

Responses to Comments

on the

Draft Environmental Analysis

for

**THE PROPOSED 2016 STATE
STRATEGY FOR THE
STATE IMPLEMENTATION PLAN**



Released March 10, 2017
to be considered at the
March 23 - 24, 2017 Board Hearing

This page intentionally left blank.

TABLE OF CONTENTS

PREFACE..... 1

1. INTRODUCTION.....2

 A. Requirements for Responses to Comments.....3

 B. Comments Requiring Substantive Responses.....4

2.0 RESPONSES TO COMMENTS.....6

Tables

 Table 2-1 List of Commenters..... 6

PREFACE

The California Air Resources Board (ARB) released a Draft Environmental Analysis (EA) for the 2016 Proposed State Strategy for the State Implementation Plan (State SIP Strategy) on May 17, 2016 for a public review and comment period that concluded July 18, 2016. A total of 25 comment letters were received on the proposed State SIP Strategy during the public comment periods, 7 of which addressed the Draft EA.

ARB staff made minor modifications to the EA to provide clarity and consistency with revisions made to the State Sip Strategy based on public and Board member input. To facilitate identifying modifications to the document, modified text is presented in the Final EA with ~~strike-through~~ for deletions and underline for additions. None of the modifications alter any of the conclusions reached in the EA, introduce new significant effects on the environment, or provide new information of substantial importance relative to the EA. As a result, these minor revisions do not require recirculation of the draft document pursuant to the California Environmental Quality Act (CEQA) Guidelines, California Code of Regulations, title 14, section 15088.5, before consideration by the Board.

1. INTRODUCTION

On May 17, 2016, California Air Resources Board (ARB) staff prepared and released for public review the Proposed 2016 State Strategy for the State Implementation Plan (State SIP Strategy) and the Draft Environmental Analysis for the State SIP Strategy (Draft EA). The public comment period began on May 17, 2016 and concluded on July 18, 2016.

Numerous comment letters were submitted through the comment docket opened for the State SIP Strategy during that time. Comments are available at:
<https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=statesip2016>

Pursuant to ARB's certified regulatory program, staff carefully reviewed all the comment letters received to determine which ones raised substantive environmental issues related to the Draft EA and required a written response. This document presents those comments and ARB staff's written responses to environmental comments. Although this document includes written responses only to those comments related to the Draft EA, all of the public comments were considered by staff and provided to the Board members for their consideration.

Since release of the State SIP Strategy in May 2016, substantial progress has also occurred in further developing various elements of the strategy. ARB staff initiated stakeholder discussions and workshops related to a number of the proposed measures, and have continued to work with both the South Coast Air Quality Management District (AQMD or SCAQMD) and the San Joaquin Valley Air Pollution Control District on further refinement of the strategy. Additionally, staff presented the State SIP Strategy and proposed measures to the Board on September 22, 2016 to receive Board direction, as well as to provide an additional opportunity for public comment.

On March 7, 2017, ARB released the Revised Proposed 2016 State SIP Strategy, which incorporates the most recent air quality modeling and inventory data developed as part of the SIP process, as well as refinements to specific measures in response to public comments received, Board guidance, and continued technology assessments. Following consideration of the comments received on the Draft EA, and during the preparation of the responses to those comments, ARB staff also revised the Draft EA to prepare the Final Environmental Analysis (Final EA), which was released on March 10, 2017, and presented as Appendix B to the Revised State SIP Strategy.

The Final EA, together with this document, will be presented to the Board for its consideration for approval prior to taking final action on the Revised Proposed 2016 State SIP Strategy. For reference purposes, this document includes a summary of each comment followed by the written response. The full comment letters containing comments related to the Draft EA are provided in Attachment 1 of this document.

A. Requirements for Responses to Comments

These written responses to public comments on the EA are prepared in accordance with ARB's certified regulatory program to comply with the California Environmental Quality Act (CEQA). ARB's certified regulations states:

California Code of Regulations, title 17 section 60007. Response to Environmental Assessment

(a) If comments are received during the evaluation process which raise significant environmental issues associated with the proposed action, the staff shall summarize and respond to the comments either orally or in a supplemental written report. Prior to taking final action on any proposal for which significant environmental issues have been raised, the decision maker shall approve a written response to each such issue.

Public Resources Code section 21091 also provides guidance on reviewing and responding to public comments in compliance with CEQA. While this section refers to environmental impact reports, proposed negative declarations, and mitigated negative declarations, rather than an EA, it contains useful guidance for preparing a thorough and meaningful response to comments.

Public Resources Code section 21091, subdivision (d) states:

(1) The lead agency shall consider comments it receives ... if those comments are received within the public review period.

(2) (A) With respect to the consideration of comments received ..., the lead agency shall evaluate any comments on environmental issues that are received from persons who have reviewed the draft and shall prepare a written response pursuant to subparagraph (B). The lead agency may also respond to comments that are received after the close of the public review period.

(B) The written response shall describe the disposition of each significant environmental issue that is raised by commenters. The responses shall be prepared consistent with section 15088 of Title 14 of the California Code of Regulations.

California Code of Regulations, title 14, section 15088 (CEQA Guidelines) also includes useful information and guidance for preparing a thorough and meaningful response to comments. It states, in relevant part, that specific comments and suggestions about the environmental analysis that are at variance from the lead agency's position must be addressed in detail with reasons why specific comments and suggestions were not accepted. Responses must reflect a good faith, reasoned analysis of the comments.

California Code of Regulations, title 14, section 15088 (a-c) states:

(a) The lead agency shall evaluate comments on environmental issues received from persons who reviewed the draft Environmental Impact Report (EIR) and shall prepare a

written response. The Lead Agency shall respond to comments received during the noticed comment period and any extensions and may respond to late comments.

(b) The lead agency shall provide a written proposed response to a public agency on comments made by that public agency at least 10 days prior to certifying an environmental impact report.

(c) The written response shall describe the disposition of significant environmental issues raised (e.g., revisions to the proposed project to mitigate anticipated impacts or objections). In particular, the major environmental issues raised when the Lead Agency's position is at variance with recommendations and objections raised in the comments must be addressed in detail giving reasons why specific comments and suggestions were not accepted. There must be good faith, reasoned analysis in response. Conclusory statements unsupported by factual information will not suffice.

B. Comments Requiring Substantive Responses

ARB is required to prepare substantive responses only to those comments that raise "significant environmental issues" associated with the proposed action, as outlined in California Code of Regulations, title 17, section 60007(a). As stated above, of the total 25 comment letters submitted on the comment docket for the State SIP Strategy, staff determined that 7 of the letters mentioned or raised an issue related to the EA or an environmental issue discussed in the Draft EA. Staff was conservatively inclusive in determining which letters warranted a written response.

Comments on the Draft EA were considered by staff and provided to the Board members for their consideration.

This page intentionally left blank.

2.0 RESPONSES TO COMMENTS

The comment letters were coded by the order in which they were received. Table 2-1 provides the list of comment letters that contain substantive environmental comments. Responses to these comments are provided below. Responses are not provided to comments which do not raise substantive environmental issues. Comment letters, bracketed to indicate individual comments, are provided in Attachment 1.

Table 2-1 List of Commenters		
No.	Commenter	Date
3	Consumer Specialty Products Association	July 6, 2016
4	Pacific Merchant Shipping Association	July 13, 2016
10	Joyce Dillard	July 18, 2016
11	California Trucking Association	July 18, 2016
12	Truck and Engine Manufacturers Association	July 18, 2016
15	American Trucking Association	July 18, 2016
24	Western States Petroleum Association	July 19, 2016

Comment Letter 3	Consumer Specialty Products Association July 6, 2016
-----------------------------------	---

3-1 **Summary of Comment:** The comment states that only one section in the Draft EA addresses consumer products.

Response: The comment correctly states that there is one section in the Draft EA that addresses consumer products. As the reasonably foreseeable compliance responses associated with consumer products would not result in environmental impacts (i.e., they would cause no adverse physical change to the environment), the associated measures are not discussed further in the EA. As stated on page 39 of the Draft EA:

“Compliance responses associated with consumer products would continue ARB’s commitment to reduce VOC emissions from consumer products. Staff and industry are undertaking a comprehensive data reporting effort to gather information about sales trends and product formulations. Staff uses this data along with trade journals, patents, and other technical information to propose mass-based VOC limits. Staff would continue to investigate any and all opportunities for emission reductions by taking advantage of emerging low-emitting technologies.”

At this time, staff is not proposing any commitment to further regulate consumer product emissions, but rather proposes to investigate opportunities for further reductions from this category. In undertaking these efforts, staff would ensure that no negative impacts occur either using TACs or other chemicals that may have other negative environmental impacts. Further analysis of the environmental effects of future consumer products measures would be speculative, and is therefore not discussed further in the EA. No changes to the EA are necessary.

3-2 **Summary of Comment:** The comment suggests that the EA should consider an alternative that addresses the consumer products measures.

Response: CEQA Guidelines speak to evaluation of “a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic project objectives but would avoid or substantially lessen any of the significant effects, and evaluate the comparative merits of the alternatives (Cal. Code Regs., tit. 14, § 15126(a)).” The purpose of the alternatives analysis is to determine whether different approaches to or variations of the project would reduce

or eliminate significant project impacts, within the basic framework of the objectives, a principle that is consistent with ARB's program requirements. Because there are no environmental impacts associated with the consumer products measures, there is no need to consider alternatives as no significant environmental effects would be lessened by any potential alternatives.

No changes to the EA are necessary.

3-3

Summary of Comment: The comment states that the EA does not include information on the computer modeling ozone attainment demonstrations conducted to show attainment of the standard.

Response: The EA is intended to help focus public review and comments on the State SIP Strategy, and ultimately to inform the Board of the environmental benefits and adverse impacts prior to Board action on the proposals. Per CEQA guidelines, staff conducted a rigorous analysis of potential environmental consequences stemming from the actions proposed in the State SIP Strategy. Using the best information currently available, the Draft EA details the potential environmental impacts associated with reasonably foreseeable compliance responses to each measure proposed in the State SIP Strategy in *Chapter 4: Impact Analysis and Mitigation*. The commenter's concern here pertains to the design of the SIP Strategy and the level of pollutant reductions to be achieved, but does not address any concerns regarding environmental impacts from the proposed SIP Strategy. Therefore, no further response is necessary.

Furthermore, the level of detail in this EA appropriately reflects that the State SIP Strategy is a broad planning document. As such, the analysis does not provide the level of detail that will be provided in subsequent environmental documents prepared for specific regulatory actions that ARB or other agencies may decide to pursue to reduce criteria air pollutant emissions (Cal. Code Regs., tit. 14, § 15152.) This analysis specifically focuses on reasonably foreseeable potentially significant adverse and beneficial impacts on the physical environment resulting from reasonably foreseeable compliance responses taken in response to implementation of the measures within the State SIP Strategy.

For the reasons described above, the EA provides the appropriate level of review to address the environmental impacts related to the programmatic nature of the State SIP Strategy. No changes to the EA are required.

Comment Letter 4	Pacific Merchant Shipping Association July 13, 2016
---------------------------------	---

4-1

Summary of Comment: The comment states that the Draft EA does not address impacts associated with potential greenhouse gas (GHG) leakage from possible changes in the cargo routes used by the freight industry due to increased costs of compliance with the measures in the strategy. The comment discusses how ocean-going vessels and/or heavy-duty trucks could be diverted outside of California, or how compliance costs may cause freight and related facilities to relocate or reconfigure.

Response: Chapter 4 details the potential environmental impacts associated with reasonably foreseeable compliance responses to each measure proposed in the strategy, including freight-related categories such as interstate trucks and ocean-going vessels. Per CEQA requirements, staff conducted a rigorous analysis of potential environmental consequences stemming from the actions proposed in the State SIP Strategy. The Draft EA analyzes the potentially significant environmental impacts associated with reasonably foreseeable compliance responses to the Strategy, including proposed measures that are designed to transition the freight industry toward cleaner near-zero and zero-emission technologies (see the Final EA *Chapter 4: Impact Analysis and Mitigation*).

This impact analysis is based on the best data available at this time, and includes assumptions related to actions to deploy near-zero and zero-emission vehicles and engines, which have been informed by rigorous technology reviews. The needed technologies the strategy calls for in the freight sector may be powered by batteries, natural gas, hydrogen, renewable fuels, hydrocarbon fuels (i.e., conventional gasoline and diesel), or any combination thereof. Currently, many of the needed technologies are in early stages of commercialization, and their development trajectories will ultimately be influenced by a number of policy, technical, and economic variables, including but not limited to: costs of production, infrastructure considerations, technological breakthroughs, engineering and performance constraints, consumer demand for individual technologies, and each technology’s performance and cost relative to other competing technologies and fuels. Furthermore, in accordance with the California Administrative Procedures Act, when developing its regulatory measures ARB shapes them as more flexible “performance standards” rather than prescriptive standards wherever possible. Due to the uncertainties, inherent in forecasting the potential future regulatory language and the trajectory of technology development, it

is not feasible at this time to determine in more detail how fleets may change in response to the proposed strategy.

It is also not feasible at this time to foresee how impacted industries will alter their business' operations and pinpoint precise changes in future global shipping routes in response to these multiple unknown variables, as the comment suggests. Doing so would require making assumptions that would be highly speculative, and therefore inappropriate for a programmatic EA, which is intended to provide a good-faith effort to programmatically evaluate the potential for significant adverse environmental impacts associated with implementation of the State SIP Strategy.

More importantly, this comment does not provide any specific indicators or evidence that the proposed actions would result in shifts within the freight industry in a manner that substantially differs from the likely compliance responses detailed in the Final EA in *Chapter 2: Project Description*. Lacking specifics to which staff could respond to, (such as studies of freight transit patterns, or data indicating alternative cost assumptions that would result in redirecting freight traffic), staff has based assumptions on the best information available at this time. For the reasons described above, the EA provides the appropriate level of review to address the environmental impacts related to the State SIP Strategy. No changes to the EA are required.

Nonetheless, it is important to note that, if ARB or another state agency pursues regulations to implement any of the measures discussed in the State SIP Strategy, each regulation would go through its own required Administrative Procedure Act (APA) and CEQA processes. The APA is a rigorous process that includes technical, environmental, and economic analyses, and public review and input. The Initial Statement of Reasons (ISOR) prepared by ARB for each proposed regulation, also known as the Staff Report, would include an environmental analysis specific to that proposal as required under CEQA.

Comment Letter 10	Joyce Dillard July 18, 2016
----------------------------------	---

10-1 **Summary of Comment:** The comment recommends including traffic calming mechanisms such as green streets and bicycle lanes into the State SIP Strategy and the environmental analysis.

Response: This comment relates to the contents of the State SIP Strategy. The EA analyzes the measures as discussed in the State SIP Strategy, therefore since traffic calming mechanism are not included in the State SIP Strategy they are also not analyzed in the EA. No changes to the EA are required.

Comment Letter 11	California Trucking Association July 18, 2016
----------------------------------	---

11-1 Summary of Comment: The comment makes several references to “the EA”. However, it appears that this is not in reference to the Draft EA and instead is in reference to the Economic Analysis.

Response: Since this comment is not in reference to the Draft EA, no further response can be provided. No changes to the EA are required.

11 -2 Summary of Comment: The comment states that the Draft EA should be more detailed. As an example, the comment states that the analysis should disclose the nature of electric vehicles, lithium manufacturing facilities, and lithium mining. The comment also states that the Draft EA generically identifies some potential impacts and incorrectly concludes impacts as significant and unavoidable.

Response: Environmental impacts associated with these reasonably foreseeable compliance responses are described in the Draft EA throughout *Chapter 4: Impact Analysis and Mitigation*. Where possible, more detailed information is provided related to the environmental effects. For instance, *Impact 1-1: Short-Term Construction-Related and Long-term Operational-Related Effects to Aesthetics*, *4-1: Short-Term Construction-Related Effects to Biological Resources*, *9-2: Long-Term Increased Transport, Use, and Disposal of Hazardous Materials*, and *10-2: Long-Term Effects on Hydrology and Water Quality* describe the environmental effect of mining activities as they relate to specific types of lithium mining (i.e., brines and hard rock). The comment does not indicate specific environmental effects that were not addressed; thus, no further response can be provided.

The degree of specificity required in a CEQA document corresponds to the degree of specificity inherent in the underlying activity it evaluates. The environmental analysis for broad programs is necessarily less detailed than for specific projects (Cal. Code Regs., tit. 14, § 15146). For example, the assessment of a construction project would be more detailed than for the adoption of a plan because the construction effects can be predicted with a greater degree of accuracy (Cal. Code Regs., tit. 14, § 15146 (a)).

The scope of analysis in this EA is intended to help focus public review and comments on the State SIP Strategy, and ultimately to inform the Board of the environmental benefits and adverse impacts prior to Board action on the proposals. This analysis specifically focuses on reasonably

foreseeable potentially significant adverse and beneficial impacts on the physical environment resulting from reasonably foreseeable compliance responses taken in response to implementation of the measures within the State SIP Strategy.

The level of detail in this Draft EA reflects that the State SIP Strategy is a broad program; consequently, the analysis does not provide the level of detail that will be provided in subsequent environmental documents prepared for specific regulatory actions that ARB or other agencies may decide to pursue to reduce criteria air pollutant emissions (Cal. Code Regs., tit. 14, § 15152.)

If ARB pursues regulations to implement any of the measures discussed in the State SIP Strategy, each regulation would go through a project-specific environmental analysis, and, as part of the APA process, a rigorous public review process. The ISOR, also known as the Staff Report, prepared for each proposed ARB regulation would include a project-specific EA. Air pollution control districts are also subject to the APA and CEQA when developing regulations, and to CEQA when developing SIP measures that are submitted to ARB for approval and then to U.S. Environmental Protection Agency (U.S. EPA).

In general, the proposed mitigation measures described in this document would be expected to reduce potentially significant impacts to less-than-significant levels at the project level, if agencies with mitigation implementation authority enforce the measures. This Draft EA takes the conservative approach in its post-mitigation significance conclusions (i.e., tending to overstate the risk that feasible mitigation may not be sufficient or may not be implemented by other parties) and discloses, for CEQA compliance purposes, that potentially significant environmental impacts may be unavoidable. It is expected that many of these potentially significant impacts can be feasibly avoided or mitigated to a less than significant level as described in each resource area as a result of the project-specific environmental review processes associated with compliance actions and as a result of compliance with local and state laws and regulations. Typical mitigation measures, described in each resource area, would be further developed during project-specific environmental review processes associated with compliance actions.

For the reasons described above, the Draft EA provides the appropriate level of review to address the environmental impacts related to the programmatic nature of the State SIP Strategy.

No changes to the Draft EA are required.

11-3 **Summary of Comment:** The comment states that the Draft EA does not consider the environmental impacts that could potentially stem from changes in how the freight industry moves freight and vehicles within California, and suggests that increased costs attributable to the strategy may cause shifts away from California operations, resulting in increased emissions.

Response: See response to comment 4-1.

Comment Letter 12	Truck and Engine Manufacturers Association July 18, 2016
----------------------------------	---

12-1 Summary of Comment: The comment states that the Community Multi-Scale Air Quality (CMAQ) model has historically over-estimated the future emissions from on-road heavy-duty vehicles, and is utilizing emissions inputs and related data which are significantly out of date. As the strategy is based on projections from CMAQ, the comment states that the strategy lacks a factual basis that supports the claim that the 90 percent reduction in the proposed low-oxides of nitrogen (NOx) standard is necessary to meet air quality standards. The comment also states that ARB has not provided sufficient time for a fair and reasonable notice and comment process because the strategy and control measures are based on numerous modeling files and results developed for the SCAQMD’s 2016 Air Quality Management Plan (AQMP), which was released on June 30.

Response: This comment letter does not raise any significant environmental issue. As such, ARB has considered this comment, but no response is required. Nevertheless, in the interest of transparency, ARB staff has provided the following additional information.

To the extent the comment regarding the notice and comment process is directed toward the EA, ARB’s certified regulatory program, consistent with CEQA, requires a minimum of a 45-day review period for a fair and reasonable notice and comment period. (Cal. Code Regs., tit. 17, § 60005; Pub. Resources Code § 21091.) The State SIP Strategy and Draft EA were released on May 17, 2016, with a public comment docket that was open beyond than the requisite 45-day minimum, running a total of 60 days from May 17, 2016 through July 18, 2016.

State law does not require that local agencies’ modeling assumptions be released in advance of the close of the public comment and review period for a State agency’s CEQA document. The notice given in this case substantially couples with CEQA’s noticing requirements. (See Pub. Resources Code section 21092(b).) The CEQA Guidelines provide that engineering project reports and scientific documents “should be cited but not included in the Environmental Impact Report (EIR).” The comment did not identify any environmental impacts in connection with the referenced modeling files and results. Please see Response to Comment 11-2 for an explanation as to why the EA includes a level of detail appropriate to its nature as a planning-level environmental analysis, and for more

information regarding the more scientific environmental review that will take place as the measures are developed into regulatory proposals.

