building Energy Efficiency Measures [NOx, VOCs]	TBD / TBD
ECC-03	Additional Enhancements in Reducing Existing Residential Building Energy Use [NOx, VOCs]	TBD / TBD
South Coast AQMD Stationary Source VOC Measures:		
FUG-01	Improved Leak Detection and Repair [VOCs]	0.6 / 0.6
FUG-02	Emission Reductions from Industrial Cooling Towers [VOCs]	TBD / TBD
CTS-01	Further Emission Reductions from Coatings, Solvents, Adhesives, and Lubricants [VOCs]	0.5 / 0.5
FLX-02	Stationary Source VOC Incentives [VOCs]	TBD / TBD
BIO-01	Assessing Emissions from Urban Vegetation [VOCs]	TBD / TBD
L-CMB-04[c]	Emission Reductions from Emergency Standby Engines (Permitted) [NOx, VOCs]	0.0 / 0.1
	Total Stationary Source VOC Reductions	**1.1 / 1.2**
South Coast AQMD Stationary Source Other Measures:		
MCS-01	Application of All Feasible Measures [All Pollutants]	TBD / TBD
MCS-02	Wildfire Prevention [NOx, PM]	N/A / N/A
FLX-01	Improved Education and Public Outreach [All Pollutants]	N/A / N/A

a N/A are reductions that cannot be quantified due to the nature of the measure (e.g., outreach) or if the measure is designed to ensure reductions that have been assumed to occur will in fact occur.

b TBD are reductions to be determined once the measure is further evaluated, the technical assessment is complete, and inventories and cost-effective control approaches are identified, and are not relied upon for attainment demonstration purposes.

c This is a NOx control measure with co-benefits of VOC reductions.

1. South Coast AQMD Stationary Source NOx Measures

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a. Large Combustion Source Measures

In the large combustion sources category, there are 10 proposed NOx control measures:

- L-CMB-01: NOx Reductions for RECLAIM Facilities

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- L-CMB-02: Reductions from Boilers and Process Heaters (Permitted)
- L-CMB-03: NOx Emission Reductions from Permitted Non-Emergency Internal Combustion Engines
- L-CMB-04: Emission Reductions from Emergency Standby Engines (Permitted)
- L-CMB-05: NOx Emission Reductions from Large Turbines
- L-CMB-06: NOx Emission Reductions from Electricity Generating Facilities
- L-CMB-07: Emission Reductions from Petroleum Refineries
- L-CMB-08: NOx Emission Reductions from Combustion Equipment at Landfills and Publicly Owned Treatment Works
- L-CMB-09: NOx Reductions from Incinerators
- L-CMB-10: NOx Reductions from Miscellaneous Permitted Equipment

L-CMB-01: NOX REDUCTIONS FOR RECLAIM FACILITIES: This control measure reduces NOx emissions by transitioning NOx RECLAIM facilities to a command-and-control regulatory structure requiring BARCT level controls. Source categories covered by this control measure include metal melting and heating furnaces, food ovens, and nitric acid tanks. The following rules would implement this control measure: Proposed Rule 1147.2 – NOx Reductions from Metal Melting and Heating Furnaces (PR 1147.2); Proposed Amended Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens (PAR 1153.1); and Proposed Rule 1159.1 – Control of NOx Emissions from Nitric Acid Tanks (PR 1159.1). Staff is proposing to evaluate a variety of different NOx control technologies depending on the type of NOx source. **The control technology evaluation processes and subsequent rulemakings will include incremental cost-effectiveness scenarios and methodology, identify industry-specific affordability issues, and provide alternative compliance mechanisms.** Comment 71-10

L-CMB-02: REDUCTIONS FROM BOILERS AND PROCESS HEATERS (PERMITTED): This control measure reduces NOx emissions by replacing or retrofitting boilers and process heaters used in industrial, institutional, and commercial operations with zero and low NOx emission technologies. It would apply to units with a rated heat input greater than or equal to 2 million BTU per hour. Boilers and process heaters used in industrial, institutional, and commercial operations with a rated heat input greater than or equal to 2 million BTU per hour are currently regulated under Rules 1146 and 1146.1. This control measure will establish rules to set standards for new equipment, replacements, or retrofits of boilers and process heaters. **Any rulemaking will consider other rules associated with the transitioning of NOx RECLAIM facilities to a command-and-control regulatory structure, include incremental cost-effectiveness scenarios and methodology, identify industry-specific affordability issues, and provide alternative compliance mechanisms.** Comment 71-11

L-CMB-03: NOX EMISSION REDUCTIONS FROM PERMITTED NON-EMERGENCY INTERNAL COMBUSTION ENGINES: This control measure targets emission reductions from permitted non-emergency internal combustion engines rated over 50 bhp regulated by Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines. It proposes to transition, older, higher-emitting engines in the RECLAIM program to newer technology that can meet the NOx emission limits set forth in Rule 1110.2. Low NOx and zero emission technologies may be available in the future and will be evaluated to determine feasibility of implementation. **Any rulemaking will consider other rules associated with the transitioning of NOx** Comment 71-12

RECLAIM facilities to a command-and-control regulatory structure, include incremental cost-effectiveness scenarios and methodology, identify industry-specific affordability issues, and provide alternative compliance mechanisms.

Comment 71-12 Con't

L-CMB-04: EMISSION REDUCTIONS FROM EMERGENCY STANDBY ENGINES (PERMITTED): This control measure seeks reductions of NOx emissions from emergency standby engines rated over 50 brake horsepower. Over 12,000 internal combustion engines are permitted for emergency standby power in the South Coast AQMD, however due to the essential nature, limited operations of these engines, and high replacement costs, multiple approaches are proposed to reduce emissions from this source category. The approaches involve an education and outreach program to encourage the transition to zero-emission technologies. Regulatory strategies include replacing older, higher emitting engines with cleaner engines or with alternative technologies, requiring the use of lower emission fuels, and a future prohibition of the use of Internal Combustion Engines for emergency backup power. As alternative technologies mature and new technologies emerge, the South Coast AQMD will undertake rulemaking to maximize emission reductions utilizing zero emission equipment where cost-effective and feasible and low NOx emission equipment in all other applications. Any rulemaking will consider other rules associated with the transitioning of NOx RECLAIM facilities to a command-and-control regulatory structure, include incremental cost-effectiveness scenarios and methodology, identify industry-specific affordability issues, and provide alternative compliance mechanisms.

Comment 71-13

L-CMB-05: NOX EMISSION REDUCTIONS FROM LARGE TURBINES: This control measure aims to reduce NOx from turbines in the South Coast AQMD subject to Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines (Rule 1134). Fuel cells and electrification are ways to shift away from combustion sources generating NOx emissions wherever feasible. As older higher emitting turbines reach the end of their equipment life it is expected that some facilities will opt to replace turbines with fuel cells or electrify facility operations. Any rulemaking will consider other rules associated with the transitioning of NOx RECLAIM facilities to a command-and-control regulatory structure, include incremental cost-effectiveness scenarios and methodology, identify industry-specific affordability issues, and provide alternative compliance mechanisms.

Comment 71-14

L-CMB-06: NOX EMISSION REDUCTIONS FROM ELECTRICITY GENERATING FACILITIES: This control measure reduces NOx emissions from electric generating units regulated by Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities (Rule 1135). This measure proposes to develop a rule to implement low NOx and zero emission technologies at electricity generating facilities. The target of this approach is to replace boiler units with lower-emitting turbines, implement zero emission technologies such as fuel cells or electrification for 10 percent of gas-fired sources and other lower NOx emission technologies for the rest of gas-fired sources, and require stricter emission requirements from diesel internal combustion engines.

L-CMB-07: EMISSION REDUCTIONS FROM PETROLEUM REFINERIES: The goal of this measure is to assess and identify potential actions to further reduce NOx emissions by 20 percent for large refinery heaters and boilers with a maximum rated heat input of 40 MMBtu/hour. This would be accomplished by developing a rule requiring a lower NOx concentration limit of 2 ppm. South Coast AQMD staff identified three potential technological

approaches to further reduce emissions for the large heaters and boilers category. The three approaches include next-generation ultra-low NOx burners, advanced SCR, and transition to zero emission technology. **Any rulemaking will consider other rules associated with the transitioning of NOx RECLAIM facilities to a command-and-control regulatory structure, include incremental cost-effectiveness scenarios and methodology, identify industry-specific affordability issues, and provide alternative compliance mechanisms.**

Comment 71-15

L-CMB-08: NOX EMISSION REDUCTIONS FROM COMBUSTION EQUIPMENT AT LANDFILLS AND PUBLICLY OWNED TREATMENT WORKS: This control measure aims to reduce NOx emissions through a regulatory approach. The source categories for this control measure are biogas fueled combustion equipment – specifically boilers, turbines, and engines – regulated by Rule 1150.3 – Emissions of Oxides of Nitrogen from Combustion Equipment at Landfills (Rule 1150.3) and Rule 1179.1 – Emission Reductions from Combustion Equipment at Publicly Owned Treatment Works Facilities (Rule 1179.1).

L-CMB-09: NOX REDUCTIONS FROM INCINERATORS: This control measure seeks emission reductions of NOx by replacing or retrofitting incinerators and other combustion equipment associated with incinerators with zero and low NOx emission technologies. Incinerators are used to burn waste material at high temperatures until reduced to ash. This control measure will achieve reductions by developing a rule, and implementation of low NOx burner systems or ultra-low NOx burner systems. **Any rulemaking will consider other rules associated with the transitioning of NOx RECLAIM facilities to a command-and-control regulatory structure, include incremental cost-effectiveness scenarios and methodology, identify industry-specific affordability issues, and provide alternative compliance mechanisms.**

Comment 71-16

L-CMB-10: NOX REDUCTIONS FROM MISCELLANEOUS PERMITTED EQUIPMENT: The goal of this measure is to assess and identify potential actions to further reduce NOx emissions associated with miscellaneous permitted equipment located in the South Coast AQMD jurisdiction. South Coast AQMD staff will convene a stakeholder working group to discuss and identify actions or approaches to further reduce NOx emissions from these sources. Miscellaneous permitted equipment is regulated under Rule 1147 – NOx Reductions from Miscellaneous Sources with NOx emission limits depending on equipment category. **Any rulemaking will consider other rules associated with the transitioning of NOx RECLAIM facilities to a command-and-control regulatory structure, include incremental cost-effectiveness scenarios and methodology, identify industry-specific affordability issues, and provide alternative compliance mechanisms.**

Comment 71-17

FLX-03: STATIONARY SOURCE NOx INCENTIVES: This control measure seeks to provide incentive funding to facilitate the adoption of clean, zero or low NOx emission technologies from stationary sources. Facilities would be able to qualify for incentive funding if they use equipment or accept permit conditions which result in cost-effective emission reductions that are beyond existing requirements. The program would establish procedures for quantifying emission benefits from clean technology implementation and develop cost-effectiveness thresholds for funding eligibility. Mechanisms will be explored to incentivize businesses to choose the cleanest technologies as they replace equipment and upgrade facilities, and to provide incentives to encourage businesses to move into these technologies sooner. Potential incentive concepts include incentive funding, permitting and fee incentives

Comment 71-18

and enhancements, New Source Review (NSR) incentives and enhancements, branding incentives, and recordkeeping and reporting incentives.

Comment 71-18 Con't

Response to Comment 71-1: South Coast AQMD staff appreciates your comments on the Draft 2022 AQMP.

Response to Comment 71-2: Thank you for proposing a new control measure for stationary source NOx incentives. The South Coast AQMD has a long history of successful implementation of incentive programs that help fund the accelerated deployment of cleaner technologies primarily in mobile sources. Some of the major incentive programs that are administered by the South Coast AQMD include Carl Moyer Memorial Air Quality Standards Attainment Program, Proposition 1B Goods Movement Emissions Reductions Program, and Lower School Bus Emission Program. Recently, Community Air Protection Program and VW Environmental Mitigation Trust for California were also added to the portfolio of the South Coast AQMD-administered incentive programs. These incentive programs are further described in the South Coast AQMD's mobile source control measures (Appendix IV-A). While incentive programs for stationary sources are not as well established as mobiles, control measures R-CMB-01, R-CMB-02, C-CMB-01, C-CMB-02 focused on area sources such as furnaces and water heaters propose limited incentive options which could be based on mitigation fees, grant money, or future government support for cleaner technologies. Stationary source reductions are largely expected to be from a regulatory approach, but South Coast AQMD will continue working with facilities and stakeholders to explore opportunities for financial assistance and incentives.

Response to Comment 71-3: Rule developments arising from the 2022 AQMP will evaluate technological feasibility, cost-effectiveness, and incremental cost-effectiveness, pursuant to Health and Safety Code Section 40920.6, when establishing BARCT emission limits. Staff will account for stranded asset costs, if applicable, in cost-effectiveness calculations as well as consider existing rule implementation schedules when determining appropriate compliance deadlines. This process will be conducted within a public rule development process that includes public participation.

Response to Comment 71-4: The intended function of the NOx and VOC cost-effectiveness thresholds proposed for stationary sources in the Draft 2022 AQMP remain the same as the 2016 AQMP thresholds. The cost-effectiveness thresholds are not hard caps and provide a guide during rule development. Exceeding these thresholds would trigger additional analysis during the rulemaking process. If a proposed emission standard has a cost-effectiveness that is above the threshold, staff would hold a public meeting to discuss other emission standards with a cost-effectiveness at or below the cost-effectiveness threshold and/or compliance options to address an emission standard that is above the cost-effectiveness threshold. At the public hearing for the adoption or amendment of the emission standard, staff would present the options to the emission standard if the cost-effectiveness is above the threshold, highlighting the potential emission reductions associated with each option.

During the rule development process, staff strives to maximize emission reductions while considering cost-effectiveness. The BARCT analysis is not limited to the cost-effectiveness, it also includes an incremental cost-effectiveness analysis. So while a class and category may have been cost-effective, the incremental cost-effectiveness could have been significantly above the cost-effectiveness threshold. Staff is committed to identifying and proposing the cost-effective control/compliance options, but this cannot be done at the expense of foregoing emission reductions necessary for regional air quality attainment, especially given the magnitude of the emission reductions needed to meet the ozone standards. Note that U.S. EPA is prohibited from considering cost when establishing NAAQS. South Coast AQMD is required under the Health and Safety Code to consider cost when establishing a BARCT standard. While states are

allowed to consider costs in designing control measures, they are not allowed to use costs as a reason to adopt a plan that does not meet the NAAQS.

The 2022 AQMP will be the most expensive AQMP to date and the cost of achieving additional emission reductions will increase as the most cost-effective controls have already been implemented. Based on comments received as well as feedback from several Governing Board members staff is proposing a revised framework for cost-effectiveness that accounts for the monetized benefits of emission reductions. Please refer to Chapter IV in the Revised Draft 2022 AQMP for details.

Please note that control measures described in the AQMP will undergo further detailed development during rulemaking where the current and future commercial availably of technology will be assessed, emission reductions will be estimated, the cost-effectiveness will be analyzed, opportunities for incentive funding will be evaluated, and other challenges will be considered and resolved.

Response to Comment 71-5: Staff appreciates the commenter's suggestions. Alternative compliance mechanisms are considered during the rulemaking process, which in applicable cases may include a mitigation fee set at a level to sufficiently ensure equivalent emission reductions. Moreover, pursuant to various sections including H&SC §40920.6, BARCT standards require that the proposed limit(s) be technically feasible, and that the Governing Board consider cost-effectiveness and incremental cost-effectiveness, all of which are demonstrated and analyzed in the rule staff report. For each proposed rule and rule amendment, the accompanying socioeconomic impact assessment analyzes compliance costs by industry, and when sufficient information can be obtained, also per affected facility. Small business impacts are additionally examined in the assessment if the affected facilities include small businesses.

Response to Comment 71-6: South Coast AQMD has a long-standing policy of technology- and fuel-neutrality. The Draft 2022 AQMP calls for zero emissions technology, not electrification. While electric appliances/equipment are critical part of available zero emission technology, staff does not eliminate other technology such as Fuel Cells from consideration. Staff clarifies this position in the control strategy section of Chapter 4 of the Revised Draft 2022 AQMP by re-iterating: "Air quality regulatory agencies have traditionally set policies and requirements that are performance-based, and thus technology- and fuel-neutral. This is a policy that the South Coast AQMD intends to continue."

Response to Comment 71-7: The South Coast AQMD recognizes and shares your concern regarding grid reliability and other hurdles in supporting widespread transition to zero emission technologies. These concerns are the reason why the South Coast AQMD developed MOB-15. This control measure is a commitment to engage with stakeholders involved in every aspect of the transition to zero emission fueling with the goal of identifying potential shortfalls in technologies and/or energy availability while assisting in a collaborative effort to address these concerns. The South Coast AQMD is uniquely positioned to actively engage with the CEC, CPUC, CARB, local utilities, fleets and other stakeholders to help address the challenges related to grid capacity and reliability in the region. South Coast AQMD will continue to share information that can be used to better inform forecasting and energy analyses which are used to plan grid capacity upgrades. Current forecasting and energy analyses are primarily focused on the state ZEV goals and do not fully address all emission categories that will need to transition to zero emissions to reach attainment goals. The challenges related to the electrical grid and infrastructure availability are significant and will require collaborative problem solving involving all stakeholders. South Coast AQMD will continue to advise partner organizations through information sharing and close coordination of efforts to remove barriers to ZE infrastructure and technology deployments.

Agencies and organizations throughout the state that are involved in energy distribution such as the California Energy Commission, the California Public Utility Commission, and local utilities such as Southern California Edison, are aware of the challenges ahead in terms of energy and infrastructure availability and are actively engaged in planning to anticipate future demand as the state moves toward a zero emission future. Engagement with local utilities and other partners involved in this transition through the direction detailed in MOB-15 will help articulate the region's needs and challenges to anticipate potential shortfalls in energy and technology availability, and assure the agencies involved are making progress to resolve concerns related to grid readiness and reliability.

In addition to electric technology options, fuel cells and possibly other new technologies will be used to support the transition to a zero emission future. The state of California, through various programs, has allocated significant funding to advance the development and deployment of zero emission technologies, including electric charging and hydrogen fueling infrastructure. As part of MOB-15, South Coast AQMD will continue to track all available funding sources for zero emission infrastructure and share this information with fleets and other stakeholders to provide financial assistance and encourage early planning for transitioning to zero emission technologies. Early planning and collaborative problem solving involving all stakeholders will be necessary to assure grid readiness and infrastructure availability. South Coast AQMD will also actively support and advocate for new funding sources that will accelerate the deployment of zero emission infrastructure in the South Coast AQMD. This effort will encourage consumers to plan early with support from the local utilities to streamline the process for approving installations and interconnection with the grid.

Response to Comment 71-8: See the Response to Comment 71-6.

Response to Comment 71-9: See the Response to Comment 71-2.

Response to Comment 71-10: Staff agrees that all rule development will consider the requirements by the other rules associated with the transitioning of NOx RECLAIM facilities to a command-and control regulatory structure, including cost-effectiveness, incremental cost-effectiveness, stranded assets, industry-specific compliance schedules as well as alternative compliance mechanisms. Staff incorporated a modified version of the proposed language.

Response to Comment 71-11: See the Response to Comment 71-10.

Response to Comment 71-12: See the Response to Comment 71-10.

Response to Comment 71-13: See the Response to Comment 71-10.

Response to Comment 71-14: See the Response to Comment 71-10.

Response to Comment 71-15: See the Response to Comment 71-10.

Response to Comment 71-16: See the Response to Comment 71-10.

Response to Comment 71-17: See the Response to Comment 71-10.

Response to Comment 71-18: See the Response to Comment 71-2.

Comment Letter #72

Ramine Cromartie
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July 5, 2022

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Via e-mail at: AQMPteam@aqmd.gov

Re: WSPA Comments on SCAQMD Draft 2022 Air Quality Management Plan

Dear Dr. Lee,

Western States Petroleum Association (WSPA) appreciates the opportunity to participate in the working group and workshops for the South Coast Air Quality Management District's (SCAQMD or District) 2022 Air Quality Management Plan (AQMP or Plan). The AQMP is a regional blueprint for achieving the national ambient air quality standards (NAAQS). On October 1, 2015, the U.S. Environmental Protection Agency (EPA) strengthened the National Ambient Air Quality Standards (NAAQS) for ground-level ozone, lowering the primary and secondary ozone standard levels to 70 parts per billion (ppb).[1] The 2022 AQMP is being developed to address the requirements for meeting this standard through proposed control measures.

WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport, and market petroleum, petroleum products, natural gas, renewable fuels, and other energy supplies in five western states including California. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA-member companies operate petroleum refineries and other facilities in the South Coast Air Basin that are regulated by the SCAQMD and will be impacted by the 2022 AQMP.

Comment 72-1

We understand the challenges that the District faces in attaining the NAAQS. The region's unique topography and meteorology combined with mobile source emissions continues to produce significant ozone pollution for which the District has limited control authority. And as cost-effective controls have been implemented, it has become increasingly difficult to identify and implement additional control measures that are cost-effective. On May 6, 2022, SCAQMD released the Draft 2022 AQMP, with additional appendices released on June 1, 2022.[2] WSPA offers the following comments.

[1] 2015 Revision to 2008 Ozone NAAQS. Available at: https://www.federalregister.gov/documents/2015/10/26/2015-26594/national-ambient-air-quality-standards-for-ozone.
[2] SCAQMD Draft 2022 AQMP. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/draft2022aqmp.pdf?sfvrsn=12.

1. **SCAQMD has proposed a control measure L-CMB-07 to reduce NOx emissions from petroleum refineries by 0.77 tons per day, or 20% below post Rule 1109.1 implementation levels. The petroleum refining industry will be working to meet the requirements of the recently adopted Rule 1109.1 for the next decade. L-CMB-07 describes several technologies that were recently demonstrated by the District as infeasible, unproven, or not to be cost effective. Furthermore, the timetable for the proposed measure would overlap with the Rule 1109.1 compliance schedule. Given these facts, SCAQMD should reconsider the inclusion of proposed control measure L-CMB-07.**

   SCAQMD Rule 1109.1, Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations, was developed as a result of the 2016 AQMP control measure CMB-05, which required a transition from RECLAIM to a command and control regulatory structure requiring Best Available Retrofit Control Technology (BARCT) level controls as soon as practicable.[3,4] That rule, adopted in November 2021, will reduce NOx emissions from refinery boilers, process heaters, fluid catalytic cracking units, gas turbines, and other equipment, and is one of the most complex and costly rules ever adopted by the SCAQMD. Costs of implementation for the rule are expected to range from $2.3 billion to $2.9 billion and will result in 7.7 – 7.9 tons per day (tpd) NOx reductions. This would involve installation of approximately 70 new selective catalytic reduction (SCR) systems, upgrades to about 30 existing SCR systems, and other equipment modifications.[5]

   Due to the complexity of the equipment installations and the number of units that must be modified because of the rule, the District's compliance schedule provides flexibility such that the last permit applications are not due until January 1, 2031, with compliance required no later than 36 months after Permit to Construct (PTC) issuance. Depending on permit application processing time, final compliance with Rule 1109.1 requirements for some equipment could be as late as 2034-2036.

   The 2022 AQMP states that the remaining emission inventory for petroleum refineries after implementation of Rule 1109.1 requirements will be 3.82 tpd. SCAQMD has proposed control measure L-CMB-07 to reduce NOx emissions from petroleum refineries by an additional 20% (0.77 tpd) by 2037 through further control of large boilers and process heaters (i.e., rated at 40 million BTU/hr or larger). Rule 1109.1 already requires this equipment to meet a NOx emission limit of 5 ppm. SCAQMD now suggests that further emission reductions can be achieved through the use of next generation ultra-low NOx burner (ULNB), advanced SCR design, and zero emission technologies. SCAQMD is proposing rule development to be initiated between 2025 and 2027 to achieve emission reductions by 2037.

