



South Coast Air Quality Management District



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June 20, 2007

Dr. Robert Sawyer
Chairman
California Air Resources Board
1001 I street
Sacramento, CA 95812

Dear Dr. Sawyer:

Comments on the California Air Resources Board Proposed State Strategy for the California State Implementation Plan for the Federal 8-Hour Ozone and PM_{2.5} Standards

The South Coast Air Quality Management District (AQMD) appreciates the opportunity to provide comments on the proposed state strategy for the California State Implementation Plan (SIP) for the federal 8-hour ozone and PM_{2.5} standards. Although we appreciate the California Air Resources Board (CARB) staff's efforts in developing a comprehensive set of mobile source and consumer products control measures, the AQMD does not believe that the proposed state strategy will adequately address the needed reductions for the South Coast Air Basin. Therefore, we urge your Board to consider enhancements to the proposed strategy to maximize emission reductions, which are critically needed for the Basin to meet the federal PM_{2.5} and 8-hour ozone ambient air quality standards.

As you are aware, the AQMD Governing Board adopted the 2007 Air Quality Management Plan (AQMP) at its June 1, 2007 meeting, with a primary focus on demonstrating attainment of the federal annual PM_{2.5} ambient air quality standard by 2015 and the federal 8-hour ozone standard by 2024. Achieving these standards represents a tremendous challenge to this region because of the magnitude of additional emission reductions required. Both of our agencies acknowledge that significant NO_x reductions from mobile sources would be required for meeting these health-based air quality standards. Without adequate emission reductions from major mobile source categories for which the state

Dr. Robert Sawyer

- 2 -

June 20, 2007

and federal governments have primary responsibility, attainment of the federal air quality standards is at best uncertain and will likely be seriously jeopardized. In order to demonstrate full attainment of the PM_{2.5} standard by 2015, the 2007 AQMP identified a need for 63 tons/day of NOx reductions beyond the reductions associated with the draft state strategy. We therefore urge your Board to consider the additional emission reductions needed for the South Coast Air Basin to attain the federal PM_{2.5} ambient air quality standard in a timely and certain manner.

The 2007 AQMP submitted to CARB on June 6, 2007, provides 12 recommended mobile source control measures for CARB to consider in enhancing the state strategy. A summary of the 12 recommended measures compared to the proposed state strategy is provided in Attachment 1. The 12 mobile source control measures could achieve in the aggregate, up to 71 tons/day additional NOx reductions. These measures are recommended measures and are not all-inclusive. We strongly believe that a combination of the 12 measures with any other proposals can achieve the additional 63 tons/day of NOx emission reductions needed to attain the federal annual PM_{2.5} ambient air quality standards by 2015. The AQMD staff has had lengthy discussions with your staff on the recommended measures. The CARB staff comments on the recommended measures are provided in the revised draft "Air Resources Board's Proposed State Strategy for California's 2007 State Implementation Plan" dated April 26, 2007. While the CARB staff report recognizes a potential to achieve up to half of the emission reductions, the AQMD strongly disagrees with the CARB staff's rather negative assessment of the measures. In addition, based on recent discussions with your staff and review of their current regulatory proposals, we believe that three of the recommended measures could alone achieve about 41 tons/day of NOx emission reductions beyond the targets in CARB's April 2007 draft proposed state strategy. In response to your staff's comments on the 2007 AQMP recommended measures, we are providing further technical information and clarifications regarding the measures. The AQMD staff's comments are provided in Attachment 2 of this letter.

The 12 suggested enhancement measures were developed based on the need to accelerate turnover of legacy fleets (including older passenger cars) through: greater penetration of the cleanest commercially available vehicles, maximizing the potential for engine repowers and retrofits in a timely and expeditious manner, greater use of cleaner fuels (especially, low carbon fuels), and accelerating the introduction of cleaner vehicle technologies that will become commercially available in the 2010 timeframe.