The State SIP Strategy and Final Environmental Analysis will be brought to the Board for consideration on March 23 or 24, 2017, approximately six months after the release of the documents containing the modeling files and results referenced in the comment. The South Coast released its Draft AQMD on June 30, 2016, and released its emission inventory and air quality modeling appendices in July and September 2016, respectively. ARB staff has continued to accept public comments on the Proposed Strategy and Draft EA throughout the process, allowing for sufficient time for a fair and reasonable notice and comment process. No comments have identified new environmental impacts revealed by the modeling information.

If ARB pursues regulations to implement any of the measures discussed in the State SIP Strategy, each regulation would go through a project-specific environmental analysis, and, as part of the APA, a rigorous public review process. The Initial Statement of Reasons, also known as the Staff Report, prepared for each proposed ARB regulation would include a project-specific EA. Therefore, opportunities for public comment on proposed measures in the State SIP Strategy will continue as they are developed. Air pollution control districts such as the SCAQMD are also subject to CEQA when developing regulations, and when developing SIP measures that are submitted to ARB for approval and then to U.S. EPA.

No changes to the EA are required.

Comment Letter 15	American Trucking Associations July 18, 2016
------------------------------	--

15-1 Summary of Comment: The comment states that the Draft EA should assess how increasing the volume of zero-emission vehicles in the state would affect the electrical generation network and requests an analysis of the increased electricity that would be required under the State SIP Strategy.

Response: Effects associated with increasing the volume of zero-emission vehicles in the State are discussed in the Draft EA on page 63 under *Impact 6-2: Long-Term Operational Impacts on Energy Demand*, where it is noted that implementation of the measures proposed in the State SIP Strategy would affect the sources and types of energy used to power the mobile source fleet, but would not fundamentally alter the energy demand for transportation:

“Implementation of the State SIP Strategy would effectively shift the use of petroleum-based fuels (i.e., gasoline and CARB diesel) to battery-electric, hydrogen and natural gas. It would also increase the demand and supply of Low-Emission Diesel fuels. However, compliance responses associated with the State SIP Strategy would not affect the number of vehicles and need for energy supplies.”

The Draft EA further explains that reasonably foreseeable compliance responses could result in new demand for electricity. (EA at p. 94.) The Draft EA further addresses potential impacts on pages 93 - 96 under *Impact 18-1: Short-Term Construction Related and Long-Term Operational Impacts on Utilities and Service Systems*. The Draft EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related and long-term operational impacts to utilities and service systems resulting from the operation of new facilities associated with the State SIP Strategy could be potentially significant and unavoidable.

At this time, it cannot be determined how many vehicles would use electric technology rather than other fuel sources; therefore, an evaluation of the increase in statewide electricity use is not necessary or feasible at this time. However, the EA does provide a good-faith effort to evaluate the potential for significant adverse impacts associated with the reasonably foreseeable compliance responses that appear most likely to occur based

on currently available information if the recommended actions identified in the State SIP Strategy are implemented. As noted above, the State SIP Strategy calls for increased use of battery-electric vehicles, as well as several other types of technologies, including vehicles that are fueled by hydrogen or natural gas, and Low-Emission Diesel fuels. No changes to the Draft EA are required.

Comment Letter 24	Western States Petroleum Association July 19, 2016
--------------------------	---

24-1 Summary of Comment: The comment requests an analysis of the incremental criteria air pollutant and GHG emissions from potentially displaced diesel and whether displaced diesel would be exported or result in reduced refinery capacity.

Response: In staff's analysis of the potential effects of the Low-Emission Diesel measure, the potential for increased diesel exports or refinery capacity reductions were not considered foreseeable enough to warrant further analysis at this time. Staff did not assume any changes would occur in refinery practices, as the details of the Low-Emission Diesel measure would be worked out in a separate rulemaking process, and, prior to that, it is not clear how refineries may respond to the Low-Emission Diesel measure. For example, refineries may elect to produce Low-Emission Diesel fuels at refineries using existing or new refinery equipment. If these or any other projects occur as a result of the Low-Emission Diesel measure, their impacts would be addressed as part of a local environmental permitting process. Further analysis of the impacts would also be included in a specific rulemaking implementing the Low-Emission Diesel measure.

24-2 Summary of Comment: The comment requests clarity on the source of the renewable diesel and the potential in-State emissions.

Response: Staff assumes that Low-Emission Diesel will come from three distinct regions: in-state production, the rest of the US production, and the rest of the world production. For this measure, we assume that all in-state production would be consumed in California. Staff assumes that 20 percent of the rest of the US production and one percent of international production will be available for consumption in California. Using these assumptions, staff anticipates that California would have potential availability of 2.6 billion gallons, which exceeds the approximately 1.6 billion gallons of Low-Emission Diesel required to meet the 50 percent petroleum displacement goal by 2030.

The Draft EA, on page 73, under *Impact 8-1: Short-Term Construction Related and Long-Term Operational Greenhouse Gas Impacts*, addresses the potential reduction of GHG emissions as a result of the proposed Low-Emissions Diesel fuel measure. Implementation of the State SIP strategy is anticipated to reduce lifecycle carbon intensity (CO₂e/ MJ) by approximately 35 - 70 percent compared with conventional diesel, thus

resulting in a reduction of GHG emissions for every gallon of Low-Emission Diesel consumed in place of conventional diesel.

Staff did not make any assumption regarding in-state versus out-of-state production of Low-Emission Diesel fuels. Further analysis of the impacts would be included in a specific rulemaking implementing the Low-Emission Diesel measure. When ARB or another state agency pursues regulations to implement any of the measures discussed in the State SIP Strategy, each regulation would go through its own required APA and CEQA processes. The APA is a rigorous process that includes technical, environmental, and economic analyses, and public review and input. The ISOR prepared by ARB for each proposed regulation, also known as the Staff Report, would include an environmental analysis specific to that proposal as required under CEQA.

In addition, stationary source emissions associated with transportation fuel production would be subject to local rules and regulations (e.g., authority to construct and permit to operate requirements) and, consequently, would not be approved by local air districts if emissions were to exceed designated levels for attaining and maintaining ambient air quality standards, or exceed acceptable risk levels for TAC exposure.

24-3 Summary of Comment: The comment requests clarity on the modes of transport and emissions from imported renewable diesel.

Response:

Imported Renewable Diesel is anticipated to arrive in California by four modes of transport: heavy duty truck, ship, rail, and pipeline. GHG emissions from renewable diesel transport calculated under the LCFS lifecycle analysis can range from one gCO₂e/MJ to six gCO₂e/MJ. Criteria air pollutant emissions associated with renewable diesel transport would occur and their magnitudes will depend on transport distance and mode of transport. Overall, the Low Emission Diesel fuel requirement would reduce emissions from the portion of the heavy-duty fleet that will continue to operate on internal combustion engines. It would not drive an increase in the demand for diesel-fueled vehicles or fuels (page 41 of the Draft EA).

The Draft EA provides the appropriate level of review to address the environmental impacts related to the programmatic nature of the State SIP Strategy and no changes to the EA are required.

24-4 Summary of Comment: The comment requests clarity on the impact of the Low-Emission Diesel measure on Cap-and-Trade, specifically regarding leakage.

Response: This comment is general in nature and asks a question rather than providing evidence of an environmental impact. For this reason, no changes to the EA are required. Nonetheless, in the interest of transparency, staff provides the following policy-level response to this programmatic comment:

In-State combustion GHG emissions from biofuels, such as renewable diesel, are not subject to a compliance obligation under the Cap-and-Trade Regulation. Overall, the Low Emission Diesel fuel requirement would reduce emissions from the portion of the heavy-duty fleet that will continue to operate on internal combustion engines. It would not drive an increase in the demand for diesel-fueled vehicles or fuels (page 41 of the Draft EA). The Low Emission Diesel fuel standard would increase the consumption of renewable diesel in California. Increased use of renewable diesel in California would not cause emissions leakage elsewhere because conventional diesel demand would be reduced at the same rate as Low Emission Diesel fuel demand would increase. Thus, production or use of conventional diesel would not be expected to increase outside of the state; and, therefore, emissions leakage is not anticipated. GHG emissions from in-state combustion of biofuels will continue to be tracked as part of the State's comprehensive inventory.

ATTACHMENT 1: COMMENT LETTERS
CONTAINING COMMENTS RELATED TO THE
DRAFT EA



July 6, 2016

via electronic transmission

Clerk of the Board
Air Resources Board
1001 I Street
Sacramento, California 95814
<http://www.arb.ca.gov/17spub/comm/bclist.php>

3

Subject: California Air Resources Board Proposed 2016 State Strategy for the State
Implementation Plan for Federal Ozone and PM2.5 Standards (May 17, 2016)¹

Dear Sir or Madam:

The Consumer Specialty Products Association (CSPA)^{1,2} appreciates the opportunity to offer comments on the California Air Resources Board (ARB) Proposed 2016 State Strategy for the State Implementation Plan (SIP) for Federal Ozone and PM2.5 Standards (hereinafter referred to as the “Proposed 2016 State Strategy”). We will also comment on the Economic Analysis and Draft Environmental Analysis for the Proposed 2016 State Strategy. We understand that ARB intends to adopt a final 2016 State Strategy at the Board Meeting scheduled to begin on September 22, 2016, in Sacramento, and in conjunction with plans being developed by various air districts, will submit it to the U.S. Environmental Protection Agency (EPA) in January, 2017, as an update to the California SIP for Ozone and PM2.5.

CSPA has participated as an active stakeholder representing the consumer products industry in all of the California ozone SIP updates since the 1980s, and has worked cooperatively with ARB in the implementation of SIP measures seeking to reduce the emissions of volatile organic compounds (VOCs) from the use of consumer products in the state. Those efforts have resulted in more than 50% reduction in VOC emissions from consumer products during the past 25 years, which has contributed to the improvement in air quality throughout California.³

¹ The full text of this document is posted on the ARB website at:
<http://www.arb.ca.gov/plaimg/8ip/2016sip/2016statesip.pdf>

² CSPA is a voluntary, non-profit national trade association representing approximately 250 companies engaged in the manufacture, formulation, distribution, and sale of products for household, institutional, commercial and industrial use. CSPA member companies' wide range of products includes home, lawn and garden pesticides, antimicrobial products, air care products, automotive specialty products, detergents and cleaning products, polishes and floor maintenance products, and various types of aerosol products. Through its product stewardship program Product Care*, and scientific and business-to-business endeavors, CSPA provides its members a platform to effectively address issues regarding the health, safety, sustainability and environmental impacts of their products.

³ ARB regulations have set VOC limits for 129 broad categories of consumer product; when fully effective, these regulations will reduce VOC emissions by about 50 percent compared to 1990 levels. See “Staff Report: Initial Statement of Reasons for Proposed Rulemaking Proposed Amendments to the Antiperspirants and Deodorants Regulation, the Consumer Products Regulation, the Aerosol Coating Products

CSPA Comments on the Proposed 2016 State Strategy
July 6, 2016
Page 2 of 15

The Proposed 2016 State Strategy relies primarily on NO_x reductions to be obtained primarily through measures outlined in ARB's Mobile Source Strategy released for comment on May 16. CSPA strongly supports this aspect of the State Strategy as consistent with compelling scientific evidence that NO_x reductions are the best strategy, indeed the only strategy that can provide significant further reductions in ambient ozone, ambient PM_{2.5}s, and greenhouse gas (GHG) emissions in California. In all, the Mobile Source Strategy seeks to obtain 80% reduction in ozone and PM precursors (NO_x and VOCs), 45% reduction in GHG emissions, 50% reduction in petroleum usage, and 45% reduction in diesel PM emissions.⁴

The Proposed 2016 State Strategy also includes a single control measure to further reduce VOCs from consumer products. The measure is described as follows:

Finally, the State SIP Strategy contains a measure to address Reactive Organic Gas (ROG) emissions from consumer products, the largest source of ROG emissions in the State. As part of this measure staff will explore mechanisms to continue to reduce the reactivity of these products and market mechanisms to encourage the development of cleaner products.⁵

While CSPA recognizes the need to consider all emission sources, including consumer product VOCs, and recognizes that both reactivity reduction and market mechanisms have played a useful role in reducing air quality impacts, we will express serious concerns in these comments regarding the scientific and legal basis for some aspects of this consumer products measure, and the economic and environmental analyses related to it.

I. Overview of Consumer Products Program Proposed Measure

The proposed Consumer Products Program measure would be scheduled for regulatory action in 2019-2021, with rule implementation beginning in 2020.^{6,7} The measure targets reductions of 5 tons per day of VOC emissions in the South Coast district and 10 tons per day statewide by 2031, although some "not yet quantified" reductions could occur by 2023.¹ These reductions represent 8.3% of the total VOC emission reductions proposed in South Coast, and 11.5% of the total VOC emissions reductions proposed statewide. It is important to note that the Consumer Products measure is the only VOC reduction measure that is not also associated with NO_x reductions.

In describing the Consumer Products source category, it is stated that:

Consumer products are the largest source of ROG emissions in the South Coast, and the fourth largest source statewide. The magnitude of emissions from this sector indicates that additional approaches to reduce emissions from this sector

Regulation, the Tables of MIR Values, Test Method 310, and Proposed Repeal of the Hairspray Credit Program" (August 7, 2013) at Executive Summary 2.

⁴ Proposed 2016 State Strategy, page 2.

¹ *Ibid*, page 5.

⁶ *Ibid*, page 19.

⁷ *Ibid*, pages 25 and 29.

CSPA Comments on the Proposed 2016 State Strategy
July 6, 2016
Page 3 of 15

remain important, even though the average photochemical reactivity of ROG emissions from the consumer product sector has decreased.⁸

It is important to note that the primary reason Consumer Products are identified as one of the larger sources is that all of the broad categories of consumer products are inventoried together. It is therefore an artifact of the manner in which the emissions inventory is maintained. If Consumer Products were subdivided into household care; personal care; automotive care; adhesives and sealants; health care; institutional care; commercial; industrial, and other such source categories, as other area, mobile and stationary sources are, the various consumer product sources would not appear so prominent. This artifact should not be used in and of itself to justify the need for additional reductions. We appreciate the recognition that the average reactivity of consumer products VOCs has decreased, but it is even more important to note that consumer products VOCs have always been relatively low in photochemical reactivity as compared to virtually all mobile sources and many other stationary and area sources of VOCs. We will present further information on this important factor later in these comments.

The Consumer Products Program measure describes the actions being proposed as follows:

Staff would evaluate the 2013-2015 data reported to the Consumer Products Program to identify strategies to achieve emission reductions from consumer products. (...) In order to achieve further ROG reductions, ARD staff may consider reducing existing ROG limits in product categories, setting limits for other categories and revisiting chemical-specific exemptions in existing product categories. Staff may investigate opportunities to establish alternative compliance options to provide flexibility to industry to comply with regulations, such as an emission “bubble” or cap to reduce ROG emissions from consumer products. Other approaches, including a multi-media labeling program or other incentive programs, would also be evaluated. Staff will work with stakeholders to explore mechanisms that would encourage the development, distribution, and sale of cleaner, very low, or zero-emitting products.^{8 9}

CSPA must express concern regarding some aspects of this specific description of the proposed measure. Although we do not object to the use of the new 2013-2015 Survey data (once it has been fully corrected to create an accurate and reliable emissions inventory by removing non-volatiles and VOCs and LVP-VOCs that have alternative non-air environmental fates), we are concerned about the following:

- ARD should not target product categories that have already been regulated (sometimes two or three times) for further reductions by lowering existing VOC limits. Such actions would generally present a higher cost (and lower cost-effectiveness) and a higher risk of setting standards that would prove not to be technologically and commercially feasible as required by state law.¹⁰
- CSPA strongly objects to any plan to revisit chemical-specific exemptions in existing product categories. All of the exemptions and exclusions related to regulated product

⁸ Proposed 2016 State Strategy, page 108.

⁹ *Ibid*, pages 108 and 110.

¹⁰ Cal. Health & Safety Code § 41712(b)(2).

CSPA Comments on the Proposed 2016 State Strategy
July 6, 2016
Page 4 of 15

categories were created because they are essential to the feasibility of these stringent regulatory standards. As with other changes to existing standards, such actions would generally present a higher cost (and lower cost-effectiveness) and a higher risk of setting standards that would prove not to be technologically and commercially feasible.

- While we strongly support investigating alternative compliance options to provide flexibility (as explained later in these comments), CSPA does not support the use of mandatory¹ emission caps to further reduce emissions.
- CSPA would strongly oppose any mandatory¹ labeling program. Most consumer products are marketed nationwide, and state-specific labeling requirements are extremely difficult to comply with and impose a significant impediment to interstate commerce.

II. ARB Statutory Authority for Regulating Consumer Products

The Consumer Products Program measure provides the following overview of the statutory authority to regulate consumer products:

As part of the State's effort to reduce air pollutants, in 1988 the Legislature added section 41712 to the California Clean Air Act (Act) in the Health and Safety Code. Along with subsequent amendments, this section requires ARB to adopt regulations to achieve the maximum feasible reduction in ROG emissions from consumer products. Prior to adopting regulations, the Board must determine that adequate data exist to establish that the regulations are necessary to attain State and federal ambient air quality standards. Commercial and technological feasibility of the regulations must also be demonstrated. The Act further stipulates that regulations adopted must not eliminate any product form, and that recommendations from health professionals must be considered when developing ROG control measures for health benefit products.¹¹

This is a good overview of the regulatory authority that ARB has to implement this proposed measure. The one caveat is that the description implies that the adequate data provision only relates to establishing that the regulations are necessary to attain state and federal ambient air quality standards. This implication is incorrect. Under applicable state law, the "necessary" requirement also applies to ARB's statutory mandate to adopt regulations for consumer products that are "commercially and technologically feasible."^{11 12}

The ARB's authority to implement the Consumer Products Program measure is premised on a determination that the measure meets the two-pronged test established by state law. Absent adequate data to demonstrate necessity, ARB would not have legal authority to implement the Consumer Products Program measure. Section 110 of the federal Clean Air Act clearly requires states to provide assurances that, among other things, the state has adequate legal authority law to implement the plan.¹³ Since the Proposed 2016 State Strategy fails to adequately demonstrate that ARB met both elements of the applicable statutory provision, the ARB would lack the

¹¹ Proposed 2016 State Strategy, page 110.

¹² Cal. Health & Safety Code §§ 41712(b)(1) and (2).

¹³ 42U.S.C. § 7410(a)(2)(E).

CSPA Comments on the Proposed 2016 State Strategy

July 6, 2016

Page 5 of 15

requisite authority to implement the measure. Therefore, a Consumer Products Program measure with a specific reduction goal should not be included in the SIP unless it can be demonstrated to be necessary.

Fortunately, the same computer modeling used to demonstrate attainment in this SIP can also be used to assess the necessity of the measure to meet the federal ozone standard. All that is needed is to run the attainment demonstration again with the 10 tons per day VOC emissions (or 5 tons per day in the South Coast region) added back to determine whether that causes nonattainment with the ozone standard to occur. This type of modeling is sometimes called a sensitivity run (or source sensitivity modeling) because it is used to evaluate the ozone sensitivity of (i.e., the level of ozone change resulting from) a specific emission. The most common use in SIP planning is to determine the sensitivity to overall NOx and overall VOC reductions, which provide the data for ozone isopleth charts used in attainment planning.

CSPA therefore believes that it is legally incumbent on ARB to assure that any further VOC reduction commitment for consumer products included in this SIP Strategy meets the statutory requirement as “necessary to attain state and federal ambient air quality standards.”¹⁴ If the reduction cannot be shown to be necessary, no specific reduction goal can be adopted in the measure.

III. Scientific and Technical Basis for Further Regulating Consumer Product VOCs

During past California SIP revisions, CSPA (often in conjunction with other industry partners) has conducted studies to investigate the impact of consumer product VOC emissions on ambient ozone levels in California. These studies have demonstrated that the impacts of consumer product VOC emissions were very low even 25 years ago, and have been reduced in the years since. This is primarily due to the reductions in ambient NOx that have been needed to meet NOx standards, and reduce the formation of ozone and secondary particulate matter. Essentially, as NOx emissions are reduced, regions become more “NOx-limited” and only NOx reductions significantly reduce ozone production. Under those conditions, the low-reactivity VOCs in consumer products have no measurable impact on ambient ozone levels.

In the following sections, we will review some of the scientific studies that suggest that further VOC reductions for consumer products are unlikely to be necessary for attaining future standards.