   The District has suggested that next generation ULNB products can alleviate some of the challenges of conventional ULNB such as safety concerns associated with retrofit applications. At Proposed Rule 1109.1 (PR1109.1) Working Group Meeting (WGM) #17, one vendor provided a presentation on development of their core process burner. The presentation cited < 7 ppm NOx emissions for a limited number of projects involving

Comment 72-2

[3] SCAQMD Rule 1109.1. Available at: https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/r1109-1.pdf?sfvrsn=8.
[4] SCAQMD 2016 AQMP. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15.
[5] SCAQMD Rule 1109.1 Governing Board Package, November 5, 2021, Agenda No. 34. Available at: http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-Nov5-034.pdf?sfvrsn=6.

equipment rated at 39 MMBtu/hr or less.[6] However, it was unclear if any of the projects were able to demonstrate the lower emission rate when burning refinery fuel gas, or whether any of the projects involved equipment rated at ≥40 MMBtu/hr input, as suggested in the proposed L-CMB-07 measure. SCAQMD provided information on a different burner technology at PR1109.1 WGM #12, noting that the burner system requires heat releases between 1 and 20 MMBtu/hr, and has been demonstrated to achieve approximately 5 ppm NOx using natural gas at a test facility. That vendor noted that refinery fuel gas may result in higher emissions.[7] Due to the expectation of higher emissions when burning refinery fuel gas, SCAQMD evaluated the cost-effectiveness of a 9 ppm BARCT endpoint for NOx for equipment burning refinery fuel gas.

There are several design criteria necessary for safe and effective operation of ULNB in refinery heaters. For example, due to higher flame lengths generated by ULNB, the radiant section of the heater fire box needs to be long enough to avoid flame impingement on internal surfaces (i.e., a significant safety concern). Additionally, to take advantage of internal flue gas recirculation (IFGR) patterns to lower NOx, both burner-to-burner spacing and the spacing between burners and heater internals must be appropriate to avoid flame impingement. Refinery heaters and boilers have fixed radiant section geometries, tube configurations, and other internal surfaces that in many cases limit the unit's ability to accommodate additional spacing demands needed for newer ULNB products. Flame impingement can cause tube rupture of radiant tubes which contain flammable material, resulting in a potentially catastrophic explosion event, making it impossible to safely retrofit ULNB in many existing refinery heaters and boilers. Options to avoid flame impingement would include significant rebuild of the unit's geometry (if feasible), or complete replacement of the refinery heater or boiler.

Comment 72-2 Con't

For L-CMB-07, WSPA understands that SCAQMD is suggesting a new 2 ppm endpoint through an additional requirement to add these emerging technologies. However, SCAQMD has provided no technical basis to support the claim that this will be achievable for refinery boilers and process heaters rated at ≥40 MMBtu/hr input using refinery fuel gas. The PR1109.1 Final Staff Report identified one example of next generation ULNB installed on a 39 MMBtu/hr vertical cylindrical heater at a refinery which was reportedly demonstrated with NOx levels at 29.3 ppmv.[8] Further, it has not been explained how any of the concerns raised in the PR1109.1 proceedings will be overcome. Those concerns include process safety and technical feasibility issues such as flame impingement and boiler geometry. Given these retrofit uncertainties, cost-effectiveness is likely to be a challenge.

SCAQMD has referenced recent SCR installations use of advanced feedback controls to modulate ammonia injection to reduce ammonia consumption and minimize ammonia emissions while maintaining high NOx removal efficiencies. They do not propose that these feedback controls actually increase NOx removal efficiencies. Instead, they suggest that there are existing SCR installations utilizing a dual stage reactor design to maximize NOx reductions, noting that removal efficiencies of up to 99% are possible with this design. The District has not provided any information to suggest that such technology can be retrofit to

[6] SCAQMD Proposed Rule 1109.1 WGM #17. ClearSign Technologies Presentation. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/clearsign-update-for-scaqmd---pr-1109-1.pdf?sfvrsn=6.
[7] SCAQMD PR1109.1 WGM #9 Presentation. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/pr1109-1-wgm_9_final.pdf?sfvrsn=12.
[8] SCAQMD PR1109.1 Final Staff Report, page A-9. Available at: http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-Nov5-034.pdf?sfvrsn=6.

existing SCR systems – systems which are presently being retrofit to comply with existing R1109.1.

WSPA notes that SCAQMD exhaustively evaluated the option of dual SCR designs during the development of PR1109.1. SCAQMD contracted two third-party engineering consultants to review the staff's preliminary BARCT assessment. The assignments for each consultant were defined as follows:[9]

- Norton Engineering Consultants (NEC):
  - Perform a BARCT feasibility assessment which includes commercially viable NO_X control technologies and emission reduction levels that each technology can achieve and any caveats associated with achieving NOx reductions; and
  - Review and verify cost analysis including the use of the U.S. Environmental Protection Agency (EPA) SCR Cost Model, model input assumptions, local labor costs, and other factors that affect the cost-effectiveness evaluation.
- Fossil Energy Research Corporation (FERCo):
  - Conduct facility visits to make detailed on-site observations and engineering evaluations of affected equipment;
  - Review the feasibility of installation, including feasibility of installation of new control technologies;
  - Consider challenges associated with installation of control technologies such as space constraints, and burner technology; and
  - Determine if further optimization can be performed on currently installed NO_X control systems to help achieve further emission reductions.

In PR1109.1 WGM #17, the District stated that "Staff consulted with NEC, FERCo , and SCR catalyst vendors regarding the feasibility of installing ULNB and achieving 2 ppmv NOx for units with sub optimal conditions" and the "consultants stated that regardless of ULNB NOx performance, the proposed 2 ppm endpoint is feasible by installing multiple catalyst reactors or a two stage SCR."[10] NEC's expert opinion was that the proposed BARCT endpoint would require secondary ammonia injection grids (AIG) for downstream SCR catalyst bed(s).[11] This design effectively requires two SCR systems in series.

The November 2020 FERCo report stated that the physical spaces around the refinery heater units are typically very congested, significantly limiting the distance available between the AIG and the SCR catalyst.[12] That report noted that achieving the high level of NOx removal necessary requires exceptionally good mixing of ammonia into the flue gas stream ahead of the catalyst, which could require two reactors.[13] While FERCo offered some ideas concerning the location of one AIG relative to the SCR catalyst grid, FERCo did not consider more complicated spatial requirements for accommodating multiple AIG. SCAQMD did acknowledge this obstacle in L-CMB-07, stating "a case-by-case evaluation

Comment 72-2 Con't

[9] Execute Contracts for Engineering Consultant to Review the BARCT Assessment for Proposed Rule 1109.1 – NOx Emission Reductions for Refinery Equipment. SCAQMD Governing Board Meeting. May 3, 2019. Available at: http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-may3-005.pdf?sfvrsn=2.
[10] PR1109.1 WGM #17 presentation. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/pr1109-1_wgm17_020421.pdf?sfvrsn=6.
[11] Norton Engineering Proposed Rule 1109.1 NOx BARCT Review. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/norton-report.pdf?sfvrsn=6.
[12] FERCo South Coast Air Quality Management District Rule 1109.1 Study Final Report (FERCo Report), page 5-3, November 2020. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/ferco-report.pdf?sfvrsn=6.
[13] FERCo Report (page 5-3).

will be needed to assess the feasibility due to the additional footprint requirements associated with a dual stage SCR arrangement."[14]

The final control method suggested in L-CMB-07 is zero emission technologies, including electrification of steam driven equipment and replacement of gas fired boilers and process heaters with electric boilers and process heaters. WSPA is not aware that such zero emission technology has been demonstrated for these types of refinery equipment. Additionally, SCAQMD correctly notes in their evaluation of this option that "this alternative needs to consider electrical infrastructure and potential impacts on refinery fuel gas balance, as there may be an excess of waste refinery fuel gas if combustion equipment is replaced with electrified versions." WSPA agrees that broad replacement of fuel fired equipment with electric equipment would require careful consideration of capacity and infrastructure availability. Please see Comment #4.

The petroleum refining industry is in the process of designing and installing equipment to meet the requirements of Rule 1109.1 at a District-estimated capital investment cost of $180 million to $1 billion per refinery, with final compliance dates stretching out to as late as 2036.[15] Industry estimates of implementation costs were considerably higher.[16] Emission reductions attributed to the petroleum refining industry in the District's proposed L-CMB-07 would depend entirely on emerging ULNB technology that is not demonstrated. Additionally, the District is proposing potential unquantified emission reductions from dual SCR installations when they are aware that there are significant technical feasibility problems. Considering the Rule 1109.1 implementation timeline, capital cost investment, and reliance on unproven technology, SCAQMD should reconsider the inclusion of proposed control measure L-CMB-07 in this Draft AQMP.

Comment 72-2 Con't

2. **The District provides estimated reductions from each proposed stationary source control measure in Table 4-2 of the 2022 AQMP. Where the District has not provided any technical feasibility or cost-effectiveness support, values should be moved to the District's Clean Air Act (CAA) Section 182(e)(5) estimate.**

Clean Air Act (CAA) Section 182(e)(5) allows the Administrator to "approve provisions of an implementation plan for an Extreme Area which anticipate development of new control techniques or improvement of existing control technologies…."[17] Extreme nonattainment areas with approved Section 182(e)(5) commitments only need to submit attainment contingency measures three years prior to the attainment date.[18] The 2022 Draft AQMP measures include Section 182(e)(5) NOx reductions of 3 tpd for stationary sources.[19]

The District provides estimated reductions from each proposed stationary source control measure in Table 4-2 of the 2022 AQMP. However, many of these reductions are based on concepts where the District has not demonstrated technical feasibility or cost-effectiveness.

Comment 72-3

[14] SCAQMD Draft 2022 AQMP, Appendix IV-A. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/appiv-a.pdf?sfvrsn=18.
[15] SCAQMD Rule 1109.1 Governing Board Package, November 5, 2021, Agenda No. 34. Available at: http://www.aqmd.gov/docs/default-source/Agendas/Governing Board/2021/2021 Nov5 034.pdf?sfvrsn=6.
[16] WSPA Proposed Rule 1109.1 Comment Letter, February 16, 2021. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/wspa-pr1109-1-bh-comment-letter-02162021.pdf?sfvrsn=8.
[17] Clean Air Act Title I Part D, Plan Requirements for Nonattainment Areas, §182, Plan Submissions and Requirements. Available at: https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partD-subpart2-sec7511a.htm.
[18] Clean Air Act Title I Part D, Plan Requirements for Nonattainment Areas, §182, Plan Submissions and Requirements. Available at: https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partD-subpart2-sec7511a.htm.
[19] SCAQMD Draft 2022 AQMP. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/draft2022aqmp.pdf?sfvrsn=12

California Health and Safety Code §40920.6 requires districts to assess the cost-effectiveness of a potential control option prior to adopting rules or regulations to meet the requirement for best available retrofit control technology.[20] SCAQMD has proposed a cost-effectiveness threshold of $59,000/ton NOx reduced for stationary sources, but notes in the 2022 Draft AQMP that this value will be adjusted to the dollar year used for socioeconomic modeling in each subsequent rulemaking in order to account for annual inflation.

Table 1 provides the stationary source control measures, estimated emission reductions, and associated cost-effectiveness for NOx reduction.

Table 1: 2022 AQMP Stationary Source Control Measures

Measure	Control Measure Name	2037 NOx Reductions	Cost-Effectiveness
R-CMB-01	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances - Residential Water Heating [NOx]	1.29	$0 - $230,000
R-CMB-02	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances - Residential Space Heating [NOx]	1.2	$0 - $200,000
R-CMB-03	Emissions Reductions from Residential Cooking Devices [NOx]	0.81	Cost Savings
R-CMB-04	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances - Residential Other Combustion Sources [NOx]	3.13	TBD
C-CMB-01	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances - Commercial Water Heating [NOx]	0.25	$0 - $105,000
C-CMB-02	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances - Commercial Space Heating [NOx]	0.21	$0 - $56,000
C-CMB-03	Emission Reductions from Commercial Cooking Devices [NOx]	0.62	$0 - $290,000
C-CMB-04	Emission Reductions from Small Internal Combustion Engines [NOx]	2.1	TBD
C-CMB-05	NOx Reductions from Small Miscellaneous Commercial Combustion Equipment (Non-Permitted) [NOx]	4.24	$196,000
L-CMB-01	NOx Reductions from RECLAIM Facilities [NOx]	0.28	$11,900
L CMB 02	Reductions from Boilers and Process Heaters (Permitted) [NOx]	0.5	$19,000 $88,000
L-CMB-03	NOx Emission Reductions from Permitted Non-Emergency Internal Combustion Engines [NOx]	0.31	TBD
L-CMB-04	Emission Reductions from Emergency Standby Engines (Permitted) [NOx, VOCs]	2	TBD

Comment 72-3 Con't

[20] California Health and Safety Code 40920.6. Available at: https://codes.findlaw.com/ca/health-and-safety-code/hsc-sect-40920-6.html.

L-CMB-05	NOx Emission Reductions from Large Turbines [NOx] .	0.06	$368,000
L-CMB-06	NOx Emission Reductions from Electricity Generating Facilities [NOx]	0.62	$722,000
L-CMB-07	Emission Reductions from Petroleum Refineries [NOx]	0.77	$50,300
L-CMB-08	NOx Emission Reductions from Combustion Equipment at Landfills and Publicly Owned Treatment Works [NOx]	0.33	$20,000
L-CMB-09	NOx Reductions from Incinerators [NOx]	0.89	$2,500
L-CMB-10	NOx Reductions from Miscellaneous Permitted Equipment [NOx]	1.16	$5,600 - $49,000

Comment 72-3 Con't

As shown in Table 1, eight control measures either exceed or potentially exceed the proposed cost-effectiveness threshold of $59,000 per ton of NOx reduced. These eight control measures are estimated by staff to provide 8.78 tpd NOx reductions. An additional four control measures, with estimated NOx reductions of 7.54 tpd, have cost-effectiveness that is yet to be estimated. Additionally, as discussed in Comment #1, there are potential refinery equipment redesign or replacement costs that could increase the cost-effectiveness for proposed L-CMB-07.

Additionally, SCAQMD has noted that technical feasibility for some control measures is unknown. SCAQMD estimates approximately 1.6 tpd NOx reduction by 2037 from control measure L-CMB-10 utilizing ULNB and LNB based on next generation ULNB such as ClearSign™ and Solex™. However, staff goes on to note that "these burner technologies are also being installed at heavy industrial processes such as refinery operations which are generally larger than the equipment currently regulated under Rule 1147. *It is unknown at this time whether the technologies can be scaled to smaller processes seen in Rule 1147.*"[21] [Emphasis added]. In fact, those same technologies have also not yet been commercialized in the larger scale equipment.

For those control measures that have yet to have cost-effectiveness determined, exceed the cost-effectiveness threshold, or have not been estimated on the potential to be technically feasible, SCAQMD should move the estimated emission reductions to the Section 182(e)(5) measures.

[21] SCAQMD 2022 AQMP, Appendix IV-A. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/appiv-a.pdf?sfvrsn=18.

3. SCAQMD uses the California Air Resources Board (CARB) EMission FACtor 2017 (EMFAC2017) model to calculate the on-road motor vehicle emission estimates used in the 2022 AQMP. This model is outdated and does not consider emission reductions from recently adopted regulations. Baseline and future year emission estimates should be based on the 2021 version of the model.

The 2022 AQMP calculates on-road motor vehicle emissions using CARB's EMFAC2017 model and travel activity data provided by the Southern California Association of Governments (SCAG). The EMFAC model calculates exhaust and evaporative emission rates by vehicle type for different vehicle speeds and environmental conditions.[22]

CARB released EMFAC2021 on January 15, 2021. The updated version of the model reflects CARB's understanding of statewide and regional vehicle activities, emissions, and recently adopted regulations. The updated model includes new features such as:[23]

- Expansion of fuel technologies to include plug-in hybrid electric vehicles and natural gas-powered vehicles
- Expansion of heavy-duty truck categories to provide higher resolution on weight classes
- Updated approach to light-duty activity forecasting using economic indicators to optimize the performance in predicting historical data
- A new heavy-duty vehicle miles traveled (VMT) forecasting framework. EMFAC 2017 projected diesel heavy duty VMT at a statewide level, while EMFAC 2021 forecasts VMT by county.
- A light-duty zero emission vehicle (ZEV) forecasting framework. EMFAC 2017 projected ZEV market share based on the most likely compliance scenario with California's ZEV mandate, whereas EMFAC2021 California Energy Commission (CEC) vehicle choice models coupled with CARB's updated ZEV input attributes.

In addition to the new features, major changes to were made to:

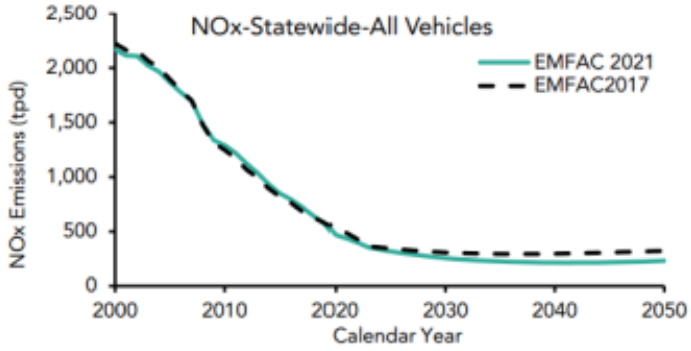
- Fleet characterization using the most recent Department of Motor Vehicle (DMV) registration data
- In-use emissions for light-duty and heavy-duty vehicles
- Updates to operational characteristics influencing vehicle emissions, including mileage accrual rates, starts per day, and temporal distribution of VMT and trips.
- New sales and VMT forecasting
- Include updated policies and regulations such as:
  - Innovative Clean Transit (ICT), which requires public transit agencies to transition to a 100% ZE bus fleet.[24]
  - Advanced Clean Truck (ACT), which requires a certain percentage of zero emission truck sales to be sold on an annual basis.[25]
  - Heavy-Duty Omnibus, which ensures that heavy-duty engines will emit much lower NOx emissions throughout their lifetimes.[26]

Comment 72-4

[22] CARB EMFAC Model. Available at: https://arb.ca.gov/emfac/.
[23] CARB EMFAC2021 Volume III Technical Document. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/emfac2021_technical_documentation_april2021.pdf.
[24] CARB Innovative Clean Transit Regulation. Available at: https://ww2.arb.ca.gov/our-work/programs/innovative-clean-transit
[25] CARB Advanced Clean Trucks Regulation. Available at: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks.
[26] CARB Heavy-Duty Engine and Vehicle Omnibus Regulation. Available at: https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox.

EMFAC2017 does not address changes in emissions as a result of recently adopted vehicle regulations. These regulations will drastically change the emissions profile of on-road vehicle emissions in the coming years. As shown in Figure 1, EMFAC 2017 was shown by CARB to overstate projected NOx emissions when compared with EMFAC2021.[27]

Figure 1. Comparison of NOx emission estimates between EMFAC2017 & EMFAC2021



WSPA understands that SCAQMD used EMFAC2017 because it has been approved by EPA for SIP and conformity purposes. However, relying on the outdated model for this AQMP will result in an overstatement of on-road emissions in baseline emissions inventory. WSPA encourages SCAQMD to evaluate the differences between the two models and include a certain percentage of the NOx emissions resulting from the use of EMFAC2017 in the Section 182(e)(5) emissions estimate.

Comment 72-4 Con't

4. **The 2022 Draft AQMP includes a number of control measures which would force electrification of different types of equipment. Before advancing such measures, SCAQMD must consider the potential grid reliability impacts, costs impacts, and demands for electricity infrastructure that such control measures would place on California's already strained electric grid infrastructure.**

The District has stated that the only viable solution to achieving the NAAQS for ozone requires a significant push to zero emission technology.[28] California faces unresolved grid reliability issues that will be exacerbated by the proposed AQMP control measures and the resulting electricity demand increases. SCAQMD has not considered the generation, transmission, or distribution constraints of the electric grid in its proposals.

Californians have already been experiencing an increasing number of electricity outages. In response to an August 2020 heatwave that caused nearly half a million Californians to lose power, the California Independent System Operator (CAISO), California Public Utilities Commission (CPUC), and the California Energy Commission (CEC) jointly prepared a

Comment 72-5

[27] CARB EMFAC2021 Volume III Technical Document. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-03/emfac2021_volume_3_technical_document.pdf.
[28] SCAQMD 2022 AQMP Control Measures Workshop, Agenda Item 3. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/am-pres-agenda-item-3-zero-emission-technology-110621.pdf?sfvrsn=6.

Preliminary Root Cause Analysis of the outages.[29] The report identified several factors that contributed to the rotating outages:

- The climate change-induced extreme heat storm across the western United States resulted in the demand for electricity exceeding the existing electricity resource planning targets. The existing resource planning processes are not designed to fully address an extreme heat storm like the one experienced in mid-August.
- In transitioning to a reliable, clean, and affordable resource mix, resource planning targets have not kept pace to lead to sufficient resources that can be relied upon to meet demand in the early evening hours. This makes balancing demand and supply more challenging. These challenges were amplified by the extreme heat storm.
- Some practices in the day-ahead energy market exacerbated the supply challenges under highly stressed conditions.

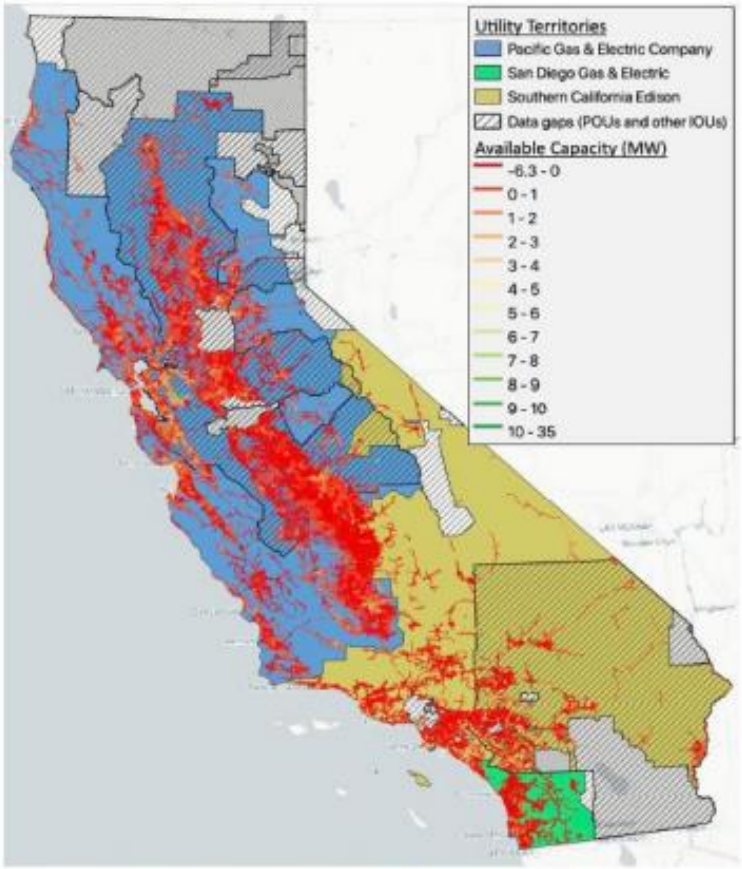
Governor Gavin Newsom issued a Proclamation of a State of Emergency in 2021, noting that there is a shortfall of up to 5,000 megawatts projected for the summer of 2022 given the likelihood that trends of drought, wildfire, and heatwaves continue.[30] The proclamation ordered that all energy agencies act immediately to achieve energy stability, including accelerated plans for construction, procurement, and deployment of new clean energy and storage projects to mitigate the risk of capacity shortages.

Generation capacity is only one aspect of the strains on the electric grid. Both transmission and distribution must also be considered. The CEC recently reviewed constraints associated with electricity transmission and distribution. The CEC's Electric Vehicle Supply Equipment Deployment and Grid Evaluation (EDGE) tool compares load contributions from the CEC infrastructure model results to the capacities of existing distribution grids in the state to host new electricity loads.[31] The EDGE model flags locations needing an infrastructure upgrade if there is a capacity deficiency. Figure 2 shows that the California grid has no additional capacity to add electrical load on most circuits.[32] 30% to 76% of circuit segments have no capacity to integrate additional load.[33] Thus no appreciable load can be added to most of these circuits without additional construction of transmission and distribution infrastructure.