In parallel to the proposed state strategy, your staff has been developing the in-use off-road diesel vehicle regulation and has proposed regulatory concepts for port trucks and on-road heavy-duty private vehicles. The AQMD staff has been working closely with your staff to identify ways to achieve additional emission reductions beyond the reductions targeted in the proposed state strategy. Relative to the proposed regulation for in-use off-road diesel vehicles, the AQMD staff has identified enhancements to the proposed regulations that could achieve an additional 13 tons/day (as evaluated by CARB

Dr. Robert Sawyer

- 3 -

June 20, 2007

staff) of NOx emission reductions (above the 10 tons/day targeted in the proposed state strategy). In addition, your staff estimated NOx emission reductions of 61 tons/day for the proposed regulatory concept for on-road heavy-duty vehicles. This is 25 tons/day above the targeted NOx emission reductions in the proposed state strategy. Lastly, we have evaluated the CARB staff's proposed regulatory concept for port trucks and estimated that 4.9 tons/days of NOx emission reductions would be achieved by 2014 (2.9 tons/day of NOx emission reductions more than the 2 tons/day provided in the proposed state strategy). We strongly believe that the actions being taken by the Ports of Los Angeles and Long Beach will provide additional reductions from port trucks and the NOx emission benefits are provided in South Coast's 2007 AQMP. Your own staff's analysis shows that the combined additional NOx reductions of about 41 tons/day from the three measures could be included in the state strategy.

The 2007 AQMP calls for an additional 63 tons/day of NOx emissions reductions to demonstrate attainment of the federal PM_{2.5} air quality standard by 2015. Inclusion of the 41 tons/day will address a significant portion of the needed NOx reductions. However, the region must have improved certainty in projecting attainment of air quality standards and it is necessary to achieve the full 63 tons/day of NOx reductions. As such, the 2007 AQMP provides a discussion of the mechanism by which CARB could commit to the full 63 tons/day. Specifically, language is provided that would reflect CARB's commitment to achieve, in aggregate, a total of 185 tons/day of NOx emission reductions by 2014. However, flexibility is provided regarding how those reductions are achieved from the group of identified measures. Moreover, substitution is allowed provided any new measure meets all of the applicable legal tests.

Adding the emission reductions into the state strategy provides certainty that the South Coast Air Basin will achieve the federal annual PM_{2.5} ambient air quality standard by 2015 and that the control strategy meets all legal tests. It also provides greater certainty towards the attainment of the federal 24-hour PM_{2.5} and 8-hour ozone air quality standards. Given the short time the region has to attain the federal annual PM_{2.5} air quality standard, we must seize every opportunity to move aggressively in cleaning up legacy fleets. The challenges are significant; however, we strongly believe that a strategic mix of regulatory activities and incentive funding on a targeted basis will overcome many of these challenges.

In conclusion, we strongly urge your Board to add the additional 63 tons/day of NOx emission reductions provided in the 2007 AQMP into the proposed state strategy. If your Board does not approve the additional reductions, we strongly believe that this will seriously jeopardize the approval of the 2007 AQMP into the state implementation plan.

If, for any reason, the state mobile source control strategy is not strengthened by 63 tons/day, we request that your Board delay decision on the proposed state strategy and consider it in conjunction with your deliberations on the South Coast 2007 AQMP. Last

Dr. Robert Sawyer

- 4 -

June 20, 2007

week, U.S. EPA issued new guidance relative to the date by which finding of non-submittal of the 8-hour ozone State Implementation Plans will be no sooner than August 15, 2007. Therefore, more time can be afforded for the adoption of the state strategy. We would further request in such instance that you consider the proposed state strategy and the 2007 AQMP for the South Coast Air Basin at your next Board meeting in July rather than October. We believe that with each passing month, we will fall further behind in adopting and implementing critical control measures.

We are committed to working with your Board to further develop ways to achieve the necessary emission reductions. If you have any questions regarding our comments, please call me at (909) 396-2100.