I. The 2016 AQMP White Paper on VOC Controls Shows that Only Limited VOC Controls Are Needed in South Coast.

The South Coast Air Quality Management District (AQMD) completed its 2016 AQMP White Paper on VOC Control in September 2015.¹⁵ The conclusions of the experts who developed the White Paper were summarized as follows:

¹⁴ Cal. Health & Safety Code § 41712(b)(1).

¹⁵ The VOC Controls 2016 AQMP White Paper is available at <http://www.aqmd.gov/docs/default-source/Agendas/aqmp/white-paper-workitem-a-group-s/wp-voc-final.pdf?sfvrsn=2>.

CSPA Comments on the Proposed 2016 State Strategy

July 6, 2016

Page 6 of 15

While air quality has improved considerably in the [South Coast Air Basin] over the past few decades, further emission reductions must be made to attain the federal standards for ozone and PM_{2.5}. The analysis herein indicates that a NO_x-heavy strategy accompanied by more modest VOC reductions will help to avoid temporary increases in ozone concentrations in the western side of the Basin. This finding reaffirms the previous NO_x-heavy State Implementation Plan (SIP) strategies to meet both PM_{2.5} and ozone standards, but recognizes that VOC reductions can be given a lower priority. To this end, a strategic VOC control program is recommended for the 2016 AQMP to first maximize co-benefits of NO_x, GHG, and air toxic controls, followed by controls that could create a win-win, "business case" for the affected entities, incentives for super-compliant products, while ensuring and capturing benefits from implementation of existing rules. When additional VOC controls are still needed, it is recommended to prioritize controls that will produce co-benefits for air toxics and GHGs, with a focus on VOC species that are most reactive in ozone and/or PM_{2.5} formation.^{16 17}

One of the specific recommendations of the White Paper was to "prioritize emission reductions of the VOC species that are most reactive for ozone and/or PM_{2.5} formation and that produce concurrent air toxics or GHG benefits." The White Paper explained this recommendation as follows:

The California Air Resources Board has an active reactivity program to investigate the scientific and policy implications of reactivity-based regulations. Reducing emissions of the most reactive species, considering ozone and PM_{2.5} formation along with enforceability, toxicity, and climate impacts, may be an efficient method to reduce ambient ozone and PM_{2.5} concentrations, achieve multiple environmental and health benefits, while minimizing market disruptions. For example, for VOC controls that are equally cost-effective in terms of cost per unit of emissions reduced, controls for higher reactivity¹ VOCs would be more cost-effective in terms of costs per unit of ozone reduced.¹

The AQMP White Paper clearly supports the conclusion that only limited VOC reductions are needed for South Coast attainment, and priority should be given to high-reactivity VOC sources and measures with concurrent air toxics or greenhouse gas reduction benefits. Consumer products VOCs are low reactivity and have low ozone impact. Therefore, consumer products should not be a priority for further reductions.

The White Paper also includes ozone isopleths from the initial South Coast attainment demonstrations¹⁸ that clearly demonstrate the NO_x-limited status of the region at 75 ppb ozone attainment. These data clearly show that the region will have minimal ozone sensitivity to VOC emissions in the low-NO_x conditions needed for ozone attainment.

¹⁶ SCAQMD 2016 AQMP White Paper, page 15.

¹⁷ *Ibid* at page 13.

¹⁸ *Ibid* at pages 6-10.

CSPA Comments on the Proposed 2016 State Strategy
July 6, 2016
Page 7 of 15

2. Low Reactivity of VOCs in Consumer Products Likely Makes Further Reductions Unnecessary.

The low reactivity and low ozone impact of the VOC emissions from consumer products may make it *unnecessary* to further reduce the VOC content of consumer products to attain the federal ozone standard in the South Coast air basin. Therefore, for reasons detailed below, we believe that the 2016 California SIP update should not include a VOC reduction commitment in the VOC emissions for consumer products.

a. There are very significant differences between the relative ozone impacts of equal amounts of VOC emissions from various sources.

Scientific studies funded by the consumer products industry strongly suggest that a mass-based inventory approach overestimates the actual impact of consumer product VOC emissions on ozone attainment in the South Coast and other areas of California. In 2002, Sierra Research, Inc. conducted a research project to create a reactivity-weighted VOC emissions inventory for the South Coast.¹⁹ Sierra Research used the official emissions inventory for South Coast in 2000 and the official speciated emissions profiles, as well as the official ARB estimates for “maximum incremental reactivity” (MIR) for each species of VOC emission, to create an estimate of the maximum ozone formation potential attributable to each major category of anthropogenic emissions of organic gases in the region. This type of MIR-weighted inventory provides a more scientifically accurate assessment of the relative ozone impact of various emissions sources than any mass-based VOC emissions inventory¹.

The results of that MIR-weighted VOC inventory project found significant differences between the total mass emissions and the ozone formation potential of those emissions, and these differences are due solely to the differing weighted MIR for the species of VOCs that make up the specific source emission. Some emissions sources therefore have a much higher ozone formation potential than their mass emissions suggest, while other emissions categories have a much lower ozone formation potential than suggested by their mass emissions. Consumer products are among the emissions categories with below average reactivity, and therefore lower ozone impact than would be expected based on mass of emissions alone.

The MIR scale provides an estimate of the maximum amount of ozone potentially formed from a VOC emission under the tropospheric conditions where ozone is most sensitive to VOCs. The conditions in the ozone attainment run are far less sensitive to VOC emissions. However, although absolute VOC reactivity will decrease significantly as regions move toward low-NO_x conditions and ozone attainment, the relative reactivity differences between various VOCs will remain relevant.

VOCs from consumer products had a weighted-average MIR of 1.5, well below the average for all emissions sources. Aerosol consumer products exhibit especially low reactivity, since aerosol propellants tend to be among the least reactive of all VOCs in the emissions inventory. Many mobile sources of VOCs had very high reactivity, including Aircraft (6.8); Farm Equipment (5.4);

¹⁹ The complete data from this 2002 Sierra Research project documenting the relative reactivity of various VOC sources in the South Coast in 2000 are available upon request.

CSPA Comments on the Proposed 2016 State Strategy
July 6, 2016
Page 8 of 15

Heavy Duty Diesel Urban Buses (5.5); Heavy Duty Diesel Trucks (5.5); Light Duty Diesel Trucks (5.5); Medium Duty Diesel Trucks (5.5); Ships and Commercial Boats (5.3), and Trains (5.5). VOC emissions from these sources therefore can be expected to cause three to five times as much ozone formation pound-per-pound as consumer product VOCs. The VOC sources with the largest potential ozone impacts in 2000 also exhibited very high reactivity profiles, including Light Duty Passenger Cars (3.7), Light Duty Trucks (3.8), and Off-Road Equipment (4.6). In the time since this study was conducted, it is unlikely that the speciation profiles have changed sufficiently to modify this result. Indeed, the continued implementation of mass-based and reactivity-based standards for consumer products make it very likely that consumer product VOC reactivity is even lower now than it was in 2000. The data from this study therefore provide important evidence that very significant differences exist between the relative ozone impacts of equal amounts of VOC emissions from various sources. Generally speaking, mobile source VOC emissions create three to five times as much ozone as equal amounts of VOC emissions from most stationary and area sources, including consumer products. These significant differences in relative photochemical reactivity of various VOC sources must be taken into account in choosing and implementing effective, workable and cost-effective ozone attainment strategies in the 2016 SIP Strategy.

b. Scientific modeling studies also document the fact that the low-reactivity of VOCs used in consumer products have negligible impacts on peak ozone levels.

Other past studies also have clearly demonstrated the minimal impact of consumer product VOCs on ozone non-attainment in California. Subsequent to the statewide revision of the California SIP in 1994, CSPA and another trade association funded an air quality modeling study to determine the specific role of consumer products in ozone attainment in both South Coast and Sacramento regions. Iliaf study on "Impact of Consumer Products on California's Air Quality"²⁰ used the exact Urban Airshed Model (UAM), inventories and meteorology utilized in the attainment demonstrations for the 1994 SIP.

The study compared UAM outputs for two scenarios in the South Coast Air Basin:

- The attainment demonstration in the SIP, which included an 85 percent reduction in the VOC emissions from consumer products, and demonstrated attainment with the one-hour ozone standard in 2010; and,
- The exact same modeling run with only a 30 percent reduction in consumer products VOC emissions (the reduction already obtained by ARB regulations adopted prior to 1994).

The results showed that both scenarios demonstrated attainment of the one-hour ozone standard of 0.12 ppm in both South Coast and Sacramento. In both geographic areas, the additional consumer product emissions, despite their very significant mass, had such small impacts on peak ozone formation that insufficient ozone was formed to cause non-attainment. This result was

²⁰ Sierra Research Report No. SR97-07-01 (July 1997) and addendum Report No. SR98-03-01 (March, 1998). A copy of this research report is available upon request.

CSPA Comments on the Proposed 2016 State Strategy

July 6, 2016

Page 9 of 15

attributed to both the low reactivity of the consumer product emissions, and the geographic distribution of those emissions that lessened impacts on peak ozone levels.

During the 2007 California SIP revision, another modeling study was conducted by our industry to assess the necessity of further reductions of consumer product emissions for ozone attainment. The 1997 attainment remodeling study was conducted under 2010 attainment conditions that remained sensitive to overall VOC emissions. Therefore, the results of the study demonstrated that even under highly VOC-limited conditions where ozone formation was sensitive to overall VOC levels, ozone formation was *not* sensitive to consumer product VOC emissions. The attainment demonstration modeling for the 2007 SIP was under atmospheric conditions that were far more NOx-limited, and far less sensitive to overall VOC emissions than in 1997.

We therefore had reason to expect that consumer product VOC emissions should have even less relative impact on ozone attainment in the 2023 attainment scenario. To determine whether this was indeed the case, CSPA contracted in 2007 with Sierra Research, Inc. and Environ to conduct a remodeling study, co-funded by CSPA and eight other national consumer product industry associations, to determine the ozone sensitivity of consumer product VOC emissions in the South Coast Air Basin in 2023, and determine what level of emission reductions might actually be necessary. The remodeling study was completed after the adoption of the 2007 AQMP, but prior to the adoption of the 2007 California SIP. The final report from the study, "Assessment of the Need for Long-Term Reduction in Consumer Product Emissions in the South Coast Air Basin,"¹¹ was submitted as part of the record for the 2007 SIP adoption.

The results of the 2007 Sierra Research, Inc. study clearly demonstrated that ozone attainment status in the South Coast Air Basin would not be impacted in 2023 if no further reductions in consumer product VOC emissions are made after 2014. The data show that the 50 tons per day of additional statewide consumer products VOC emissions reductions included in the South Coast AQMP would have no impact on ozone attainment anywhere in the South Coast Air Basin. These VOC emission reductions would cost the consumer products industry approximately \$1 billion despite not being necessary for ozone attainment. Clearly those control measures would be neither effective nor cost-effective.

CSPA continues to believe that the results of these types of source-sensitivity studies provide important information to support the development of effective ozone attainment strategies. It is important that the control measures in the 2016 SIP are focused on those emissions sources that play a significant role in ozone non-attainment in the South Coast and other non-attainment districts in California.

The need to carefully consider the relative ozone impacts of various emission sources is critical to this 2016 SIP Strategy. CSPA urges that ARB consider these data and only include commitments for reductions that are actually necessary for ozone attainment.

¹¹ Sierra Research Report No. SR2007-09-03, September 12, 2007. A copy of this research report is available upon request.

CSPA Comments on the Proposed 2016 State Strategy
July 6, 2016
Page 10 of 15

3. California's 2012 Vision for Clear Air Provides Clear Evidence that NOx Reduction Is the Key to Clean Air in California.

In 2012, ARB developed a seminal assessment of long-term attainment of the state's clean air goals. That assessment, entitled "Vision for Clean Air: A Framework for Air Quality and Climate Planning,"²² provides much of the basis for the ozone and PM attainment strategy encompassed in this Proposed 2016 SIP Strategy. The most notable exception is the inclusion of the Consumer Products Program measure, which is the only VOC reduction measure not connected with NOx reductions.

This long-term plan, extending to 2050 and beyond, used a fundamentally different modeling tool based on the Argonne National Laboratory Vision 2011 Model, but clearly comes to the same conclusion as many other studies: NOx reductions are key to California's Clean Air future for both the South Coast and San Joaquin Valley Air Basins. VOCs are not even mentioned in the 40-page document, and the only mention of "reactive organic gases" is to confirm that the modeling tool used is able to forecast both ROG and NOx. In contrast, the term "NOx" is mentioned a total of 72 times and the document includes extensive discussions about the reduction levels needed to achieve attainment with applicable state and federal ozone standards.^{23 24}

The new transportation, fuel and energy sector technologies that the Vision for Clean Air projected as necessary for clean air and climate change mitigation, which now form the foundation of this Proposed 2016 SIP Strategy, would also result in significant reductions in VOCs as well as NOx from those sources. In general, these sources of VOCs have much higher photochemical reactivity than emissions from consumer products, and therefore likely will provide more than adequate VOC reductions as a side benefit to the NOx reductions needed for ozone and particulate matter standards attainment. These factors provide evidence that commitments for further VOC reductions from consumer products may not be necessary, and should not be included in the 2016 SIP.

4. The EPA's 2005 Interim Guidance on SIP Development provides clear instructions that relative reactivity and ozone formation potential should be considered in SIPs, and that alternative fates and availability also should be considered.

The EPA provided clear guidance to states in 2005 that differences in VOC reactivity should be considered in the development and implementation of SIPs. In its "Interim Guidance on Control of Volatile Organic Compounds in Ozone State Implementation Plans,"²¹ the EPA "...encourages States to consider recent scientific information on the photochemical reactivity of volatile organic compounds (VOCs) in the development of State implementation plans (SIPs)

²² Hereinafter referred to as "Vision for Clean Air." The document is posted on the ARB website at: http://www.arb.ca.gov/planning/vision/docs/vision_for_clean_air_public_review_draft.pdf.

²³ The 53-page appendix to Visions for Clean Air has only one mention of VOCs in relation to diesel engine after-treatment systems, on page 31. The text of this document is posted on the ARB website at: http://www.arb.ca.gov/planning/visiondocs/Vision_for_Clean_Air_Appendix_Public_Review_Draft.pdf.

²⁴ 70 *Fed. Reg.* 54046-51 (Sept 13,2005). See <https://www.gpo.gov/fdsys/Dkg/FR-2005-09-13pdf05-18015.pdf>.

CSPA Comments on the Proposed 2016 State Strategy
July 6, 2016
Page 11 of 15

designed to meet the national ambient air quality standard (NAAQS) for ozone.”²⁵ That guidance also states that, “By distinguishing between more reactive and less reactive VOCs, it should be possible to decrease ozone concentrations further or more efficiently than by controlling all VOCs equally.”²⁶ The Interim Guidance goes on to provide the specific guidance regarding factors that States should consider, including the following:

- The potential for alternative (non-atmospheric) fates and limited availability for ozone-forming photochemical reactions;
- Prioritizing control measures using reactivity metrics;
- Targeting emissions of highly reactive VOCs with control measures; and
- The fate of VOC emissions and their availability for atmospheric reactions.

Recent data have shown that not only do LVPs have limited ability to contribute to VOC emissions and ozone formation, but many VOCs also have limited availability due to alternative environmental fates. In regard to this important issue, the F.P.A.’s Interim Guidance instructs that:

States should also consider emerging research on the actual availability of VOCs for atmospheric reaction. In estimating VOC emissions, especially from coatings, solvents, and consumer products, it is often assumed that the entire volatile fraction is emitted and available for photochemical reaction, unless captured by specific control equipment. In some situations, however, otherwise volatile compounds may be trapped in liquid or solid phases or adhere to surfaces such that they are not actually released to the atmosphere. Once emitted into the atmosphere, VOCs may also be scavenged by rain, form particles, or deposit on surfaces. Taking this behavior into account should lead to more accurate VOC emissions inventories and photochemical modeling. It may also allow States to consider volatility thresholds or other approaches designed to reflect atmospheric availability in certain types of regulatory programs.²⁷

ARB staff began work this year to correct the revised consumer products VOC emissions inventory being developed based on the ARB’s 2013 Consumer & Commercial Products Survey. ARB has funded two major research projects over the past few years to provide data on the potential for alternative, non-air, environmental fates for LVP-VOC and VOC ingredients used in consumer products. One of those studies, conducted by University of California, Davis scientists, was completed last year, and the other, conducted by University of California, Riverside scientists, is scheduled to be completed later this year. CSPA and allied consumer products industry members have funded additional studies, and are planning further studies to research alternative fates both outdoors and indoors.

²⁵ *Ibid* at 541046, col. 3.

²⁶ *Ibid* at 541047, col. 2.

²⁷ 70 *Fed. Reg.* 54048-49.

CSPA Comments on the Proposed 2016 State Strategy
July 6, 2016
Page 12 of 15

CSPA urges ARB to follow the 2005 Interim Guidance and consider the relative reactivity and ozone impacts and atmospheric availability of various compounds to determine which, if any, VOC control measures are considered for inclusion in any revised and updated ozone SIP. We also urge ARB to continue its work with industry scientists to create an updated VOC emissions inventory that more accurately reflects actual VOC emissions to ambient air and their availability for atmospheric photochemistry. We believe this effort will further demonstrate that additional reductions in consumer product VOC emissions are unnecessary to attain California's air quality goals.

5. A 2012 Study by ARB Scientists Demonstrated the Effectiveness of Regulating High-Reactivity Instead of Low-Reactivity VOCs.

A 2012 paper by ARB scientists provides even further evidence that further regulation of consumer products and other low-reactivity VOC sources may not be necessary.²⁸ That research document, authored by Jianjun Chen and Dongmin Luo, shows that the effectiveness of VOC controls can be increased by regulating predominantly high reactivity sources and emissions. The study found large differences in reactivity and ozone formation potential between various emission sources in the Southern California air basin. This was demonstrated by two approaches:

- Creating a reactivity-weighted VOC emissions inventory that is MIR adjusted; and
- Performing air quality modeling sensitivity analyses to show the differences in ozone impacts from reductions in various emissions sectors.

Both approaches demonstrated that controlling higher reactivity sources created higher ozone reductions per weight of VOC emissions reduced. For VOC controls that are equally cost-effective in terms of cost per emissions reduction, controls for higher reactivity VOCs would be more cost-effective in terms of costs per ozone reduction.

IV. Economic and Environmental Analyses for Consumer Products Proposed Measure

Appendix A provides an "Economic Analysis for the Proposed 2016 State Strategy for the State Implementation Plan." The analysis provides estimates of the total direct costs for each measure included in the 2016 Strategy, including the Consumer Products Program measure. The estimated total compliance cost through 2031 for the Consumer Products Program measure is \$105 million.

Past experience with ARB regulations of consumer products have shown that costs for reducing a ton-per-day of consumer product VOC emissions statewide ranges from about \$10 million to \$50 million, depending on the complexity of the reformulations and testing required for specific standards and product categories. The \$105 million estimate is therefore not unreasonable for *

²⁸ Jianjun Chen and Dongmin Luo, *Ozone formation potentials of organic compounds from different emission sources in the South Coast Air Basin of California*, *Atmospheric Environment*, 55 (2012) 448-455. See https://www.researchgate.net/publication/257521883_Ozone_formation_potentials_of_organic_compounds_from_different_emission_sources_in_the_South_Coast_Air_Basin_of_California Atmos Environ

CSPA Comments on the Proposed 2016 State Strategy
July 6, 2016
Page 13 of 15

the 10 tons-per-day commitment included in the measure. 11 is also one of the lower total costs estimated for the various measures proposed.

However, it is important to note that all of the other measures have associated NOx reductions that have a significant impact on ozone and secondary PM formation. The consumer products measure likely provides little or no actual benefits in meeting the ozone or PMi standards. It is therefore very likely that the Consumer Products Program measure is the least cost-effective in terms of ozone and PM2.5 reductions.

Appendix B provides a "Draft Environmental Analysis for the Proposed 2016 State Strategy for the T State Implementation Plan." The 278-page analysis contains only one small section on the Consumer Products Program measure, and even this section provides little or no new information or analyses. Particularly noticeable is the lack of alternatives analyses in Section 7 (pages 145-152) on the Consumer Products Program measure. CSPA believe that it is incumbent upon ARB to analyze the environmental impact of simply foregoing further reductions in consumer product VOC emissions in this appendix, which could be accomplished by running the aforementioned sensitivity analysis using the computer attainment model.

3-1

3-2

CSPA is also concerned that no information is included in Appendix B on the computer modeling ozone attainment demonstrations conducted for various regions of the state to show future attainment of the 75 ppb standard. We urge ARB to release to stakeholders all of the technical support documents needed to support the 2016 SIP Strategy prior to its consideration in September for approval by the Board.