Comment 72-5 Con't

[29] CAISO, CPUC, CEC Preliminary Root Cause Analysis, Mid August 2020 Heat Storm. Available at: http://www.caiso.com/Documents/Preliminary-Root-Cause-Analysis-Rotating-Outages-August-2020.pdf.
[30] State of California Proclamation of A State of Emergency, July 30, 2021. Available at: https://www.gov.ca.gov/wp-content/uploads/2021/07/Energy-Emergency-Proc-7-30-21.pdf.
[31] CARB Advanced Clean Cars II Draft Environmental Analysis. Available at: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/appe1.pdf.
[32] CARB Advanced Clean Cars II Draft Environmental Analysis. Available at: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/appe1.pdf.
[33] Virtual Medium and Heavy-Duty Infrastructure Workgroup Meeting - 01/12/22. Available at: https://www.youtube.com/watch?v=_mr0TmwxGZQ.

Figure 2. Capacity Analysis from CEC's EDGE Tool (note: dark red indicates no available additional capacity).



Comment 72-5 Con't

SCAQMD notes that the preliminary estimates of statewide ZE infrastructure needs developed by the CEC and CARB "are largely based on a transition to ZE vehicles for on-road transportation sources, and do not fully address the adoption of ZE technologies by other emission sources, including stationary, locomotives, and off-road equipment."[34] SCAQMD has proposed strategies to advance deployment of ZE technologies, including researching the specific needs of the South Coast Air Basin (SCAB), and supporting existing work by other agencies.

SCAQMD and CARB must ensure that electric grid capacity, transmission, and distribution is available to support the number of equipment required by the proposed measures which would depend on broad electrification. For this AQMP, SCAQMD must consider the cost of required grid infrastructure upgrades in their cost-effectiveness and socioeconomic analyses.

[34] SCAQMD 2022 AQMP Policy Brief, Infrastructure – Energy Outlook. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/combined-infrastructure---energy-outlook.pdf?sfvrsn=8

5. The 2022 State SIP Strategy is insufficient to attain the 70-ppb federal 8-hour ozone standard by 2037. In fact, CARB's singular focus on zero emission vehicles has undermined the commitments that CARB made in the 2016 Mobile Source Strategy, which would have resulted in greater and faster NOx emission reductions through the use of low-emitting internal combustion engine technologies and fuels.

SCAQMD projects that emissions of NOx must be reduced by 71% beyond what would be achieved through current regulations by 2037 in order to meet the federal 8-hour ozone standard. Mobile sources, regulated by CARB, are responsible for over 80% of NOx emissions in the SCAB. CARB is required by law to adopt rules, regulations, and other measures that, in conjunction with district and US EPA measures, will achieve federal ambient air quality standards by the applicable attainment date.[35] CARB's Mobile Source Strategy and State Mobile Source SIP Strategy are key elements for meeting the ozone attainment standards in the SCAB.

CARB released a draft version of the 2022 State Strategy for the State Implementation Plan (SIP) on January 31, 2022.[36] Throughout the development and discussion of the Draft 2022 State SIP Strategy, stakeholders have expressed repeated concern that CARB's proposed pathway fails to provide the emission reductions necessary to achieve key attainment targets in the state. The Draft 2022 State SIP Strategy does not appear to be sufficient to attain the 70-ppb federal 8-hour ozone standard by 2037 in the SCAB. CARB acknowledges that there is a 47 tpd emission reduction shortfall necessary for attainment in the SCAB.[37] However, CARB's strategy is focused almost entirely on ZEV deployment, relying upon uncertain vehicle and infrastructure availability, with a timeline spanning to 2045 and emission benefits realized only in later years. CARB is ignoring potential near-term emission reductions by refusing to discuss broader use of lower-emitting internal combustion engine technologies, which results in delayed attainment in the SCAB.

Comment 72-6

Additionally, the State SIP Strategy and this 2022 Draft AQMP completely disregard the state's federal Clean Air Act obligations to attain the 1979 1-hr ozone NAAQS (120-ppb, 2023 deadline, currently exceeded by 39%), 1997 8-hour ozone NAAQS (80-ppb, 2024 deadline, currently exceeded by 43%), and 2008 8-hour ozone NAAQS (75-ppb, 2032 deadline, currently exceeded by 52%).[38] The District should revise the 2022 AQMP to remedy this deficiency.

6. The District has proposed control measures addressing both VOC and NOx reductions. However, the District's attainment strategy has demonstrated no need for the VOC control measures. These measures should be removed from the AQMP.

The District has asserted that to meet the 2015 ozone standard, NOx emissions must be reduced by 157 tons per day. SCAQMD performed modeling of future ozone concentrations using the Community Multiscale Air Quality (CMAQ) model to model emissions in 2018, 2037 baseline emissions, and 2037 control case which contains additional emission reductions proposed in the 2022 AQMP. SCAQMD conducted a series of ozone simulations with varying NOx and VOC emissions to estimate the quantity of reductions needed to meet

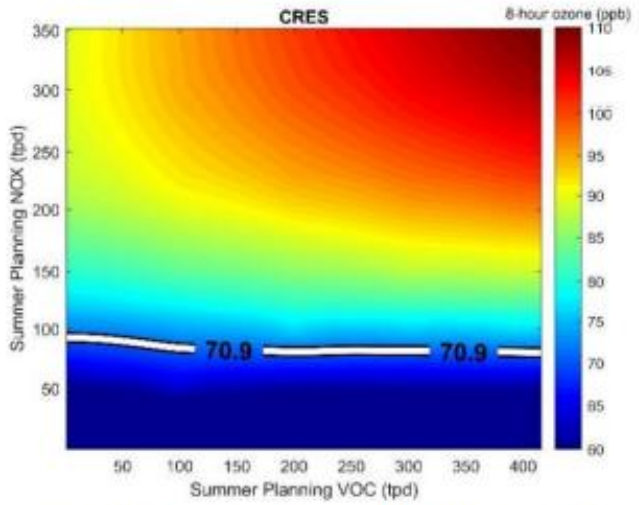
Comment 72-7

[35] California Health and Safety Code §39602.5. Available at: https://codes.findlaw.com/ca/health-and-safety-code/hsc-sect-39602-5.html.
[36] CARB Draft 2022 State Strategy for State Implementation Plan, January 31, 2022. Available at: https://ww2.arb.ca.gov/sites/default/files/2022-01/Draft_2022_State_SIP_Strategy.pdf.
[37] CARB Draft 2022 State Strategy for State Implementation Plan, January 31, 2022. Available at: https://ww2.arb.ca.gov/sites/default/files/2022-01/Draft_2022_State_SIP_Strategy.pdf.
[38] SCAQMD 2022 AQMP, Chapter 5. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/appiv-a.pdf?sfvrsn=18

the NAAQS. Isopleths were created to approximate the expected ozone design value for given levels of VOC and NOx emissions.

Figure 3 shows the District's isopleth for Crestline where NOx and VOC emissions correspond to basin wide emissions totals. Under this model, the Crestline area would achieve attainment when the design value is less than or equal to 70.9 ppb, denoted by the white line.[39]

Figure 3. Isopleth for Crestline Depicting Basin Total NOx and VOC Emissions and Corresponding Ozone Design Value



In describing the results of this isopleth analysis, the District stated:[40]

> "With VOC emissions greater than 300 tons per day, the corresponding NOx emissions along the white contour are approximately 60-70 tons per day at GLEN and 70-80 tons per day at CRES. The isopleth further demonstrates that VOC reductions alone are insufficient to demonstrate attainment; **NOx reductions are the only pathway to attainment.**" [emphasis added]

Despite this NOx only attainment strategy, the District has included several control measures to reduce VOC emissions in the basin. However, they have provided no foundation for why these VOC reductions are necessary to meet the ozone standards. Given that the isopleths do not support the need for additional VOC reductions, SCAQMD should provide additional documentation demonstrating the reasoning behind their decision to propose VOC control measures.

Comment 72-7 Con't

[39] SCAQMD Draft 2022 AQMP, Appendix V. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/combined-appendix-v.pdf?sfvrsn=8.
[40] SCAQMD Draft 2022 AQMP, Appendix V. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/combined-appendix-v.pdf?sfvrsn=8.

WSPA appreciates the opportunity to provide these comments related to the 2022 AQMP. We look forward to continued discussion of this important Plan development. If you have any questions, please contact me at (310) 808-2146 or via e-mail at rcromartie@wspa.org.

Sincerely,

Marnie Comate

Cc:

Wayne Nastri, SCAQMD
Sarah Rees, SCAQMD
Ian MacMillan, SCAQMD
Sang-Mi Lee, SCAQMD
Elaine Shen, SCAQMD
Patty Senecal, WSPA

Response to Comment 72-1: South Coast AQMD staff thanks you for providing your comments on the Draft 2022 AQMP.

Response to Comment 72-2: South Coast AQMD recognizes the complexities and challenges of implementing NOx control projects at petroleum refineries. For this reason, Rule 1109.1 provides flexible implementation options for installation of NOx control projects. The final permit application due date under Rule 1109.1 (i.e., January 1, 2031) is intended for a small number of units with an extended turnaround schedule which will help provide alignment with a facility's maintenance schedule. Most facilities will be in the process of finalizing their major NOx reductions projects closer to 2031 since a facility cannot meet the NOx reduction targets established in the plans without implementing the majority of NOx control projects prior to 2031. Staff's proposal to initiate rule development associated with the Proposed Control Measure L-CMB-7 between 2025 and 2027 is to account for the length of time that is necessary for such rule development. The rule development process for Rule 1109.1 took approximately three and a half years due to the complex technical analysis required. Thus, a similar timeframe will be required for the rule development and achieve further reductions by 2037. Please refer to the response to comment 41-1 for more details.

Next generation ULNB was identified as a potential control option due to its advantages over "traditional" ULNBs as stated in the responses to comments 41-3 and 41-4. The manufacturers of the next generation ULNBs recognize the inherent limitations of installing "traditional" ULNB in refinery applications and have invested extensive research in addressing the challenges associated with installation and operation of next generation ULNBs for such applications. Some refineries currently have projects in the works for application of next generation of ULNB which prove the applicability of the technology. Additionally, the same argument applies to the comments pertaining to advanced SCR design that utilizes advanced feedback controls and a dual stage arrangement. SCR designers have invested extensive research to further advance their understanding of SCR technology over the past four decades and have incorporated advanced feedback controls and ammonia injection equipment into modern SCR design. Modern SCR systems utilize advanced catalyst materials and design along with a more accurate method of ammonia flow control to achieve NOx emissions level below 5 ppmv and minimize ammonia slip emissions. The control algorithm typically use several parameters, including SCR inlet and outlet NOx concentration, to determine the amount of ammonia needed to maintain a specific level of NOx emissions. The measured SCR outlet NOx concentration is used to modify the NH3 flowrate and optimize the performance. This design scheme is currently being used in recently submitted permit applications to the South Coast AQMD. The vendor guaranteed removal efficiencies for NOx with these modern SCR systems is up to 98 percent to achieve NOx emissions level below 5 ppm. Furthermore, staff does acknowledge that a dual stage SCR arrangement will require additional space in some specific applications which is why the statement "however, a case-by-case evaluation will be needed to assess the feasibility due to the additional footprint requirements associated with a dual stage arrangement" was originally included in CMB-07.

Staff acknowledges that the petroleum refining industry is in the process of designing and installing equipment to meet the requirements of Rule 1109.1 to enhance the existing controls (e.g., second AIG or updated burners) and the implementation (by 2037) of such projects will be after the full implementation of Rule 1109.1. South Coast AQMD will consider appropriate implementation timeframes during rulemaking. In addition, the following paragraph has been added in to CMB-07, "During rule development staff will consider the requirements by the other rules associated with the transition of NOx RECLAIM facilities to a command-and control regulatory structure, including technical feasibility; cost-effectiveness

and incremental cost-effectiveness; identify industry-specific affordability issues; and may consider alternative compliance mechanisms." Please refer to the responses to comments 41-1 to 41-11 for more details.

Response to Comment 72-3: The Draft 2022 AQMP proposed a cost-effectiveness threshold of $59,000/ton NOx for stationary sources and $200,000/ton of NOx for mobile sources. Exceeding this threshold would go through additional public meetings to discuss emission reduction options and cost effectiveness, but not necessarily reject the proposed rule. The cost-effectiveness thresholds were therefore not considered as a hard cap or limit on control costs.

Based on comments received and feedback from several Governing Board members, staff are proposing a revised framework for cost-effectiveness that is based on the monetized benefit associated with emission reductions. Please refer to Chapter IV of the Revised Draft 2022 AQMP for more details.

Considering the magnitude of emission reductions needed to meet the ozone standard, all control measures must be considered to reduce emissions. Control measures described in the AQMP trigger a rulemaking process, during which various factors will be evaluated closely. These include technologies assessments, emission reductions anticipated from the rule, cost-effectiveness, opportunities for incentive funding and other challenges.

Response to Comment 72-4: WSPA correctly notes that South Coast AQMD was required to use EMFAC2017 to estimate the on-road mobile source emissions as it was the latest U.S. EPA approved on-road emission model at the time of emissions inventory development. However, as the commenter notes, that model is now several years old. To capture changes in emissions resulted from regulations promulgated since the adoption of EMFAC2017, staff made external adjustments to the emissions inventory to reflect regulations adopted as of December 2021. These are CARB's heavy-duty inspection and maintenance, advanced clean trucks, and heavy-duty low NOx omnibus regulations. The Small Off-Road Engines regulation adopted in December 2021 is also reflected in the baseline emissions. Thus, the emissions difference between EMFAC2021 and the on-road emissions used in the 2022 AQMP is much smaller than suggested by Figure 1, which does not consider the reductions associated with these recently adopted regulations.

Response to Comment 72-5: Concerns regarding grid capacity and reliability to support a widespread transition to zero emission technologies are the reason why the South Coast AQMD developed MOB-15. This control measure is a commitment to engage with stakeholders involved in every aspect of the transition to zero emission fueling with the goal of identifying potential shortfalls in technologies and/or energy availability while assisting in a collaborative effort to address these concerns. The South Coast AQMD is uniquely positioned to actively engage with the CEC, CPUC, CARB, local utilities, fleets and other stakeholders to help address the challenges related to grid capacity and reliability in the region. South Coast AQMD will continue to share information that can be used to better inform forecasting and energy analyses which are used to plan grid capacity upgrades. Current forecasting and energy analyses are primarily focused on the state ZEV goals and do not fully address all emission categories that will need to transition to zero emissions to reach attainment goals. The challenges related to the electrical grid and infrastructure availability are significant and will require collaborative problem solving involving all stakeholders. South Coast AQMD will continue to advise partner organizations through information sharing and close coordination of efforts to remove barriers to ZE infrastructure and technology deployments.

Agencies and organizations throughout the state that are involved in energy distribution such as the California Energy Commission, the California Public Utility Commission, and local utilities such as Southern California Edison, are aware of the challenges ahead in terms of energy and infrastructure availability and are actively engaged in planning to anticipate future demand as the state moves toward a zero emission future. Engagement with local utilities and other partners involved in this transition through the direction detailed in MOB-15 will help articulate the region's needs and challenges to anticipate potential shortfalls in energy and technology availability, and assure the agencies involved are making progress to resolve concerns related to grid readiness and reliability.

In addition to electric technology options, fuel cells and possibly other new technologies will be used to support the transition to a zero emission future. The state of California, through various programs, has allocated significant funding to advance the development and deployment of zero emission technologies, including electric charging and hydrogen fueling infrastructure. As part of MOB-15, South Coast AQMD will continue to track all available funding sources for zero emission infrastructure and share this information with fleets and other stakeholders to provide financial assistance and encourage early planning for transitioning to zero emission technologies. Early planning and collaborative problem solving involving all stakeholders will be necessary to assure grid readiness and infrastructure availability. South Coast AQMD will also actively support and advocate for new funding sources that will accelerate the deployment of zero emission infrastructure in the South Coast AQMD. This effort will encourage consumers to plan early with support from the local utilities to streamline the process for approving installations and interconnection with the grid.

Response to Comment 72-6: South Coast AQMD worked in partnership with other organizations such as CARB and SCAG to develop the 2022 AQMP and South Coast AQMD provided input to CARB on their 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy). South Coast AQMD concurs that low NOx combustion technologies are critical to achieving NOx reductions in the near-term, which assists with attainment of ozone and PM2.5 standards with earlier attainment dates. Staff continues to advocate for the deployment of low NOx technologies in the absence of readily available zero emission technologies.

South Coast AQMD is committed to an aggressive control strategy that achieves a 67 percent reduction in NOx emissions by 2037, leading to attainment of the 2015 ozone standard by the required deadline. The 1997 and 2008 8-hour standards are less stringent than the 2015 8-hour standard and have earlier attainment due dates; thus, the strategy to attain the 2015 standard is expected to assist meeting the other ozone standards during the course of attainment by 2037. However, it is now clear that the Basin will fail to attain the 1979 1-hour ozone and the 1997 8-hour ozone standards by the attainment deadlines, February 26, 2023 and June 15, 2024, respectively. The main reason why previous AQMPs have "missed the mark" is due to other agencies, primarily U.S. EPA, failing to take aggressive action to control substantial emission sources like trucks, aircraft, and ships. While federal efforts to regulate these sources have been at a virtual standstill for the past 20 years, the South Coast AQMD has reduced emissions under our direct regulatory control by 60 percent NOx reduction from stationary sources. That substantial emission reduction has been swamped by the emissions from federal sources, which continuously increases. The result of this is that the Basin has not achieved the level of NOx emissions necessary to meet the standard.

Response to Comment 72-7: South Coast AQMD's modeling analysis demonstrated that substantial NOx reductions provided the only means to attain the 2015 ozone standard and that VOC reductions alone would not achieve attainment. Nevertheless, limited strategic VOC reductions will assist the Basin on its path to attainment primarily due to the "NOx disbenefit." This term refers to the atmospheric phenomenon whereby, in regions with elevated NOx emissions, decreases in NOx can lead to increases in ozone. The marginal amount of VOC reductions, 406 tons per day in 2018 to 320 tons per day in 2037, will mitigate the NOx disbenefit and reduce inadvertent ozone increases.

Comment Letter #73

CALIFORNIA HYDROGEN BUSINESS COUNCIL
Hydrogen Means Business in California!

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California Hydrogen Business Council Comments
South Coast AQMD Stationary and Mobile Source Control Measures
Draft 2022 Air Quality Management Plan
July 5, 2022

I. INTRODUCTION

The California Hydrogen Business Council (CHBC), a trade association representing over 135 member organizations, working to commercialize hydrogen and supporting hydrogen technologies across the economy, appreciates the opportunity to submit comments to the Draft 2022 Air Quality Management Plan. Summarily, our comments address how fuel cell systems and fuel cell electric vehicles (FCEVs) should be the preferred resources for electric generation and air pollutant reduction in the stationary and mobile source categories.

Comment 73-1

These comments will address the following control measures:

- L-CMB-03: NOx Reductions from permitted Non-Emergency Internal Combustion Engines
- L-CMB-04: Emission Reductions from Emergency Standby Engines
- MOB-05: Accelerated Retirement of Older Light-Duty and Medium-Duty Vehicles
- MOB-06: Accelerated Retirement of Older On-Road Heavy-Duty Vehicles
- MOB-15: Zero Emission Infrastructure for Mobile Sources

II. COMMENTS

A. L-CMB-03: NOx Reductions from permitted Non-Emergency Internal Combustion Engines

The CHBC respectfully recommends the inclusion of fuel cells as a part of the proposed method of control to transition older and higher-emitting engines in the RECLAIM program. Fuel cell systems that run on hydrogen are zero-emission and have been successfully commercially deployed for the last twenty years. CHBC members, Plug Power[1] and Bloom Energy[2], for example, have been providing power for material handling and data centers, respectively, in lieu of internal combustion engines.

Comment 73-2

B. L-CMB-04: Emission Reductions from Emergency Standby Engines

[1] Plug Power. Available at: https://www.ir.plugpower.com/press-releases/news-details/2022/Plug-Supplies-Walmart-with-Green-Hydrogen-to-Fuel-Retailers-Fleet-of-Material-Handling-Lift-Trucks/default.aspx.
[2] Bloom Energy. Available at: https://www.bloomenergy.com/technology/.

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The CHBC supports the inclusion of zero and near-zero emission fuel cell systems in the proposed method of control as a replacement for emergency standby engines and an immediate reduction in NOx and VOCs. We agree that fuel cell systems have been successful as backup power resources for small-scale uses like powering stoplights during power outages. However, we would like to note that fuel cell systems have the ability to support utility backup power beyond multi-MW capacities and have done so commercially.[3] We encourage the addition of fuel cell systems as part of the scalable power sources that would replace diesel-fueled emergency standby engines.

Comment 73-3

C. MOB-05: Accelerated Retirement of Older Light-Duty and Medium-Duty Vehicles

The CHBC supports the continuation of the Clean Cars 4 All program, which assists eligible low and moderate-income residents living in disadvantaged communities (DAC) with purchasing a like-new or new clean vehicle. Clean Cars 4 All includes FCEVs as a part of its program. Providing residents in DACs access to FCEVs will have an immediate impact on the air quality of that community and serve as an education tool for others in the community to become familiar with the growing technology.

In response to the proposed methods of control, the CHBC is supportive of retiring up to 2,000 light-and medium-duty vehicles per year through the Replace Your Ride Program, as well as including a $2,000 voucher for hydrogen fueling, to reflect the $2,000 voucher proposed for the installation of charging equipment.

Comment 73-4

D. MOB-06: Accelerated Retirement of Older On-Road Heavy-Duty Vehicles

Although fuel cell trucks are considered a viable option upon the successful deployment of the proposed Trade Up Program for On-Road Heavy-Duty Vehicles, the CHBC proposes the inclusion of fuel cell trucks in the pilot from the start. Fuel cell trucks are currently being piloted at the Port of Oakland through CHBC member, Hyundai[4], and are being offered in a bundled lease program by CHBC member, Nikola[5], that includes hydrogen fueling and maintenance. The fuel cell truck market is ready for deployment and the CHBC encourages the addition of fuel cells in the rollout of the Trade Up Program.

Comment 73-5

E. MOB-15: Zero Emission Infrastructure for Mobile Sources

The Strategies in the Proposed South Coast AQMD Workplan for Zero Emissions Fueling/Charging Infrastructure is correct in stating the need to understand the FCEV

Comment 73-6

[3] H2 View, George Heynes, "New 78.96 MW hydrogen fuel cell power plant opens in South Korea," November 3, 2021. Available at: New 78.96MW hydrogen fuel cell power plant opens in South Korea (h2-view.com)
[4] Hyundai. "Hyundai Motor Details Plans to Expand into Market with Hydrogen-powered XCIENT Fuel Cells at ACT Expo," May 9, 2022. Available at: https://www.hyundai.com/worldwide/en/company/newsroom/hyundai-motor-details-plans-to-expand-into-u.s.-market-with-hydrogen-powered-xcient-fuel-cells-at-act-expo-0000016825
[5] Nikola. Available at: https://nikolamotor.com/two-fcev.

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fueling demand, funding needs, stakeholder collaboration, public education, and statewide alignment across state entities. The CHBC supports incorporating FCEV manufacturers, hydrogen fuel producers, hydrogen fuel distributors, and hydrogen fueling station developers in the zero-emission infrastructure section of the Workplan. There are currently over 50 publicly accessible hydrogen fueling stations and the state has the funds to meet the 200-station[6] target. However, as of 2020, there were over 6.5 million drivers in the greater Los Angeles region alone, meaning the South Coast Air Quality Management District (SCAQMD) will need far more than 200 hydrogen fueling stations shared throughout the state to meet the air quality targets set out in this Draft plan. The CHBC encourages this draft plan to advocate for the state to set higher hydrogen fueling station targets so the SCAQMD will receive sufficient funding and coordination from the state in deploying a sustainable zero-emission infrastructure network for the region.

Comment 73-6 Con't

III. CONCLUSION

The CHBC supports the Draft 2022 Air Quality Management Plan and respectfully requests consideration of the aforementioned recommendations. We look forward to collaborating further. Thank you for the opportunity to comment.

Respectfully Submitted,

Sara Fitzsimon, J.D.



Policy Director
California Hydrogen Business Council

[6] "Governor Brown Takes Action to Increase Zero-Emission Vehicles, Fund New Climate Investments. January 26, 2018. Available at: https://www.ca.gov/archive/gov39/2018/01/26/governor-brown-takes-action-to-increase-zero-emission-vehicles-fund-new-climate-investments/index.html.