Sincerely,



William A. Burke
Chairman of the Board

BRW:EC-CSL:HH

Attachments

Attachment 1: Comparison Between the Proposed State Mobile Source Strategy and South Coast's 2007 AQMP Recommended Additional Control Measures

Attachment 2: AQMD Staff's Response Regarding CARB's Analysis of South Coast's 2007 AQMP Recommended State and Federal Mobile Source Control Measures

Attachment 1

Comparison Between the Proposed State Strategy and South Coast 2007 AQMP Recommended Additional Control Measures

Mobile Source Category	Proposed State Strategy	NOx Emission Reductions (tons/day)	2007 AQMP Recommended Additional Measure	NOx Emission Reductions (tons/day)
Light- and Medium-Duty Vehicles	<ul style="list-style-type: none"> • Smog Check Enhancements - Low Pressure Evap. Test, Annual Insp. of Older and High Mileage Vehicles, More Stringent Cutpoints, Visible Smoke Test, Insp. of Light- & Med. Diesels and Motorcycles 	12.0	<ul style="list-style-type: none"> • (SCONRD-01) Accelerated Penetration of ATPZEVs - 100,000 Plug-in ATPZEVs by 2014; 1 MM by 2020 	0.9
	<ul style="list-style-type: none"> • Expanded Vehicle Retirement - Increase from 18,000 to 50,000 	2.4	<ul style="list-style-type: none"> • (SCONRD-02) Greater Deployment of OBD III - Light- and Medium-Duty Vehicles 	2.9
Heavy-Duty Vehicles	<ul style="list-style-type: none"> • Cleaner In-Use Heavy-Duty Trucks - Target 30% Oldest, Pre-2010 Vehicles (~38,000 Vehicles); Reduce Excess Emissions From Anticipated Deterioration 	47.3	<ul style="list-style-type: none"> • (SCONRD-03) Heavy-Duty Vehicles - Additional 15% Oldest, Pre-2010 Vehicles (~21,000 Vehicles) 	20.9
	<ul style="list-style-type: none"> • Port Trucks - Two-Phase PM First, NOx Later 	2.0	<ul style="list-style-type: none"> • (SCONRD-04) Port Trucks - Implement Ports Clean Air Plan - ~15,000 Trucks 	6.3
Off-Road Diesel Equipment	<ul style="list-style-type: none"> • Cleaner In-Use Off-Road Equipment (>25hp) - Fleet Average Requirements or 10% Turnover (Equivalent to Replacing Tier 0s with Tier 3s); May Retrofit or Repower 	10.5	<ul style="list-style-type: none"> • (SCOFFRD-01) Additional NOx Reductions from Off-Road Equipment - Accelerate Fleet Average Proposal by 4 Years (Equivalent to Replacing Tier 0s and 1s with Tier 3s or Cleaner); May Retrofit/Repower 	15.8
Goods Movement Related Sources	<ul style="list-style-type: none"> • Auxiliary Ship Engine Cold Ironing - 60% NOx Red. By 2014 	18.5	<ul style="list-style-type: none"> • (SCOFFRD-02) Cargo Handling Equipment - Implement Port Plan - Covers Non-Yard Tractors <p>(CONTINUED ON NEXT PAGE) (CONTINUED FROM PREV. PAGE)</p>	1.1
	<ul style="list-style-type: none"> • Cleaner Main Engines and Fuel - Vessel Speed Reduction; 0.1% Sulfur Fuel; Retrofits (30%) 	20.0		
	<ul style="list-style-type: none"> • Clean Up Existing Harbor Craft - Replace Old Engines with Newer and/or Add Emission Controls 	4.6		

Mobile Source Category	Proposed State Strategy	NOx Emission Reductions (tons/day)	2007 AQMP Recommended Additional Measure	NOx Emission Reductions (tons/day)
	<ul style="list-style-type: none"> Accelerated Introduction of Cleaner Line-Haul Locomotives - 10% "Tier 4" and upgrades to "Tier 2.5" at 5% beginning 2012 (Tied to U.S. EPA Rulemaking) 	4.3	<p><i>(CONTINUED FROM PREV. PAGE)</i></p> <ul style="list-style-type: none"> (SCOFFRD-03) Cleaner Locomotives - 100% "Tier 4" by 2014 as provided in San Pedro Bay Ports Clean Air Action Plan 	11.0
Other Off-Road Sources	<ul style="list-style-type: none"> New Emission Standards for Rec. Boats - New Exhaust Standards by 2013; New Evaporative Standards by 2012 Expanded Off-Road Rec. Vehicle Emiss. Stds. - 50% Red. From new off-road Motorcycles and ATVs beginning 2012 	0.4	<ul style="list-style-type: none"> (SCOFFRD-04) Airport Ground Support Equipment - Reductions from Remaining Equipment Covered Under the MOU with Additional Actions on Other Equipment Not Covered Under MOU (SCOFFRD-05) Transport Refrigeration Units - Retrofit/Replace to New TRUs with Lower NOx Levels; May Look at Operational/Efficiency Improvements (SCOFFRD-06) Accelerated Turnover of Outboard/ Personal Water Craft Engines - Accelerate 20% of Fleet to Cleaner Engines by 2014; CARB to Establish More Stringent Standards After 2015 	0.8 1.1 1.0
Cleaner Fuels	<ul style="list-style-type: none"> Modifications to Reformulated Gasoline - Mitigate Ethanol Permeation (VOC Reduction - 3.7 tpd; No Concurrent NOx or SOx Reductions Claimed) 	-	<ul style="list-style-type: none"> (SCFUEL-01) Lower Sulfur Content Gasoline - 10 ppm Sulfur Cap (SOx Reduction - 1.4 tpd) (SCFUEL-02) Greater Use of Diesel Fuel Alternatives - 10% Displacement of Diesel Fuel Through Blends (GTLs, DME, etc.), Reformulation, or Alternative Fuels 	5.2 3.9
TOTAL		122		70.9

