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September 12, 2022

Ariel Fideldy and Austin Hicks
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Submitted to the regulatory docket electronically

Re: Proposed 2022 State Strategy for the State Implementation Plan

Dear Ariel and Austin,

On behalf of the members of the California Council for Environmental and Economic Balance (CCEEB), thank you for the opportunity to provide comments on the Proposed 2022 State Strategy for the State Implementation Plan (Proposed 2022 State SIP Strategy). As an active stakeholder at the Air Resources Board (CARB) and the South Coast Air Quality Management District (South Coast), CCEEB recognizes the challenges facing the areas of the state in extreme non-attainment for the 8-hour ozone standard. Both the Proposed 2022 State SIP Strategy and South Coast's Draft 2022 Air Quality Management Plan (Draft 2022 AQMP) make clear that attaining the 70 parts per billion (ppb) standard will push the limits of technological feasibility and cost effectiveness across all sectors. Both plans indicate that, **without significant federal action on mobile sources and significant federal funding for zero-emission vehicle (ZEV) infrastructure in California, South Coast cannot and will not achieve attainment of the 8-hour ozone standard in 2037**.

As the Proposed 2022 State SIP Strategy recognizes, attainment will rely on an unprecedented level of cooperation between international, federal, state, and local entities, dependent on yet-to-be identified technologies and solutions that do not yet exist at scale. The 2016 State SIP Strategy also called on the federal government to take additional action, yet most of these measures still await action at the federal level. There are also measures in the Proposed 2022 State SIP Strategy that would require the legislature to grant CARB additional authority. Given these challenges, we make the following observations on the 2022 Proposed State SIP Strategy:

- **Ambitious state measures don't resolve jurisdictional concerns.**
- **A zero-emission pathway to attainment poses significant challenges – and still doesn't get us all the way there.**
    - *Successful ZEV deployment depends on infrastructure availability.*
- **CARB should institute interim progress reporting towards attainment.**

Ambitious state measures don't resolve jurisdictional concerns

Both South Coast's Draft AQMP and the Proposed 2022 State SIP Strategy call into question how viable a pathway to attainment in South Coast really is, given the dependence of CARB's aggregate emissions reduction commitment on sources outside of CARB's or the District's control. The Proposed 2022 State SIP Strategy shows that at least 58% of CARB's commitment to NOx reductions in the South Coast requires federal or international action.[1]

Primarily-Federally and Internationally Regulated Sources – Federal Action Needed[52]		
On-Road Heavy-Duty Vehicle Low-NOx Engine Standards	3.8	<0.1
On-Road Heavy-Duty Vehicle Zero-Emission Requirements	NYQ	NYQ
Off-Road Equipment Tier 5 Standard for Preempted Engines	1.6	NYQ
Off-Road Equipment Zero-Emission Standards Where Feasible	2.2	NYQ
More Stringent Aviation Engine Standards	NYQ	NYQ
Cleaner Fuel and Visit Requirements for Aviation	10.2	NYQ
Zero-Emission On-Ground Operation Requirements at Airports	NYQ	NYQ
Airport Aviation Emissions Cap	9.2	NYQ
More Stringent National Locomotive Emission Standards	NYQ	NYQ
Zero-Emission Standards for Locomotives	NYQ	NYQ
Address Unlimited Locomotives Remanufacturing	NYQ	NYQ
More Stringent NOx and PM Standards for Ocean-Going Vessels	0.8	NYQ
Cleaner Fuel and Vessel Requirements for Ocean-Going Vessels	23.7	NYQ
Total Primarily-Federally and Internationally Regulated -Federal Action Needed Reductions	51.5	<0.1
Aggregate Emissions Reductions	89.3	13.9

Source: CARB 2022

The State SIP Strategy should clearly identify the federal efforts necessary to reach attainment and demonstrate how these measures will be legally required and enforceable in California by the attainment date. The Proposed 2022 State SIP Strategy leaves open questions as to how the international and federal share of emissions reductions will actually be achieved to attain the 8-hour ozone standard in South Coast in 2037.

The Proposed 2022 State SIP Strategy recognizes that new authority is needed for several of CARB's actions. CARB should make clear the percentage of expected emissions reductions, both statewide and in South Coast, that are clearly within its current authority. That said, even those measures within CARB's authority come with significant implementation challenges, as we discuss further below and have previously described in our comments on the Advanced Clean Fleets regulation.[2]

For further discussion, please refer to our comments on South Coast's Draft 2022 AQMP, which are included as Attachment A.

[1] CARB. 2022. *Proposed 2022 State Strategy for the State Implementation Plan*. Table 10 – South Coast Expected Emissions Reductions from the 2022 State SIP Strategy. https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf. August 12, 2022.