Response to Comment 73-1: Thank you for reviewing and commenting on the 2022 Draft Air Quality Management Plan (AQMP). As Chapter 4 of the 2022 Draft AQMP elaborates, South Coast AQMD supports the inclusion of fuel cell technologies in NOx control measures for stationary source combustion and mobile source applications where feasible. Fuel cells can provide power to various applications across multiple sectors, including transportation; industrial, commercial, and residential buildings; and long-term energy storage for the grid. The application of fuel cell technologies for power generation and transportation has increased over the years and continues to expand with emerging technologies. However, as the commenters may agree, cost, performance, and durability are still critical challenges with this technology.

It is essential to overcome these challenges to benefit from the advantages of fuel cell technologies over combustion-based technologies, such as higher efficiencies (>60 percent), zero tailpipe emissions, and lower CO2 emissions. Over the years, South Coast AQMD has partnered with national laboratories, universities, and industry partners to develop low-cost fuel cell stack and balance of plant (BOP) components and advance high-volume manufacturing approaches to reduce overall system cost. In addition, improving fuel cell efficiency and performance is critical to maintaining adequate performance over an extended period of time. High-performance fuel cell technologies can be built through innovative material and integration technologies and identifying and understanding fuel cell degradation mechanisms to develop materials and strategies to mitigate these effects. South Coast AQMD supports such research and development projects through its work in the Technology Demonstration group and the Clean Fuels Fund.

In the transportation sector, the cost of fuel cells, hydrogen production, distribution, and fueling infrastructure at a small scale remain the primary challenges to fuel cell technology adoption. While fuel cell vehicles and infrastructure provide comparable ranges and fueling times to conventional technologies, such barriers can still impact business and consumer models. South Coast AQMD is committed to investing and partnering where appropriate to expand light, medium and heavy-duty hydrogen infrastructure and to advance fuel cell vehicle technologies in specific vehicle categories.

Response to Comment 73-2: As part of the technology evaluation for the rule making process, staff seeks out new technology that may provide emissions reductions for pollutants such as NOx, SOx, and PM. The use of zero or low NOx emission fuel cell systems to replace existing non-emergency internal combustion engines will be explored and would be subject to a technical feasibility and cost-effectiveness analysis to determine viability as an option.

Response to Comment 73-3: Staff appreciates the support for fuel cell systems and efforts to reduce emissions from emergency standby internal combustion engines (ICEs). Additional information on fuel cell technologies is included in Response to Comment 22-4.

Response to Comment 73-4: Staff agrees with the need to provide $2,000 voucher for hydrogen fueling credits. Staff will discuss with CARB on adding such provision in the updated Agreement.

Response to Comment 73-5: The current pilot program is already in progress and will be completed soon. As noted in the Proposed Method of Control, the next phase of this program will likely include zero emission trucks, including fuel cell trucks.

Response to Comment 73-6: The South Coast AQMD agrees that additional hydrogen infrastructure will be necessary if the region is to switch to zero emission fueling. MOB-15 is proposed so that the South Coast AQMD can act as advocate and facilitator for zero emission technologies including hydrogen.

Comment Letter #74

PMSA
PACIFIC MERCHANT SHIPPING ASSOCIATION

July 5, 2022

Wayne Nastri
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765

Subject: Comments on Draft 2022 Air Quality Management Plan

Dear Mr. Nastri:

The Pacific Merchant Shipping Association (PMSA), on behalf of its member ocean carriers and marine terminals operating in the South Coast Air Basin and throughout California, submits the following comments regarding the South Coast Air Quality Management District's (SCAQMD) Draft 2022 Air Quality Management Plan (AQMP).

Comment 74-1

PMSA has several concerns regarding the proposed 2022 AQMP. The continued inclusion of facility-based measures only persists to undermine cooperation between port stakeholders, port authorities, and California regulatory agencies. For multiple reasons outlined below, PMSA requests that the facility-based measures, specifically MOB-1, be removed from the AQMP.

Lack of Authority

As SCAQMD stated clearly in its Notice of Intent to Sue U.S. Environmental Protection Agency on April 15th, "the 1990 Amendments to the CAA, Congress preempted the states from establishing emission standards for locomotives, farm and construction equipment, and other nonroad engines, which includes marine vessels. CAA Section 209(e)." Within California, control of mobile sources is vested with the California Air Resources Board (CARB), not SCAQMD. CARB is fully exercising that authority through the multiple rules that will reduce emissions from all port-related mobile sources. SCAQMD cannot bootstrap its way to control mobile sources through indirect source authority. In addition, SCAQMD's indirect source authority is limited in that it cannot be applied to existing facilities.

Comment 74-2

Will Unnecessarily Conflict with CARB Measures

CARB has already promulgated stringent measures for ocean-going vessels covering both hoteling emissions (At Berth Regulation) and transiting/maneuvering emissions (Ocean-going Vessel Fuel Regulation) and harbor craft. The agency is also developing new measures for cargo-handling equipment and drayage trucks. Both adopted and proposed measures have aggressive timelines that will be challenging to meet. CARB has already completed a public rulemaking process for their adopted rules or will be completing such a process for their proposed rules to identify what emission reductions are possible and has described their own efforts as technology forcing. To the degree that MOB-1

Comment 74-3

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covers these same sources, MOB-1 is duplicative. At worst, it will conflict by establishing a set of regulatory requirements that are not consistent with CARB requirements.

Comment 74-3 Con't

Facility-based Measures Will Delay Investment

Given the conflicts described above, MOB-1 will only serve to delay investment in clean technology. SCAQMD is adding uncertainty to an already technologically challenging transition to zero- and near-zero emissions operations and infrastructure improvements. The potential conflicts that are certain to arise can only delay investment as affected organizations must wait until all regulatory efforts are implemented to ensure that any compliance solution meets all requirements. The indirect nature of the facility-based measures may mean that third parties will select strategies that are consistent with CARB's efforts while not meeting the regulatory burden assigned by SCAQMD. This will hamper the regulated entity's ability to comply with a facility-based measure. That uncertainty regarding the actions of third parties will inevitably delay investment.

Comment 74-4

Facility-based Measures are Unnecessary and Will Not Demonstrate Attainment

With no emission reductions identified for any facility-based measure, the entire suite of measures is unnecessary to demonstrate attainment. The primary purpose of the AQMP is to demonstrate attainment and establish an enforceable commitment to meet federal ambient air quality standards. The facility-based measures do not serve that purpose and should be removed from the AQMP. In fact, ***no emission reductions can be attributable to MOB-1 because achievable emission reductions will be claimed by CARB*** as a result of their comprehensive rulemaking efforts on ocean-going vessels, harbor craft, locomotives, drayage trucks, and cargo-handling equipment.

Comment 74-5

Facility-based Measures Will Compromise Grant Funding Opportunities

MOB-1 will eliminate the opportunity to use billions of dollars that the State of California is making available for the transition to zero-emissions and near-zero emissions operating operations and infrastructure. AQMD staff has argued that their rules distinguish between deployment and usage of grant-funded equipment, claiming that while the purchase of a Carl Moyer-funded truck may not be credited against a facility-based measure, the use of that same truck would be. Unfortunately, whether it is drayage trucks, shore power, harbor craft, or other port-related equipment, almost all grant funds targeting port sources have usage requirements to ensure that equipment is used within the port complex. That is very different from the circumstances of the warehouse indirect source rule and will make the use of grant funding entirely inconsistent with the proposed regulatory scheme. No third-party will forgo grant funding to meet the compliance obligations of a regulated entity. Since indirect source rules make the regulated entity reliant on the actions of third parties, there may be no way to meet compliance unless grant funding is withheld – a truly nonsensical outcome which actually delays emissions reductions in the South Coast air basin.

Comment 74-6

Support National and International Standards

Instead of facility-based measures, PMSA asks SCAQMD to continue its support for the adoption of stricter national and international standards for federal mobile sources. Improving standards at these

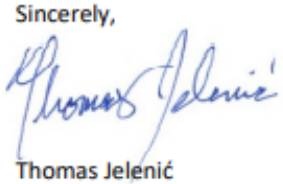
Comment 74-7

jurisdictional levels are necessary to achieve emission reductions at the ports and for allowing the long-term growth that will support our local communities and higher levels of investment in emissions reduction technologies. PMSA would be pleased to lend its support to SCAQMD in efforts that seek to control emissions from mobile sources by the appropriate regulatory body, including the International Maritime Organization, US EPA, and/or CARB.

Comment 74-7 Con't

Conclusion
The facility-based measures serve no evident purpose and should be removed from the AQMP. The proposed measures do not further attainment demonstration. Further, they will conflict with CARB's regulatory program, delay investment, and jeopardize needed State incentive funds. PMSA requests that the proposed measures, particularly MOB-1, be removed from the AQMP.

Sincerely,



Thomas Jelenić
Vice President

Response to Comment 74-1: Thank you for your comments. The proposed facility-based measures are needed as part of a targeted strategy to achieve regional and local NOx and PM reductions toward meeting the federal ozone standards for 2037 and improve public health. As such, South Coast AQMD staff intends to work with all affected parties including port industry stakeholders, port authorities, and local, state, and federal agencies to pursue enforceable measures such as an indirect source rule as well as incentive funding or other voluntary measures that can achieve and/or facilitate emission reductions.

Response to Comment 74-2: See Response to Comment 65-11 regarding South Coast AQMD legal authority.

Health and Safety Code §40716 gives indirect source authority that is not limited to new sources, and §40440(a) refers to both new sources and sources where there are high levels of localized concentrations of pollutants (which would presumably be existing sources).

Further, South Coast AQMD is obligated to take all feasible measures to reduce emissions. Leveraging the South Coast AQMD's limited authority to address mobile source emissions under indirect source authority falls squarely within that obligation.

Response to Comment 74-3: MOB-1 (and the resulting marine port indirect source rule, Proposed Rule 2304) is not a duplicative measure, as it is part of a more comprehensive strategy for reducing emissions in the region and in the state. The measures adopted and proposed by CARB that are referred to by the commenter are considered already in the Revised Draft 2022 AQMP (e.g., U.S. EPA's proposed Clean Truck

Rule, CARB's Advanced Clean Fleets Rule, etc.). However even after considering all of these measures, another 62 tons per day of NOx emission reductions will be needed to meet federal air quality standards (i.e., 'black box' reductions). MOB-01 is being pursued to provide additional emission reductions towards this shortfall, both within rule requirements and as a facilitating measure to enhance other regulations and programs. In addition, ISR rule development will ensure compatibility with upcoming proposed CARB regulations and include an analysis of potential future emission reductions to the extent possible with information that's available during rulemaking.

Response to Comment 74-4: MOB-1 seeks further emission reductions from port operations compared to existing and upcoming state and federal mobile source measures. Staff aims for any regulatory measures for ports to be designed to facilitate earlier implementation of zero emission technologies required by existing and upcoming CARB regulations and provide opportunities to implement additional clean technologies. While the rulemaking is still in development, staff shall seek opportunities to build in mechanisms to acknowledge earlier adoption of cleaner technologies. South Coast AQMD staff is working closely with local, state and federal agencies to ensure that any regulatory obligations set as a result of MOB-1 will work in tandem with other agencies' regulatory requirements and promote earlier investment in zero and low NOx emission technologies.

Response to Comment 74-5: See Response to Comment 65-4.

Response to Comment 74-6: See Response to Comment 65-5.

Response to Comment 74-7: Staff appreciates the comment supporting national and international standards where appropriate. SCAQMD will continue to strongly support such standards.

The proposed facility-based measures are needed as part of a targeted strategy to achieve regional and local NOx and PM reductions toward meeting the federal ozone standards for 2037 and improve public health.

See Response to Comment 65-4 regarding attainment demonstration and conflict with CARB regulations. See Response to Comment 75-4 regarding delay of investment. See Response to Comment 65-5 regarding accessibility to grant funds.

Comment Letter #75

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Via email - AQMPteam@aqmd.gov

Thank for the opportunity to comment on the draft 2022 AQMP for inclusion into the California SIP.

These comments supplement the many verbal comments we made in a series of working groups meetings and hearings held by the District in development of the AQMP. These comments have yet to be incorporated into the plan, perhaps awaiting the data necessary to complete the elements of the plan designed to meet California Ambient Air Quality Standards. Thus far, the District has not completed it's determination of the carrying capacity of the basins' in the air district, essential to determining a strategy to meet those standards, and consistent with meeting the requirements of the Clean Air Act and state law.

In light of that, the District is requested to recirculate a draft that fully incorporates modeling data, and the implications of that data, along with control measures that will allow the District to meet health-based state standards. This is one area where the public has not had a sufficient opportunity to review and comment on the overall and the detailed elements of the plan,, as it is lacking a major piece.

Comment 75-1

So far, the Governing Board and public have been ill-served by charts and graphs included in workshops, Board Committee meetings, and Governing Board meetings that give decisionmakers and the public a inaccurate view of the job at hand. Those charts and graphs and graphs imply that the ozone air quality problem has been solved by limiting NOx emissions to 60 tons/day. As staff knows, the basin carrying capacity is lower than that if the mandate for meeting state ambient air quality standard is met.

Further, the plan should also acknowledge the likelihood, in light of current scientific data, that the standard will likely be tightened soon.

As we have already provided substantial comments up to this point, we include below a few key areas either not addressed in prior comments, or that are included for emphasis.

Measures Included, But Not Really Included

The draft plan includes a number of measures that are listed, but the associated emission reductions are listed as "TBD". The fine print indicates that these measures are not really included as commitments to adopt, but only commitments to evaluate, and are not included as part of the attainment demonstration. These measures include railyard ISR, fugitive emission

Comment 75-2

controls, and others. The District should commit to these measures, and associate emission reductions to them, because without associated emission reductions, they are rendered unenforceable. The plan should include commitments for all measures necessary to meet standards, and those measures should all have enforceable emission reduction commitments associated with them.

Adoption Tabletables

The plan should prioritize those measures which will have the co-benefit of reducing air toxics. It is of great concern that many of the measures (such as elimination of stationary Diesel engines) have no associated emission reductions for many years, The District should adopt these measures expeditiously, and compliance dates that are also expeditious.

Comment 75-2 Con't

Additional control measures

New Source Review

The District should include in the plan adoption of a New Source Review measure that would provide for new emission sources to provide a net benefit to the region's air. This can be done through a number of methods. For example, essential public services, rather than be gifted with "free" set-asides from shutdown emission sources, can reduce emissions elsewhere when needed, and the "surplus" emission reductions (not really surplus in actuality), can be used to clean the air. The District can also increase offset requirements, or use any of a number of strategies to provide for additional air quality benefits from new sources. These options are both feasible and available.

We understand that staff is reluctant to consider these changes. Some District staff believe that it is not workable for new sources to reduce emissions in order to locate new emission sources. As a result, the District has proposed numerous schemes to seemingly create emission reductions out of thin air. The District has even gone so far as to adopt rule changes that weaken provisions of New Source Review, such as upon adoption of rule 1109.1, and 1146. These changes seem to clearly violate the provisions of SB 288, which prohibits a weakening of NSR.

We make these last points because the difficulties in obtaining offsets indicate that NSR is not functional in the SCAQMD, as the NSR provisions in the Clean Air Act were designed to provide those incentives for new reduce emissions elsewhere. The current situation cannot remain in place, as it jeopardizes both the attainment of air quality standards, but the development of new technologies, and growth as well.

Comment 75-3

The District should convene a Task Force to address the lack of effectiveness of New Source Review, and seek ways of "fixing" it. In recent years, the efforts of staff only seem to be going in the wrong direction. The AQMP can set the performance goals of these changes, and begin to move the NSR provisions on track.

Separately, but still part of NSR, are the District policies regarding BACT and LAER. These policies ensure old technologies continue to be placed into service, which further delays the movement of clean technologies into the marketplace, and further adversely impacts cost improvements of new technologies. Further, as the District takes cost into account in developing rules, it further delays rule implementation, and leaves needed emission reductions on the table. A prime example of this is the District's failure to require available zero emission technologies as BACT and LAER for both prime and backup electrical generation.

Review of Existing Regulations

The District should review it's regulations in all source categories where emission limits were set based on cost. This includes rules in the 1109x, 1146x, and 1135 categories, when some sources are given up to 32 years to comply, using technology already available today! In addition, rules that put off compliance dates based on the installation date of the existing equipment should be revised to provide for expeditious attainment. The most recent adoption of these rules mark the first time in the District ever that health-based emission reductions were delayed and not expeditiously implemented.

Many tons of feasible emission reductions have been left on the table due to the District's unfair, arbitrary and capricious cost limits in developing regulations. The District, in the last AQMP, adopted a cost cutoff per source category of $50,000/ton reduced. In the current plan, it increases it by the cost of living, but sets a different limit for mobile sources, approximately triple that of stationary sources. The cost limits for stationary sources matches the limits in the 1982 AQMP, despite the fact that more stringent standards are now in effect. That is, the District is proposing to make no greater effort or spend no more money per ton reduced than under weaker standards.

Comment 75-4

And to set two different cost cutoffs, depending on whether a mobile of stationary source is involved, makes a mockery of the District's proclamations of "fair share". A truck driver may be asked to spend three times more than a petroleum refinery to reduce a pound of air pollution. If the District were to increase the cost-effectiveness limits to match what it is proposing for mobile sources, many additional tons of emissions can be reduced, all under the District's current authority. The AQMP is required demonstrate attainment of the standards without regard to cost. It is certainly reasonable, however, to implement the most cost-effective measures first. But the District, with it's dual-cost proposal, is taking a different, and improper course, by failing both to implement the most cost effective first, and also failing to demonstrate attainment with all available measures.

The District should also include in the AQMP measures that local government could implement, but are under their authority, and not the District's. There are many ways to accomplish this which leave the authority under local jurisdictions, but which would have them commit to doing their "fair share".

Miscellaneous

- The District should assume that PSPS events will continue to be an issue, as the responsible state agencies have so far failed to adequately address this problem. Therefore, the emissions numbers for emergency backup generators should assume that current state policy will remain in place - requiring those with emergency generators use those engines instead of grid electricity, as this is the current situation under the Governor's emergency orders. As District staff has indicated, these emissions during PSPS events exceed those of refineries in the basin.

Comment 75-5

- In the chapter that includes a discussion of state standards, the District should indicate when the last analysis of those emission reduction requirements were assessed, and should identify additional control measures needed to meet those standards. The discussion of state standards is significantly less robust and detailed than that for federal standards, and the two should match, and include similar information.

Comment 75-6

- Any CEQA analysis should assess as a project alternative, inclusion of those emission reduction items (including cost-effectiveness cutoffs) that have been proposed, but are not

Comment 75-7

included in the AQMP, including any that remain listed as "TBD." All alternatives should include the attainment of state standards. Comment 75-7 Con't

- The District has indicated that for many impacts of air pollution, the economic analysis does not attempt to quantify those impacts. It is essential that the District use the best data possible on those economic impacts, and provide quantitative analyses, properly characterized. If needed, the District should seek to have studies performed to quantify those impacts. Comment 75-8
- We share the District's concerns about failure of the federal government to make needed commitments to reduce emissions that are outside of the authority of the State of California. However, rather than point fingers, and do little else. With just inclusion of the provisions that we have suggested, and perhaps others, the District and the State can go a long way towards reducing emissions that it does have authority to control. It begs comments on credibility when the District and the state have not everything in its power to expeditiously reduce emissions. Comment 75-9

Again, as we have commented verbally in the past, the opportunity for public involvement in the development of the AQMP may have exceeded that of any past AQMP, and that effort by District staff was appreciated and welcomed.

Again, thank you for the opportunity to comment.

Sincerely,

Mark Abramowitz
President

Response to Comment 75-1: Thank you for your participation and engagement throughout development of the 2022 AQMP. The 2022 AQMP specifically addresses attainment of the 2015 8-hour ozone standard as required by the Clean Air Act. Thus, California Ambient Air Quality Standards (CAAQS) or potential revisions of the federal standard by U.S. EPA are not the primary focus of this AQMP. Nevertheless, a supplemental analysis of ozone CAAQS can be found in Appendix V of the Revised Draft 2022 AQMP including estimates of the required carrying capacities. Attainments of the State ozone standards are expected to take longer time than the NAAQS due to the stringency of the CAAQS.

Response to Comment 75-2: The 2022 AQMP estimates emission reductions for control measures in which the reductions can be reasonably determined at this time. It is virtually impossible to quantify emission reductions for some control measures since the specific control approach has yet to be identified, and some measures are complementary to others leading to co-benefits. Control measures described in the AQMP will undergo further detailed development during rulemaking where the current and future commercial availability of technology will be assessed, emission reductions will be estimated, the cost-effectiveness will be analyzed, opportunities for incentive funding will be evaluated, and other challenges will be considered and resolved.

Response to Comment 75-3: Regulation XIII provides the framework for complying with federal New Source Review requirements in the Clean Air Act. Upon the adoption of federal New Source Review reform in 2002, California adopted Senate Bill 288 (SB 288), the "Protect California Air Act of 2003" which prohibits backsliding of any aspect of New Source Review. Offsets are extremely scarce and any changes to the requirements for offsets would only make the situation worse because of SB 288, thus hindering growth and potentially the voluntary upgrade of existing facilities. While a task force may be able to highlight needed improvements to New Source Review, actual changes will require amendments to the Clean Air Act and/or California state law to provide additional flexibility.

The option for essential public service facilities to reduce emissions elsewhere is already in place. However, when that option is untenable, particularly in growth related projects, Rule 1309.1 - Priority Reserve provides the necessary emission reduction credits.

The recent adoption of Rule 1109.1 and amendment of Rule 1146 do not violate the provisions of SB 288. It should be noted that sources subject to Rule 1109.1, and most sources subject to Rule 1146, are not eligible for emission reduction credits pursuant to Rule 1309.1.

The BACT and LAER process is mandated by federal and state Clean Air Act requirements. South Coast AQMD policies implement BACT and LAER. BACT and LAER do not hinder the adoption of clean technologies into the marketplace or further adversely impact cost improvements of new technologies. State law limits the South Coast AQMD's ability to require BACT to emission limits on the type of basic process equipment being proposed. H & S Section 40440.11(a). In rule development, staff establishes BARCT standard which require the evaluation of cost-effectiveness and incremental cost-effectiveness.

Response to Comment 75-4: As discussed in Responses to Comments 70-7 and 71-4, the cost-effective thresholds proposed for stationary sources are designed to provide a guide for establishing BARCT emission standards, and not to function as a hard cap. While cost considerations are an important factor, they are not the only factor in shaping staff's rule proposals. Staff strongly disagrees that consideration of cost-effectiveness has resulted in forgone feasible emission reductions, and South Coast AQMD's stationary source regulations are some of the most stringent regulations in the country. With each AQMP,

the CAA and U.S. EPA require a RACT analysis that ensures South Coast AQMD's measures are at least as stringent as those of other air districts and states.

It should be clarified that the proposed cost-effectiveness thresholds for mobile sources in the Draft 2022 AQMP pertain to control measures proposed by the South Coast AQMD only. In past AQMPs, the cost-effectiveness thresholds were developed specifically in consideration of costs that stationary sources are anticipated to face and relied on the cost-effectiveness of past stationary source rules. In contrast, given the limited number of AQMD mobile source related rules, the thresholds proposed for mobile sources in the Draft 2022 AQMP rely on the cost-effectiveness of CARB's mobile source incentive programs. These cost-effectiveness values come from detailed per-project administrative data but calculated with a different method (including a weighted ton of emission reductions approach and a different cost-effectiveness formula; see table note b) under the Draft 2022 AQMP Table 4-14), and therefore, the proposed stationary source and mobile source thresholds are not directly comparable to each other.

Based on comments received and feedback from several Governing Board members staff is proposing a revised cost-effectiveness threshold in the Revised Draft 2022 AQMP. This framework is tied to the monetized benefit associated with reducing a ton of emissions. Please refer to Chapter IV of the Revised Draft 2022 AQMP for more details.

Thank you for your suggestion regarding including additional commitments from local government. There are some limitations on the South Coast AQMD's authority – for example the South Coast AQMD is prohibited from interfering with city and county land use authority. H & S 40414. To the extent that you have specific suggestions staff would be willing to take these under consideration. Please note that actions taken by local governments that would generate emission reductions are potentially SIP creditable if the local government submits those measures into the SIP.

Response to Comment 75-5: Staff acknowledges the potential emissions from the use of emergency diesel engines during PSPS events. Future rulemaking activities would further refine the emissions inventory based on best available information on methodology and emissions data.