Attachment 2
AQMD Staff's Response Regarding CARB's Analysis of South Coast's 2007
AQMP
Recommended State and Federal Mobile Source Control Measures

In its April 26, 2007 release of the "California Air Resources Board Proposed State Strategy for the California State Implementation Plan for the Federal 8-Hour Ozone and PM_{2.5} Standards," the California Air Resources Board (CARB) staff provided an analysis of the 12 recommended mobile source control measures provided in South Coast's 2007 Air Quality Management Plan (Appendix IV-B-2). The following is a response regarding the CARB staff analysis.

Control Measure SCONRD-01 – Accelerated Penetration of Advanced Technology Partial Zero-Emission and Zero-Emission Vehicles

This recommended control measure seeks to have 100,000 near-zero emission vehicles operating in 2014 and one million vehicles by 2020. The targeted number of vehicles is consistent with the Governor's vision to have 7 million hybrids and alternative fuel vehicles by 2020. In addition, AB 1077 is seeking similar levels by 2014. Plug-in hybrids and other near-zero vehicle technologies are being commercialized. While CARB's staff assessment found the penetration rates unrealistic, such penetration rates could be realized as CARB considers the zero-emission vehicle mandate under the Low-Emission Vehicle (LEV-II) program. In addition, we believe that many of the automobile manufacturers will further commercialize these technologies to meet CARB's greenhouse gas regulations for passenger cars and light-duty trucks. We also see the potential for greater penetration through incentives such as single occupancy stickers for carpool lanes, tax credits, and buydown programs. Such programs have led to a significant increase in hybrid vehicle sales as noted with the recent issuance of 85,000 HOV stickers for hybrids over the last two years.

Relative to the estimated emission reductions, CARB staff testing of a prototype plug-in hybrid indicates that NO_x emissions are about 79 percent and 50 percent (FTP and Highway cycles) lower than the dedicated gasoline hybrid version. As manufacturers continue to gain real-world experience with this technology, we expect these emission reductions to be improved upon.

Control Measure SCONRD-02 – Deployment of On-Board Diagnostics (Phase III) in Light- and Medium-Duty Vehicles

This measure seeks the use of advanced on-board diagnostics (OBD) in new vehicles and a program to retrofit existing vehicles with OBD-III. OBD-III has enhanced capabilities to monitor vehicle emissions and implementation of such a device could eliminate the

need for periodic Smog Check programs. CARB staff does not believe this measure could be implemented due to current prohibitions under state law to set retrofit requirements on existing vehicles. However, CARB could adopt requirements for OBD-III for new vehicle sales. In addition, CARB staff has approached high-mileage fleets to pilot an advanced OBD deployment program in lieu of Smog Check. Such a pilot program can be conducted on a voluntary basis to demonstrate the efficacy of the use of OBD-III. If necessary, legislative changes could be sought to authorize a program on a broader basis for existing vehicles. We note that the proposed state strategy to enhance the current Smog Check program would also require legislative changes.