[2] CCEEB. 2022. *Re: Advanced Clean Fleets Draft Regulatory Language (May 2, 2022 Version).* https://www.arb.ca.gov/lists/com-attach/168-acf-comments-ws-ATNRZ1JhVDVWfgAw.pdf. June 10, 2022.

A zero-emission pathway to attainment poses significant challenges – and still doesn't get us all the way there

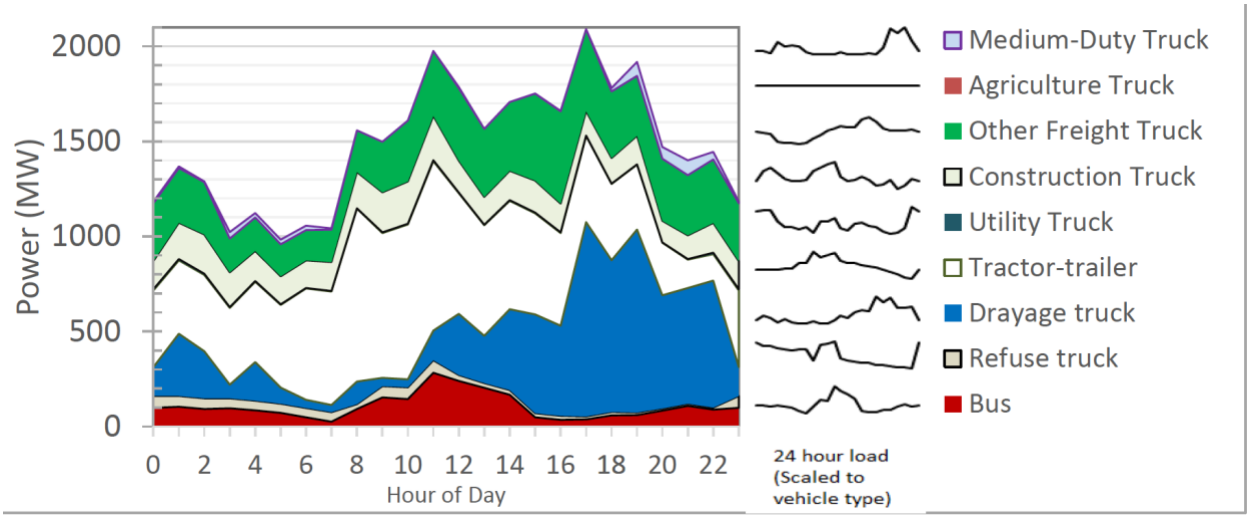
CCEEB recognizes that a transition to zero-emission technologies where feasible is a critical component of CARB's commitment to non-attainment areas, as well as South Coast's own pathway to attainment. That said, it is important to recognize that the transition from traditional SIP measures, such as combustion control devices, to widescale implementation of zero-emission vehicles and equipment creates a new landscape for regulated entities, complicating pathways to compliance. From what the public has seen of CARB's measures to date, it appears CARB's expectation is that regulated entities will need to fundamentally shift their operations to meet the pathways prescribed in regulation. This expectation is a noticeable divergence from previous SIP measures, which, in most cases, allowed regulated entities to plan for technological changes and additional costs over a time period that allowed for installation of emission control technology or equipment upgrades. With the scale and extent of the changes being proposed for zero-emission measures, cost-effectiveness and technological feasibility become more, not less, critical, especially given the potential for regulatory overlap or conflicting mandates.

Only with rigorous collaboration between agency partners and stakeholders does the scale of zero-emission deployment envisioned in the Proposed 2022 State SIP Strategy have a chance of succeeding. And yet, even with these herculean efforts, the pathway to attainment of the 70 ppb standard in 2037 in South Coast is still unclear.

Successful ZEV Deployment Depends on Infrastructure Availability

While CCEEB appreciates that CARB has attempted to describe future infrastructure needs, there are still critical information gaps that must be filled to plan and implement the infrastructure improvements necessary to support the Proposed 2022 State SIP Strategy. For example, CARB's assessment focuses almost entirely on demand created by on-road sources alone. Similar estimates by the California Energy Commission – which project up to 2 GW of peak daily power demand from charging medium- and heavy-duty vehicle charging alone – also focuses only on on-road sources.[3]

[3] California Energy Commission. 2021. *Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment - Analyzing Charging Needs to Support Zero-Emission Vehicles in 2030*. Figure 20: Projected On-Road Medium- and Heavy-Duty Vehicle Charging Load. From CEC and Lawrence Berkeley National Laboratory HEVI-LOAD model. July 14 2021.



Source: CEC 2021

This ignores the additional, likely significant demand created by forcing transition of other sectors to zero emission technologies, including but not limited to those federal sources for which CARB's proposed advocacy efforts are successful. These aggregate demands – and where in the state they will be concentrated – are important not only to facilitate coordination between regulated entities and utilities at the local level, but to plan for and execute grid expansion and hydrogen infrastructure buildout.