Response to Comment 75-6: See Response to Comment 75-1. The 2022 AQMP is focused on attaining the federal air quality standards per the statutory requirements by CAA and U.S. EPA's rules. Per the Health and Safety Code, the carrying capacities for State ozone standards were quantified as described in Appendix V of the Revised Draft 2022 AQMP. However, developing a control strategy specific to state standards is beyond the scope of this AQMP because it is necessary to use the provisions of CAA Section 182(e)(5) even to meet the less stringent NAAQS; to meet the state standard would likely require an even larger "black box."

Response to Comment 75-7: CEQA Guidelines Section 15126.6 requires the Program EIR to describe a range of reasonable alternatives which would feasibly attain most of the basic objectives of the proposed project (2022 AQMP) but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. It is important to note that the Program EIR is not required to consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. The Program EIR is not required to consider alternatives which are infeasible. In light of these parameters, the Draft Program EIR identifies several alternatives, including the requisite No Project Alternative, and the alternatives include control measures with unquantified potential emission

reductions identified in the Draft 2022 AQMP as TBD or to be determined. The main objective of the 2022 AQMP is to address attainment of the 2015 8-hour ozone standard of 70 ppb and the comparative analysis of the merits of each alternative will be weighed against each alternative's ability to achieve this and the other identified project objectives.

Response to Comment 75-8: Staff appreciates the comment. Staff is committed to using best available data and scientifically sound methodologies to quantify the impacts of air pollution. Staff continues to seek feedback from stakeholders and work with subject matter experts to guide and assist staff with enhancing staff's socioeconomic impact assessment.

Response to Comment 75-9: Staff appreciates your concern regarding the federal government's failure to make needed commitments to achieve the federal air quality standards and clean air. South Coast AQMD is committed to an aggressive control strategy that achieves a 67 percent reduction in NOx emissions by 2037. The attainment demonstration in Chapter 5 proves that the control strategy will lead to attainment by the required deadline. Thank you again for your participation in the public process.

Comment Letter #76

EARTHJUSTICE

July 5, 2022

Sang-Mi Lee, South Coast AQMD
21865 Copley Drive
Diamond Bar, CA 91765
AQMPTeam@aqmd.gov

Re: Comments on Draft 2022 Air Quality Management Plan (AQMP)

Dear Ms. Lee:

On behalf of Earthjustice, we submit comments on the Draft Air Quality Management Plan (AQMP). While the plan has some important and long awaited conclusions, it is far too weak to address the current air quality crisis in our region. Importantly, the attainment demonstration in Appendix V recognizes an increase in design value in 2016 after years of design value decline. Design values, which are the targets for meeting air quality standards, should go down over time as the region reduces Nitrogen Oxide (NOx) and Volatile Organic Compound (VOC) emissions. This increased design value since the 2016 air plan should ring as an alarm bell to develop a much more ambitious plan, including achieving more near-term emissions reductions. We recognize that putting together an air plan is a difficult task and there is a hesitancy to overpromise on emissions reductions. But, for decades we have had air plans that have missed the mark. We ask this of the agency to do the following: Commit to absolutely everything within your authority to tackle air pollution over the next 15 years. The following sections provide input on how to improve the 2022 AQMP.

Comment 76-1

I. Our Air Pollution Crisis Demands a Stronger Plan.

We appreciate the Draft AQMP's recognition of what we have been saying for a long time – "there is no viable pathway to achieve the needed reductions without widespread adoption of zero emission (ZE) technologies across all mobile sectors and stationary sources large and small."[1] It is important for the District to recognize this fact as it will help align all decisions of the agency. And, we recognize the immense challenges that shifting to a zero-emissions framework to air planning poses. Most importantly, this approach will bring the lobbying and immense resources of the oil and methane gas industries to fight this necessary change. These entities have spent massive sums of money lobbying the agency to either derail or delay regulatory efforts. This is why this plan is so important. The plan says we need to move to zero-emissions to meet the 2015 8-hour ozone standard, yet the control strategy does not come close to achieving this vision in many of the categories of emissions. This must be fixed.

Comment 76-2

[1] 2022 Draft AQMP, at p. ES-5.

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II. California's Reliance on Section 182(e)(5) (the "black box") is a Terrible Strategy.

As we have raised in prior comments, reliance on black box measures presents an unfavorable trade-off for those who live in the South Coast Air Basin. While it may provide additional time to attain an ozone standard, the track record of failing to actually identify these measures has resulted in decades of South Coast residents breathing ozone-polluted air. Residents in the region are sick and tired of the failed promises of the "black box." The Draft AQMP fails to show how the "black box" will work this time despite failing three times already. It is arbitrary to keep relying on this strategy when the Air District know it has not worked in the past.

Comment 76-3

III. The District Commits to a Paltry Amount of Emission Reductions by the 2008 8-hour Ozone Deadline of 2032.

We remain exceptionally disappointed that as we are about to fail to meet the 1997 8-hour ozone standard, the Air District has backloaded the vast majority of its emissions reductions to 2037. The following charts provides an overview of the emissions reductions the Air District in this plan. The following charts in Appendix V summarize the emission reduction commitments for 2032.

TABLE 2. EMISSIONS REDUCTIONS FROM THE PROPOSED CONTROL MEASURES FOR THE 2032 CONTROL SCENARIO

	Average composite CF[1]			2032 planning control baseline (tons/day)			2032 planning remaining (tons/day)			2032 planning reduction (tons/day)		
Control Measures	NOX	VOC	PM25	NOX	VOC	PM25	NOX	VOC	PM25	NOX	VOC	PM25
C-CMB-01: Commercial Water Heating	91.2%	100.0%	100.0%	0.45	0.09	0.14	0.41	0.09	0.14	0.04	0.00	0.00
C-CMB-02: Commercial Space Heating	90.7%	100.0%	100.0%	0.43	0.02	0.03	0.39	0.02	0.03	0.04	0.00	0.00
C-CMB-03: Commercial Cooking	79.8%	100.0%	100.0%	1.04	1.02	9.37	0.83	1.02	9.37	0.21	0.00	0.00
C-CMB-04: Small Internal Combustion Engines (Non-permitted)	100.0%	100.0%	100.0%	3.29	0.37	0.65	3.29	0.37	0.65	0.00	0.00	0.00
C-CMB-05: Miscellaneous Small Commercial Combustion Equipment (Non-permitted)	100.0%	100.0%	100.0%	5.74	2.10	0.41	5.74	2.10	0.41	0.00	0.00	0.00
L-CMB-01: NOx RECLAIM	100.0%	100.0%	100.0%	0.61	0.97	0.31	0.61	0.97	0.31	0.00	0.00	0.00
L-CMB-02: Large Boilers and Process Heaters	100.0%	100.0%	100.0%	2.55	0.37	0.44	2.55	0.37	0.44	0.00	0.00	0.00
L-CMB-03: Large Internal Combustion Prime Engines	100.0%	100.0%	100.0%	0.92	0.15	0.04	0.92	0.15	0.04	0.00	0.00	0.00
L-CMB-04: Large Internal Combustion Emergency Standby Engines	100.0%	100.0%	100.0%	4.38	0.27	0.15	4.38	0.27	0.15	0.00	0.00	0.00
L-CMB-05: Large Turbines	100.0%	100.0%	100.0%	0.21	0.14	0.16	0.21	0.14	0.16	0.00	0.00	0.00
L-CMB-06: Electric Generating Facilities	100.0%	100.0%	100.0%	1.93	0.20	0.37	1.93	0.20	0.37	0.00	0.00	0.00
L-CMB-07: Petroleum Refining	100.0%	100.0%	100.0%	5.14	1.85	2.12	5.14	1.85	2.12	0.00	0.00	0.00
L-CMB-08: Landfills and POTWs	100.0%	100.0%	100.0%	1.31	0.21	0.36	1.31	0.21	0.36	0.00	0.00	0.00
L-CMB-09: Incineration	100.0%	100.0%	100.0%	1.18	0.04	0.05	1.18	0.04	0.05	0.00	0.00	0.00
L-CMB-10: Miscellaneous Combustion	100.0%	100.0%	100.0%	1.46	6.77	1.79	1.46	6.77	1.79	0.00	0.00	0.00

Comment 76-4

TABLE 2. EMISSIONS REDUCTIONS FROM THE PROPOSED CONTROL MEASURES FOR THE 2032 CONTROL SCENARIO (CONTINUED)

Control Measures	Average composite CF[1]			2032 planning control baseline (tons/day)			2032 planning remaining (tons/day)			2032 planning reduction (tons/day)		
	NOX	VOC	PM25	NOX	VOC	PM25	NOX	VOC	PM25	NOX	VOC	PM25
R-CMB-01: Residential Water Heating	74.2%	100.0%	100.0%	1.86	0.37	0.58	1.38	0.37	0.58	0.48	0.00	0.00
R-CMB-02: Residential Space Heating	81.8%	100.0%	100.0%	2.47	0.20	0.31	2.02	0.20	0.31	0.45	0.00	0.00
R-CMB-03: Residential Cooking	76.4%	100.0%	100.0%	1.27	0.07	0.10	0.97	0.07	0.10	0.30	0.00	0.00
R-CMB-04: Residential Other Combustion	72.8%	100.0%	100.0%	4.30	0.23	0.27	3.13	0.23	0.27	1.17	0.00	0.00
FUG-01: Improved Leak Detection and Repair	100.0%	86.0%	100.0%	0.00	4.27	0.00	0.00	3.67	0.00	0.00	0.60	0.00
CTS-01: Further Emission Reduction from Coatings, Solvents, Adhesives, and Sealants	100.0%	97.5%	100.0%	0.00	19.80	0.00	0.00	19.30	0.00	0.00	0.50	0.00
TOTAL STATIONARY:	**93.4%**	**97.2%**	**100.0%**	**40.54**	**39.49**	**17.64**	**37.85**	**38.39**	**17.64**	**2.69**	**1.10**	**0.00**

Through rulemakings over the next decade, the Air District is proposing to only achieve 2.69 tpd additional emissions reductions out of the 40.54 tpd of total emissions under the Air District's control in 2032. This commitment to achieve a 5% reduction in NOx emissions remains totally lacking in ambition. The tragedy of this approach to backload emissions reductions to a decade and half away are two-fold. First, immense health benefits could be accrued by advancing NOx reductions earlier. Second, it perpetuates environmental injustice by committing to 0 (zero) additional emissions reductions in the large combustion sector by 2032. Large combustion is by far the largest portion of the Air District's emissions, and there is a correlation between siting these facilities and disadvantaged communities. The AQMP must have more ambition to achieve significantly more NOx emissions reductions in the near term.

Comment 76-4 Con't

IV. The Draft AQMP Needs More Commitments that Control Measures in the Plan will Actually be Pursued.

The Draft AQMP includes a summary of the emissions reductions achieved from the control measures in the Final 2016 AQMP. The following chart summarizes the lack of progress for several of the measures from the 2016 AQMP.

Comment 76-5

TABLE 1-2

2016 AQMP EMISSION REDUCTIONS (TONS PER DAY) BY MEASURE/ADOPTION DATE

Control Measure #	Control Measure Title	Adoption Date	Commitment		Adopted to be Achieved	
			2023	2031	2023	2031
NOx EMISSIONS[a]						
CMB-01	Transition to Zero and Near-Zero Emission Technologies for Stationary Sources	--	2.5	6.0	--	--
CMB-02	Emission Reductions from Replacement with Zero or Near-Zero NOx Appliances in Commercial and Residential Applications [R1111]	2018	1.1	2.8	0.01[b]	--
CMB-03	Emission Reductions from Non-Refinery Flares [R1118.1]	2018	1.4	1.5	0.2[c]	--
CMB-04	Emission Reductions from Restaurant Burners and Residential Cooking	--	0.8	1.6	--	--
CMB-05	Further NOx Reductions from RECLAIM Assessment	2018-2021	0.0	5.0	9.4[d]	11.7[d]
ECC-02	Co-Benefits from Existing Residential and Commercial Building Energy Efficiency Measures	2018	0.3	1.1	0.3[e]	--
ECC-03	Additional Enhancements in Reducing Existing Residential Building Energy Use	--	1.2	2.1	--	--
MOB-03	Emission Reductions at Warehouse Distribution Centers	2021	TBD	TBD	0.7 to 1.5[f]	1.5 to 3.0[f]
MOB-04	Emission Reductions at Commercial Airports	2019	TBD	TBD	0.5	0.37
MOB-10	Extension of the SOON Provision for Construction/ Industrial Equipment	Ongoing	1.9	1.9	--[g]	TBD
MOB-11	Extended Exchange Program	Ongoing	2.9	1.0	<0.1	TBD
MOB-14	Emission Reductions from Incentive Programs	Ongoing	11	7.8	11.2	TBD
TOTAL NOx REDUCTIONS			**23.1**	**31.0**	**22.3 to 23.1**	**13.6 to 15.1**

Comment 76-5 Con't

Aside from a few of the control measures like CMB-05, which was the transition of RECLAIM from market-based to command and control, many of the measures in the prior plan (e.g. CMB-01, 02, 03, 04, ECC-02, and MOB-10, 11) have not been completed. While we assume Air District staff will claim they are close to or have met its emissions reduction target of 23.1 tpd NOx from the 2016 AQMP, there are many more emissions reductions that could have been achieved, further reducing the size of the "black box." We recognize that some control measures achieved far more emissions reductions than the plan committed to in the 2016 AQMP (e.g. CMB-05).[2] But, that should not alleviate the District from pursuing these other measures. It could be worse in the current draft plan as several measures that the

[2] We raise this example of CMB-05 not to critique the amount of time and effort the agency took to unravel the RECLAIM program. That was a critical change to protect public health. We raise it as an example to show that the agency needs to pursue more robust staffing to allow many large projects to proceed over time.

Air District is pursuing have no emissions reductions associated with them (e.g. several indirect source rules), so if emissions reductions are achieved there, it could serve as way to stop or delay rulemakings on the control measures in this plan. The public and the Governing Board need greater assurances that if measures are adopted in the plan, they will be pursued.

Comment 76-5 Con't

V. The Air Plan Should Exclude Arbitrary Cost Effectiveness Thresholds.

The Draft AQMP seeks comment on whether it should continue to include arbitrarily developed cost thresholds for stationary source control measures.[3] The short answer is no. There is no legal requirement for this measure. In fact, it creates duplicate and onerous requirements that contradict with the South Coast AQMD's direction to control emissions from stationary sources of pollution.

Importantly, California Health & Safety Code § 40922 does not require a cost effectiveness threshold for stationary sources. It requires that each plan generally assess the cost effectiveness of available and proposed control measures and rank the measures' relative cost effectiveness; a control measure's cost effectiveness should be evaluated relative to other measures, not relative to a threshold.

Further, arbitrarily including a cost effectiveness threshold may prevent the district from pursuing regulations that would otherwise be permissible and within its discretion. Socioeconomic impact in South Coast means "only" six listed factors, and cost effectiveness is solely mentioned in saying that part of socioeconomic impact is "the availability and cost-effectiveness of alternatives to the rule or regulation." South Coast is not allowed to consider other factors, like a cost effectiveness threshold, in its socioeconomic analysis. However, South Coast's 2022 Draft AQMP states that the district rejected emission standards with controls "well above" the cost effectiveness threshold. Rejecting controls because they "well" exceed this threshold prevents the district from considering other factors that, individually or together, could outweigh the amount that the control exceeds the cost effectiveness threshold. In this way, using a threshold may block measures that the AQMD might otherwise advance.

Comment 76-6

South Coast itself seems to know this; in its draft, South Coast states that emissions standards that can achieve significant reductions, but that are above the cost-effectiveness threshold, should be considered to ensure that the district can achieve maximum emissions reductions. The District seems to contradict itself by stating the importance of not allowing a threshold to exclude a standard when trying to achieve reductions but then stating it rejected controls for exceeding the threshold.

Further, incorporating a cost effectiveness threshold into the analysis that is already required is duplicative; the Health and Safety Code requires that districts conduct a socioeconomic analysis whenever they propose to adopt, amend, or repeal a rule or regulation that significantly affects air quality or emissions limitations. Air Districts must actively consider the socioeconomic impact of proposed regulations and make a good faith effort to minimize adverse socioeconomic impacts. Socioeconomic impact refers to: the types of businesses and industries that the regulation affects; its

[3] 2022 Draft AQMP, at 4-63.

effect on employment and the economy of its targeted region; the range of probable costs that the regulation could have, including costs to businesses and industries; the availability and cost-effectiveness of alternative regulations; the regulation's potential to reduce emissions; and the necessity of the regulation for achieving the NAAQS. The requirements that the Health and Safety Code already set forth in examining socioeconomic impact are both more rigorous and more holistic than the cost effectiveness threshold.

To the extent, staff believes it must include cost effectiveness thresholds (even though the law does not require this) – it should abide by these three suggestions:

1) The stationary source cost effectiveness threshold of $59,000 is far too low. It makes no sense why incentive programs – where taxpayer dollars are spent – have much higher cost effectiveness than requiring some of the largest and most lucrative corporations in the world (e.g. Exxon Mobile, Southern California Edison, etc) to clean up in a more expensive manner. This amount should be at least double the current value proposed for stationary sources. Moreover, the $36,000 threshold for VOC controls is entirely too low and should be doubled at least as well.
2) Mobile Source cost effectiveness should similarly be greater than $200,000. The Air District provides no justification why an average is appropriate for this standard. Several programs and regulations have a cost effectiveness well above this $200,000 mark. The cost effectiveness should be at least double this $200,000 mark, if not higher.
3) The Air District should create a third category of cost effectiveness for area sources, which should have a cost effectiveness set much higher than the artificially low cost effectiveness threshold for stationary sources.

Comment 76-6 Con't

VI. A True Zero-Emissions Approach Requires Significant Shifts to Several Air District Programs.

The Air District has been operating under an incrementally cleaner combustion framework for decades, and many of the programs that serve as pillars of air planning have this approach. To be effective in advancing zero-emissions, the Air District must revisit many of these programs, which have baked in incentives for combustion. There are myriad examples, but this comment will focus on two.

First, the Air District's Priority Reserve in Rule 1309.1 is a subsidy for combustion. By providing free credits to the categories of facilities and equipment articulated in that rule, the Air District subsidizes combustion because the NOx emissions are generally the byproduct of combustion. The Air District could fix this in many ways, but more importantly, there need to be equal or more generous incentives to move to zero-emissions than pursing combustion. At a minimum, the AQMP must explain the plan to shift this and other New Source Review programs to promote zero-emissions.

Second, many of the incentive programs the Air District implements are funding large quantities of combustion vehicles. The Air District needs to shift these programs away from combustion towards zero-emissions. This commitment and direction must be included in the AQMP.

Comment 76-7

Comment 76-1

VII. The Control Measure Strategy Must Be Strengthened.

The draft plan concedes that there is a need to move to zero-emissions in mobile and stationary sources. Unfortunately, the control strategy does not get anywhere close to this approach. In fact, many of the measures do not even commit to zero-emissions to achieve the emissions reductions. The following sections highlight the concerns.

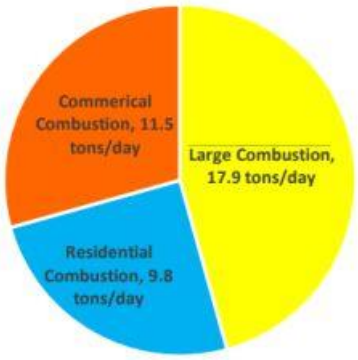
Comment 76-8

a. CARB and EPA Must Do More.

Initially, we want to recognize that other agencies must do more. We are advocating for these agencies to do more. But, this acknowledgement cannot be used as a justification for the Air District to pursue less ambitious programs to clean up stationary, area, and indirect sources.

b. Commercial and Large Combustion Commitments Are Lacking.

Large Combustion and Commercial combustion are by far the largest sources of emissions within the District's stationary and area source authority in 2037 as evidenced by this chart from the Draft AQMP.



Total NOx: 39.3 tons/day

FIGURE 4-3
STATIONARY SOURCE NOX EMISSIONS IN 2037

Comment 76-9

Yet, these are the two categories that are achieving the least when it comes to overall percentage of emissions reductions committed. The following chart summarizes the Air District's proposal.

	2037 NOx Inventory	NOx Reductions in 2037	Percentage Reduction
Commercial Combustion	11.5 tpd	7.42 tpd	64.5%
Large Combustion	17.9 tpd	6.92 tpd	38.7%
Residential Combustion	9.8 tpd	6.43 tpd	65.6%

While the Air District needs greater ambition in all three sectors, the lack of ambition is best exhibited in the Large Combustion sector. This sector includes some of the largest corporations in the world that should be asked to do more to address the air pollution crisis in the region. For example, the largest subsector of the large combustion sector are refineries, which are being asked to do very little as the following chart in Appendix V demonstrates.[4]

Comment 76-9 Con't

TABLE 1. EMISSIONS REDUCTIONS FROM THE PROPOSED CONTROL MEASURES FOR THE 2037 ATTAINMENT SCENARIO

Control Measures	Average composite CF[1]			2037 planning control baseline (tons/day)			2037 planning remaining (tons/day)			2037 planning reduction (tons/day)		
	NOX	VOC	PM25	NOX	VOC	PM25	NOX	VOC	PM25	NOX	VOC	PM25
C-CMB-01: Commercial Water Heating	42.9%	100.0%	100.0%	0.42	0.08	0.13	0.18	0.08	0.13	0.25	0.00	0.00
C-CMB-02: Commercial Space Heating	38.2%	100.0%	100.0%	0.34	0.02	0.03	0.13	0.02	0.03	0.21	0.00	0.00
C-CMB-03: Commercial Cooking	35.8%	100.0%	100.0%	0.95	1.04	9.61	0.34	1.04	9.61	0.64	0.00	0.00
C-CMB-04: Small Internal Combustion Engines (Non-permitted)	34.4%	100.0%	100.0%	3.20	0.50	0.70	1.10	0.50	0.70	2.10	0.00	0.00
C-CMB-05: Miscellaneous Small Commercial Combustion Equipment (Non-permitted)	27.0%	100.0%	100.0%	5.81	2.20	0.40	1.57	2.20	0.40	4.24	0.00	0.00
L-CMB-01: NOx RECLAIM	53.3%	100.0%	100.0%	0.60	0.97	0.31	0.32	0.97	0.31	0.28	0.00	0.00
L-CMB-02: Large Boilers and Process Heaters	75.0%	100.0%	100.0%	2.00	0.38	0.45	1.50	0.38	0.45	0.50	0.00	0.00
L-CMB-03: Large Internal Combustion Prime Engines	68.0%	100.0%	100.0%	0.97	0.16	0.05	0.66	0.16	0.05	0.31	0.00	0.00
L-CMB-04: Large Internal Combustion Emergency Standby Engines	54.5%	100.0%	100.0%	4.40	0.13	0.10	2.40	0.13	0.10	2.00	0.00	0.00
L-CMB-05: Large Turbines	71.4%	100.0%	100.0%	0.21	0.14	0.16	0.15	0.14	0.16	0.06	0.00	0.00
L-CMB-06: Electric Generating Facilities	67.9%	100.0%	100.0%	1.93	0.20	0.36	1.31	0.20	0.36	0.62	0.00	0.00
L-CMB-07: Petroleum Refining	79.8%	100.0%	100.0%	3.82	1.85	2.12	3.05	1.85	2.12	0.76	0.00	0.00
L-CMB-08: Landfills and POTWs	75.0%	100.0%	100.0%	1.32	0.22	0.37	0.99	0.22	0.37	0.33	0.00	0.00
L-CMB-09: Incineration	25.2%	100.0%	100.0%	1.19	0.04	0.05	0.30	0.04	0.05	0.89	0.00	0.00
L-CMB-10: Miscellaneous Combustion	20.0%	100.0%	100.0%	1.45	6.71	1.80	0.29	6.71	1.80	1.16	0.00	0.00

[4] Draft AQMP, Appendix V, Attachment 3, at p. 2 (Table 1).

As this chart shows, the Draft Plan proposes achieving 0.76 tpd reductions from Petroleum Refining out of the 3.82 tpd this sector will produce in 2037. As one of the largest portions of emissions within the Air District's control, pursuing 19.9% reductions from this sector makes no sense.