Control Measure SCONRD-03 – Further Emission Reductions from On-Road Heavy-Duty Vehicles

The recommended control measure seeks more aggressive turnover of the legacy fleet of on-road heavy-duty vehicles by targeting an additional 15 percent of the oldest, pre-2010 vehicles. CARB staff believes that this is only feasible if subsidized and would only achieve 12 tons/day of NOx emission reductions. However, more recently, CARB staff has proposed regulatory concepts for the on-road private fleet regulation. Based on information provided by CARB staff, the regulatory concept could achieve up to 61 tons/day of NOx emission reductions (compared to the targeted 47.3 tons/day from this source category). Clearly, there are opportunities to garner greater emission reductions than the targets provided in the April 2007 proposed state strategy.

Control Measure SCONRD-04 – Further Emission Reductions from Heavy-Duty Trucks Providing Freight Drayage Services

This measure recognizes the implementation schedule of the San Pedro Bay Ports Clean Air Action Plan (CAAP). Since the adoption of the CAAP in November 2006, port staff has moved forward with proposed implementation mechanisms for heavy-duty trucks to ensure that this critical source category will be cleaned up. Based on the implementation schedule provided in the CAAP, we estimated NOx emission reductions of 8.3 tons/day. However, since the proposed state strategy targets 2 tons/day, the 2007 AQMP measure seeks to achieve the remaining 6.3 tons/day. On a separate note, we have evaluated the CARB staff's proposed regulatory concept for port trucks and under the proposed regulatory concept, 4.9 tons/day of NOx emission reductions could be achieved. We believe that the proposed state strategy should acknowledge the additional emission reductions.

Control Measure SCOFFRD-01 – Construction/Industrial Equipment Fleet Modernization

As you are aware, the AQMD staff has provided comments regarding the Proposed Regulation for In-Use Off-Road Diesel Vehicles, which reflects a more specific proposal to achieve additional NOx emission reductions from off-road diesel equipment. Working within the framework of the CARB staff's proposed regulation, AQMD staff provided a regulatory approach that would result in an additional 13 tons/day of NOx emission reductions. CARB staff conducted the technical analysis resulting in the 13 tons/day esti-

mate. We fully recognize that to achieve the additional reductions would place greater financial responsibilities on the affected fleets to comply. However, we also believe that there are financial mechanisms that can provide assistance to affected fleets on a targeted basis. We are continuing to refine our analysis of the affected fleets and will continue to work with CARB staff on the proposed regulation. Again, we believe that the proposed state strategy should reflect the potential to achieve greater emission reductions from this significant source category.

Control Measure SCOFFRD-02 – Further Emission Reductions from Cargo Handling Equipment

This recommended measure seeks additional emission reductions from cargo handling equipment beyond the current state regulation and implements the measure provided in the San Pedro Bay Ports CAAP. We believe that recent proposals by industry would result in additional emission reductions from cargo handling equipment. In particular, Union Pacific proposed, in its application to expand the intermodal facility at the Port of Los Angeles, the use of electric wide-span gantry cranes to replace the existing diesel rubber tire gantry cranes and to reduce the number of yard tractors operating at the facility. In addition, there are discussions to demonstrate flywheel technologies that could result in about a 30 percent reduction in NOx emissions from equipment not covered under the current state regulation.

Control Measure SCOFFRD-03 – Further Emission Reductions from Locomotives

This recommended control measure is the same measure provided in the San Pedro Bay Ports CAAP. The measure seeks additional reductions from Class 1 line-haul and switch locomotives through the introduction of locomotives meeting the most stringent proposed federal emission standards (at this time, U.S. EPA is proposing “Tier 4” emission standards that would reduce locomotive NOx emissions by 90 percent from uncontrolled levels). The AQMD staff is continuing discussions with locomotive manufacturers and CARB staff on demonstration projects that could bring such locomotives in the 2010 to 2012 timeframe. The AQMD Governing Board approved funding of two projects to demonstrate SCR technologies on passenger locomotives, which will provide valuable information on deployment of SCR technologies on a larger scale. More recently, AQMD staff is in discussions with CARB staff on demonstrating SCR technologies on Class 1 line-haul locomotives. In addition, AQMD staff and CARB staff have been in discussions on proposals that could bring “Tier 4” locomotives as early as 2010. We strongly believe that a combination of activities (such as CAAP and demonstration projects) will provide the impetus to have Tier 4 locomotives operating in the South Coast Air Basin in the 2012 timeframe.