3-3

V. The Need for Further Flexibility to Meet Existing Consumer Product VOC Standards

Even if little or no further reductions in consumer product VOCs are found to be necessary, there remains an on-going impact on the consumer products industry from standards already adopted. Some adopted standards have future-effective dates and remain to be fully implemented. For all other regulated categories, the specific definitions and limitations imposed can deter innovation of new and improved products that are superior in overall benefits to public health and safety and the environment. This problem was recognized early on in the development of the Consumer Products Regulation, and two important provisions were developed to provide flexibility and encourage innovative compliance:

- The Innovative Products provision^{29,30} allows companies to demonstrate that the non-complying product would nonetheless result in less VOC emissions when compared to a representative complying product.
- The Alternative Control Plan (ACP) Regulation³⁻¹ allows companies to group products into a plan that assures that total VOC emissions for those products are less than the amount that would occur if all were compliant with their respective standards.

¹⁹ 17 OCR § 94511.

³⁰ 17 CCR §§ 94540-94555.

CSPA Comments on the Proposed 2016 State Strategy
July 6, 2016
Page 14 of 15

These two provisions have provided some important opportunities for companies over the decades without compromising California's air quality goals. The ability to use the Innovative Products provision has allowed companies to develop innovative ways to make products more efficient in terms of the VOC emissions needed to accomplish a given task. The ACP program has allowed companies to maintain products critical to public health and safety by making the VOC reductions in other products where they are more technologically and commercially feasible and cost-effective.

The use of these provisions have been very limited. We believe that this is primarily due to two factors:

- Both provisions have burdensome paperwork requirements that make their use overly resource-intensive, and.
- Both provisions relate only to mass emissions, and do not take into account the wide range of VOC reactivity and potential ozone impacts between various products and form illations.

CSPA has urged ARB in recent years to engage in update of the Innovative Products and ACP provisions to make them less resource-intensive and more flexible in application. The Proposed 2016 State Strategy appeal's to recognize this need in the Consumer Products Program measure description, which commits ARB to "investigate opportunities to establish alternative compliance options to provide flexibility to industry."³¹ We urge ARB to enhance that aspect of the measure to more specifically mention the Innovative Products and ACP provisions and ARB's commitment to enhance them.

VI. CSPA Recommendations for Revisions to the Consumer Products Measure

For reasons detailed in these comments, CSPA respectfully requests that ARB modify the Consumer Products Program measure in the following aspects:

- Remove any commitment for a specific level of VOC reductions from the measure unless that level of reduction can be shown to meet the necessity requirement as set forth in Health and Safety Code Section 41712(b).
- Provide clearer recognition that consumer products VOCs are low reactivity, have low ozone impact, and should not be high priority for further reductions.
- Recognize ongoing efforts to correct the consumer products VOC emissions inventory to reflect alternative, non-air, environmental fates and limited photochemical availability of some VOCs and LVP-VOCs used in consumer products.
- Eliminate any commitment to target further reductions from categories of consumer products that have already been regulated.

³¹ Proposed 2016 State Strategy, page 110.

CSPA Comments on the Proposed 2016 State Strategy
July 6, 2016
Page 15 of 15

- Eliminate any plan to revisit chemical-specific exemptions for already-regulated categories of consumer products, or to engage in mandated consumer product labeling.
- Add more detailed commitments for ARB to revisit the ACP and Innovative Products provisions as part of its efforts to provide flexibility for industry in attaining existing standards.

VII. Summary and Conclusions

CSPA appreciates the opportunity to comment on this Proposed 2016 State Strategy for the State Implementation Plan and remains committed to working collaboratively with ARB to achieve air quality standards. In these comments we are recommending modifications to the Consumer Products Program measure, as well as asking that further information be provided for public comment relating to technical support for the 2016 SIP Strategy.

If you have any questions, please contact us at (202) 872-81 10.

Respectfully submitted.



D. Douglas Fratz
Senior Science Fellow



Joseph T. Yost
Senior Director, Strategic Issues Advocacy



Kristin Power
Vice President, State Affairs



Steven Bennett, Ph.D.
Senior Director, Scientific Affairs & Sustainability

cc: Kurt Karprows, California Air Resources Board
Karen Magliano, California Air Resources Board
Ravi Ramalingam, California Air Resources Board
David Edwards, California Air Resources Board
CSPA Air Quality Committee and Task Forces



4

July 13, 2016

California Air Resources Board
1001 I Street
Sacramento, California 95832

Submitted electronically at <http://www.arb.ca.gov/lispub/commbclist.php>

Comments on the Proposed 2016 State Strategy for the State Implementation Plan

Dear Sir or Madam:

The Pacific Merchant Shipping Association (PMSA) submits the following comments, on behalf of its member ocean carriers and marine terminals operating throughout the State of California, regarding the draft State Implementation Plan and accompanying Environmental Analysis prepared pursuant to the California Environmental Quality Act.

As you know, the maritime industry has aggressively reduced emissions over the past decade. Our members are also committed to further reducing emissions and continue investing in California's economy. Throughout California, PMSA member companies have served as a test bed for new clean technologies and have pushed technological progress on numerous emission-reduction strategies technologies at a cost of billions of dollars. The success of these efforts is evidenced by the tremendous reductions that have been achieved. Since 2006, our members have reduced particulate matter emissions by 85%, emissions of oxides of nitrogen (NO_x) by over 50%, and SO₂ emissions by over 90%.

While maritime industry companies doing business in California have done more here to successfully meet the challenge of reducing emissions than anywhere else in the world, they understand that additional emission reductions will ultimately be necessary for the State to meet its environmental goals. Those goals will be increasingly more difficult to reach than the reductions that have already been achieved through great cost. A study conducted by Moffat & Nichol estimates that terminal operators will invest roughly \$7 billion in California-based marine terminal equipment but would incur an additional \$16-\$28 billion in order to replace the current cleaner equipment with even cleaner zero and near-zero equipment.

These challenging emission reduction goals take place in a challenging global economic environment with weak trade growth and ocean carriers facing billions of dollars in losses this

Pacific Merchant Shipping Association
300 Oceangate, 12th Floor, Long Beach, CA 90802

Phone (562) 432-4040 Fax (562) 432-4048

year. California competes with other U.S. regions, and ports across North America, for international trade and the maritime industry is linked directly to international economic cycles. These are facts which are relevant when considering how measures to further reduce emissions, beyond the significant reductions already achieved, will be achieved.

The draft State Implementation Plan (SIP) is an aggressive attempt by the California Air Resources Board (CARB) to meet National Ambient Air Quality Standards (NAAQS) by 2031. In some respects, the draft represents the logical next steps in emissions control throughout the State necessary to reach compliance. In some other instances, the plan is overly optimistic and serious questions must be raised as to the plan's ability to achieve its goals.

In other respects, the SIP goals are not achievable without significant action by federal and international agencies. The State of California cannot be reasonably held responsible for sources it has no legal authority over. CARB should acknowledge that it must effectively rely on assigned emission reductions to the U.S. Environmental Protection Agency (US EPA) and International Maritime Organization (IMO). While CARB may have been unsuccessful in the past at its attempts to hold US EPA accountable for their fair share of emission reductions, it should not shirk its responsibility to clearly state that attainment with federal air quality standards is not possible without federal action on mobile sources, whether it is promulgation of new engine standards for trucks or locomotives, or coordinating federal action to petition IMO. PMSA will support CARB in this effort as only through such coordinated action will federal agencies ever acknowledge that California is being held to unreasonable standards if the state can only attain the NA AQS by over-burdening its regulated sources and feeling forced to embrace legally problematic efforts to expand its jurisdiction over federal sources.

PMSA is also concerned about the Vision forecasting tool used to estimate future emission reductions from changes in the fleet. It is unclear how this tool has taken into account the current forecasts of vessel turnover and implementation of existing IMO rules. This is particularly important given that vessels and other sources identified as federal and international sources account for nearly 45% of total emission reductions in the South Coast and nearly 50% of total emission reductions state-wide. Given the historic difficulty in estimating and forecasting emissions from the maritime sector, PMSA calls on CARB to form a technical working group composed of representatives of ocean carriers, marine terminal operators, and ports to examine State emissions forecasts and emission reduction strategies from the maritime sector. Such an effort may result in more robust forecasts and emissions reductions.

Low NO_x Engine Standard

The language describing the benefits of the strategy does not identify the magnitude of the emission benefit difference between federal action and California action beyond "a California-only low NO_x standard would only impact a fraction of the heavy-duty activity and emissions in California." Without more information, it is questionable what the benefit of a California-only

action will be. Would the strategy of a California-only action be to simply make the trucks commercially available for purchase through the Incentive Funding measure described later in the SIP? Given how many heavy-duty trucks are already sold outside of California, could this strategy prompt truck manufacturers to abandon the new truck market in California, knowing they can capture most sales in neighboring states? Without more information, PMSA cannot support California-only action on ultra-low NO_x engine standards.

PMSA requests that CARB more fully develop the measure and provide detailed emissions benefit for the federal and California scenarios. PMSA supports the development of a national ultra-low NO_x new engine standard. A new federal engine standard will provide a level playing field throughout the country when it comes to new heavy-duty on-road equipment.

Tier 4 Vessel Standards

PMSA appreciates CARB's recognition that some emission sources are properly regulated at the federal and international level. For instance, the International Maritime Organization is the proper forum for setting vessel standards regarding vessel emissions. Furthermore, we support CARB working directly with the U.S. F.P.A and U.S. Coast Guard with respect to the development of positions at the IMO. As the State is well aware, the federal government, through the U.S. State Department, U.S. EPA, and USCG, maintains standing at the IMO and sub-national agencies do not have standing to "lobby" the IMO directly. We encourage CARB, no matter what the topic, to work with the federal government if it believes that it can contribute to the development of a U.S. position on any issue before the IMO. Similarly, PMSA supports CARB efforts to seek new truck and locomotive standards at the federal level. Such standards at the federal and international level will avoid harm to California's competitiveness as other regions throughout the country vie for international trade.

In prior actions, PMSA has supported revisions to MARPOL and other IMO Annex developments which have resulted in significant emissions reductions at the International level. These agreed upon ocean-going vessel emissions improvements fostered through IMO facilitate far greater overall emissions reductions, and at lower overall expense to the supply chain, than individual patchwork regulations implemented on a national or sub-national basis.

With respect to the content of the suggestion, we are uncertain as to whether the timeframes and expectations established under this measure reflect the economic realities of the shipping industry today. Currently, the container shipping industry suffers from a worldwide glut in vessel capacity and corresponding weak levels of international trade volumes. This overcapacity is currently driving trans-Pacific freight rates down to historically-low, unsustainable levels, with some estimates for total industry losses of between \$6 billion and \$10 billion in 2016. It is not clear when this glut will end, but the additional capacity which has been built into the system with the advent of the largest classes of container ships reaching 18,000 - 20,000 TEUs is undeniable. In the near term there will be little incentive for new vessel orders. Combined with

the useful life of the existing vessel fleet, a time period measured in decades, it is unlikely that a Tier 4 standard even if passed on CARB's timeline would result in any meaningful penetration of new ships by 2031.

Incentivize Low Emission Efficient Ship Visits

PMSA supports efforts to incentive cleaner fleets. PMSA generally encourages the State and Ports to work with vessel owners and operators to achieve emissions benefits, and has long supported, and its member vessels participate in, local vessel incentive programs at the Ports of LA and Long Beach with great success. We look forward to partnering with CARB on the creation of incentives which are realistic, easily implementable, and effective.

In order to be successfully deployed, this effort must reflect the marketplace and economic realities of the shipping industry today. With regard to new incentives for new vessel types, when there is a glut of new-vessel capacity, vessels are going to be deployed based on demand and ability to fill a ship. Incentives may be unlikely to affect a carrier's deployment decisions in the short term. Moreover, with the ocean carrier restructuring of the industry and re-juggling of vessel alliances and other carrier consolidation, it is hard to predict how vessel redeployment will respond to incentives. Given the historically low shipping rates (resulting in industry losses in the billions of dollars this year) a strategic incentive of proper size may prove justifiable in some respects, yet the short-term and long-term reactions to incentives is impossible to guess without significant discussion and study.

In short, PMSA shares the state's motivation to maximize all effective vessel incentives. As an initial step, CARB should commit to study the necessary levels of incentives most likely to achieve successful utilization of state incentive programs by ocean carriers. For instance, what level of incentive is necessary to modify behaviors in an industry where a single asset may cost \$140 million to deploy, but where the entire market faces operating losses of between \$6 billion and \$10 billion this year? The numerous market dynamics and how they may interact with the potential costs and benefits to the State are not straightforward and should be analyzed.

Consistently, we would respectfully request that staff delete the suggestion of a "green lane" and avoid any other references to types of coordination across multiple Ports to control such new and novel incentives. Multi-state or sub-national incentive programs have the potential for raising numerous legal and operational concerns for the shipping industry; but would also add numerous market complexities regarding costs and competitiveness to any study of how incentives can be effectively deployed. We are committed to working with CARB and other Port stakeholders on the development of incentives that are effective.

At-Berth Ke mi lai ion Amendments

PMSA requests that CARB work with PMSA and its members as it considers these amendments. PMSA already has voiced significant concerns about how the regulation is currently implemented in a letter to CARB dated February 10, 2016. The concerns outlined in the letter include consideration of *force majeure* conditions, consideration that time needed for commissioning visits not be counted against vessel compliance, annual instead of quarterly compliance, consideration of a single compliance pathway that maintains equity for early adopters, definition of “Berthing Time” and “Visit”, and a number of other issues. That letter is attached and we renew our request that CARB consider these requests as it pursues its regulatory amendments of the At-Berth Regulation.

Further Deployment of Cleaner Technologies

Throughout the draft SIP, CARB relies on “Further Deployment of Clean Technologies” to achieve its attainment goals. For 2023, “Further Deployment of Clean Technologies” account for 95% of the quantified emission reductions sought for attainment. For 2031, the same category accounts for 65% of quantified emission reductions. Unfortunately, throughout the draft SIP, the measures are vague and nebulous.

Often it is unclear how these measures differ appreciably from other measures. For example, “Incentive Funding to Achieve Further Emission Reductions from On-Road Heavy-Duty Engines” seeks to reduce truck emissions by incentivizing clean truck technologies; “Further Deployment of Clean Technologies” seeks the same goals. At the very least, the SIP needs to describe what differentiates “Further Deployment of Cleaner Technologies” from other measures that appear to implement similar strategies. The lack of specifics is also a concern when “Further Deployment of Clean Technologies” accounts for 95% of needed emission reductions over the next seven years. Without such detail, what is the enforceable commitment and how will stakeholders know that it has been completed?

Despite the lack of detail, the “Further Deployment of Cleaner Technologies” is very specific in its assignment of emission reductions in each category. Either CARB has more detail on these measures that it has not publically shared or its emission reduction estimates are entirely arbitrary. CARB must revise these measures to present more detail and provide stakeholders the basis for its emission reduction estimates.

Environmental Analysis

The environmental analysis prepared by CARB on the impact of the SIP is wholly inadequate. Throughout the document, it assumes that the only foreseeable response to the proposed measures is compliance. This approach willfully ignores other possible responses and their environmental consequences. First and foremost, these measures will increase the cost of operating in California as indicated throughout the SIP.

4-1

Increased costs which disrupt operations can have environmental consequences. Economists and universities throughout the country specialize in estimating the cost of regulation and its impact both in terms of increased costs and lost opportunities. Economic impact models have already been developed which can evaluate the economic implications of the entire transportation and freight systems, including the evaluation of state goods movement plans, new and expanded highway corridors, airports, seaports, rail, freight and multimodal developments.

4-1
co nt.

Within the maritime sector, cargo could be diverted to other west coast ports, Mexico, the gulf coast, or the east coast, which is especially highlighted with the opening of the expanded Panama Canal. Such vessel diversions will occur if the costs of using a west coast gateway exceed its benefits. Diversions that increase sailing days or result in backhauls to the western United States could significantly increase greenhouse gas emissions. Alternatively, logistics facilities may choose to operate outside the South Coast or San Joaquin Air Basins or outside California entirely to avoid increased regulatory burdens, such actions could significantly increase greenhouse gas emissions if cargo is moved to Phoenix or Las Vegas for handling rather than close to the ports. Even if such operations remain in California they move further from the ports to offset increased regulatory costs with less expensive land and facility costs, again potentially significantly increasing greenhouse gas emissions.

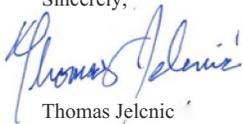
Similarly, if CARB lowers the threshold of vessel calls that subject fleets to its AI-Berth regulation, or expand the scope to vessel types not previously covered by the regulation, ocean carriers may divert vessels to other ports to remain under the threshold and dray cargo to their final destination, potentially significantly increasing greenhouse gas emissions.

As discussed earlier, it is not inconceivable that California-only action on an ultra-low NO_x new engine standard could cause some manufacturers to abandon new truck sales in California. If manufacturers, in whole or in part, begin avoiding the California new truck market, what impact would that have on measures such as the Medium- and Heavy-Duty Greenhouse Gas Emissions Standards Phase 2 described in the Sustainable Freight Action Plan? Could such actions result in emissions higher than CARB planned for?

The analysis presented by CARB appears to assume changes in pricing (i.e., the cost of doing business in California) will have no effect on demand (i.e., goods movement services in California). There is no basis for this assumption. CARB should conduct a careful analysis of (1) how the impact of its proposed regulatory scheme on the goods movement industry may result in changes to the way the industry operates, (2) how those changes could result in environmental impacts such as increased greenhouse gases, and (3) identify ways to mitigate those impacts, including modifying its proposed regulatory scheme. The tools exist to do this. CARB must provide substantial evidence for its conclusions on possible outcomes to its regulatory scheme and not simply provide unsupported statements.

PMSA looks forward to working with CARB on the finalization of the State Implementation Plan.

Sincerely,

A handwritten signature in blue ink that reads "Thomas Jelcnic". The signature is written in a cursive style with a large initial "T".

Thomas Jelcnic
Vice President

Attachment: Letter to CARB re: At-Berth Regulatory Advisory and Amendments,
February 10, 2016



Via Email

February 10, 2016

Cynthia Marvin
Chief, Transportation and Toxics Division
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Dear Ms. Marvin:

Subject: PMSA Response to 2016 Regulatory Advisory and Amendments to the Vessel At-Berth Regulation.

The Pacific Merchant Shipping Association (PMSA) appreciates the efforts that your staff has taken in advancing the much needed corrections to the Vessel At-Berth Regulation. Clearly much progress has been made and we look forward to continuing that progress. The move towards a single compliance option that eliminates the connection window, and annual compliance averaging, are much needed amendments to improve compliance with this complex regulation. Equally important is the recognition that fleets are doing their best to comply with the regulation but circumstances beyond their control inhibit full utilization of shore power by the vessels. It was on this principle of good faith efforts by the fleets that the need to amend the regulation was agreed to by CARB two years ago.

Prior to the regulation's shore power requirements became effective in 2014, PMSA and our members have met with CARB staff and have given our input on how the regulation should be amended to achieve the maximum amount of emissions reductions while recognizing real world circumstances. We are pleased to continue these collaborative efforts and respectfully submit following comments on the 2016 Regulatory Advisory and the Regulatory Amendments.

2016 Regulatory Advisory

Scenario 1 modification/clarifications

PMSA is deeply concerned about the language to limit consideration of vessel visits to only when the landside shore power equipment is not functioning.

"This scenario only covers instances where a shore power vessel visits a shore power berth, but is not technically able to provide shore power. This scenario does not cover instances where a

vessel is required to berth at a non-shore power berth nor does it cover instances where a vessel is required to berth in such a way that it is unable to connect to shore power.”

The Vessel At-Berth Regulation has resulted in massive investments to develop and use shore power connections on vessels calling at California Ports. PMSA members, including ocean carriers and marine terminals, and the California Port Authorities, have expended hundreds of millions of dollars to comply with this regulation. With these investments the fleets have demonstrated their commitment to comply with this regulation. Fleets calling at California ports need to maximize the utilization of their shore power for every vessel visit that calls at California ports in order to comply with this regulation and to recover the investment.

As you know, careful planning is required to make the decisions to convert Heels that call at California ports. For compliance it is always in the fleets’ best interest to connect as soon as possible and stay connected as long as possible. In addition, an independently enforceable requirement in Section (d)(1)(f), requires that every vessel equipped for shore power visiting a berth equipped for shore power, “shall utilize the shore power during every visit to (hat berth)”. The result of this provision is, if for any reason, a shore power equipped vessel does not connect they are subject to enforcement actions. Therefore, any time a shore power equipped vessel is denied the ability to connect shore power, for reasons beyond the control, and contrary to the clear intent of the vessel to connect, is a penalty to the fleet under the regulation.