We would also like to see more ambition in L-CMB-02. This is another large source of emissions within the Air District's control. Yet, the Air District only proposes to achieve 0.5 tpd of NOx reductions by 2037. The control measure description in Appendix IV-A for this measure also needs to be updated to actually discuss zero-emission control strategies for boilers and process heaters. No zero-emission technologies are listed in the measure description starting on page IV-A-85. We fear that the plan is only looking at electric boilers as a zero-emission control strategy – even though absent from the measure description – and not other technologies like industrial heat pumps, which could be an even more cost effective way to reduce emissions as industrial facilities.

There are many other places where the control measure descriptions leaves out zero-emissions technologies, and the revised plan draft should fix that to make sure each control measures clearly anticipates inclusion of zero-emission strategies as part of the control strategy. We also provide these three reports for the large and commercial combustion sectors to provide support for the availability of zero-emission technologies across a range of the categories in the commercial and large industrial combustion as staff is developing the plan.

- Renewable Thermal Collaborative;
- FoodDrink Europe; and
- Schatz.

The next draft of the 2022 AQMP should include more ambitious emissions commitments, in addition to more clearly articulating zero-emission strategies as opposed to the large quantity of space allocated to incrementally cleaner combustion strategies.

Comment 76-9 Con't

VIII. Residential Combustion Sources Measures

We join the comments on AQMP proposed measures related to commercial and residential sources submitted by our colleagues at RMI, Sierra Club, Climate Action Campaign, CCEAJ, Active SGV, and other environmental and environmental justice organizations. We agree with our colleagues that the District must pursue regulation in this sector. Area sources from buildings represent a major source of NOx emissions in our region and has the potential of delivering significant reductions to help attain the 70 ppb 8-hour NAAQS—but only through deliberate and unequivocal commitments to zero-emissions solutions.

With the wide range of available zero-emissions technology currently available to address area sources from buildings, the District can and must do more to catalyze a swift transition away from combustion-based technology. Continuing to offer regulatory "off-ramps" like "near-zero" or "low-NOx" alternatives for compliance, will only dig the region deeper into the non-attainment hole it's currently in. We need aggressive steps toward a zero-emissions future and the appliances and equipment

Comment 76-10

used to control temperatures and cook in our buildings offer the best opportunity to reach that goal given the technology already available. We join our partners in calling for the District to do the following:

1. Make stronger commitments to the deployment of zero-NOx-emissions solutions in appliances and commercial equipment making implementation of Zero-NOx-emissions technologies for 100 percent of applicable sources the target for this regulatory approach;
2. Accelerate implementation dates for requiring zero-emissions solutions;
3. Resist offering stop-gap measures like near-zero-NOx and "low-NOx" combustion-based technology as a means for compliance;
4. Use incentives and subsidies strategically to prioritize the equitable conversion of residential and commercial properties in environmental justice communities;
5. Establish a stakeholder working group that can Direct the district on how to address complex equity issues, especially concerning the decarbonization of existing residential buildings that house under-resourced households and individuals;
6. Eliminate cost-effectiveness thresholds to the extent they are being contemplated to vet viable zero-emissions solutions; and
7. Use the District's resources to help foster a quicker transition to zero-emissions solutions, like heat pumps, that offer long-lasting benefits in the form of building community resilience to extreme weather events, and social benefits related to improvements in public health.

Comment 76-10 Con't

IX. Facility-Based Mobile Source Measures

The AQMP sets out a plan for four facility-based mobile source measures to play a role in mobile source 8-hour ozone attainment, including, Commercial Marine Ports, Railyards and Intermodal Facilities, Warehouse Distribution Centers, and Commercial Airports. None of these proposed measures are new. In fact, several of the proposed measures were referenced in past Air Plans for over a decade, with most appearing in the 2016 AQMP. For example, the 2016 AQMP slated several of these proposed measures for adoption in 2018 with implementation in 2019. We know today that these projections from the now six-year-old plan did not pan out. Of the measures on the list, the District only adopted the Warehouse Indirect Source Rule (ISR)—and that was three years behind schedule.

Perhaps most disconcerting is the fact the district continues to omit emissions reduction targets expected from the measures' implementation—except for the Warehouse ISR rule. For each of the rest of the future Facility-Based Mobile Source Measures, projections for future emissions reductions are marked "TBD"—with no commitment to the level of emissions reduction the public can expect from these rules. Without setting emissions reduction targets, the District is functionally committing to nothing particular.

Comment 76-11

Unfortunately, the 2022 AQMP is replete with these types of omissions. For example, the Control Measure Summary produced for MOB-01: Emissions Reductions at Commercial Marine Ports

lists significant annual average emissions for years 2018, 2031, 2032, and 2037 ranging from 29.7 tpd to 36.99 tbd of NOx. Yet NOx emissions reduction expected from the rule are marked "TBD" across each of the attainment years listed— leaving one to guess what precisely the measure will accomplish. Similarly, the Control Measure Summary for MOB-02A: Emissions Reductions at New Rail Yards and Intermodal Facilities leaves NOx inventory and reduction forecast as "TBD" across all categories for each of the years —raising doubts about the effectiveness of the draft AQMP as a planning document and the likely impact that this measure will have on emissions levels. The following chart from Appendix IV-A exhibits this lack of ambition.

MOB-02A: EMISSION REDUCTIONS AT NEW RAIL YARDS AND INTERMODAL FACILITIES [NOx, PM]

CONTROL MEASURE SUMMARY				
SOURCE CATEGORY:	NEW RAIL YARDS AND INTERMODAL FACILITIES			
CONTROL METHODS:	DEPLOYMENT OF CLEANER TECHNOLOGIES			
EMISSIONS (TONS/DAY):				
ANNUAL AVERAGE	2018	2031	2032	2037
NOx INVENTORY	TBD	TBD	TBD	TBD
NOx REDUCTION	TBD	TBD	TBD	TBD
NOx REMAINING	TBD	TBD	TBD	TBD
SUMMER PLANNING	2018	2031	2032	2037
NOx INVENTORY	TBD	TBD	TBD	TBD
NOx REDUCTION	TBD	TBD	TBD	TBD
NOx REMAINING	TBD	TBD	TBD	TBD
CONTROL COST:	TO BE DETERMINED			
IMPLEMENTING AGENCY:	SOUTH COAST AQMD			

These significant shortfalls from two of the greatest sources of emissions for the region (ports and railyards) highlight the need for the District to expedite the finalization and adoption of these indirect source rules. But, a critical first measure is to make actual emission reduction commitments in the 2022 AQMP to set the direction that 1) the agency will finally follow through on its promises to adopt these regulations and 2) set a guide post for regulatory development on how much emissions reductions are needed to help attain ozone standards.

Comment 76-11 Con't

X. Conclusion

We appreciate your consideration of these comments. Please do not hesitate to contact us if you have any questions.

Sincerely,

Adrian Martinez
Fernando Gaytan

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Response to Comment 76-1: Thank you for your feedback. The 2022 AQMP is focused on attaining the 2015 8-hour ozone standard with a statutory attainment year of 2037. South Coast AQMD is committed to an aggressive control strategy that achieves a 67 percent reduction in NOx emissions by 2037. While the AQMP incorporates control measures that will achieve considerable near-term emission reductions, the control strategy was developed to ensure implementation by 2037, as required under the Clean Air

Act. The attainment demonstration in Chapter 5 proves that the control strategy will lead to meeting the standard by the required deadline.

Earthjustice correctly notes that design values increased compared to those in the 2016 AQMP. However, this increase was due to adverse meteorology experienced during the 2015-2019 base design value period rather than an indication that previous efforts to reduce emissions have been ineffective. Unfortunately, it is now clear that the Basin will not attain the 1997 8-hour ozone standard by the attainment deadline, June 15, 2024. However, the main reason why previous AQMPs have "missed the mark" is due to other agencies, primarily U.S. EPA, failing to take aggressive action to control substantial emission sources like trucks, aircraft, and ships. While federal efforts to regulate these sources have been at a virtual standstill for the past 20 years, the South Coast AQMD has reduced emissions under the South Coast AQMD's direct regulatory control by 60 percent. That substantial emission reduction has been swamped by the emissions from federal sources, which continuously increase. The result of this is that the Basin has not achieved the level of NOx emissions necessary to meet the standard.

Response to Comment 76-2: Staff appreciates your recognition of the immense challenges in shifting to zero emission technologies and the importance of this AQMP. The Draft 2022 AQMP is a zero emission plan where the strategy pivots to zero emission technologies where feasible. South Coast AQMD's proposed control measures would reduce NOx from stationary sources an additional 40-70 percent beyond already aggressive regulations.

While South Coast AQMD recognizes the critical role of zero emission technologies and the South Coast AQMD will push to establish the lowest emissions standard with the goal of zero emissions standard. Evaluation of feasibility has to include technical considerations, such as applications for which zero emission technologies do not yet exist (e.g., applications that require high temperature combustion), as well as practical considerations (e.g., the substantial costs of converting buildings to zero emission technologies that would be borne by residents). Any standard must be available when the standard is implemented. South Coast AQMD's proposed control measures strive to strike the balance between pushing aggressive adoption of zero emission technologies and technical and practical considerations. Please note that even if South Coast AQMD were to mandate zero emission technologies across all sectors within the South Coast AQMD's authority it would not be close to achieving the emission reductions needed to attain the 2015 ozone standard.

Staff also believes that low NOx technologies must also play a role to maximize emission reductions in the near-term. It is not appropriate to wait until zero emission technologies are mature and commercially available to take action to reduce emissions when viable technologies that result in cleaner air are available today.

Response to Comment 76-3: Please refer to the general response to Black Box Measures. Use of black box reductions is not a matter of simply wanting more time to develop control measures. We will need widespread deployment of advanced technologies to attain the standard, and that some of these technologies – e.g., low NOx aircraft – are not yet close to being available. It also recognizes that the bulk of the emissions that need to be reduced are simply beyond the South Coast AQMD's authority. South Coast AQMD is unable to require U.S. EPA to take action to reduce emissions from sources under their control. However, CARB's 2022 State SIP Strategy contains specific strategies to achieve the black box reductions associated with federal sources, and U.S. EPA may voluntarily undertake control measures as needed to help attain the NAAQS.

Response to Comment 76-4: The commenter characterizes the emission reductions that the South Coast AQMD expects to achieve through control measures as "paltry." However, South Coast AQMD measures will achieve a 40-70 percent reduction in NOx emissions in stationary sources, above and beyond emissions reduction achieved by the already-stringent regulations in place.

South Coast AQMD is just concluding a major effort to establish updated BARCT standards for the majority of industrial combustion equipment. Over the past several years, 15 rules have been adopted or amended requiring equipment replacement for several thousand large combustion sources to transition from RECLAIM to a command-and-control regulatory structure and to expedite BARCT standard for facilities subject to Greenhouse Cap-and-Trade Program. This effort has resulted in more than 13 tons per day of NOx emission reductions. The implementation date for most of the equipment is January 1, 2024. Replacing the equipment before the effective life of the equipment would result in stranded assets making the evaluation of cost-effectiveness that is required when updating BARCT standards more challenging. Staff will continue to evaluate emerging technology and will require updates to BARCT standards that are technically feasible and cost-effective.

Staff further reiterates that the bulk of NOx emissions required for attainment of the 2015 ozone standard is from sources subject to federal control. The stationary sources subject to South Coast AQMD authority will comprise only about 20 percent of the baseline emissions in 2037. With the 40-70 percent emission reduction expected from the stationary source control measures, they will comprise approximately 30 percent of the carrying capacity in 2037. The South Coast AQMD will be able to attain the standard if the other sources achieve a similar magnitude of emission reductions.

Response to Comment 76-5: South Coast AQMD recognizes that Table 1-2 demonstrates that several control measures in the 2016 AQMP have yet to be adopted. However, Table 1-2 also demonstrates the challenge of prospectively estimating emission reductions for control measures that have yet to be developed into proposed rules. Ultimately, a thorough rulemaking process must be undertaken to develop the specific control strategies upon which emission reductions are based. While an AQMP is a blueprint to improve air quality and serves to guide rulemaking, multiple obstacles unforeseen when developing an AQMP invariably arise during the implementation of control measures, leading to delayed implementation. At the same time, sources addressed in previous AQMPs are included in subsequent AQMPs since newer technologies with lower emission rates become available and further emission reductions become feasible.

Response to Comment 76-6: Staff disagrees that consideration of cost-effectiveness is arbitrary. See Responses to Comments 70-7 and 71-4.

Response to Comment 76-7: The 2022 AQMP is not a mandate or prescription for zero emission technologies. Instead, in recognition of the magnitude of emission reductions needed to attain the standard, it seeks to require zero emission *where feasible*, low NOx technologies where not. It is a technology and fuel neutral plan, and recognizes that combustion technologies are still needed in some cases, and in others the zero emission technology is not yet commercially available at scale.

Staff disagree with the characterization of the Priority Reserve in Rule 1309.1 as a "subsidy for combustion." The Priority Reserve instead allows qualifying facilities, such as essential public services, access to a pool of emission reduction credits to offset emission increases provided that the operator meets other Regulation XIII requirement such as modeling and BACT requirements. The source of the

credits is from South Coast AQMD's internal NSR offset accounts and Rule 1309.1 prescribes how credits are periodically transferred from the South Coast AQMD's internal NSR accounts. This rule ensures that critical services can be built and operated, including installation of emissions controls. While zero and low NOx emission technologies may be required for some equipment at qualifying facilities, Rule 1309.1 will be available if emission reduction credits are needed for relocations or equipment modernization in instances where offsets from emission decreases are insufficient or unavailable.

The incentive programs the South Coast AQMD administers fund commercially available zero emission technologies and incentive amounts are significantly higher for zero emission technologies. Unfortunately, the commercial availability of these technologies is still very limited, for those available the costs are still very high, and there is very limited infrastructure. As zero emission technologies become more widely available with increased infrastructure and declining costs, the incentive programs will transition to funding strictly zero emission technologies for sectors that make sense. In sectors like construction and agriculture equipment, staff is working with large manufacturers to develop zero emission technologies that hopefully become commercialized. In the meantime, the South Coast AQMD needs to deploy all technologies that provide emission reductions to reduce emissions of NOx and diesel PM, which is a carcinogen, while zero emission vehicle technologies become commercially available.

Response to Comment 76-8: Staff appreciates your recognition that other agencies must do more to achieve the federal air quality standards and clean air. The 2022 AQMP calls for an aggressive transition to zero emission across all sectors with limited penetration of low NOx technologies where zero emission is not feasible. This is the first AQMP that calls for an economy-wide transition to zero emission with cleaner fuels and infrastructure to support it.

Response to Comment 76-9: See Response to Comments 76-4 with respect to large combustion equipment. Recently adopted rules from transitioning RECLAIM to a command-and-control regulatory structure has resulted in 13 tons per day of NOx reductions. When combined with emission reductions proposed in the AQMP, the emission reduction percentage for large combustion is 64.7 percent which closely aligns with Commercial Combustion and Residential Combustion. Emission reductions from Petroleum Refining should be viewed in context of recently amended Rule 1109.1 which reduced NOx emissions by 67 percent (7.7 to 7.9 tons per day). L-CMB-02 relies on electrification as zero emission technology. Industrial heat pumps or other emerging technologies may be commercially available for large boilers and process heaters in the future but was not incorporated in the control measure due to lack of available information. When rule development commences, the commercial status of equipment will be reevaluated.

Response to Comment 76-10: The AQMP is committed to a rapid transition to zero emission technologies across all sectors where feasible. The South Coast AQMD recognizes there is still much work to be done for communities that are disproportionately impacted by pollution and are more vulnerable to the health effects of pollution. The future incentive programs should prioritize the equitable conversion of residential and commercial properties in environmental justice communities. Please see Responses to Comments 70-1 through 70-8 (Comment Letter #70) for the discussion on the listed items included in this comment.

Response to Comment 76-11: South Coast AQMD has limited regulatory authority over mobiles sources, however, facility-based mobile source measures (FBMSMs) demonstrate South Coast AQMD's commitment to pursue further reductions from those facilities by leveraging its Indirect Source Rule authority. Those rules are currently in development, and given some of the unique challenges in

developing and implementing those rules, staff cannot estimate quantified SIP-creditable emission reductions that would result from those rules at this time. While the reductions are not quantified, these measures target above and beyond the control measures applying to specific categories such as HD trucks, Commercial Harbor Craft, and locomotive measures included in the proposed 2022 State Strategy for State Implementation Plan.

Comment Letter #77

JOHN WAYNE AIRPORT
ORANGE COUNTY

July 22, 2022

Sang-Mi Lee, Planning and Rules Manager
South Coast Air Quality Management District (AQMD)
21865 Copley Drive
Diamond Bar, CA 91765-4178

Re: The Draft 2022 Air Quality Management Plan (Draft 2022 AQMP)

Dear Dr. Lee,

John Wayne Airport, Orange County ("SNA", "JWA", or "Airport") submits this comment letter on the Draft 2022 Air Quality Management Plan (Draft 2022 AQMP) to request that the 2022 AQMP be revised to include a set-aside emissions budget for general conformity purposes, a practice established in prior AQMPs (2012 and 2016). As stated in the Draft 2022 AQMP (Appendix IV-A), the set-aside budget is a useful tool to "streamline a conformity evaluation process" because it builds an available balance for emissions of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) within the State Implementation Plan (SIP) that can be used by projects exceeding the *de minimis* thresholds applicable within the general conformity evaluation process. This approach has been used effectively by AQMD to facilitate the general conformity process. For JWA, the ability to demonstrate general conformity can be a critical component to the continued operation of the airport, which supports the economic health of the region.

The set-aside budget is the most efficient and reliable way to ensure projects that need federal approval can demonstrate general conformity. Currently, projects that seek general conformity are already required to assess air pollutant emissions with AQMD and must also employ all feasible mitigation measures as enforced by AQMD. This analysis process and coordination with AQMD aligns with the efforts of the Draft 2022 AQMP to reach attainment. As with established precedent from the 2012 and 2016 AQMPs, the use of the set-aside budget can be a part of this process, and its use does not need to preclude additional rules and mechanisms for offsetting and mitigating emissions from being implemented by AQMD.

Comment 77-1

The Draft 2022 AQMP (see Appendix IV-A) states that "all projects that receive a positive conformity determination may be required to undergo a process to demonstrate that the emissions are accounted for in the SIP, therefore the project conforms to the latest approved SIP." The process of identifying *if* project-related emissions are in the SIP requires detailed review of the SIP emissions for comparison to project emissions. However, it is common that models and methodologies applied in the SIP become outdated as new model versions are released and activity forecasts are updated. Endeavoring to realign the SIP's and project's emissions for purposes of permitting an apples-to-apples comparison, after consideration of post-SIP-adoption model and forecast changes, often requires comprehensive agency coordination. Further, the format of the SIP emissions forecasts does not always permit a plain conclusion regarding whether project-related emissions as "accounted for." The set aside budget approach and tool helps manage these changes over time and complexities by providing a general conformity

Melinda McCoy, PG
Environmental Resources Manager

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pathway for those scenarios where the SIP's emissions forecasts cannot be plainly reconciled with a project-related emissions estimate.

As alternatives to the set-aside budget, the Draft 2022 AQMP suggests that two other mechanisms may be established to address emission increases from projects exceeding the general conformity *de minimis* thresholds: (1) a Voluntary Emission Reduction Agreement (VERA) and (2) Emission Reduction Credits (ERCs). Both mechanisms rely on a mitigation fee type of concept and, therefore, would require the expenditure of funds, which may not be readily available for all projects. Furthermore, given the current uncertainty on what these costs may be, it would be prudent for AQMD to maintain an effective tool for potential use in the future that does *not* create the potential for significant economic hurdles. As elimination of the set-aside budget will likely hinder the economic growth of businesses and agencies in the South Coast Air Basin, AQMD should maintain multiple tools to address general conformity in order to ensure that key projects important to the economic health of the region can still occur.

Comment 77-1 Con't

Importantly, the set-aside budget provides a clear and quantifiable means of achieving general conformity in the applicable year. Emission offsets are often difficult to quantify as they are not controlled by the project planners, and the timeline of implementation can skew results. For example, if there is a *de minimis* exceedance in 2023, offsets can be sought by replacing high emitting diesel buses, purchasing electric off-road equipment, or providing rebates to residents to acquire zero emission vehicles (examples from Draft 2022 AQMP, Appendix IV-A, page IV-A-198). However, each of these examples has uncertain timelines that may be difficult to align with the year affected. Further, there are many potential variables that make temporally accurate and specific reductions difficult to achieve.

Ultimately, JWA believes the region is best served by providing as many tools as possible to address general conformity. This would include the continued availability of set-aside budgets in addition to other proposals by AQMD. An inclusive approach supports both the region's economic health and growth, *and* efforts to reduce emissions. Thank you for your consideration of these comments.

Sincerely,

Melinda McCoy, PG
Environmental Resources Manager

cc: Rick Francis, Assistant Airport Director (John Wayne Airport)

Response to Comment 77-1: South Coast AQMD acknowledges John Wayne Airport's comments regarding EGM-02 Emission Reductions from Projects Subject to General Conformity Requirements. Due to the magnitude of emission reductions needed to achieve attainment of the 2015 8-hour ozone standard, no single source can be left uncontrolled and South Coast AQMD is under pressure to eliminate the general conformity set-aside approach. While John Wayne Airport's concerns with EGM-02 are noted, it must be recognized that other air districts, including San Joaquin Valley APCD and Sacramento Metro AQMD, already have similar measures that require offsetting emission increases that exceed de minimis thresholds. These measures serve as proof of concept which demonstrate the feasibility of eliminating the set-aside account. Ultimately, South Coast AQMD will solicit public participation and feedback during a process to develop a proposed rule concerning EGM-02.

Comment Letter #78

SheppardMullin

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File Number: 0MGG-278850

July 22, 2022

VIA ELECTRONIC MAIL

South Coast Air Quality Management District
Governing Board
21865 Copley Drive
Diamond Bar, CA 91765
E-Mail: AQMPteam@aqmd.gov

Re: Requested Revisions to Draft 2022 Air Quality Management Plan and Appendix III: Base & Future Year Emissions Inventory

Dear Chairman Benoit and Board Members:

We represent an all-cargo carrier (Carrier) who will be operating at the proposed South Airport Cargo Center Project (SACC Project) at the Ontario International Airport (ONT), should the SACC Project be approved by the Ontario International Airport Authority (OIAA) and receive all other necessary entitlements. We are submitting this comment letter on the Draft 2022 Air Quality Management Plan (AQMP) to support the revisions to the Appendix III-Base & Future Year Emissions Inventory (Emissions Inventory) requested by OIAA. OIAA's comment letter regarding requested revisions to the 2022 AQMP and Emissions Inventory, dated July 5, 2022, is attached to this letter as Attachment A. We also understand that OIAA plans to submit a second letter before the July 22, 2022 deadline regarding the set-aside account for general conformity purposes in the 2022 AQMP, which we also support.

Comment 78-1

It is critical that the OIAA's requested revisions be incorporated into a revised Emissions Inventory for the Draft 2022 AQMP. As expressed by the OIAA, the current inputs are not indicative of the current or future operations at ONT. Specifically, updates to the fleet mix and taxi times are necessary in order to accurately reflect ONT's current and future operations. The Draft 2022 AQMP and Emissions Inventory is based on outdated activity levels captured during the COVID-19 pandemic, and this substantially underestimates ONT's current and future emissions.

Given the updates needed to ONT's fleet mix and taxi times, the current operation projection in the Draft 2022 AQMP and Emissions Inventory is clearly incorrect and does not accurately reflect the current or future operations at ONT. The Emissions Inventory's operation projection and taxi times should be updated to ensure the 2022 AQMP and Appendix III reasonably represent ONT. Making these updates will achieve a more accurate projection of current and future emissions used in the 2022 AQMP, which will allow SCAQMD, the Environmental Protection Agency, and the Federal Aviation Administration to properly evaluate and assess

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project planning at ONT as well as lead to a more accurate attainment demonstration across the South Coast Air Basin.

