

Comment Letter #43



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Senior Manager, Southern California Region

June 17, 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.

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 NO_x 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 NO_x 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.

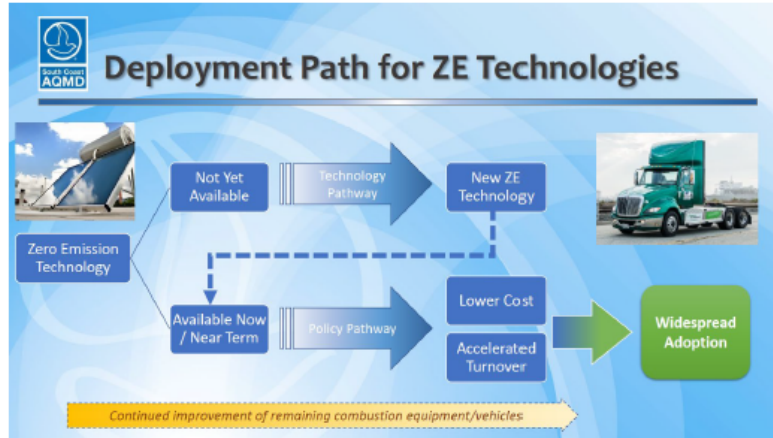
2. The District has stated that the only viable path to achieving the NAAQS for ozone may be a significant push to zero emission technology, with an approach that includes new zero emissions (ZE) and ultra-low NO_x technologies that have yet to be invented and/or commercialized for many stationary and 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 NO_x technologies. The District acknowledges that new ZE and ultra-low NO_x 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.

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-subchapl-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.

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.

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>

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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 Natri, 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.

- 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

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.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

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.

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.

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>.

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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.

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.

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.

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>.

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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.

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,



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