Penalizing the fleet for circumstances beyond control is contrary to the good faith efforts on which this process was initiated. With this clear intent to comply, and the clear understanding of the potential penalties of the regulation, any vessel visit of a shore power equipped vessel where the vessel is unable to connect to shore power for reasons beyond the control of vessel, are *force majeure* conditions.

Examples of *force majeure* conditions include, but are not limited to:

- Shore-side connection is inoperable
- Berth pre-occupancy
- Berthing of vessels that precludes connection
- Testing or commissioning required by a regulatory agency or port authority
- Maintenance of shore-side infrastructure
- Safety concerns or issues that originate with equipment on-board the vessel
- Safety concerns or issues that originate with shore-side services
- Delayed clearance by regulatory agencies
- Requirements to either disconnect the vessel or operate the auxiliary engines by a regulatory agency, port authority, or power utility, during the vessel visit
- Connection delays caused by shore-side personnel.

PMSA hopes that CARB will include these conditions in the upcoming regulatory advisory.

Regardless, we will continue to advise our members to document and submit all instances where a shore power equipped vessel is unable to connect due to circumstances beyond the control of the vessel.

Scenario 2 modifications

We are grateful that CARB will allow for hours precluded from connection during commissioning visits (Scenario 2) to be excluded from the fleet totals. We believe that not excluding the lost hours in the fleet totals is the right approach to avoid penalizing fleets, and should also be applied to all *force majeure* situations listed above.

Scenario 3 modifications

We appreciate extending Scenario 3, and considering the benefit of annual versus quarterly compliance demonstration. A principle we strongly support that is best accomplished by eliminating the connection window requirements from the amended regulation.

PMSA and our members thank you for these proposed adjustments in the 2016 Regulatory Advisory.

Regulation Fixes

We also thank CARB for recognizing that there are many issues that remain unresolved. In November 2014, at the first public workshop on the proposed amendments to Vessel At-Berth Regulation, CARB provided an outstanding overview of the issues and would be an excellent starting point for the second public workshop. That presentation can be found at:

<http://www.arb.ca.gov/ports/shorepower/meetings/11062014/staffpresentation.pdf>

In preparation for the next public workshop, PMSA offers the following on the comments on regulatory amendments.

Single Pathway

PMSA and our members strongly support this approach. Eliminating major portions of Section (d)(1) and combining provisions into a mollified Section (d)(2), just makes sense. The benefits of that approach are:

- Eliminates the connection window (3-br) requirement for all captured fleets.
- Eliminates the percent vessel visit requirements.
- Provides the single compliance metric of emissions reductions for all fleets.

This approach would also eliminate vessel visit requirement and the provision that if a vessel is equipped for shore power it must connect. Neither of those provisions tire consistent with the requirement to reduce emissions by 50% beginning in 2014, 70% in 2017, and 80%> by 2020 that would be created under a single pathway. The vessel visit requirement has the unfortunate effect of requiring the retrofit of smaller, generally, older vessels, to maintain a requirement that does nothing to improve emissions. The amended regulation must maintain the compliance levels of emission reductions by allowing fleets to determine the best way to comply. The vessel visit requirement does nothing to improve emission reductions and may inadvertently increase emissions by forcing fleets to maintain older vessels in service at California ports longer to recover the investment. This is clearly counterproductive to California's need for expeditious replace the current fleet with Tier II and Tier III vessels, and should be dropped.

The requirement that a shore power equipped vessel must connect to shore power is also counterproductive. It could actually create an incentive to not retrofit vessels since that would subject the fleet to additional requirements and potential penalties that competing fleets without shore power vessels would not be subject to.

PMSA's position is that the emission reduction requirements should be the only metric for fleets to determine compliance moving forward.

Visit Requirement

PMSA and our members greatly appreciate the elimination of the connection window requirement. However, the suggestion that a vessel visit requirement could apply to both shore power and alternative technology vessel visits is counterproductive for the reasons stated above. Most importantly, it does nothing to reduce emissions.

Annual Compliance Period

PMSA and our members appreciate that CARB is moving forward with replacing the quarterly compliance calculations with annual.

Port Commissioning Visits

PMSA and our members appreciate CARB adding this consideration of Port Commissioning/Testing Visits.

Experimental Exemption

PMSA and our members greatly appreciate this provision that should assist in the development of additional control technologies for vessels while at berth. We would request that CARB credit those fleets that helped in the certification in the two currently approved alternative technologies to be given credit for their past efforts.

Shared Accountability for Terminal Operators and Ports

This raises a number of serious concerns and would significantly alter the framework of the current regulation. Besides the clear implication that Marine Terminal Operators and the Ports would be responsible for fleet compliance, it is unclear how shared accountability would work or be fairly implemented. We would suggest that/orce *majeure* conditions would exist for marine terminals and ports, as they do for vessels. The marine terminals and ports have made massive investments in shore power equipment and infrastructure and have assigned and trained personnel to provide the shore power connection service. The planning and investment demonstrate their clear intent to comply and should not be penalized for circumstances beyond their control.

Default Values

PMSA and our members agree that an updated evaluation of the default values in use for emission factors is needed. It is our position that the most accurate information should be used whenever possible. In addition, as was presented at the first public workshop, we also support the creation of default reduction percentages for vessel visits as the most efficient way to ensure fleets that have short vessel visits can comply.

Establish default reduction percentages for shore power:

Hours operating Aux Engines	Default Value
3 hours or less	90%
More than 3, less than 4 hours	80%
More than 4 hours, less than 5 hours	70%
5 hours or more	Actual Values

Potential Regulation Expansion Ideas

Ro/Ro, Bulk & Tanker

PMSA and our members are not the best representatives for these types or vessels. However, we offer whatever services we can provide as you explore the potential of regulating addition types of vessels.

Environmental Ship Index

Without prejudice to Environmental Ship Indexes. PMSA would suggest that using the IMO Tier emission standards combined with E1APP certificates for each vessel would be a simpler and more accurate way to promote cleaner vessels coming to California's Ports.

Additional Regulatory Issues

Redeployment

In order for vessel fleets to operate efficiently in the ever changing world marketplace, and to allow California ports to be competitive gateways, vessel operators must be able to adjust fleet composition. Unfortunately, this critical aspect of fleet operations has not been recognized by CARB since the December 2013 Regulatory Advisory expired. Now with the opening of new wider locks at the Panama Canal that will allow for larger vessels, it is reasonable to assume that many fleets calling at California's ports will be affected. With the redeployment of vessels it is likely that ship yards will again be backed-up with vessel retrofits that may require additional lead time. With the upcoming requirement to submit fleet and terminal plans by July 1, 2016, it is critical that some reasonable accommodation on vessel redeployment be reached. This isn't just critical to a fleet's ability to compete; improving efficiency through fleet turnover also reduces emissions. Fleet turnover is needed to achieve CARB's emission reductions goals and should be encouraged not penalized.

We also recognize that allowing for this turnover could result in short-term deficits to the emission reductions of the regulation. Although we are opposed to any fee program, we believe there are ways to compensate for these deficits through amendment to the Fleet Emission Credit (FEC) provisions, section (e)(2)(D), of the current regulation. The major criticism of credit trading programs is that the credits are used somewhere other than where they were generated, and do not benefit the local population. In this case, the FECs would be restricted to the same port complex they were generated and, most likely, by the same fleet that created the shortfall, eliminating this fundamental concern. We welcome further discussion on the redeployment issue, and ways to address any shortfalls.

Enhanced Compliance and Equity Considerations

CARB should enhance compliance flexibility by reviving the Fleet Emission Credit [Section (e)(2)(D)] provisions of the regulation. FECs generated by excess emissions requirements beyond regulatory requirements should be allowed for both intra- and inter-fleet FEC trading. Allowing early adopters to certify emission reductions generated prior to January 1, 2014, and providing an incentive to produce early and excess emission reductions, could potentially provide additional air quality benefits and could partially offset the equity issues imposed on early adopters under the dual option approach of the current regulation.

Equivalent Technologies

PMSA and our members welcome the merging of the two paths into a single approach that would allow for the use of CARB approved technologies. This is the approach in section (d)(2) that we think should be the model for the amendments. But, allowing these technologies, at this late date does create equity issues for fleets. PMSA raised these equity issues very early on. The late adoption of the single pathway and changing the rules for using alternative technologies has created a situation where early adopters have suffered a competitive disadvantage, fleets and ports have already spent hundreds of millions of dollars in pursuing the only currently allowed compliance option, shore power. Likewise, fleets that selected the EER option, and have been complying since 2010, would be stripped of any advantage that they earned by this late change. The unfair burden that this late change has on (those early adopters of the regulation must be addressed. Given CARB's comments at our January 2016 meeting regarding accountability, CARB should be equally concerned and committed to equity for early adopters.

Our proposal would be to allow any fleet that can document at-berth emission reductions prior to January 1, 2014, be allowed to bank those emission reductions as PECs. Amending the current EEC provisions to allow trading between fleets in the same port area would provide some minimal compensation for those early adopters. Allowing the ongoing generation and use of EEC's might also encourage those early adopters to maintain their edge by generating excess emission reductions for internal use or for trading. Finally, emerging technologies that can participate in generating PECs could be critical for acceptance and adoption by the fleets resulting in new and innovative ways to reduce emissions at-berth.

Revised Definition of "Berthing Time" and "Visit"

Section (c)(5) and (c)(38) contain definitions of "Berthing Time" and "Visit" that must be corrected. The current definitions state that "the period that begins with the vessel is first tied to the berth and ends when the vessel is untied from the berth". As we have pointed out repeatedly, this definition unfairly penalizes the vessel by starting before the vessel has any control over the connection process. We submit the following as accurately describing the time period when the vessel master actually has control.

"Berthing Time" (or Visit) means the period that begins when clearance to work the vessel is granted by Customs and Border Protection (CBP), or other governmental agency. In cases without CBP clearance, the Berthing Time (or Visit) begins when the vessel has the gangway down and safety nets secured. Berthing Time (or Visit) ends when the departure Pilot is on the bridge.

This is simply the most appropriate and fair definition of when a vessel is under the control of the vessel master and can be safely worked. When a vessel arrives from a foreign port, clearance from CBP is a pre-requisite. When arriving from a domestic port, the minimum safety requirements needed to begin the connection process are the gangway and safety nets being in place and secured. Changing these definitions, along with eliminating the connection window requirement, will further improve safety by reducing the need to rush once the vessel is cleared.

Reduce Unnecessary Record Keeping and Reporting.

in addition to simplifying the record keeping and reporting by changing to annual compliance period, eliminating the connection window, vessel visit, and redundant connection requirements, it should be possible to reduce, if not eliminate the annual reports from the terminal operators and port authorities. The point of the terminal operator and port authorities' annual reports are to verify the "Berthing Time" and provide records on the electrical use of vessels using shore-power. Since the ship's log is a legal document and the Pilot on-board provides a better standard of verification than either of the current sources, we see no need for either the ports or terminal operators to provide redundant and potentially conflicting "Berthing Times" and recommend those requirements, section (g)(3)(A), be removed from the regulation. Further, only the recipient of the electrical use from the utility should be required to provide that information in an annual report, thus eliminating the annual record keeping and reporting requirements for those terminal operators where the Port Authority receives the information from the utility. This represents another unnecessary burden that adds no value and section (g)(3)(B) should be modified to focus on collecting the electrical usage information from the appropriate party.

Conclusion

PM SA and our members again want to thank you, and your staff, for all of your efforts in providing this opportunity for the much needed amendments to the At-Berth Regulation and an improved 2016 Regulatory Advisory. The vessels, terminals, Ports and utility providers now have extensive experience with shore power that has informed these comments. We continue to believe that the amendments to the regulation presents the unique opportunity to adapt the regulation to reflect this experience, and craft amendments that will enhance compliance and encourage innovation to maintain, and potentially enhance, the emission reduction goals of the original regulation. We look forward to working with you, and your staff, to achieve these mutual objectives.

If you have questions, or need more information, please contact me by email at t.garrett@pmship.com or by phone at (310) 918-3535.

Sincerely,



T.L. Garrett
Vice President

Cc: Heather Arias

Richard Boyd
Angela Csondes
Jonadtan Foster
Rebecca Geyer
Doug Ito
Debbie Klossing
Paul Milkey
Elizabeth Yura
Nicholas Rabinowitsh

Comment Log Display

The screenshot shows the Air Resources Board website interface. At the top, there is a navigation bar with links for 'About ARB', 'Calendars', 'A-Z Index', and 'Contact Us'. The main header features the California Environmental Protection Agency logo and the Air Resources Board logo. Below the header, there is a search bar and a navigation menu with links for 'Home', 'Reducing Air Pollution', 'Air Quality', 'Business Assistance', 'Laws & Regulations', and 'Health'. The main content area is titled 'Comment Log Display' and contains the following information:

BELOW IS THE COMMENT YOU SELECTED TO DISPLAY.
COMMENT **10** FOR STATE **SIP** STRATEGY (STATESIP2016) - NON-REG.

10

First Name: Joyce
Last Name: Dillard
Email Address: dillardjoyce@yahoo.com
Phone Number:
Affiliation:

Subject: Proposed 2016 State Strategy & Draft EA
Comment:
Please address the traffic calming mechanisms such as Green Streets and Bicycles Lanes in relationship to these strategies and the Environmental Analysis

LA County MS4 permit voluntarily requires GREEN STREETS policies and LOW IMPACT DEVELOPMENT ordinances which impact traffic and, consequently, air quality.

Joyce Dillard
P.O. Box 31377
Los Angeles, CA 90031

Attachment:
Original File Name:
Date and Time Comment Was Submitted: 2016-07-18 13:30:55

If you have any questions or comments please contact [Clerk of the Board](#) at (916) 322-5594.

[Board Comments Home](#)

Back to Top | [All ARB Contacts](#) | [A-Z Index](#)

Decisions Pending and Opportunities for Public Participation
Conditions or Use | [Privacy Policy](#) | [Accessibility](#) | [Bilingual Services](#) | [Complaints](#) | [Civil Rights Policy](#)
[Howto Request Public Records](#)

The Board is one of six boards, departments, and offices under the umbrella of the California Environmental Protection Agency.
[Cal/EPA](#) | [ARB](#) | [CalRecycle](#) | [DPR](#) | [DTSC](#) | [OEHHA](#) | [SWRCB](#)

[ShareThis](#)

file:///AV/CEQA UNIT/CEQA PROJECT FILES/2016 SIP Measurs/RTC/Comment Letters/Comment 10 - Joyce Dillard.htm[7/18/2016 3:21:08 PM]

11

July 18, 2016

Clerk of the Board, Air Resources Board
10011 Street, Sacramento, California 95814



Electronic submittal via:

<http://www.arb.ca.gov/lispub/comm/bclist.php>

re: Comments on Proposed 2016 State Strategy for the State Implementation Plan

The California Trucking Association ("CTA"), on behalf of its over 1,500 member companies, appreciates this opportunity to comment on the Proposed 2016 State Strategy for the State Implementation Plan (the "Plan").

CTA believes that the Plan is deficient and must be revised to more specifically address the following issues:

- I. Need for Framework for Understanding Commercialization Pathway**
- II. Principles for Developing Regulatory Approach**
- III. Key Areas of Concern for the Trucking Industry**
- IV. Economic and Cost-Benefit Analysis**
- V. Avoid Measures that would be Preempted by Federal Law**
- VI. The CEQA Analysis Must More Thoroughly Examine Impacts that the Agency Knows will Flow from a Decision Approving the Plan**

Each of these issue areas is discussed below,

I. Need for Framework for Understanding Commercialization Pathway and Developing Regulatory Approach

The CTA has long been a fuel-neutral organization. It has many members who are actively participating in the development, piloting and demonstration of alternative fuel and electric-drive vehicles and would like to see these technologies become fully commercialized and cost-competitive with traditional internal combustion engines and fuels. In fact, some member fleets have been working to bring electric-drive vehicles to market for more than five years. But if CARB intends to mandate specific technologies, such mandates must be non-discriminatory—they must not target specific fleet operators and they must apply to private and public fleets alike.

Accordingly, we would like to engage CARB in further discussion about better articulating the commercialization pathway for these vehicles. We do not believe that end-user purchase mandates are an appropriate pathway to true commercialization. Broadly, we

would ask CARB to consider the following points regarding commercialization of electric-drive capable vehicles:

- Continued focus on technology neutral emission standards for manufacturers to spur innovation, including manufacturer credits.
- Continued focus on determining the marginal cost of technology pathways and prioritizing the most cost-effective approaches.
- Technology approaches should, in the long-term, result in comparably priced product compared to a conventionally-powered vehicle.
- Because any significant fleet modification to electric-drive capable vehicles will require significant public funding support, it is critically important that the agencies either make it clear that funding availability is not affected by the adoption of end-user mandates or consider different implementation mechanisms that do not preclude the use of incentives.
- Avoid creating market incentives for delivery service users to select providers who are not subject to zero emission technology requirements. Such a market influence could be created if CARB requires only a subset of fleet operators to bear the costs and burdens of fleet modification while exempting other operators. Any requirements should be non-discriminatory. Similar burdens could be placed on fleet operators where CARB has not put adequate enforcement mechanisms in place to ensure a level playing field.
- Where there is a near-term differential in up-front cost, but savings on fuel and maintenance of vehicles, CARB should work with stakeholders to establish a reasonable return on investment period through assumptions solidly based on real-world operations.
- The useful life of the vehicle should be similar to existing vehicles and expectations about reasonable useful life prior to retrofit or retirement mandates should be similarly established.
- Cost of ownership should be comparable to existing commercial vehicles.
- Vehicles must be certified to meet all State and Federal requirements.
- Warranty and maintenance agreements must meet existing standards, including those commonly negotiated by private fleets as part of large purchase orders.

- Manufacturers should be required to demonstrate the necessary resources and financial stability to meet warranty terms and maintenance requirements (parts and service) throughout the useful life of the vehicle.
- The feasibility and cost of building required infrastructure in existing facilities to support new technology should be carefully evaluated, along with the timing of such installation investments if new technology is to be phased in over time. California's unique permitting and environmental processes, which can take years to complete, must also be factored into any phasing plan.

Similarly, the plan should better articulate the role it foresees both public and investor-owned utilities and the Public Utilities Commission playing in the development of fueling and charging infrastructure, developing rate structures conducive to broader electric drive deployment in the freight setting, and innovative approaches to defraying infrastructure costs borne by fleets.

Unlike large projects involving major freight corridor infrastructure investments and upgrading of heavy duty vehicle fleets, Last Mile delivery must be approached on a more localized scale, as duty cycle demands vary greatly dependent on the urban or rural character of the communities these fleets serve. It will also be critically important to consider operational requirements for Last Mile fleet operators, including ongoing maintenance of vehicles and infrastructure, variances in utility rate structures and employee training. Each of these considerations will require careful planning of the implementation schedule, a task that will be especially important and difficult in light of the rapidly changing market that Last Mile delivery serves. These issues are more fully addressed in our comments on the Economic Assessment and the references set forth below, which are incorporated as if fully set forth herein,¹

II. Principles for Developing Regulatory Approach

We also recommend that CARB consider the following principles in any regulatory effort it undertakes to implement the measures set forth in the Plan:

- In order to increase regulatory certainty for businesses making capital investments and reduce the potential for stranded assets, work closely with stakeholders to

¹ See CalStart Reporter http://www.calstart.org/Libraries/Publications/Electric_Truck_Bus_Grid_Integration_Opportunities_Challenges_Recommendations.sflb.ashx; CARB Technology Assessment at http://www.arb.ca.gov/msprog/tech/techreport/bev_tech_report.pdf; CalETC Report at <http://www.caletc.com/wp-content/uploads/2Q16/01/California-Transportation-Electrification-Assessment-Phase-3-Part-A.pdf>; CARB Mobile Source Economic Analysis at http://www.arb.ca.gov/planning/sip/2016sip/2016mobsrca_appA.pdf

better estimate the useful life of equipment and integrate this knowledge into the rulemaking process and related economic assessments.

- Harmonize requirements, to the greatest extent possible, with federal and state rules to promote greater regulatory certainty.
- Provide regulatory flexibility in implementation and scheduling to potentially increase the affordability of large compliance investments. Compliance schedules should consider the time required to secure financing.
- Reward early adopters of technology and facilities that go "above and beyond" requirements.
- Avoid regulations that discriminate amongst providers of the same service, for example by regulating only certain fleets.
- Avoid creating competitive imbalances through inadequate or discriminatory enforcement practices.