Furthermore, we echo OIAA's concerns that the elimination of the set-aside account will likely hinder economic growth for businesses and agencies. We respectfully request that SCAQMD not eliminate the set-aside account and instead maintain multiple general conformity demonstration pathways for the environmental and economic well-being of the region. The set-aside account is an efficient and effective way to ensure projects that need federal approval can demonstrate general conformity, allowing SCAQMD to balance the ability for regionally-important projects to proceed while addressing air quality concerns. We also share OIAA's concerns that possible alternatives to the set-aside tool will require additional rule making and vetting by SCAQMD, stakeholders, and the public following adoption of the 2022 AQMP, which will create a "limbo" period during which projects will face limited opportunities for demonstrating general conformity. Instead, the general conformity approach for projects should continue to be pursued in conjunction with other programs under consideration.

Comment 78-1 Con't

Thank you for the opportunity to submit this comment letter. We look forward to working with SCAQMD staff to address our comments and requests.

Very truly yours,

Alfred Fraijo Jr.
for SHEPPARD, MULLIN, RICHTER & HAMPTON LLP

SMRH:4875-1022-9284.7

Attachment A: OIAA Comment Letter re 2022 AQMP

Attachment A

Comment 78-1 Con't

ONTARIO INTERNATIONAL AIRPORT
So Cal. So Easy.

Ontario International Airport Administration Offices

1923 E. Avion Street, Ontario, CA 91761

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JULIA GOUW Commissioner
ATIF J. ELKADI Chief Executive Officer
LORI D. BALLANCE General Counsel
JOHN M. SCHUBERT Treasurer

July 5, 2022

Dr. Sang-Mi Lee, Planning and Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

Dear Dr. Lee:

The Ontario International Airport Authority (OIAA) has submitted this comment letter on the Draft 2022 Air Quality Management Plan (Draft 2022 AQMP) to request that the 2022 AQMP be updated to accurately reflect the Ontario Airport (ONT) emissions inventory. Through the recent review of projected fleet mixes and operational levels, it was determined that some inputs included in the Draft 2022 AQMP are not indicative of the current or future operations at ONT (notably the forecasted aircraft activity and taxi time assumptions). Notably, the current assumptions underrepresent the emissions at ONT. We appreciate the effort that the South Coast Air Quality Management District (AQMD) has made to date, and the ongoing effort to address this issue.

The OIAA provides overall direction for the ownership, management, operations, development and marketing of ONT for the benefit of the Southern California economy and the residents of the airport's four-county catchment area (San Bernardino, Riverside, Orange, Los Angeles). ONT is located in San Bernardino County, approximately 35 miles east of Downtown Los Angeles in the center of Southern California and is considered part of the Inland Empire. Facilities on the Airport include two passenger terminals, general aviation facilities, air freight buildings, parking lots, and numerous airport and aircraft maintenance and support services.

OIAA has made and is continuing to make efforts to reduce emissions at the airport. In 2019, OIAA agreed to a Memorandum of Understanding to address air emissions from ground support equipment. Currently, OIAA is in the process of developing a Blueprint for integrating Medium and Heavy Duty (MHD) Zero Emission Vehicle (ZEV) infrastructure throughout the airport over the coming decade. The goal is to develop an actionable roadmap towards 100% MHD ZEV infrastructure equipment at ONT, which will significantly improve local air quality, promote job growth, and bolster the economy of this disadvantaged community (DAC). The Blueprint will serve as a replicable model that can be deployed at all major transportation hubs throughout California, including other airports, seaports, and urban centers.

Comment 78-1 Con't

OIAA began a review in late 2021 due to the ongoing COVID recovery trends and anticipated projects at ONT. These projects will provide emission reductions basin wide by providing additional transportation pathways to the inland empire. ONT airport's ability to address the current and growing demand will help minimize truck and vehicle traffic going from the inland empire to other airports in the basin. In the process of this review, OIAA discovered that data previously provided to AQMD was inaccurate and grossly outdated. These inaccurate assumptions lead to a severe underrepresented emissions inventory for ONT, and would impede OIAA from obtaining approvals from the Federal Aviation Administration (FAA) for even the most basic improvements to ensure the continued operation of ONT. In order to align the 2022 AQMP with the existing and anticipated future operations of ONT, OIAA is requesting an update to the Draft 2022 AQMP for the fleet mix and taxi time assumptions for ONT.

Comment 78-1 Con't

OIAA looks forward to working with AQMD to resolve this issue that currently exists in the Draft 2022 AQMP. We believe that the accurate reflection of ONT emissions inventory is important to allow AQMD to properly address the air quality issues in the South Coast Air Basin, and to ensure that ONT can continue to operate to provide important services for the benefit of the region.

Sincerely,

Michelle Brantley
Chief Capital Development Officer
Ontario International Airport

Response to Comment 78-1: See response to 61-1.

Comment Letter #79

Ontario International Airport Administration Offices

1923 E. Avion Street, Ontario, CA 91761

ALAN D. WAPNER President
RONALD O. LOVERIDGE Vice President
JIM W. BOWMAN Secretary
CURT HAGMAN Commissioner
JULIA GOUW Commissioner
ATIF J. ELKADI Chief Executive Officer
LORI D. BALLANCE General Counsel
JOHN M. SCHUBERT Treasurer

July 22, 2022

Dr. Sang-Mi Lee, Planning and Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

Dear Dr. Lee:

The Ontario International Airport Authority (OIAA) is submitting this comment letter on the Draft 2022 Air Quality Management Plan (Draft 2022 AQMP) to request that the draft planning document be revised to include a set-aside account for general conformity purposes.[1] As the owner and operator of Ontario Airport (ONT), and like many other entities subject to federal oversight, our ability to demonstrate general conformity for airport development and operations is an important component to the successful, continued operation of the airport. Therefore, as a matter of overarching policy, we respectfully request that the South Coast Air Quality Management District (AQMD) not eliminate "tools from the toolbox" and instead maintain multiple general conformity demonstration pathways for the environmental, economic and social health of the region.

Comment 79-1

As background, the use of a set-aside account for general conformity purposes in the South Coast Air Basin was included in prior AQMPs (2012 and 2016). As stated in the Draft 2022 AQMP (Appendix IV-A, page IV-A-198), the set-aside account has been used effectively to "streamline" the general conformity evaluation process by building an available balance for emissions of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) within the State Implementation Plan (SIP). Despite the successful use of the set-aside account over the last decade, and the absence of persuasive evidence showing

[1] This is OIAA's second comment letter on the Draft 2022 AQMP. Our first comment letter is dated July 5, 2022 and primarily addresses issues in the operational assumptions for Ontario Airport used to generate the aviation emissions inventories upon which the Draft 2022 AQMP is based.

that continued use of a set-aside account would derail the AQMD's ability to attain relevant air quality standards, the Draft 2022 AQMP includes Control Measure EGM-02, which would eliminate the use of the set-aside account and replace it with a not-yet-determined general conformity compliance pathway.[2] (Draft 2022 AQMP, Appendix IV-A, page IV-A-199.)

We acknowledge that the Draft 2022 AQMP provides the following justification for elimination of the set-aside account: "Considering the rigorous emission reductions required for attainment of the 2015 8-hour ozone standard, no new emissions can be accommodated without appropriate mitigation or offset of the increased emissions." (Draft 2022 AQMP, Appendix IV-A, page IV-A-199.) OIAA does not dispute the significance of the air quality challenges facing the South Coast Air Basin relative to achieving a successful ozone attainment demonstration. However, the referenced justification appears to be an over-simplification of the emissions balance sheet and the issue at hand. OIAA is not asking for a "free pass" for ONT-related emissions; rather, it is OIAA's expectation that such emissions would be studied and mitigated to the extent feasible through various environmental review processes, such as CEQA and NEPA. Of additional concern is that the justification offered in the Draft 2022 AQMP is hinting at an overly stringent policy, whereby any one project requiring a general conformity determination to proceed would be required to fully offset its applicable emissions. This type of standard has serious economic and social effects that are not considered or disclosed in the Draft 2022 AQMP.

Comment 79-1 Con't

It is our belief that the set-aside account is an efficient and effective way to ensure projects that need federal approval can demonstrate general conformity. This tool allows AQMD to balance the ability for important projects that often are critical to the sustained economic success of southern California to proceed while also addressing air quality concerns. Currently, projects subject to the general conformity regulations are already required to assess air pollutant emissions and if a project requires the use of the set-aside account to demonstrate conformity, it offers AQMD an avenue to more rigorously explore and require implementation of all feasible mitigation measures. This process and coordination with AQMD aligns with the efforts of the Draft 2022 AQMP to reach attainment. Importantly, the use of the set-aside account does not preclude AQMD from developing additional rules and mechanisms for offsetting and mitigating emissions. Rather, the set-aside account should be considered just one of the available mechanisms for meeting general conformity.

As possible alternatives to the set-aside account, the Draft 2022 AQMP identifies two other mechanisms: (i) a program for the negotiation and execution of project-specific Voluntary Emission Reduction Agreements (VERAs), similar to the approach used by the San Joaquin Valley Air Pollution Control District; and (ii) a program for the use of Emission Reduction Credits (ERCs), similar to the approach set forth in Sacramento Metro AQMD's Rule 205 – Community Bank and Priority Reserve. We first note that both of these general conformity mechanisms would require the expenditure of funds, which may not be readily available for all projects. Expending additional funds can be challenging for businesses and agencies that may not have the ability to manage these additional costs. Furthermore, given the current uncertainty surrounding what these costs may be, it would be prudent for AQMD to maintain a feasible, established and effective tool (i.e., the set-aside account) for potential use in the future while simultaneously exploring additional mitigation fee-based approaches. Another concern we have relative to VERA and ERC programs is that the development and launch of such general conformity determination tools will take time. That is, both programs will require additional rulemaking, public process and vetting by AQMD and its stakeholders following adoption of the Draft 2022 AQMP. (See Draft 2022 AQMP, page 4-23 [EGM-02 "seeks to undertake a rulemaking process"].) The time needed to develop supported and

[2] Notably, the Draft 2022 AQMP does reference the use of "Set-Aside Accounts" in 2037 for VOCs and NO_X. (See, e.g., Draft 2022, pages 4-70 and 5-11.) It is not clear as to how the referenced accounts reconcile with the verbiage of Control Measure EGM-02.

viable programs may create a "limbo" period, during which projects will face limited opportunities for demonstrating general conformity.

Additionally, the set-aside account establishes a clear and quantifiable means of achieving general conformity in the applicable year. Emission offsets can be difficult to quantify as they are not associated with the project and its timeline of implementation, which can skew the results. For example, if one wants to offset a *de minimis* exceedance in 2023 by replacing high emitting diesel buses, purchasing electric off-road equipment, or rebates to residents who acquire zero emission vehicles (examples from Draft 2022 AQMP, Appendix IV-A, page IV-A-198) all have unclear timelines that may be difficult to line up with the year of concern. The length of time it takes to acquire new buses, construct infrastructure for electric off-road equipment, and identify the abilities and interest of residents to acquire electric vehicles are all potential variables that make temporally accurate reductions difficult.

Comment 79-1 Con't

In closing, the elimination of the set-aside account will likely hinder the economic growth for businesses and agencies. The inclusion of a set-aside also provides a more straightforward, quantifiable, and temporally accurate mechanism to demonstrate conformity. Further, as stated above, the inclusion of a set-aside account in the Draft 2022 AQMP can be pursued in conjunction with programs that allow for VERAs and ERCs. The general conformity approach for each project also could continue to be determined in coordination with AQMD, and depend on the project size, type, and feasibility of addressing air emissions through an offset-type process. Ultimately, we believe AQMD and the region as a whole is best served by providing as many tools as possible to address general conformity. This would include the continued availability of the set-aside account, in addition to the other proposals identified by AQMD in the Draft 2022 AQMP. This approach both supports economic growth and efforts to reduce emissions.

OIAA looks forward to working with AQMD to pursue further improvements to air quality in the South Coast Air Basin, while also ensuring that ONT and others can continue to operate to provide important services for the benefit of the region.

Sincerely,

Michelle Brantley
Chief Capital Development Officer
Ontario International Airport

Response to Comment 79-1: Thank you for your attention and participation in the 2022 AQMP. Please refer to Response to Comment 77-1 for the comment.

Comment Letter #80

Los Angeles County Business Federation
Strengthening the Voice of Business Since 2008

July 22, 2022

Mr. Ian MacMillan
Assistant Deputy Executive Officer
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: BizFed Comments on Appendices to the SCAQMD Draft 2022 Air Quality Management Plan

Dear Mr. MacMillan:

We are contacting you on behalf of BizFed, the Los Angeles County Business Federation. We are an alliance of over 200 business organizations who represent over 400,000 employers in Los Angeles County, including large and small businesses from a wide range of industries throughout the South Coast Air Basin (SCAB). We are writing to comment on the appendices to the South Coast Air Quality Management District (SCAQMD or District) Draft 2022 Air Quality Management Plan (AQMP or Plan). Many of the businesses we represent have or will be writing their own individual comment letters that specifically address the impacts to their industries. Our comments address the impacts to the business community as a whole and include overarching concerns of our diverse membership.

We would like to thank the District for its tireless work improving air quality in the SCAB. Like you, we desire to see continued emissions reduction while maintaining the region's economic vitality. We appreciate the staff and Board's diligence in bringing diverse groups to the table to map out the most effective AQMP as possible.

The 2022 AQMP is a regional blueprint for achieving the 2015 national ambient air quality standards (NAAQS) for ground level ozone of 70 parts per billion (ppb).[1] The District faces unique challenges in achieving the 2015 NAAQS for ground level ozone, including unique topography and meteorology, as well as sources of significant ozone pollution for which the District has limited control authority, such as mobile source emissions. Additionally, climate change is playing a significant role in ozone production. Higher temperatures produce more biogenic and evaporative VOC emissions and result in greater risk of wildfire emissions that contribute to ozone formation. Additionally, climate change is resulting in higher temperatures in spring and fall, resulting in longer ozone formation seasons. The 2022 AQMP projected emissions must consider the increased ozone resulting from climate change.

Comment 80-1

On June 1, 2022, the District released the remaining draft appendices to the Draft 2022 AQMP, with a comment period extended to July 22, 2022. BizFed offers the following comments on the appendices to the Draft 2022 AQMP.[2]

[1] 2015 Revision to 2008 Ozone NAAQS. Available at: https://www.federalregister.gov/documents/2015/10/26/2015-26594/national-ambient-air-quality-standards-for-ozone.
[2] SCAQMD Draft 2022 AQMP. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/draft2022aqmp.pdf?sfvrsn=12

Los Angeles County Business Federation / 6055 E. Washington Blvd. #1005, Commerce, California 90040 / T: 323.889.4348 / www.bizfed.org

1. **SCAQMD should maintain consistency with the 2016 AQMP and prior plans and provide technology and fuel neutral performance-based control measures to achieve the federal ozone targets.**

Historically, the SCAQMD has remained neutral on technology and fuel in their rulemakings. The SCAQMD 2016 AQMP noted[3]:

Air quality regulatory agencies have traditionally set policies and requirements that are performance-based, and thus technology- and fuel-neutral. This is a policy that the SCAQMD intends to continue.

SCAQMD's white paper "A Business Case for Clean Air Strategies" laid out principal planning concepts to guide the development of the 2016 AQMP, including maintaining a technology neutral approach.[4] The white paper notes:

Acknowledging that different fuel technologies may be more suitable for different types of business operations, the 2016 AQMP will maintain a technology-neutral approach in the design of control measures and related programs to the extent practicable. A technology-neutral approach, where practicable, will allow businesses to select and diversify their energy sources, thus allowing compliance flexibility to buffer the effect of energy price fluctuations. Diversity in fuel choices can spur innovation and trigger cost reductions as more technology developers compete. Moreover, given that businesses located in the Basin often compete with out-of-state firms not subject to the same regulations, the SCAQMD will advocate for national performance standards to level the playing field.

Comment 80-2

However, the 2022 AQMP Policy Brief on Infrastructure and Energy Outlook states[5]:

The 2022 AQMP relies on a significant transition to zero emissions (ZE) technologies across many sectors. Traditional technologies are not capable of delivering the 71 percent NOx emission reduction above and beyond current measures on the books needed to attain the 2015 8-hour standard by the 2037 deadline. ***The only pathway to attainment requires widespread deployment of ZE technologies at scale.*** [Emphasis added]

BizFed believes it is important for SCAQMD to continue its policy and remain neutral on the technologies and fuels to meet the goals of the 2022 AQMP. A dramatic shift in policies between the two Plans would undercut the previous efforts established to reduce emissions from key sectors and would limit the flexibility of industries to find strategies for emission reductions at the lowest costs. Promoting competition amongst producers of technologies results in the next generation of products with lower emissions at a reasonable cost. BizFed strongly recommends that the 2022 AQMP include a technology and fuel neutral policy, consistent with prior AQMPs.

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[3] SCAQMD 2016 AQMP. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15.

[4] SCAQMD Final Business Case for Clean Air Strategies, October 2015. Available at: http://www.aqmd.gov/docs/default-source/Agendas/aqmp/white-paper-working-groups/wp-bizcase-final.pdf.

[5] SCAQMD Policy Brief, Infrastructure – Energy Outlook. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/combined-infrastructure---energy-outlook.pdf?sfvrsn=8.

2. **SCAQMD must encourage greater coordination between fleets, facilities, and utilities to anticipate and assess the impacts of growing electricity load. SCAQMD must also consider whether the California electric grid will have the capacity and infrastructure that would be needed to support widespread electrification mandates for equipment as proposed in the 2022 AQMP. Without this, many of the control measures outlined AQMP Appendix IV could fail to deliver the needed NO_X emissions reductions on the necessary timetables.**

Comment 80-3

SCAQMD has stated that the only pathway to attainment requires widespread deployment of ZE technologies and has focused many of the proposed control measurements on deployment of such technologies.[6] In order to ensure that widespread electrification is a viable pathway, SCAQMD and CARB must consider whether the electric grid will have the capacity, transmission, and distribution infrastructure to support the numerous proposed control measures which would depend on ready and abundant access to electricity.

As utilities continue to assess their systems and ZEV infrastructure planning needs in the region, these infrastructure assessment and planning activities will be aided by more and better data related to future load growth. But today, California energy officials have estimated a potential gap between energy demand and supply of 3,500 MW in Summer 2022, leaving as many as 3.5 million homes without power, with potential gaps in subsequent years as follows:[7]

Table 1. Potential Energy Shortfall

Year	California Potential Energy Shortfall (MW)
2023	600
2024	2,700
2025	3,300

Such market concerns over electricity shortfalls are already causing a dramatic increase in the number of diesel backup generators in California. An M.Cubed report recently found:[8]

…in 2020 there were 12,104 back-up generators totaling 2,697 MW of capacity in the South Coast Air Quality Management District (SCAQMD). Just a year later this population had grown to 14,785 BUGs, with 7,360 MW capacity, a 22 percent increase in the fleet.

[6] Ibid.

While the emissions from these diesel generators should be a serious concern, so should the market condition which is driving it.

Challenges to the electric grid include not only generation capacity, but the readiness of transmission and distribution infrastructure. The California Energy Commission's review of constraints associated with electricity transmission and distribution showed that the California grid currently has little to no capacity to add electrical load on most circuits.[9,10]

SCAQMD has noted that the preliminary estimates of statewide ZE infrastructure needs developed by the CEC and CARB "are largely based on a transition to ZE vehicles for on-road transportation sources, and do not fully address the adoption of ZE technologies by other sources, such as stationary, locomotives, and off-road equipment. These preliminary estimates will need to be further developed to include the ZE infrastructure needs of all sources and address the unique needs of the South Coast and Coachella Valley Air Basins."[11] The grid will need to be upgraded to accommodate more customers, more power, and more renewables. This is a costly and time consumptive process, with individual projects frequently requiring five to ten years or more. Such projects are regulated by multiple agencies including the California Public Utilities Commission (CPUC).[12]

Comment 80-3 Con't

3. **Climate change increases the urgency for NO_X emission reductions. Performance-based standards allowing for flexible deployment of technologies must be available to facilities in order to attain emission reduction targets.**

Climate change is causing environmental conditions that favor higher ozone concentrations such as increased and more intense wildfires, a longer wildfire season, increased biogenic and evaporative VOC emissions, and increased photochemical reaction rates. In the last 7 years, California had the 6 hottest summers in a 127-year record, with the record warmest summer occurring in 2021.[13]

Comment 80-4

While maximum ozone design values (3-year average of the 4th highest 8-hour ozone) in the SCAB have been greatly reduced over the last 40 years, the rate of design value reduction has been slowing in recent years and increased from 2017 – 2021.[14]

Figure 1. South Coast Air Basin Ozone Design Value

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[11] SCAQMD Policy Brief, Infrastructure – Energy Outlook. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/combined-infrastructure---energy-outlook.pdf?sfvrsn=8.
[12] Southern California Edison Comment on the Draft 2022 AQMP. Available at: http://www.aqmd.gov/docs/default-source/planning/aqmp-public-comments/comment-letter-69.pdf?sfvrsn=4.
[13] NOAA National Centers for Environmental Information, National Temperature and Precipitation Maps. Statewide Average Temperature Ranks June-August. Available at: https://www.ncei.noaa.gov/access/monitoring/us-maps/3/202108?products[]=statewidetavgrank.
[14] US EPA 2021 Design Value Reports. Available at: https://www.epa.gov/air-trends/air-quality-design-values#previous.



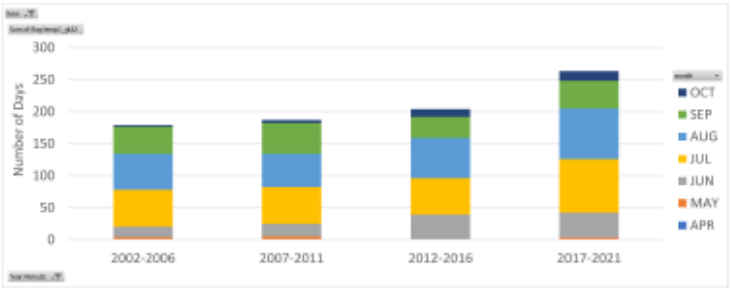
Per the report on Ozone Trends and the Ability of Models to Reproduce the 2020 Ozone Concentrations in the South Coast Air Basin in Southern California under the COVID-19 Restrictions:[15]

The single most descriptive parameter for determining the ozone formation potential of the atmosphere in the SoCAB is the 850 mb temperature (T850). High T850 gives an indication of the strength of the temperature inversion that can trap pollutants near the surface as well as the presence of high temperatures and slow wind speeds, all of which lead to higher ozone formation.

Figure 2 shows that the number of high 850 mb temperature days has increased significantly since 2002.[16]

Comment 80-4 Con't

Figure 2. Number of High 850 mb temperature days



The trends above demonstrate the impacts of climate change. The result is higher ozone levels, making it more difficult to attain the ozone NAAQS. NOx and VOC emission control strategies focused on attaining the ozone NAAQS under current climate conditions will thus be insufficient under the impacts of climate change.

Climate change increases the urgency with which SCAQMD must achieve further emission reductions, and the lack of intermediate milestones within the 2022 AQMP is of concern. SCAQMD has suggested that traditional technologies are not capable of delivering the NOx reductions needed to meet the ozone NAAQS standard and

[15] Ozone Trends and the Ability of Models to Reproduce the 2020 Ozone Concentrations in the South Coast Air Basin in Southern California under the COVID-19 Restrictions, Atmosphere 2022, 13, 528. Available at: https://doi.org/10.3390/atmos13040528
[16] CRC 2022 Real World Emissions Workshop. "Ozone Trends in the South Coast Air Basin Through 2021 and Their Implications on Ozone Mitigation Control Strategies."

the only pathway to attainment relies on widespread use of ZE technologies.[17] But by refusing to consider broader use of lower emitting technologies and fuels which are available today, SCAQMD is foregoing potential near- and intermediate-term emission reductions, which will result in further delays for attainment of the ozone NAAQS in the SCAB. BizFed encourages SCAQMD to consider implementation of performance-based measures in the 2022 AQMP control strategies considered in Appendix IV, with resulting rulemakings that allow for flexible deployment of low NO_X technologies to attain the emission reduction targets.

Comment 80-4 Con't

4. SCAQMD should maintain fixed cost-effectiveness thresholds to ensure that the costs of reducing emissions are not disproportionately imposed on stationary sources which cannot even impact the attainment outcome.