Control Measure SCOFFRD-04 – Emission Reductions from Airport Ground Support Equipment

This measure is provided to reflect the termination of the Ground Support Equipment Memorandum of Understanding with the Air Transport Association and the major com-

mercial airports in the South Coast Air Basin. While much of this equipment is covered under current and proposed state regulations, there are other pieces of equipment not covered. We believe that the remaining equipment could be controlled through electrification, use of cleaner burning fuels including alternative fuels, or other advanced control technologies. The recommended measure is intended to fulfill the requirements of the original MOU (i.e., additional 15% electrification) and to achieve additional reductions by requiring more stringent fleet-wide average emission levels similar to the levels required for other categories such as forklifts under CARB's Large Spark Ignited Regulation. The stipulated settlement agreement between the LAX and neighboring cities would achieve a portion of the reductions under this measure. CARB should develop a regulatory program for this category of equipment to achieve the reductions for this measure.

Control Measure SCOFFRD-05 – Further Emission Reductions from Transport Refrigeration Units

The AQMD staff believes that further emission reductions could be achieved from transport refrigeration units through a combination of replacement, retrofit, or repower of the units. Many of the units could be replaced with electric units. In addition, more stringent NOx emission standards could be adopted by CARB.

Control Measure SCOFFRD-06 – Accelerated Turnover and Catalyst-Based Standards for Pleasure Craft

This measure seeks early turnover of existing pleasure craft as new emission standards are adopted by CARB or U.S. EPA in the longer term. There are a significant number of 2-stroke engines in pleasure craft as well as uncontrolled 4-stroke engines in the inboard and sterndrive categories. An aggressive turnover of existing engines is necessary since many of the older 2-stroke engines generally emit large amounts of particulate emissions. Cleaning up this source category through turnover and adoption of more stringent catalyst based standards will lead to further emission reductions in all pollutants including directly emitted particulates, NOx, and volatile organic compounds. Most of the emission reductions are envisioned to occur in the post-2015 timeframe to help meet the 8-hour ozone attainment date.

Control Measure SCFUEL-01 – Further Emission Reductions from Gasoline Fuels

CARB staff analysis indicated that this measure is not necessary. However, the proposed state strategy should recognize that there will be concurrent sulfur oxide emission reductions associated with setting a lower sulfur content cap. The recommended measure proposes a 10 ppmV sulfur content limit. However, the CARB Board adopted a 20 ppmV cap on June 14, 2007. It was estimated that with a 10 ppmV limit, the sulfur oxide reductions would be about 1.4 tons/day (the NOx emission reductions associated with the 10 ppmV limit would be about 5.2 tons/day). According to CARB staff analysis of this measure, the gasoline reformulations will have about a 5 ppmV sulfur content because fuel providers will be allowed to increase the oxygenate content to 10 percent. Therefore,

there would not be any additional NOx benefits. However, CARB staff did not indicate that there are concurrent sulfur oxide benefits. The 1.4 tons/day of sulfur oxide reductions would be sufficient to close the 1 ton/day gap of sulfur oxide emissions identified in South Coast's 2007 AQMP.

Control Measure SCFUEL-02 – Further Emission Reductions from Diesel Fuels

This measure calls for replacement of up to 10 percent of conventional diesel fuel with cleaner diesel fuel alternatives such as gas-to-liquid, dimethylether (DME), or other low-carbon fuels and alternative fuels. It is expected that the diesel fuel alternatives would be blended with conventional diesel fuel. However, there may be opportunities to develop cleaner diesel fuel formulations in addition to the use of the diesel fuel alternatives. The AQMD along with the National Renewable Energy Laboratory sponsored two studies, which indicate that the use of neat gas-to-liquids could result in about 40 percent reduction in NOx emissions. CARB staff's analysis focused on gas-to-liquids as the primary alternative and indicated that the estimated additional cost is substantial and the recommended measure would not be feasible due to the total additional cost. However, a more thorough analysis on life cycle cost on the use of gas-to-liquids is needed. There are potential cost savings in raw materials that must be evaluated as part of this analysis.