Adhering to these principles as it develops specific regulatory approaches will encourage investment in California.

HI. Key Areas of Concern for the Trucking Industry

A. The Emission Benefits of the Proposed Last Mile Regulation are Not Enforceable and Cannot be Included in the Plan

The EPA has well-established criteria that require the regulations included in SIPs to be enforceable and surplus. Under the proposed Last Mile regulation, CARB would require the purchase and use of zero-emission Class 3-7 delivery trucks in California.

However, unlike the situation with light-duty vehicles, no existing CARB regulations or any proposed measure in the Plan would require any entity to produce and sell any zero-emission Class 3-7 delivery trucks in California. To the extent that there is no requirement for zero-emission Class 3-7 delivery trucks vehicles to be produced and made available for sale in California, CARB cannot reasonably demonstrate that it will be able to enforce the proposed regulation and ensure that claimed reductions in emissions actually occur. Clearly, even CARB cannot force a California company to buy and use a vehicle that doesn't exist. Therefore the proposed measure cannot be included in the SIP because U.S. EPA will have to reject it as unenforceable based on their long standing criteria for approval of SIP measures.

B. CARB has Improperly Analyzed the Emission Benefits and Costs of a California-Only Low-NOx Engine Standard

According to the Plan, in the absence of federal action, CARB will adopt a California-only low-NOx standard that would apply to new heavy-duty vehicles purchased in California beginning in 2023. However, also according to CARB, "without federal action to implement this emission standard, emission reductions would come mostly from Class 4-6 vehicles (as most Class 7 and 8 vehicles operating in California were originally purchased outside the State) as a result of California-only regulations."

Although it is well known that the heavy-duty on-road travel, and therefore NOx emissions, is dominated by emissions from Class 7 and 8 vehicles, Table 1 of the EA claims that the California-only standard would yield 86% (24 tons per day/ 28 tons per day) of the NOx emission reductions that the federal standard would provide. CARB staff has not provided the documentation necessary to identify the error in their analysis, but the result is clearly incorrect. It is also important to note that to the extent CARB is taking credit for emission reductions from low-NOx engines under the proposed California-only measure, it cannot claim the same NOx reductions as benefits under the proposed Last Mile regulation.

A similar situation exists for the capital cost estimates that CARB has used for the California-only standard reported in Table 4 of the EA which indicate that same value \$1,500 per unit would apply to both the California-only and federal standard. Clearly, the much higher volumes required with a federal standard will lead to lower compliance costs than a California-only standard. Further, it is not clear that California sales volumes of engines used in Class 4 to 6 vehicles are sufficient to induce engine manufacturers to produce low-NOx engines just for the California or even the California and Section 177 state markets. Again, this error in CARB's analysis must be corrected.

11-1

C. The Current Proposed Low Emission Diesel Requirement is Not Cost Effective and Must be Modified

Under this proposed measure CARB would require 50% of diesel fuel sold in California by 2030 to be low emission. In the Plan, CARB quantifies the 2031 benefit of this proposed measure as 8 tons per day of NOx. Table 7 of the EA indicates that the measure will increase the cost of diesel fuel by \$1.22 per gallon and that the total cost of the measure through 2031 will be \$6 billion. However, CARB also admits that the measure would "provide NOx benefits predominantly from legacy (pre-2010)" diesel vehicles, and Table 2 of the EA indicates that emission benefits were only assumed to result from use of the fuel in legacy vehicles.

Given that the purpose of the Plan is to reduce criteria pollutant emissions, CARB's admission that the fuel will not result in emission reductions from the vast majority of

vehicles that will use the fuel, and CARB's incremental cost estimate of \$1.22 per gallon, it appears that CARB will not be able to demonstrate that it is cost-effective. Spending \$1.22 per gallon for a fuel that provides no reduction in criteria pollutant emissions is by definition not a cost effective approach to reducing criteria pollutant emissions.

If CARB includes this measure in the Plan it must indicate that it plans to require the use of low emission diesel fuel only in those legacy vehicles where it will actually lead to a reduction in emissions.

IV. Economic and Cost-Benefit Analysis

A. Competitiveness

The Governor's Executive Order B-32-15 emphasizes the need to accelerate California's transition to a more efficient and less polluting freight transport system. The objectives laid out in the Executive Order represent a continuation of the State's priorities on an array of transportation, environmental, energy, and economic goals and objectives. Key among these goals is:

Supporting economic competitiveness: The freight industry is a major economic engine for our State and supporting the competitiveness of the freight transport system will be key to the continuing prosperity of California.

Despite the key role that the freight industry plays in California's economy, many elements of the industry operate on razor thin margins and are highly susceptible to economic cycles. Requiring California's freight businesses to make significant investments or meet burdensome regulatory standards that are not imposed in the rest of the country puts the state at a *competitive* disadvantage that could ripple through our economy and may cause the skilled workforce our industry requires to seek opportunities elsewhere.

Another key requirement of Executive Order B-32-15 is of particular importance:

Completing economic analysis: Assessing the impacts of actions, including the distribution of potential costs and benefits on California businesses, consumers, and the economy with public input is a critical part of the regulatory development process. Full economic impact analyses are required for all regulatory actions adopted by the Office of Administrative Law.

Since last summer's announcement of Governor Brown's Executive Order B-32-05, the trucking industry has supported the call for a balanced, holistic view of the development and deployment of zero and near-zero emission freight equipment with the dual

imperatives of reducing emissions while increasing the economic competitiveness of the State's freight industry.

And yet, nowhere in the Economic Analysis is competitiveness even mentioned.

Increasing the economic competitiveness of the freight industry begins—but does *not* end—with the costs of the measures. Appendix A to the Plan, however, is woefully inadequate in its analysis of the costs and economic impacts of the Plan's specific measures affecting our members. First, for some measures, such as the Last Mile proposal, the underlying bases for the cost projections are not provided. Second, the cost estimates for some measures have significant gaps; for example, most NOx reduction benefits are not calculated for 2023. Similarly, the annual O&M cost for the Last Mile measure is not calculated. These gaps in the economic analysis make decision-making about the viability of these measures premature. Miscalculating either the costs or the benefits in even relatively minor ways can lead to dramatic and unanticipated impacts on the freight sector potentially moving the goal posts further down the field.

By placing a high priority on understanding the impact of state actions on competitiveness, allocating the necessary resources to the implementing agencies and avoiding stranded assets, CARB can send a positive signal to the private sector that it is serious about attracting and retaining investment in the State's freight system.

B. Cost-Effectiveness

1. Failure to Assess the Cost Effectiveness of Proposed Control Measures

Section 43013 of the California Health and Safety Code requires that CARB consider the need for, as well as the technical feasibility and cost-effectiveness of air quality regulations. In order to estimate the cost effectiveness of a proposed measure one simply divides the total cost of the regulations (in dollars) by the total emission reductions (in either tons or pounds) expected to result when the measure implemented.

Although approval of the Plan does not in and of itself result in the adoption of the regulation, CARB says the proposed measures are intended to result in a "comprehensive transformation" to cleaner vehicles and fuels and what little cost information is provided in the EA clearly shows that this transformation will be hugely expensive. CARB should therefore, at a minimum, provide preliminary cost-effectiveness estimates in order to allow the public to comment on whether or not it is likely that CARB will be able to demonstrate that the proposed measures are in fact cost-effective when they are ultimately considered for adoption. In addition to publishing preliminary estimates, CARB should also provide a comparison of those estimates to values from past regulations and explain in light of that

11-1
cont.

comparison why it views the proposed measures as complying with the statutory cost-effectiveness requirement.

2. Failure to Provide The Basis for Cost and Emission Benefit Estimates

Section 39601.5 of California Health and Safety Code requires that CARB make available to the public all information described in Section 11346.2 of the California Government Code related to air emissions and economic impacts when it adopts regulations. Examples of the types of data and information that CARB is required to provide can be found on the CARB website.²

Although CARB approval of the Plan does not result in the adoption of a regulation, the Plan and EA provide insufficient information to allow the public and decision makers to understand how the agency plans to demonstrate the technical feasibility of the proposed measures and the basis and sources for the assumed cost of the proposed measures.

For example, as set forth in Table 2 of the EA, the basis for all of the emission benefit estimates associated with proposed control measures are completely unsupported "assumptions" made by CARB staff. Similarly, the basis for the incremental and operating cost estimates presented by CARB in Tables 3 through 6 of the EA are not stated and no details regarding how the estimates were developed are included in the EA, the Plan or the DEA. Clearly, CARB needs to provide much more detail in order for the public to effectively comment on the proposed measures in the Plan.

3. Failure to Fully Account for the Cost and Economic Impacts of the Plan

As shown in Tables 3 to 8 of the EA, CARB has considered only the costs that will be incurred through 2031 although it is admitted in the EA that "additional O&M and capital costs may be incurred after 2031, but those costs are not included in this analysis." Thus, CARB has failed to fully account for the costs of the Plan or to analyze the full impacts of the Plan on the California economy.

4. Failure to Accurately Contextualize Cost and Economic Impact of the Plan

The Economic Analysis is also constrained in ways that are artificial and could lead to skewed decision-making. For example, the Economic Analysis states that:

The annual average cost after implementation is estimated at \$6 billion, which is less than 1 percent of projected California GDP in 2031. In the context of the California economy, the anticipated economic impacts of the

11-1
cont.

² See for example http://www.arb.ca.gov/msprog/dean_cars/clean_cars_abl085/dean_cars_abl085.htm and <http://www.arb.ca.gov/msprog/onrdiesel/background/2014/Materials.htm>

State SIP Strategy are small and are not expected to impose a noticeable impact on the California economy.

Measuring the impacts of the Plan against the overall California economy obscures the impacts of the specific measures on specific industries that are key components of that economy. A specific measure may affect only one block in the wall that is California's economy, and yet weakening that block may undermine the entire wall. The significant burdens that the proposed measures would impose on the freight movement sector, and the trucking industry in particular would, we believe, have a much larger impact on California's economy than the 1% anticipated in the Economic Analysis—an impact that would not only be "noticeable"—but significant.

Limiting the Economic Analysis to impacts in California also obscures the real costs that the freight industry must bear. Many of the freight-related measures in the Plan would require trucking companies to modify operations not only in California, but outside the state as well in order to maintain operational efficiencies. Those modifications come with costs that must be considered in the decision-making process.

CARB has examined only the impact of costs incurred between 2016 and 2031 and then only in terms of its impact relative to the total state GDP. Given that only a fraction of the total cost of the Plan is being considered and much of the California economy will be unaffected by the Plan, this approach fails to recognize that individual sectors such as trucking may experience substantial economic impacts. The EA fails to even consider much less analyze impacts on individual sectors.

Based on the information presented in Tables 4 and 7 of the EA the proposed on-road heavy-duty measures and the proposed low emission diesel fuel requirement in the Plan would cost the trucking sector about \$12 billion by 2031, but the full cost of the plan would be far greater. In assessing economic impacts, CARB must look at the individual sectors affected by the Plan not the entire aggregated California economy

The limited scope of the Economic Analysis thus not only fails to address the economic *competitiveness* the Governor directed the state's agencies to enhance, it fails to provide even the most basic information regarding the true costs of the measures to the trucking industry.

11-1
cont.

V. Avoid Measures that would be Preempted by Federal Law

A. FAAAA

The Federal Aviation Administration Authorization Act of 1994 ("FAAAA") expressly preempts any state "law, regulation, or other provision having the force and effect of law

related to a price, route, or service of any motor carrier . . . with respect to the transportation of property." 49 U. S. C. §14501(c)(1). The statute provides only three specific exceptions to preemption: vehicle safety, intrastate transportation of household goods and tow trucks. None of those exceptions is relevant here.³ The preemption provisions of the federal law were adopted "[t]o ensure that the States would not undo federal deregulation with regulation of their own," *Morales v. Trans World Airlines, Inc.* (1992) 504 U. S. 374 (referring to identical provisions of the Airline Deregulation Act).

One of the key questions confronting the courts in early decisions concerning the scope of federal preemption under the FAAAA was whether a particular regulation "related to" the price, route or service of a motor carrier. In the case of the Last Mile measure, the question would be whether a purchase mandate "relates to" price, route or service.

The United States Supreme Court has held that a state law is "related to" price, route or service if it "if it has a connection with or reference to" price, route or service. See *Morales supra* at (airfare advertising is "related to" price, route or service and state regulation is therefore preempted); see also *Shaw v. Delta Air Lines, Inc.* (1983) 463 U.S. 85, 97 (employee retirement plans are "related to" price, route or service and state regulation is therefore preempted); *American Airlines, Inc. v. Wolens* (1995) 513 U. S. 219 (frequent flyer programs are "related to" price, route or service and state regulation is therefore preempted).⁴

As explained by the United States Supreme Court in *American Trucking Associations v. Los Angeles* (2013) 569 U.S. 133, placard and parking requirements relate to a motor carrier's price, route, or service. The only disputed question was whether those requirements had "the force and effect of law." The Port claimed that they did not, because the "concession contract" imposing these requirements was "just [like] a private agreement," made to advance the Port's commercial and "proprietary interests." That issue is not presented by the proposed SIP measures relating to trucking operations—those measures, if not preempted, would clearly have the force and effect of law, and CARB would not be acting in a proprietary capacity. And just as clearly, if placarding and parking requirements "relate to" a "price, route or service," so too does the selection of truck technology, power source and attendant infrastructure.

The technology required by the Last Mile measure is admittedly new and immature. So much so that that prices, routes, and services would be more directly and significantly impacted than they are by more traditional regulations. The mandated use of new and

³49U.S.C. 514501(c)(2).

⁴ The Supreme Court has also held that the statute does not preempt state laws whose relation to prices, routes, or services is "tenuous, remote, or peripheral." *Dan's City Used Cars Inc. v. Pelkey* (2013), 133 S. Ct. 1769,1774. That line of cases is inapposite, as the laws at issue were of general application and did nothing to impede competition in the trucking industry.

immature technology would effectively require carriers to develop or subsidize the development of new technology that could meet the regulatory mandate and carrier needs, modify facilities to install infrastructure for charging or refueling the vehicles, modify connections to the electrical grid or seek a modification of the grid itself in order to have sufficient capacity to charge the vehicles, adjust operations to take into account delays associated with recharging or refueling zero emissions vehicles and reconfigure routes due to zero emissions vehicles having a shorter range of operation than gasoline or diesel powered vehicles.

As explained by the Supreme Court in striking down Maine's law prohibiting unlicensed tobacco shipment, holding that such requirements had a direct "connection with" motor carrier services;

the provision has a "significant" and adverse "impact" in respect to the federal Act's ability to achieve its pre-emption-related objectives. . . . Maine does not deny) that the law will require carriers to offer a system of services that the market does not now provide (and which the carriers would prefer not to offer). And even were that not so, the law would freeze into place services that carriers might prefer to discontinue in the future. The Maine law thereby produces the very effect that the federal law sought to avoid, namely, a State's direct substitution of its own governmental commands for "competitive market forces" in determining (to a significant degree) the services that motor carriers will provide.

Rowe v. New Hampshire Motor Transp. (2008) 552 U.S. 364, 372. The *Rowe* court went on to emphasize that;

the effect of the regulation is that carriers will have to offer . . . delivery services that differ significantly from those that, in the absence of the regulation, the market might dictate. And that being so, "treating sales restrictions and purchase restrictions differently for pre-emption purposes would make no sense." *Engine Mfrs. Assn. v. South Coast Air Quality Management Dist.*, 541 U. S. 246, 255 (2004). If federal law pre-empts state efforts to regulate, and consequently to affect, the advertising about carrier rates and services at issue in *Morales*, it must pre-empt Maine's efforts to regulate carrier delivery services themselves.

Each of the Supreme Court's prior decisions finding preemption dealt with an area of regulation far more remotely related to price, route or service than the Last Mile measure. The Last Mile measure's proposal to specify the specific fleet purchases, technology and power source for trucks is far more integral to and intrusive upon the price, route and

service of the trucking industry than those state laws the Supreme Court has specifically held to be preempted.

The choice of truck design, power source, and attendant infrastructure all fall squarely within the scope of federal preemption, particularly when such requirements are imposed on only a subset of truckers providing the same service. Notably, the proposed Last Mile measure targets only "certain fleets," apparently excluding government and smaller fleets from regulation. Such discrimination would obviously have a direct impact on the "competitive market forces." The FAAAA, as applied by the Supreme Court, preempts any such state law.

CTA therefore urges CARB to approach electrification by focusing on manufacturer standards, an approach specifically authorized by federal law and not subject to FAAAA preemption.

B. The Clean Air Act

The CAA would also preempt any purchase mandate. CAA section 209 (42 U.S. Code §7543) provides:

No State or any political subdivision thereof shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part. No State shall require certification, inspection, or any other approval relating to the control of emissions from any new motor vehicle or new motor vehicle engine as condition precedent to the initial retail sale, titling (if any), or registration of such motor vehicle, motor vehicle engine, or equipment.

The U.S. Supreme Court has held that a "command, accompanied by sanctions, that certain purchasers may buy only vehicles with particular emission characteristics" is preempted by the CAA. *Engine Manufacturers Assn. v. South Coast AQMD* (2004) 541 U.S. 246.

CARB may, of course, seek a waiver of CAA preemption from the EPA. Such a waiver may be granted only if the proposed regulation is not arbitrary or capricious, is needed to meet compelling and extraordinary conditions and is consistent with EPA's own authority to adopt such a regulation. Previous decisions granting waivers and authorizations have noted that state standards and enforcement procedures are inconsistent with section 202(a) if there is inadequate lead time to permit the development of the necessary technology giving appropriate consideration to the cost of compliance within that time. *See, e.g.* 76 Fed. Reg. 76184, 76186 (Oct. 31, 2011). In addition, the third criterion—consistency with EPA's own authority to adopt engine emission standards—must be met.

See 42 U.S. Code § 7521.⁵ Each of these criteria presents real challenges that CARB must carefully address in any Last Mile measure.

Although the imposition of the Last Mile measure would require a waiver of CAA preemption, even if such a waiver were granted, it would not by itself be determinative of federal preemption. The waiver would then need to be reconciled with preemption under the FAAAA.

Where two federal laws are in conflict, the courts must determine whether they can be harmonized. In making that determination, the courts must consider a variety of factors, including whether the law would pose an undue burden on interstate commerce. If an apparent conflict exists between two federal laws, the courts must strive to harmonize the two laws, giving effect to both laws if possible. *See Blanchette v. Conn. Gen. Ins. Corps.*, 419 U.S. 102, 133-34 (1974); *UnocalCorp. v. Kaabipour*, 177 F.3d 755, 769 (9th Cir. 1999). FAAAA's express preemption provision, and its underlying goal of avoiding a patchwork of state and local regulations that could interfere with interstate commerce, and the significant burdens that would be imposed on the trucking industry, all require that CARB structure any Last Mile measure in a manner that can be harmonized with FAAAA's goals.

VI. The CEQA Analysis Must More Thoroughly Examine Impacts that the Agency Knows will Flow from a Decision Approving the Plan

The Environmental Analysis prepared by CARB is so vague as to be completely uninformative. CEQA requires more. The Environmental Analysis must contain a "sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences." This does not require "perfection" but rather a "good faith effort at full disclosure." CEQA Guidelines §§ 15151,15152. The Environmental Analysis fails these tests.

Although CARB is exempt from the requirement to prepare formal CEQA documents, this does not mean the agency can simply gloss over the impacts of the project. CARB must instead prepare a "functionally equivalent document" that considers individual and cumulative impacts and addresses adverse activities and impacts associated with the proposed measures. An environmental document used as a substitute for an EIR must include alternatives to the proposed activity and mitigation measures to minimize significant adverse effects on the environment. *City of Arcadia v. State Water Resources Control Bd.* (2006) 135 Cal.App.4th 1392, 1422. *See also EPIC v. Johnson* (1985) 170 Cal.App.3d 604, 611 ("As an 'abbreviated' EIR, the [FED] must contain sufficient information regarding the environmental effect of the... project to enable the evaluation of

11-2

* In that regard, CARB should also keep in mind that EPA and NHTSA are already proposing uniform federal fuel efficiency and Phase II greenhouse gas standards for commercial vehicles. 80 Fed.Reg. 40137 (July 13, 2015).

the effect of the project on the environment, the feasibility of alternatives to the project, and the measures to minimize any significant adverse impact.")

CARB's programs are subject to the broad policy goals and substantive standards of CEQA. *Arcadia*, *supra*, at 1422.); *Ebbetts Pass Forest Watch v. Cal. Dept. of Forestry and Fire Protection* (2008) 43 Cal.4th 936, 943. Although CARB's analysis of the Plan is programmatic, it must provide sufficient information to establish the basis for future environmental analyses and allow future project-specific environmental analysis to focus solely on the new effects or detailed environmental issues not previously considered. CEQA Guidelines §15152. "CEQA contemplates consideration of environmental consequences at the 'earliest possible stage, even though more detailed environmental review may be necessary later.'" *EPIC v. Dep't of Forestry* (2008) 44 Cal.4th 459, 503.