SCAQMD staff have proposed cost-effectiveness thresholds of $36,000 per ton of VOC and $59,000 per ton of NOx (2021 dollars) in the Draft 2022 AQMP and suggested that those values be adjusted to the dollar year used for socioeconomic modeling in each subsequent rulemaking.[18] The Draft 2022 AQMP notes:

The cost-effectiveness thresholds are designed to provide a guide for establishing BARCT emission standards. To ensure that the maximum emission reductions can be achieved, it is important that an emission standard that can achieve significant reductions that are above the cost-effectiveness threshold are not automatically rejected. During the rulemaking process, if a proposed BARCT emission standard has a cost-effectiveness that is above the threshold, staff will hold a public meeting to discuss other emission standards with a cost-effectiveness at or below the cost-effectiveness threshold and/or compliance or implementation options to address an emission standard that is above the cost-effectiveness threshold. At the public hearing for the adoption or amendment of the emission standard, staff must present the options to the emission standard if the cost-effectiveness is above the threshold, highlighting the potential emission reductions associated with each option. Staff is seeking input on this approach.

Comment 80-5

BizFed does not agree with the proposed approach. The adoption of emission standards that exceed the cost-effectiveness threshold increases the burden on stationary sources when the vast majority of NOx emissions in SCAB are not emitted by stationary sources. Rather, the overwhelming majority of NOx emissions in the SCAB are from mobile sources regulated at the state and federal levels. BizFed recommends that the SCAQMD establish fixed cost-effectiveness thresholds that are not changed from one rulemaking to another.

5. SCAQMD should provide provisions for alternative compliance mechanisms when implementing control measures.

Comment 80-6

Historically, SCAQMD and other California air districts have allowed alternative compliance mechanisms, which provide flexibility to facilities to meet the SCAQMD

[17] SCAQMD Final Business Case for Clean Air Strategies, October 2015. Available at: http://www.aqmd.gov/docs/default-source/Agendas/aqmp/white-paper-working-groups/wp-bizcase-final.pdf.
[18] SCAQMD 2022 AQMP. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/draft2022aqmp.pdf?sfvrsn=12.

emission reduction goals in a cost-effective manner. For example, the Warehouse Indirect Source Rule, SCAQMD Rule 2305, allows an affected facility, landowner, or operator to satisfy their compliance obligation through payment of a mitigation fee which then can be used to fund clean air projects.[19] The current strategy under the draft 2020 AQMP does not appear to allow for such alternative compliance mechanisms and instead mandates electrification across most sectors of the economy. The electrification-centric approach may not be the best option for many industries because of cost-effectiveness or technological feasibility concerns. Alternative compliance mechanisms would provide industries flexibility without compromising the District's ability to meet the emission reduction goals.

Comment 80-6 Con't

6. **The 2022 AQMP uses the California Air Resources Board EMission FACtor (EMFAC) 2017 model to estimate baseline and future year on-road motor vehicle emissions. The model does not consider emission reductions from recently adopted regulations, and therefore overestimates on-road emissions. The 2022 AQMP emissions inventories should be adjusted based on projections using EMFAC2021.**

In the 2022 AQMP, on-road motor vehicle emissions are estimated using the California Air Resources Board (CARB) EMission FACtor (EMFAC) 2017 model, which calculates exhaust and evaporative emission rates by vehicle type at varying vehicle speeds and environmental conditions.[20] EMFAC2017 does not address changes in emissions as a result of recently adopted vehicle regulations, including:

- Innovative Clean Transit (ICT), which requires public transit agencies to transition to a 100% ZE bus fleet.[21]
- Advanced Clean Truck (ACT), which requires a certain percentage of zero emission trick sales to be sold on an annual basis.[22]
- Heavy-Duty Omnibus, which ensures that heavy duty engines will emit much lower NOx emissions throughout their lifetimes.[23]

Comment 80-7

CARB has released an updated version of the model, EMFAC2021, which includes the regulations listed above, as well as other new features and changes addressing the inclusion of hybrid electric vehicles, a light duty zero emission vehicle (ZEV) forecasting framework, a new heavy-duty vehicle miles traveled (VMT) forecasting framework which forecasts VMT by county (as opposed to statewide as in EMFAC2017), and new sales and VMT forecasting, among other significant changes.[24] As shown in the CARB EMFAC2021 Volume III Technical Document, EMFAC2017 overstates projected NOx emissions when compared to EMFAC2021,

[19] SCAQMD Rule 2305, Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program. Available at: http://www.aqmd.gov/docs/default-source/rule-book/reg-xxiii/r2305.pdf?sfvrsn=15.
[20] CARB EMFAC Model. Available at: https://arb.ca.gov/emfac/.
[21] CARB Innovative Clean Transit Regulation. Available at: https://ww2.arb.ca.gov/our-work/programs/innovative-clean-transit.
[22] CARB Advanced Clean Trucks Regulation. Available at: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks.
[23] CARB Heavy-Duty Engine and Vehicle Omnibus Regulation. Available at: https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox.
[24] CARB EMFAC2021 Volume III Technical Document. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/emfac2021_technical_documentation_april2021.pdf.

which will result in an overstatement of on-road emissions in the 2022 AQMP emissions inventory.[25] The overstated projected NOx emissions result in an inaccurate forecast of emission reductions necessary to meet the 2015 ozone NAAQS. BizFed recommends that the 2022 AQMP baseline and future year emissions inventories be adjusted based on projections using EMFAC2021.

Comment 80-7 Con't

7. **The current progress on the development of amendments to Regulations XIII and XX will result in facilities being regulated under both the RECLAIM program and command-and-control rules. BizFed suggests that SCAQMD complete these amendments prior to adoption of further command-and-control rules to minimize this condition.**

SCAQMD has expended significant effort since adoption of the 2016 AQMP to develop rules that are intended to transition facilities out of the REgional CLean Air Incentives Market (RECLAIM) for NOx to command-and-control. In total the District has now developed fifteen landing rules in Regulation XI, and at least two additional landing rules are still in development. The California Health and Safety Code expressly prohibits regulation of companies subject to a market-based program under more stringent regulations, stating:[26]

A market-based incentive program that satisfies the conditions in this section may substitute for current command and control regulations and future air quality measures that would otherwise have been adopted as part of the district's plan for attainment and may be implemented ***in lieu of*** *some or all of the control measures adopted by the district pursuant to Chapter 10 (commencing with Section 40910) of Part 3.* [Emphasis added]

Comment 80-8

SCAQMD has been working to revise Regulation XIII, New Source Review (NSR), and Regulation XX, RECLAIM, to address facilities that will be required to exit NOx RECLAIM and ensure that there is a sufficient supply of offsets for growth and facility modernization. Remaining issues include the question of whether a transition out of RECLAIM is an NSR event, SIP commitments, offset calculations for major source modifications, regulation XIII post-RECLAIM offsets, and issues associated with Selective Catalytic Reduction (SCR), including ammonia slip requirements and PM BACT applicability for SCR projects.[27] These are significant issues that, if not dealt with, will result in facilities being regulated both under the command-and-control landing rules, as well as the market-based NOx RECLAIM program. BizFed recommends that SCAQMD re-prioritize the rulemaking agenda such that all command-and-control rulemaking is paused until the Regulation XIII and Regulation XX rulemakings are completed and revised regulations are adopted.

8. **The regulated industry in the South Coast Air Basin is in the process of modifying equipment to meet the most recent Best available Retrofit Control Technology emission standards. In some cases, the installation of equipment may not be complete until 2036. SCAQMD**

Comment 80-9

[25] Ibid
[26] California Health and Safety Code §39616. Available at: https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=HSC&sectionNum=39616.
[27] Regulation XIII, New Source Review, Working Group Meeting presentation, July 14, 2022. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/regx111/nsr---wgm-july-2022-final.pdf?sfvrsn=6.

must ensure that there are no stranded assets as a result of the control measures proposed under the 2022 AQMP.

As stated above, SCAQMD has expended significant effort since adoption of the 2016 AQMP on the development and adoption of rules associated with the transition from the RECLAIM program to command-and-control. Many of these facilities are now in the process of upgrading existing equipment to comply with the Best Available Retrofit Control Technology (BARCT) standards contained in the Landing Rules. For many of these facilities, the required capital investments for new/modified equipment are substantial. The 2022 AQMP control measure compliance schedules must consider the implementation timetables of the recently adopted and pending BARCT rules to avoid requiring additional NOx controls where Landing Rule compliance projects are currently being implemented. Additionally, the useful lifetime of the equipment currently being installed to meet BARCT standards will, in most cases, extend well beyond 2037. The 2022 AQMP control measures proposed in Appendix IV must ensure that facilities are not left with stranded assets.

Comment 80-9 Con't

Conclusion

The District has made significant strides in air reductions during the past 30 years, despite a significant population increase, and it should be proud of its accomplishments. Those reductions were accomplished in collaboration with many stakeholders, in particular the business community. We respect that SCAQMD is placed in a uniquely challenging situation to demonstrate attainment of the 2015 ozone NAAQS, and the business community stands ready to help the District achieve all practicable reductions as soon as possible.

Comment 80-10

We look forward to continuing our work with the District to see progress made in a way that is equitable and lasting.

Thank you for your consideration of our letter. If you have any questions, please contact BizFed's Director of Policy and Advocacy Sarah Wiltfong at sarah.wiltfong@bizfed.org.

Sincerely,

Brissa Sotelo-Vargas
BizFed Chair
Valero

David Fleming
BizFed Founding Chair

Tracy Hernandez
BizFed Founding CEO
IMPOWER, Inc.

BizFed Association Members

7-11 Franchise Owners Association for SoCal
Action Apartment Association
Alhambra Chamber
American Beverage Association
Apartment Association of Greater Los Angeles
Apartment Association, CA Southern Cities, Inc .
Arcadia Association of Realtors
AREAA North Los Angeles SFV SCV
Armenian Trade & Labor Association
Associated Builders & Contractors SoCal (ABC SoCal)
Association of Club Executives
Association of Independent Commercial Producers
Azusa Chamber
Beverly Hills Bar Association
Beverly Hills Chamber
BioCom
Black Business Association
BNI4SUCCESS
Bowling Centers of SoCal
Boyle Heights Chamber of Commerce
Building Industry Association - LA/Ventura Counties
Building Industry Association of Southern California
Building Industry Association- Baldyview
Building Owners & Managers Association of Greater Los Angeles
Burbank Association of Realtors
Burbank Chamber of Commerce
Business and Industry Council for Emergency Planning and Preparedness
Business Resource Group
CABIA California Business and Industrial Alliance
Calabasas Chamber of Commerce
CalAsian Chamber
CalChamber
California Apartment Association- Los Angeles
California Asphalt Pavement Association
California Bankers Association
California Business Properties
California Business Roundtable
California Cannabis Industry Association
California Cleaners Association
California Contract Cities Association
California Fashion Association
California Gaming Association
California Grocers Association
California Hispanic Chamber
California Hotel & Lodging Association
California Independent Oil Marketers Association (CIOMA)
California Independent Petroleum Association
California Life Sciences Association
California Manufacturers & Technology Association
California Metals Coalition
California Natural Gas Producers Association
California Restaurant Association
California Retailers Association
California Self Storage Association
California Small Business Alliance
California Society of CPAs - Los Angeles Chapter
California Trucking Association
Carson Chamber of Commerce
Carson Dominguez Employers Alliance
Central City Association
Century City Chamber of Commerce
Cerritos Regional Chamber of Commerce
Chatsworth Porter Ranch Chamber of Commerce
Citrus Valley Association of Realtors
Claremont Chamber of Commerce
Coalition for Small Rental Property Owners
Commercial Industrial Council/Chamber of Commerce
Compton Chamber of Commerce
Construction Industry Air Quality Coalition
Construction Industry Coalition on Water Quality
Covina Chamber
Crenshaw Chamber of Commerce
Crescenta Valley Chamber
Culver City Chamber of Commerce
Downey Association of REALTORS
Downey Chamber of Commerce
Downtown Center Business Improvement District
Downtown Long Beach Alliance
El Monte/South El Monte Chamber
El Segundo Chamber of Commerce
Employers Group
Encino Chamber of Commerce
Energy Independence Now EIN
Engineering Contractor's Association
EXP Future
FastLink DTLA
Filipino American Chamber of Commerce
Friends of Hollywood Central Park
FuturePorts
Gardena Valley Chamber
Gateway to LA
Glendale Association of Realtors
Glendale Chamber
Glendora Chamber
Greater Antelope Valley AOR
Greater Bakersfield Chamber of Commerce
Greater Lakewood Chamber of Commerce
Greater Leimert Park Crenshaw Corridor BID
Greater Los Angeles African American Chamber
Greater Los Angeles Association of Realtors
Greater Los Angeles New Car Dealers Association
Greater San Fernando Valley Chamber
Harbor Association of Industry and Commerce
Harbor Trucking Association
Historic Core BID of Downtown Los Angeles
Hollywood Chamber
Hong Kong Trade Development Council
Hospital Association of Southern California
Hotel Association of Los Angeles
Huntington Park Area Chamber of Commerce
ICBWA- International Cannabis Women Business Association
Independent Cities Association
Industrial Environmental Association
Industry Business Council
Inglewood Board of Real Estate
Inland Empire Economic Partnership
International Franchise Association
Irwindale Chamber of Commerce
La Cañada Flintridge Chamber
LA Coalition
LA Fashion District BID
LA South Chamber of Commerce
Lancaster Chamber of Commerce
Larchmont Boulevard Association
Latin Business Association
Latino Food Industry Association
Latino Restaurant Association
LAX Coastal Area Chamber
League of California Cities
Long Beach Area Chamber
Long Beach Economic Partnership
Los Angeles Area Chamber
Los Angeles County Board of Real Estate
Los Angeles County Waste Management Association
Los Angeles Economic Development Center
Los Angeles Gateway Chamber of Commerce
Los Angeles Gay & Lesbian Chamber of Commerce
Los Angeles Latino Chamber
Los Angeles Parking Association
Los Angeles World Affairs Council/Town Hall Los Angeles
MADIA
Malibu Chamber of Commerce
Marketplace Industry Association
Monrovia Chamber
Motion Picture Association of America, Inc.
MoveLA
MultiCultural Business Alliance
NAIOP Southern California Chapter
NAREIT
National Association of Minority Contractors
National Association of Tobacco Outlets
National Association of Women Business Owners
National Association of Women Business Owners - LA
National Association of Women Business Owners- California
National Federation of Independent Business Owners California
National Hookah
National Latina Business Women's Association
Orange County Business Council
Pacific Merchant Shipping Association
Panorama City Chamber of Commerce
Paramount Chamber of Commerce
Pasadena Chamber
Pasadena Foothills Association of Realtors
PhRMA
Pico Rivera Chamber of Commerce
Planned Parenthood Affiliates of California
Pomona Chamber
Rancho Southeast REALTORS
ReadyNation California
Recording Industry Association of America
Regional Black Chamber-San Fernando Valley
Regional Hispanic Chambers
Regional San Gabriel Valley Chamber
Rosemead Chamber
San Dimas Chamber of Commerce
San Gabriel Chamber of Commerce
San Gabriel Valley Economic Partnership
San Pedro Peninsula Chamber
Santa Clarita Valley Chamber
Santa Clarita Valley Economic Development Corp.
Santa Monica Chamber of Commerce
Sherman Oaks Chamber
South Bay Association of Chambers
South Bay Association of Realtors
South Gate Chamber of Commerce
Southern California Contractors Association
Southern California Golf Association
Southern California Grantmakers
Southern California Leadership Council
Southern California Minority Suppliers Development Council Inc.
Southern California Water Coalition
Southland Regional Association of Realtors
Sportfishing Association of California
Sunland/Tujunga Chamber
Sunset Strip Business Improvement District
Torrance Area Chamber
Tri-Counties Association of Realtors
United Cannabis Business Association
United Chambers – San Fernando Valley & Region
United States-Mexico Chamber
Unmanned Autonomous Vehicle Systems Association
US Green Building Council
US Resiliency Council
Valley Economic Alliance, The
Valley Industry & Commerce Association
Venice Chamber of Commerce
Vermont Slauson Economic Development Corporation
Veterans In Business Network
Vietnamese American Chamber
Warner Center Association
West Hollywood Chamber
West Hollywood Design District
West Los Angeles Chamber
West San Gabriel Valley Association of Realtors
West Valley/Warner Center Chamber
Western Electrical Contractors Association
Western Manufactured Housing Association
Western States Petroleum Association
Westside Council of Chambers
Whittier Chamber of Commerce
Wilmington Chamber
Women's Business Enterprise Council
World Trade Center

Los Angeles County Business Federation / 6055 E. Washington Blvd. #1005, Commerce, California 90040 / T:323.889.4348 / www.bizfed.org

Response to Comment 80-1: Thank you for your comments on the Draft 2022 AQMP. South Coast AQMD acknowledges the concerns raised in your letter regarding climate change and air quality. While climate change may hinder progress toward attainment, an AQMP/SIP is required to follow U.S. EPA guidelines for emissions inventories and modeling which preclude consideration of climate impacts in the attainment demonstration. In addition, U.S. EPA considers the interval between designation and attainment dates (20 years for extreme areas) to be too short to assess long-term climate impacts due to the potential of natural meteorological variability to obscure the climate signal.

Response to Comment 80-2: Please refer to Response to Comment 71-6. Staff recognizes that this technology- and fuel-neutral, performance-based approach must be tailored to maximize NOx reductions to achieve attainment of the standard. To achieve this goal, the 2022 AQMP relies on the development of zero emission technologies while recognizing a role for low NOx technologies where advanced control technologies are not yet available or feasible.

Response to Comment 80-3: Concerns regarding grid capacity and reliability to support a widespread transition to zero emission technologies are the reason why the South Coast AQMD developed MOB-15. This control measure is a commitment to engage with stakeholders involved in every aspect of the transition to zero emission fueling with the goal of identifying potential shortfalls in technologies and/or energy availability while assisting in a collaborative effort to address these concerns. The South Coast AQMD is actively engaged with the CEC, CPUC, CARB, local utilities, fleets and other stakeholders to help address the challenges related to grid capacity and reliability in the region. For example, South Coast AQMD will host an infrastructure summit focused on zero emission freight that will bring together state agencies, utilities, OEMs, fleets, and other stakeholders to discuss the challenges in installing infrastructure, understand grid constraints, develop plans for public charging, and identify interim technologies to support charging infrastructure in fall 2022. South Coast AQMD will continue to share information that can be used to better inform forecasting and energy analyses which are used to plan grid capacity upgrades. Current forecasting and energy analyses are primarily focused on the state ZEV goals and do not fully address all emission categories that will need to transition to zero emissions to reach attainment goals. The challenges related to the electrical grid and infrastructure availability are significant and will require collaborative problem solving involving all stakeholders. South Coast AQMD will continue to advise partner organizations through information sharing and close coordination of efforts to remove barriers to zero emission infrastructure and technology deployments.

Agencies and organizations throughout the state that are involved in energy distribution such as the California Energy Commission, the California Public Utility Commission, and local utilities such as Southern California Edison, are aware of the challenges ahead in terms of energy and infrastructure availability and are actively engaged in planning to anticipate future demand as the state moves toward a zero emission future. Engagement with local utilities and other partners involved in this transition through the direction detailed in MOB-15 will help articulate the region's needs and challenges to anticipate potential shortfalls in energy and technology availability, and assure the agencies involved are making progress to resolve concerns related to grid readiness and reliability.

In addition to electric technology options, fuel cells and possibly other new technologies will be used to support the transition to a zero emission future. The state of California, through various programs, has allocated significant funding to advance the development and deployment of zero emission technologies, including electric charging and hydrogen fueling infrastructure. As part of MOB-15, South Coast AQMD

will continue to track all available funding sources for zero emission infrastructure and share this information with fleets and other stakeholders to provide financial assistance and encourage early planning for transitioning to zero emission technologies. Early planning and collaborative problem solving involving all stakeholders will be necessary to assure grid readiness and infrastructure availability. South Coast AQMD will also actively support and advocate for new funding sources that will accelerate the deployment of zero emission infrastructure in the South Coast AQMD. This effort will encourage consumers to plan early with support from the local utilities to streamline the process for approving installations and interconnection with the grid.

Response to Comment 80-4: Due to the magnitude of emission reductions needed to achieve attainment of the 2015 8-hour ozone standard, it is necessary to establish aggressive goals requiring zero emission technologies whenever feasible. Nevertheless, some proposed control measures in the draft plan (e.g., R-CMB, C-CMB and L-CMB) provide some flexibility to allow low NOx emission technologies whenever zero emission technologies are not viable. Staff recognizes the need to achieve short-term emission reductions as well as plan for the substantial emission reductions needed in the future and believe that the control measures in the Draft Plan provide a balanced approach to accomplishing both these goals.

Response to Comment 80-5: As referenced in the comment, the proposed cost-effectiveness thresholds in the Draft 2022 AQMP are currently based on inflation adjustments only of the cost-effectiveness thresholds in the 2016 AQMP. In other words, in real dollar terms, the thresholds would remain fixed, or constant. Staff believes that this is a very conservative approach given the expectation that the cost of achieving additional emission reductions necessary to meet the federal standards will increase as the most cost-effective controls have already been implemented. It is important to emphasize that the cost-effectiveness thresholds, whether proposed in the Draft 2022 AQMP or adopted in past AQMPs, are not hard caps but to guide rulemaking. For example, as described in the Draft 2022 AQMP, more stringent BARCT emission standards will not be automatically rejected simply based on the proposed cost-effectiveness thresholds. Rather, alongside the proposed BARCT emission standard, alternative standards or compliance/implementation options with lower costs per ton of emission reductions will be discussed with the public and subsequently presented at the public hearing.

Based on comments received and feedback from several Governing Board members, staff is proposing a revised framework for cost-effectiveness in the Revised Draft 2022 AQMP. This framework takes into account the monetized benefit of emissions reduced. Please see Chapter IV of the Revised Draft AQMP for further details.

Response to Comment 80-6: Please refer to Response to Comment 71-5.

Response to Comment 80-7: As the stakeholder indicates, the baseline emissions projected by EMFAC2017 do not include more recently adopted regulations by CARB. However, the effect of these regulations – Innovative Clean Transit (ICT), Advanced Clean Trucks (ACT), and Heavy-Duty Engine and Vehicle Omnibus Regulations – are all included in the baseline emissions used in this AQMP using external adjustments. In fact, more recent regulations adopted as of December 2021 are reflected in the baseline emissions. The latest regulations are Heavy-Duty Inspection/Maintenance and Small Off-Road Engines regulations. Thus, these newer regulations are accounted for in the future baseline emissions presented in this AQMP.

Response to Comment 80-8: South Coast AQMD is working as expeditiously as possible to transition facilities out of RECLAIM and into a command-and-control regulatory framework. U.S. EPA has indicated that equipment in the RECLAIM program must be subject to a landing rule prior to transitioning out of RECLAIM. As noted, most of the landing rules have been developed with only two remaining. That process should be complete by 4th quarter 2022. U.S. EPA will have to approve the landing rules, as well as amendments to Regulation XIII – New Source Review and Regulation XX – RECLAIM before facilities may exit RECLAIM. During this transition period, equipment will be subject to a market-based incentive program and a command-and-control rule. The Health and Safety Code does not prohibit regulation of equipment under both a market-based incentive program and a command-and-control rule; instead it allows South Coast AQMD to choose if the market-based incentive program will regulate equipment in lieu of some or all control measures.

South Coast AQMD continues to work on revising Regulation XIII and Regulation XX. Significant issues are being addressed and completion of rule development is expected in 2023. Pausing command-and-control rulemaking would ensure that U.S. EPA would not allow facilities to transition out of RECLAIM. Equipment with command-and-control rules already in place would be subject to both a market-based incentive program and command-and-control rules indefinitely. Additionally, California State Assembly Bill 617 (AB 617) requires an expedited schedule for implementing BARCT at RECLAIM facilities that are in the state greenhouse gas cap and trade program with the highest priority given to older, higher polluting units.

Response to Comment 80-9: South Coast AQMD is aware of industry concerns regarding stranded assets for facilities that installed new/modified equipment in the process of upgrading existing equipment to comply with the Best Available Retrofit Control Technology (BARCT) standards in the landing rules. Staff will consider the implementation timetables of the recently adopted and pending BARCT rules. In addition, the useful life of the equipment will be evaluated and a cost-effectiveness assessment will be conducted during rulemaking.

Response to Comment 80-10: Staff appreciate your continued participation in the 2022 AQMP development and anticipate a good partnership in achieving federal ozone air quality standards.