If CARB's on-road emissions reduction commitment relies on the widescale deployment of ZEV technologies, as the responsible party for achieving those emissions reductions, CARB *must* spearhead efforts to deploy zero emission infrastructure and develop zero emission truck markets so that vehicles are financially accessible to affected fleets and meet their operational needs. CARB and its interagency partners must engage with stakeholders to ensure both public and private infrastructure networks are deployed in tandem with vehicle rollout. CARB must also ensure that incentive programs are designed to ensure success of its programs, particularly in the near term, and that the state is maximizing opportunities to leverage federal funds. CCEEB appreciates CARB spearheading infrastructure workshops early in 2022 and hopes these interagency conversations will continue as CARB develops rules and programs to meet its SIP emissions reduction commitments.

For additional comments on the importance of infrastructure readiness to zero emission technology deployment, please see CCEEB's comments on the informal draft ACF regulation.[4]

CARB should institute interim progress reporting towards attainment

The Proposed 2022 State SIP Strategy includes significant reductions from most on- and off-road sectors as well as buildings and consumer products. In addition, CARB proposes to explore indirect emissions control strategies, such as Indirect Source Rules and VMT-reduction measures. While the scope of these indirect strategies have yet to be well-defined, they are relatively more challenging to implement and their emissions reductions are less easily verified

[4] CCEEB 2022

(particularly where facilities are asked to control third party emissions). Given the potential for regulatory overlap, CARB needs to demonstrate where emissions reductions are being achieved, when, and through which programs.[5]

Transparency and clarity on the historic and existing inventory are critical to measuring progress and ensuring the state is meeting its goals in the most cost-effective manner. CARB should include interim three-year projections for NOx and ROG reduction milestones for each measure between 2022 and 2037 in the Proposed 2022 State SIP Strategy. Staff should also report out on progress compared to the plan that is adopted to the Board, at least every three years.

Whether California is able to achieve the health-protective standards set by the federal government remains the fundamental question facing air quality regulators today. As a stakeholder in the AB 617 process at both the state and local level, CCEEB and its members have observed many conversations between CARB, Air Districts, and community members expressing urgent interest in improving air quality and public health outcomes. In this vein, CCEEB believes it's important to emphasize that the 8-hour ozone standard is a health-based standard. As such, improving public health outcomes is the foundation of all work conducted to attain that standard. Achieving attainment may not meet all the state's goals, but it is a critical component of achieving the commitments CARB has made to its partners in air quality improvement.

If you have any questions, don't hesitate to contact me.

Sincerely,

Christine Wolfe
Policy and Communications Director
CCEEB

Cc:
Tim Carmichael, CCEEB President
CCEEB Air Project Members
CCEEB South Coast Air Project Members
Wayne Nastri, South Coast Air Quality Management District
Sarah Rees, South Coast Air Quality Management District
Jackson Gualco, The Gualco Group Inc., CCEEB Consultant
Jon Costantino, Tradesman Advisors Inc., CCEEB Consultant

Attachments:
Appendix A: CCEEB Comments on South Coast Air Quality Management District's 2022 Draft Air Quality Management Plan

[5]It is also important that estimates of reductions are consistent across all CARB and partner agency communications. For example, CARB's Office of Community Air Protection shows emissions reduction estimates from some SIP measures in designated 617 communities. It is not explained on the CommunityHub how these estimates were arrived at, or whether they match the emissions reductions estimates in the SIP.

APPENDIX A

CCEEB Comments on South Coast Air Quality Management District's 2022 Draft Air Quality Management Plan

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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.

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.

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.

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.

- 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.

- 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.

- 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

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.

- 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.

- 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.

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.

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.

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."

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.

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

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.