The approach taken in the Environmental Analysis is too cursory and can be summed up as follows:

- the Plan might increase the demand for electric vehicles, which in turn might require the construction of related facilities like manufacturing plants or charging stations or activities like the extraction of resources (lithium);
- these construction and mining activities may have environmental impacts, such as impacts to air quality, biological resources, noise, etc.;
- these activities will be permitted by other jurisdictions that might impose mitigation measures;
- however: because it is unknown whether the permitting agencies will impose these mitigation measures, the impact is significant and unavoidable.

Indeed, in each instance where the Environmental Analysis finds a potentially significant impact, it deems it significant and unavoidable based on this logic.

This analysis is extremely generic, vague and of little value to the public and decisionmakers. At the very least, the Environmental Analysis should provide greater detail on the nature of these likely future activities, such as the specific attributes and related impacts of vehicle or lithium battery manufacturing or the nature of lithium mining. CARB has sufficient information before it to know that these activities must occur in order for the measures in the Plan to be implemented, and it has sufficient information about the likely impacts of such activities to better inform the public and decisionmakers.

11-2
co nt.

As it stands, the public and decisionmakers are only told that construction of fairly generic facilities may occur in the future and then normal construction related impacts are identified. The analysis should disclose the nature of electric vehicle and lithium manufacturing facilities and lithium mining and provide details on the specific types of impacts these activities can be expected to have. The cursory and ambiguous descriptions of both the "reasonably foreseeable compliance responses" and the environmental analysis of those responses do not provide meaningful information to enable decisionmakers to "intelligently take account of environmental consequences."

The Environmental Analysis states that this is acceptable because it "conservatively assumes" impacts are significant and unavoidable. However, this is akin to the approach rejected by the Court of Appeal in *Berkeley Keep Jets Overv. Port Commissioners* (2001) 91 Cal. App. 4th 1344,1370. In *Berkeley Keep Jets*, the Port argued that its failure to conduct a health risk assessment was excusable because the Port labeled impacts from toxic air contaminants as significant and unavoidable. The court rejected this:

This approach has the process exactly backward and allows the lead agency to travel the legally impermissible easy road to CEQA compliance. Before one brings about a potentially significant and irreversible change to the environment, an EIR must be prepared that sufficiently explores the significant environmental effects created by the project. The EIR's approach of simply labeling the effect "significant" without accompanying analysis of the project's impact... is inadequate to meet the environmental assessment requirements of CEQA.

The Environmental Analysis takes this same approach. It generically identifies some potential impacts and then says it is unknown what will happen so "conservatively assumes" - or as *Berkeley Keep Jets* says "simply labels" - the impacts significant and unavoidable. This is not "conservative," it is uninformative and does not meet CEQA's mandates.

While we understand CARB's position that the level of detail is "necessarily and appropriately general" because the Plan is itself programmatic, such generality cannot be an excuse for failure to examine impacts that the agency knows will flow from a decision approving the Plan. And even to the extent that CARB can justify cursory review at this stage of developing a strategy, it will not be true at the time the actual SIP measures are adopted. This approach of identifying only broad potential responses to compliance and a generic description of related environmental impacts will certainly not be appropriate once the actual regulations are on the table.

11-2
cont.

Chapter 2 contains a description of the anticipated compliance responses to the various measures discussed in the Plan. Chapter 4 then analyzes the environmental impacts of these responses. However, the Environmental Analysis does not identify all reasonably foreseeable compliance responses. Most significantly, and as outlined elsewhere in our letter, the Plan could have a significant adverse impact on competitiveness of California's freight industry. The Environmental Analysis appears to assume that California's existing multi-modal, highly complex freight system will continue to operate in essentially the same manner, but with cleaner equipment. That will not be the case. Given the competitive disadvantage resulting from the Plan, there may be significant shifts in the entire freight industry and the environmental effects of these changes need to be analyzed. It is reasonably foreseeable that trucking companies will need to install significant new infrastructure to accommodate electric vehicles and may need to relocate or reconfigure their facilities in order to do so. It is very possible that freight electric vehicles will necessitate an increase in the number of vehicles used for freight delivery due to inadequate range (mileage) capabilities, thereby increasing congestion upon California's roads. This negative impact to all vehicles could adversely affect freight transportation, and transportation within the state, in general. They may need to modify operations not only in California, but also outside the State. Some of the skilled workforce now in the trucking industry may move out of state. These shifts have their own environmental impacts, such as concentrating freight and related air, noise, traffic and other impacts in new areas and intensifying existing uses.

11-3

Many of these impacts are identified in the enclosures to this letter. Where, as here, these types of changes are known and foreseeable consequences, they must be analyzed now to fully inform decisionmakers of the rippling effects of the Plan.

VII. Conclusion

Thank you for the opportunity to comment on this plan.

CTA urges CARB to recraft its approach to the SIP measures for the trucking industry to avoid stranded assets and provide regulatory certainty by establishing a reasonable timeframe under which businesses can recoup their investments in CARB/EPA certified technology and infrastructure. Providing this certainty will give businesses the confidence to invest in the cleanest available technologies despite the State's multiple and at times conflicting environmental policy drivers. If CARB chooses not to take this more traditional and proven approach, it will need to carefully consider the preemptive effect of the FAAAA and to comply with CEQA in its evaluation of alternatives, environmental impacts and possible mitigation measures.

CTA also urges CARB to more thoroughly evaluate the costs and impacts on competitiveness that would result from adoption of the trucking measures, in particular the Last Mile measure. CARB should focus on developing better tools and modeling to assess the impact of its actions on the competitiveness of the businesses located within the State. To this end, CARB should convene stakeholders to work to identify an appropriate, quantifiable target for competitiveness and the necessary data, tools and model needed to assess the impact of future actions on competitiveness and track our progress towards achieving the target.

We look forward to working with CARB now and in future years on finalizing and implementing the Plan.

If you have any questions, please contact Chris Shimoda at cs@hi.niodaffi.caltrux.org or (916)373-3504.

Thank You,

Eric Sauer, Vice President of Policy and Government Relations



STATE OF CALIFORNIA
AIR RESOURCE BOARD

12

Proposed 2016 State Strategy)	Board Hearing Date:
for the State Implementation)	September 22, 2016
Plan, and Draft Environmental)	
Analysis (Appendix B))	

COMMENTS OF
THE TRUCK AND ENGINE MANUFACTURERS ASSOCIATION

July 18, 2016

Jed R. Mandel
Timothy A. French
Truck and Engine Manufacturers Association
333 West Wacker Drive, Suite 810
Chicago, Illinois 60606

**STATE OF CALIFORNIA
AIR RESOURCE BOARD**

Proposed 2016 State Strategy) **Board Hearing Date:**
for the State Implementation) **September 22, 2016**
Plan, and Draft Environmental)
Analysis (Appendix B))

**COMMENTS OF
THE TRUCK AND ENGINE MANUFACTURERS ASSOCIATION**

Introduction

The Truck and Engine Manufacturers Association (“EMA”) hereby submits its comments on the Proposed 2016 State Strategy for the State Implementation Plan, and the accompanying Draft Environmental Analysis (hereinafter, the “2016 SIP Strategy”) that the California Air Resources Board (“CARB”) made available for public comment on May 17, 2016. EMA appreciates the opportunity to submit these comments on the 2016 SIP Strategy, and is doing so to help improve the accuracy and reasonableness of CARB’s strategic plan to continue to improve air quality throughout California. EMA looks forward to following up with CARB staff on the important issues identified in these comments.

EMA is the not-for-profit trade association that represents the world’s leading manufacturers of internal combustion engines, and the vehicles and equipment that those engines power, other than passenger cars. Heavy-duty on-highway (“HDOH”) engines and vehicles are included among the array of products that EMA’s members manufacture. Since a linch-pin of the 2016 SIP Strategy is the proposed adoption of new low-NO_x emission standards for HDOH engines, EMA’s members have a direct and substantial interest in ensuring that the 2016 SIP Strategy is based on well-reasoned and validated emissions inventory assumptions and modeling. As explained below, that is not the case.

The 2016 SIP Strategy, as it relates to HDOH engines and vehicles, is premised on significant over-estimations of future ozone levels in the South Coast Air Basin (“SCAB”). CARB has derived those over-estimations from its use and application of the Community Multi-Scale Air Quality (“CMAQ”) model, which, as applied by CARB, consistently has over-predicted future ozone levels in the SCAB for the past 25 years, including as recently as 2012 when CARB developed its last SIP submissions. In light of those consistent over-predictions of ozone, CARB’s assertion that ozone attainment requires an additional 90% reduction in NO_x emissions from HDOH engines and vehicles - over and above the rigorous NO_x-control regulations that are already in place - is simply not supported by the actual facts. While some future HDOH emission requirements may prove to be warranted and reasonable, the assumed premise for adopting a 90% lower NO_x standard in 2019 is flawed and incorrect.

CARB’s EMFAC model - the tool for estimating future levels of individual precursor emission, and in particular NO_x - also is over-estimating the magnitude of future-year emission inventories, and is utilizing emission inputs and related data that are significantly out-of-date. This, too, is a fundamental problem that CARB should remedy before adopting any specific menu of SIP strategies, especially strategies that are estimated to cost in excess of \$10 billion.

CARB's assertion that it is justified in proposing to adopt non-aligned "Phase 2" greenhouse gas ("GHG") emission standards for HD0H vocational vehicles is similarly flawed. Specifically, CARB asserts that it intends to "layer additional requirements for vocational vehicle aerodynamics onto the federal Phase 2 program." (2016 SIP Strategy, p. 52.) That proposal is unreasonable.

The feasibility and cost-effectiveness of the Phase 2 GHG program (which will be finalized near the end of July) is premised upon complete alignment and harmonization between U.S. EPA and CARB. HDOH vehicle manufacturers cannot afford to build separate vehicles to meet California's purported need for unique incremental GHG requirements. Moreover, the notion that enhanced aerodynamics features are suitable for vocational vehicle applications is wrong. The very broad array of vocational vehicle applications, from dump trucks and garbage trucks to transit buses and school buses, and the urban and multi-purpose drive cycles over which they operate, are fundamentally ill-suited to enhanced aerodynamics. That is the reason why U.S. EPA — which in this instance has the exact same regulatory interest as CARB — eschewed requiring enhanced aerodynamic performance for vocational vehicles. Putting a vocational vehicle on California roads or placing that vehicle under CARB's jurisdiction does not change the fundamental aerodynamic limitations under which vocational vehicles operate.

**CARB Has Failed To Provide
For A Fair Notice And Comment Process**

As an initial matter, CARB has failed to provide for a fair and reasonable notice and comment process relating to the 2016 SIP Strategy. Specifically, CARB has based its 2016 SIP Strategy, and each of the proposed control measures, on the numerous modeling files and results that CARB and the SCAQMD have developed for the SCAQMD's 2016 Air Quality Management Plan ("AQMP"). While the text of the AQMP was just released on June 30, 2016, the underlying modeling files and results have not been made available for public review and comment. That is a clear abrogation of administrative due process, and should require a new notice and comment process when the data and methods underlying the 2016 AQMP become publicly available. In that regard, all of the modeling methods, data and results that CARB and the SCAQMD are relying on their preparation of the 2016 AQMP and SIP Strategy (including all "Appendix III" and "Appendix V" materials) should be released for public scrutiny as soon as possible.

12-1

**CMAQ Over-Predicts
SCAB Ozone Levels**

CMAQ modeling is the cornerstone of the 2016 SIP Strategy. In that regard, "ARB and the South Coast have been collaborating on air quality modeling to provide estimates of the reductions needed to attain the ozone and PM_{2.5} standards." (2016 SIP Strategy, p.12.) The resultant estimates from those col laboratory modeling runs of the necessary emission reductions are very large. As CARB explains:

Current modeling indicates that NO_x emissions will need to decline to approximately 130 tons per day (tpd) [in the SCAB] in 2023, and 90 tpd in 2031 to provide for attainment in the remaining portions of the region that do not yet meet the standards. Reaching these levels will require an approximate 70 percent reduction from today's levels by 2023, and an overall 80 percent reduction by 2031. (Id.)¹ —

Based on those same modeling efforts, CARB is proposing to adopt in 2019 low-NO_x standards that will “provide 90 percent overall NO_x emission reductions from the current engine and emission control technologies.” (2016 SIP Strategy, p.49.) “For heavy-duty vehicles, the State SIP Strategy calls for combustion engine technology that is effectively 90 percent cleaner than today's standards.” (2016 SIP Strategy, p. 4.)

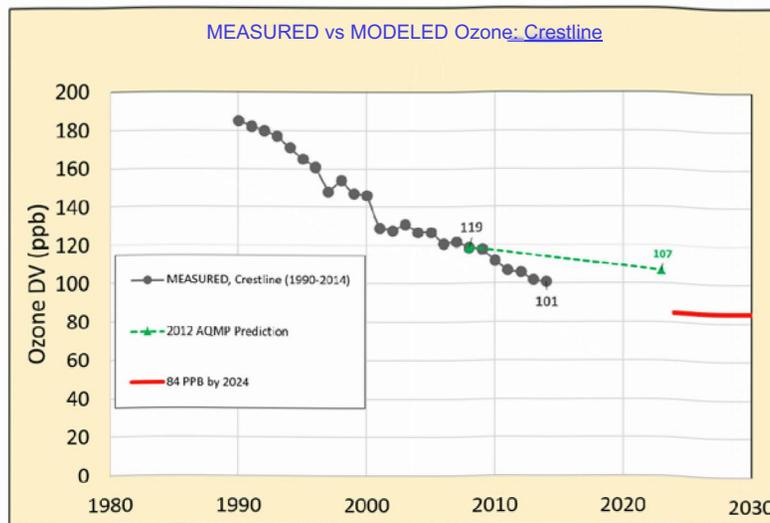
As noted above, CARB's call for an additional 90% reduction of the NO_x standard applicable to HDOH engines is premised on its utilization and application of CMAQ in a manner that consistently has over-predicted future ozone levels in the SCAB. EMA has worked with leading experts from Ramboll Environ to develop comprehensive analyses comparing CMAQ-modeled levels of ozone in the SCAB against actual monitored levels of ozone in the SCAB (hereinafter, the “Rambo II Analysis”). In addition, EMA is working with Sonotna Technology, Inc. (“STI”) to perform additional analyses of NO_x and VOC trends, and to develop detailed comparisons between the available ambient data and the modeled emissions inventories for the SCAB. The Ramboll Analysis show's that, dating back to 1990, monitored levels of ozone have declined at a rate (ppb/year) that is 2 times faster than the CMAQ-modeled levels. The performance of CMAQ has been even worse over the more recent time period (2008-2014), during which time the observed and monitored trend in the reduction of ozone (on a ppb/year basis) has been 2 to 8 times faster than the CMAQ-predicted trend.

The specifics of the Ramboll Analysis bear this out. It is undisputed that at 14 out of 16 air quality monitoring stations in the SCAB, actual measured levels of ozone already were significantly lower in 2014 than the ozone levels that CMAQ predicted (for purposes of the 2012 SIP) would be achieved in 2023. Stated differently, actual ozone results already were significantly better in 2014 than the results CMAQ predicted for 2023, a full nine years later. The following chart depicts this significant disparity (all units are in ppb):

¹ It is very interesting to note that the 2016 AQMP asserts a different conclusion in this regard. The AQMP claims that “[t]he carrying capacities, the maximum allowable NO_x emissions to meet the ozone standards, are estimated to be 150 TPD NO_x in 2023 [not 130 tpd], and 100 TPD NO_x in 2031 [not 90 tpd]. (See AQMP, p. 5-9.) Consequently, it is clear that, at best, one of those sets of estimates, either CARB'S or the SCAQMD's, is wrong.

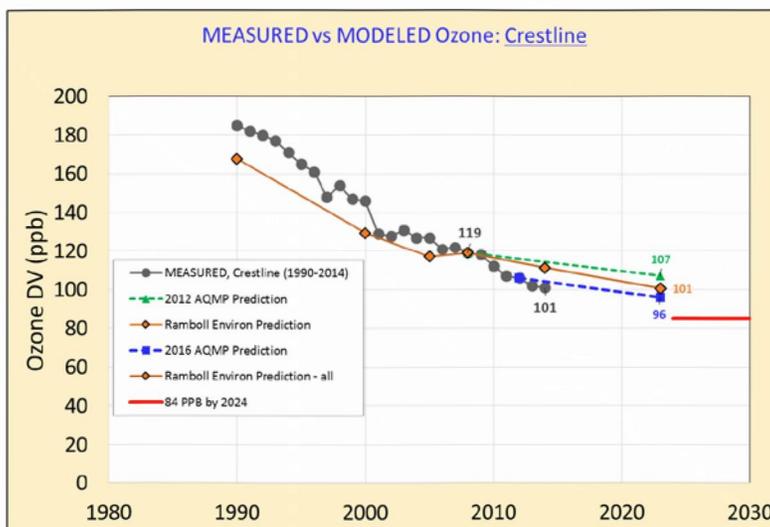
Location	2014 measured O _a DV	2023 projections (Table 5-5, 2012 AQMP)
San Bernardino	97	108
Crestline	101	107
Glendora	93	107
Upland	96	106
Fontana	99	104
Redlands	102	103
Riverside	93	100
Pomona	86	100
Azusa	80	95
Santa Clarita	97	94
Banning	93	94
Pasadena	78	92
Reseda	87	90
Perris	89	88
Lake Elsinore	82	85
Burbank	88	76
Basin-Wide Max	102	108

The Rainboll Analysis explored this disparity in greater depth. Specifically, that analysis assessed, on a year-by-year basis, how CMAQ-modeled ozone levels and trends compare against actual monitored ozone levels and trends. Set forth below is an example of such a detailed comparison, focusing on the Crestline monitoring site, which historically has been the highest “design value” for the SCAB.

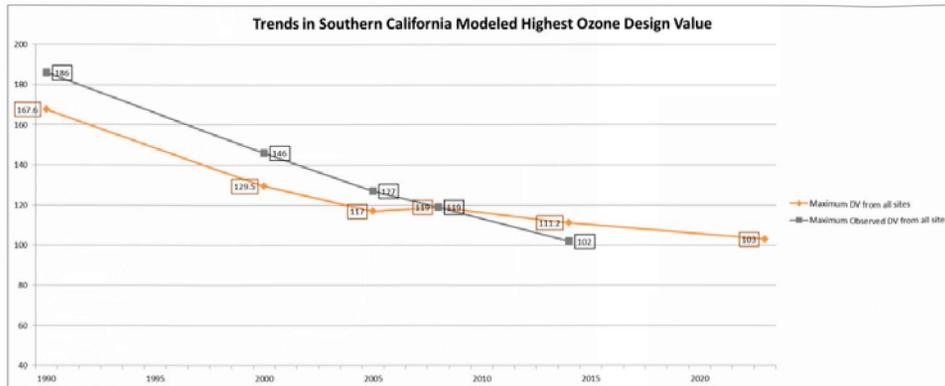


The foregoing chart compares the trend line for actual ozone reductions against the trend line that CARB derived in 2012 using CMAQ (and utilizing a 2008 base year). As is evident from the chart, the actual monitored ozone value at Crestline in 2014 (101 ppb) was significantly better than the CMAQ-predicted value for Crestline in 2023 (107 ppb). Moreover, the trend line that CMAQ predicted (just four years ago as a component of the 2012 SIP submissions) was much flatter, and much less responsive, than the trend line for the actual ozone reductions observed at Crestline. Significantly, the same holds true at almost every other monitoring site in the SCAB as well.

To check on the responsiveness of the CMAQ model, the Ramboll Analysis performed a “dynamic evaluation,” including “backcasts” using CMAQ, and modeled past ozone levels that could be directly compared on a year-to-year basis against actual monitored ozone levels. Once again, those backcasts confirmed that the CMAQ-derived trend lines were flatter and less responsive than the actual trend lines, not just with respect to forecasted ozone levels, but against past ozone levels as well. CMAQ’s lack of responsiveness is depicted in the following chart (see the orange line) for the Crestline monitoring site.