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

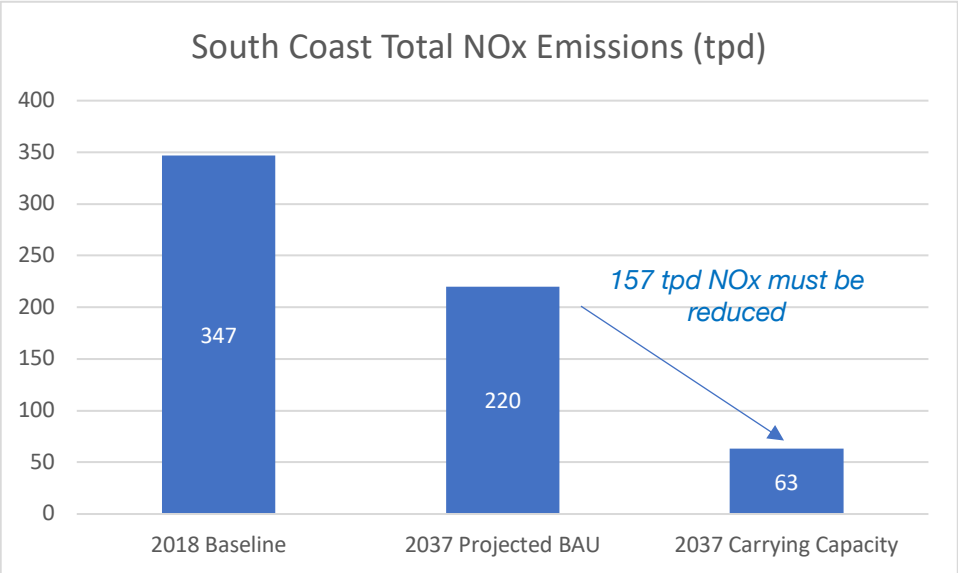
CARB Programs in South Coast	2037 Emission Reductions	Percent of Needed Reductions
Current Control Program[11]	151.1	55%
2016 State SIP Strategy Measures (Not yet adopted)	5.8	2%
New Proposed Measures	72.9	26%
Total Reductions	**229.8**	**83%**

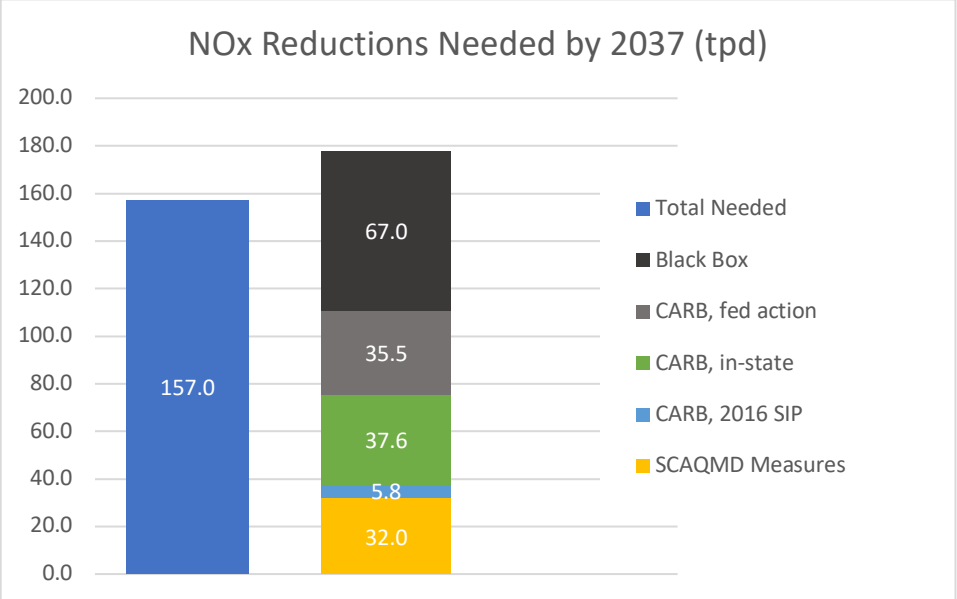
What is less clear is how CARB would achieve all 72.9 tpd of its commitment, particularly if there should be a shortfall from "Primarily-Federally and Internationally Regulated Sources," which certainly seems plausible. These "federal action needed" measures in the SIP account for almost half of CARB's 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.

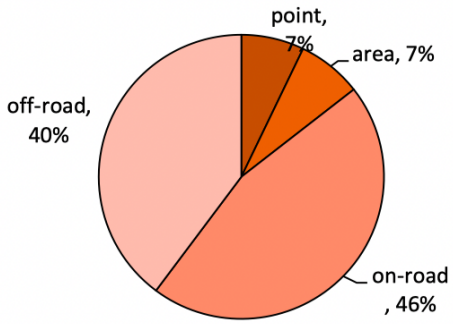
To better illustrate this point, we take a high-level view of the numbers, based on information given in the draft AQMP.[5]



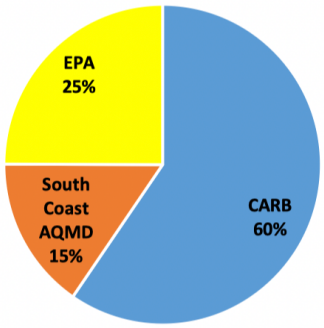


[5] Total NOx Emissions are from Figure 5-9. Black Box data is from Figure ES-7. CARB measures are calculated from Tables 4-8 and 4-9. SCAQMD measures are calculated from Tables 4-2 and 4-3. However, we note there are several seeming discrepancies across the figures and tables provided for CARB emissions. 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*.

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]



NOx Emissions: 347 tons/day



NOx Emissions: 347 tons/day

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.

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.

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[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.

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?

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.

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.

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.

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)?

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.

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

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.

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).

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
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