The phenomenon observed at Crestline - that both forecasted and backcasted ozone trends derived from CMAQ are flatter and less responsive than actual monitored trends—also holds at almost every other monitoring site in the SCAB. The net result is that CMAQ-modeled ozone forecasts, as developed by CARB, have been and are over-predicting future ozone levels in the SCAB. In addition, it also is clear that actual ozone levels in 2014 already were significantly lower than the ozone levels that CARB forecasted for 2023, and that the actual rates of decline in ozone levels in the SCAB (on a ppb/year basis) are greater than the CMAQ-modeled rates by a factor ranging from 2 to 8, as depicted in the following charts:



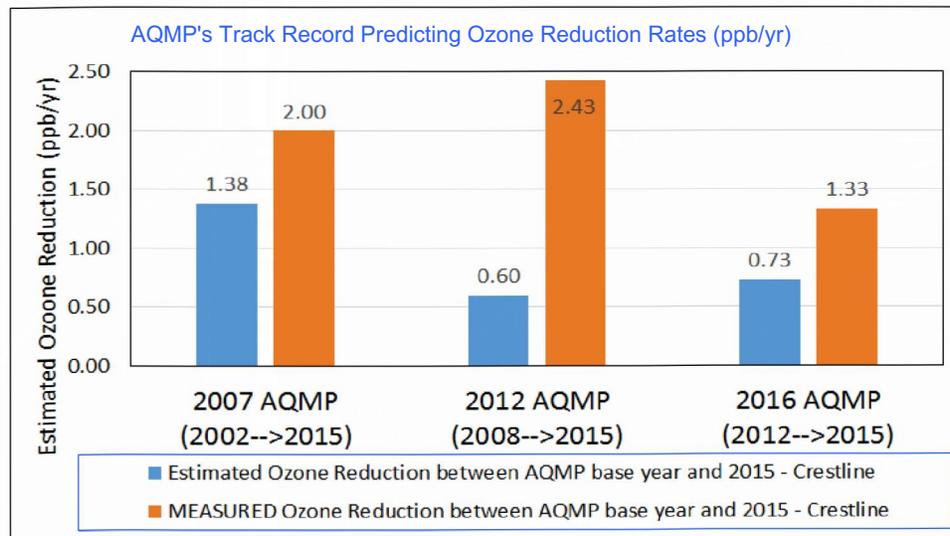
Location	Measured AO ₃ (ppb)	Modeled AO ₃ (ppb) [2012 AQMP]	Measured/Modeled AO ₃
Azusa	-16	-2	8
Crestline	-18	-9	2
Fontana	-13	-2	7
Glendora	-14	-2	7
Pomona	-17	-4	4
Redlands	-14	-7	2
Riverside	-14	-6	2
San Bernardino	-19	-5	4
Santa Clarita	-8	-5	2
Upland	-14	-2	7
Basin-Wide Max	-17	-8	2

Rebutting the clear facts that the Ramboll Analysis has brought to light requires more than just a claim that CARB's 2016 runs of CMAQ (utilizing a 2012 base year instead of a 2008 base year) will be better. Simply anchoring CMAQ in more contemporary emissions inventory data does nothing to answer the question of why CMAQ, as applied by CARB, has been consistently biased for more than 20 years in a manner that is less responsive than the actual response of ozone formation in the actual environment. Moreover, there is no evidence that CARB's "do-overs" of its NCK and VOC inventory estimates, and its corollary CMAQ modeling runs, yield any better forecasted results, in fact, the relevant evidence clearly suggests the contrary.

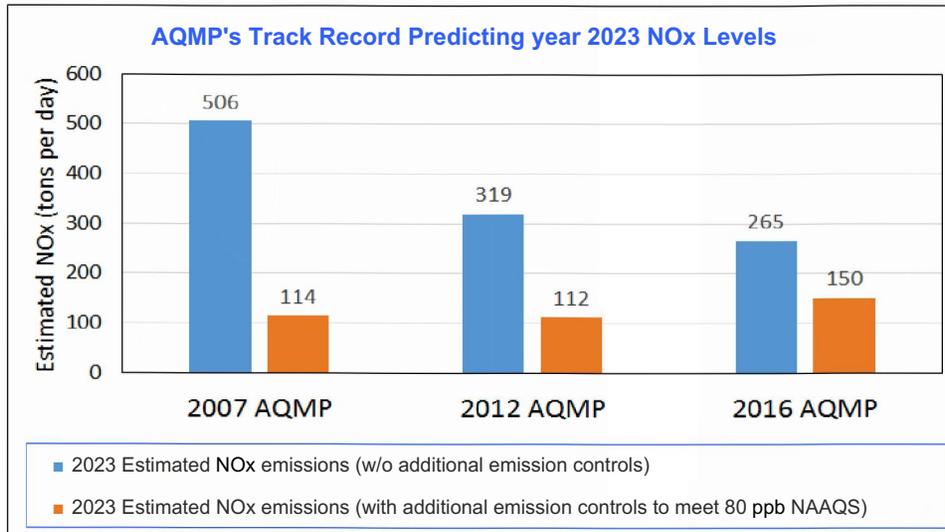
For example, just four years ago, in 2012, CARB re-ran CMAQ (utilizing a 2008 base year) to prepare its 2012 SIP submissions. By 2014 - in a span of just 2 years - the CMAQ modeled results were already off by nearly 15% at the SCAB design value site (Crestline), projecting an ozone level in 2014 of approximately 115 ppb, when the actual measured ozone level was 101 ppb in 2014. (See chart, *supra*) Similarly, as confirmed by the just-released draft 2016 AQMP (albeit released without the necessary Appendix materials), between the time of the 2012 SIP submissions and the 2016 updates - just a 4-year time period - the estimate of the baseline NO_x inventory for 2023 dropped from 319 tpd to 265 tpd. That amounts to a 17% difference between the two modeling efforts over just a 4-year interval.

In addition, the projections of the SCAB'S NO_x carrying capacity in 2023 have increased from an estimate of 112 tpd in the 2012 SIP to an estimate of 150 tpd in the 2016 SIP - a 34% increase in the SCAB'S estimated NO_x carrying capacity in just 4 years. The estimates of the additional NO_x reductions purportedly required to demonstrate attainment are equally varied and imprecise. Specifically, the draft SIP submissions now assert that an additional 43% reduction in NO_x emissions is required by 2023. Just four years ago, however, the 2012 SIP asserted that an additional 65% reduction was necessary. That again amounts to a 34% difference or error between the estimates relating to the nearer-term ozone NAAQS attainment date. The estimates pertaining to the longer-term attainment date in 2031 are certainly even more error-prone and imprecise. Thus, based on past performance, there is no indication that the current round of CMAQ-derived predictions will prove to be more reliable than the last.

The following charts depict the manner in which CARB has been under-predicting ozone reduction rates and over-predicting NO_x levels in the SCAB since 2007, a period encompassing the preparation of three SIP submissions (and AQMPs) utilizing CMAQ.



(The AQMP ozone reductions are calculated between the base year and 2023. For the purpose of this chart, the rate of those reductions is assumed to be the same (linear) between the base year and 2015.)



In light of the consistent and significant discrepancies between modeled and measured levels of ozone and NO_x in the SCAB, CARB should not finalize or approve the 2016 SIP Strategy until such time as CARB's latest projections can be fully assessed and validated. To that end, and before seeking approval of the 2016 SIP Strategy, CARB should utilize the validation methods and analyses that U.S. EPA recommends, including "dynamic evaluations" that assess and take into account the past performance of air quality modeling efforts.

This is not simply an academic concern. The costs of erroneous projections are extremely high. In fact, the SCAQMD is anticipating that its draft AQMP will have an implementation price tag ranging from \$10-\$12 billion. Those enormous costs raise very serious questions about the unintended adverse consequences of flawed air quality modeling and emission inventory estimates. Those questions became even more pointed when the actual current rate of progress in reducing ozone levels is considered.

The draftAQMP states (at p.54) that the measured 8-hour ozone design value in the SCAB has been declining at a rate of 2.3 ppb per year over the 14-year period from 2001 to 2014. At that same rate, the ozone level at Crestline (-which was 101 ppb in 2014) would be 80 ppb in 2023 and 62 ppb in 2031. That rate of decline would result in an ozone level that would be well below the targeted attainment level in 2031 and veiy near attainment in 2023, without any additional control measures whatsoever. All of this cautions against finalizing a \$12 billion SIP Strategy before each of the very significant modeling uncertainties at issue is resolved.

It is clear that CMAQ, as applied by CARB and the SCAQMD, does (and will) over-predict future ozone levels in the SCAB. Consequently, CARB's CMAQ-based assertions that an 80% reduction in NO_x emissions is required to reach NAAQS attainment, and that the NO_x standard for HDOH engines must be reduced by 90% to hit that 80% reduction target, are both derived from a significant over-prediction of what ozone (and NO_x) levels will be in 2031. From that, it also follows that CARB's intent to enter into a binding SIP commitment to adopt a new low-NO_x

standard Cor HDOH engines (at a 0.02 g/bph-hr level) is based on a significantly flawed premise. The 2016 SIP Strategy should not be approved in its current form. In fact, and as noted above, given CARB's consistent history of generating over-stated results through its application of CMAQ, the 2016 SIP Strategy should not be finalized or approved until such time as CARB can complete and publish a thorough validation and dynamic evaluation of its 2016 ozone modeling efforts, as recommended by EPA.

Underlying NO_x Inventories Are Substantially Overstated

CARB's estimates of future reductions in ambient levels of NO_x and total NO_x emissions, both with and without additional NO_x-control measures, are only as reliable as CARB's emission inventory assessments and models. If past is prologue, the reliability of CARB's estimates of future NO_x levels in the SCAB is highly questionable and uncertain. That uncertainty is compounded by the fact that the 2016 AQMP NO_x inventory estimates have not been available for review and public comment (specifically, Appendix III and Appendix V). Nonetheless, even without knowing what the updated and detailed 2016 numbers might be, there are a number of well-known problems with CARB's NO_s inventory estimates that need to be addressed and corrected before CARB finalizes the 2016 SIP Strategy.

Zero-Mile Emission Rates

CARB uses EMF AC to estimate real-world in-use emissions from various sources, including HDOH vehicles. CARB has utilized EMF AC to develop state-wide and district-specific NO_x inventories for several decades, and EMFAC is updated at regular intervals to make changes in modeling methods, and to incorporate the impact of new emission standards and other emission reduction programs.

The current version of EMFAC is referred to as "EMFAC2014" and was released in December of 2015. Counter-intuitively, EMFAC2014 significantly *increased* the estimate of NO_x emissions from HDOH vehicles equipped with 2010 and later model year heavy-duty engines, as compared with the previous version of EMFAC - which was referred to as EMFAC2011.

EMFAC's estimate of the in-use emissions from HDOH vehicles takes several factors into consideration, including vehicle type, mileage, speed, load and deterioration. The fundamental underlying emission rate, however, is referred to as the "zero-mile rate" or "ZMR." The ZMR is meant to represent the emission rate for new (and relatively new), well-maintained HDOH vehicles operating on California roads, and is subject to various adjustment factors, including speed correction factors. The ZMR is expressed in units of grams/mile ("g/mi") and varies with vehicle size, tare (unloaded) weight, and load factor. All else being equal, the ZMR increases with vehicle size, tare weight and load factor.

The certified emission rates for HDOH vehicles and engines are different and utilize a different metric. HDOH engines are certified separately on an engine dynamometer to standards expressed in units of grams/brake horsepower-hour ("g/bhp-hr"). Since the denominator for this standard is, in essence, work performed, the standard can be a constant, and does not vary with engine size or power rating.

The historical “rule of thumb” is that the in-use NO_x emissions from a Class 8 line-haul truck (which are in units of g/mi) operating on California roads over a duty cycle similar to the certification test procedure (i.e., the “UDDS transient cycle”) are generally assumed to be 3.5 times the engine dynamometer-based certification emission standard (which is in units of g/bhp-hr). This “rule of thumb” ratio, or conversion factor, is a function of calculating (g/mi)/ (g/bhp-hr) or bhp-hr/mi, and, generally, represents the work needed to move a Class 8 line-haul truck one mile.

The NO_x emission standard for 2010 and later model year heavy-duty engines is 0.20 g/bhp-hr. Therefore, the general “rule of thumb” estimate of the in-use ZMR NO_x emission rate for a Class 8 line-haul truck over the representative UDDS duty cycle is 0.70 g/mi ($0.20 \times 3.5 = 0.70$).

Significantly, the ZMR for 2010 model year and later Class 8 line-haul trucks that is used in EMFAC2014 is 1.89 g/mi. Obviously, this is much higher - nearly three (3) times higher - than the “rule of thumb” estimate (which, as noted, would be 0.70g/mi). By contrast, the analogous ZMR in the prior version of EMFAC (EMFAC2011) was 1.14 - markedly lower than the EMFAC2014 value. This calls into question whether the ZMR for HDOH vehicles in EMFAC2014 is materially over-estimating the actual emissions from 2010 and later model year HDOH vehicles.

The EMFAC2014 ZMR for HDOH vehicles was based on very limited testing that CARB and the SCAQMD conducted at CARB's chassis-dynamometer test facilities in Los Angeles. Specifically, eight HDOH vehicles were tested, three powered by engines certified to the 2007 through 2009 model year requirements, and just five certified to the 2010 and later standards. Of those five engines, however, only two (2) were actually certified to the 0.20 g/bhp-hr NO_x standard; the other three used emissions credits and were certified to a level above the 0.20g/bhp-hr NO_x standard. Further, the two engines certified to the 0.20 NO_x standard - already an unreasonably small sample size - were both produced by the same engine manufacturer.

The first of those two 0.20g vehicles was powered by a 2010 model year engine, and recorded a 1.95 g/mi NO_x level when tested over the UDDS test cycle. The second vehicle was powered by a 2011 model year engine, and yielded a 1.98 g/mi NO_x level when operated over the UDDS cycle. As noted, the UDDS cycle is a chassis-dynamometer-based test cycle that, when the proper loading is applied to the vehicle being tested, is reasonably similar to the engine-dynamometer transient certification test.

Due to the important policy and regulatory impacts of EMFAC modeling, as well as in light of the very small number of vehicles - just two - on which CARB's ZMR result is based, EMA arranged for a follow-up ZMR study. EMA contracted with CE-CERT to perform the ZMR study, and coordinated with CARB in setting up the test plan to ensure that the results could be directly compared against the results of the original CARB/SCAQMD ZMR study.

Based on the joint input from EMA and CARB, the CE-CERT study involved testing five late-model year, low-mileage heavy-duty line-haul vehicles produced by a variety of manufacturers that participate in the HDOH market. The same battery of tests as run in the original ZMR study were performed at CE-CERT with the vehicles loaded to the same level and otherwise tested under the same circumstances. CARB requested and arranged to have three of the five vehicles tested at its Los Angeles facility.

-ic-

The average validated results for the vehicles tested at CE-CERT yield a significantly different result than what is assumed in EMFAC2014. Specifically, the average “rule of thumb” or conversion ratio — that ratio being the UDDS value divided by certification NO_x standard of 0.20 — of the HDOH vehicles tested and validated at CE-CERT is 4.04, reasonably close to the expected “rule of thumb” scaling factor of 3.5. That corresponds to an average UDDS level of 0.81 g/mi. Since the tested vehicles all had low accumulated mileage, the 0.81 g/mi value would be a good approximation for the ZMR. That value is well below - more than two times below - the EMFAC2014 ZMR value of 1.89 g/mi, and provides clear evidence that the current version of EMFAC is programmed in a manner to yield materially over-stated estimates of future-year NO_x emissions. EMFAC clearly needs to be revised.

Unreasonable TM&M Rates and Impacts

EMFAC2014's incorporation of unreasonably over-estimated tampering, malfunction and malmaintenance (“TM&M”) rates, and its inclusion of unreasonably over-estimated emission increases ascribed to those incidences of TM&M, also raise significant concerns regarding the model's accuracy. In that regard, CARB did not update the TM&M assumptions that were used in the earlier versions of EMFAC. Those assumptions, however, are based principally on surveys of trucking fleets and repair facilities conducted in 1988 (a study conducted for CARB by Radian Corporation) and in 1998 (a study for EPA conducted by Engine, Fuel and Emissions Engineering, Inc.) - surveys prepared some 28 and 18 years ago. Quite obviously, those earlier surveys are long out-of-date, and include many assumptions that no longer pertain to recent and current model year HDOH vehicles that operate with advanced electronically-controlled after-treatment systems, fully integrated and comprehensive OBD systems, and multiple “inducements” to ensure emissions compliance.

An example of the out-of-date TM&M assumptions that CARB continues to rely on in the current version of EMFAC is set forth in the attached “Appendix C” from CARB's earlier technical support document for EMFAC. That Appendix lists the assumed lifetime TM&M rates and NO_x emissions impacts for 2010 and later model year HDOH engines. Even with OBD requirements factored in, CARB assumes that over the assumed 1,000,000-mile life of a HDOH vehicle, more than 40% of those miles will be driven by vehicles having a failed NO_x sensor, and that more than 12% of all miles will be driven by HDOH vehicles with a continuously malfunctioning NO_x aftertreatment system, yielding a 200% to 300% increase in NO_x emissions over all of those miles. Those types of over-stated and outdated assumptions have a very material impact on the modeled level of future NO_x emission inventories, in fact, the net effect of those TM&M assumptions is that the modeled NO_x level for each and every 2010 and later model year vehicle increases by .07 g/mi every 10,000 miles, starting off at near 2 g/mi and ending up (at the 1,000,000 mile mark) at 9 g/mi. That is more than 11 times higher than the reasonable ZMR of 0.81 g/mi for the relevant HDOH vehicles.

In an effort to improve EMFAC (and thereby avoid the unreasonable consequences of inaccurate and overstated emission inventories), EMA is working to develop better and more accurate information relating to actual TM&M rates for recent and current model year HDOH engines, and the likely resultant impacts on emissions from potential incidences of TM&M. Such an updated database would enable EMFAC to incorporate actual rates (and declining trends) of malfunctions for current HDOH vehicles, coupled with current assessments of emissions impacts, as opposed to CARB's assumed rates based principally on surveys conducted in 1988 and 1998.

CARB's assumptions, and the current EMFAC model, also fail to account for the mitigating effects of comprehensive OBD systems as well as the advanced "inducement" systems that de-power or disable the re-start function of HDOH vehicles that are experiencing potential emission-related problems, specifically those that could increase NO_x emissions. The inducements that EPA and CARB require as a condition for the certification of current model HDOH vehicles preclude any significant amount of miles of operation of any HDOH vehicle that has any malfunctioning SCR-related components. Those inducements, and the related OBD requirements, do not expire or shut-off at 500,000 miles (as implicitly assumed in EMFAC), and quite simply eliminate many if not all of the most significant NO_x increases from TM&M that CARB is still including in EMFAC - again, based on studies dating back to 1988. Indeed, as CARB itself noted in its January 2013 Field Evaluation Report:

CARB staff believes that companies and truck operators will simply not tamper with the IIDD vehicles and risk costly repairs and/or possible fines, especially when those vehicles will cause the engine's power to degrade causing delivery delay and general inconvenience.

EMFAC's increase in NO_x emissions for 2010 and later HDOH vehicles by multiples of the underlying emission standard after 500,000 miles is significantly over-stated and will drive unreasonable and significantly over-stated estimates of future NO_x inventories. EMFAC must be revised to account for the mitigating impacts of comprehensive OBD systems and inducements. Otherwise, CARB's SIP Strategy will be premised on unreasonable emissions data, in addition to Hawed modeling.

**CARB's Intent to Pursue
Separate GHG Standards For
Vocational Vehicles Is Misguided**

The 2016 SIP Strategy also includes CARB's proposed commitment to adopt medium and heavy-duty GHG "Phase 2" standards to harmonize with the GHG "Phase 2" standards that U.S. EPA will finalize near the end of July. However, CARB's proposed SIP commitment goes well beyond harmonization. Specifically, CARB's proposal "may include some more stringent, California-only provisions that are necessary to meet California's unique air quality challenges. For example, the California Phase 2 proposal may layer additional requirements for vocational vehicle aerodynamics onto the federal Phase 2 program." (2016 SIP Strategy, p.52.)

CARB should not include a California Phase 2 proposal in the 2016 SIP Strategy, which is focused on ozone attainment in the SCAB. Such a proposal is not germane to the SIP process, is not necessary, and is not reasonable. Full harmonization between U.S. EPA and CARB on the anticipated Phase 2 GHG standards is a basic prerequisite to their feasibility and cost-effectiveness. Separate CARB standards therefore are directly at odds with the core Phase 2 rulemaking premise that there will be one nationwide set of next-phase GHG standards. Further, the notion that there are additional enhanced requirements for "Vocational vehicle aerodynamics" that CARB can devise and implement in a feasible and cost-effective manner is unfounded. Vocational vehicles are not suited to an enhanced "layer" of aerodynamic demands. Those vehicles spend a significant percentage of time in parked-idle or drive-idle modes; they routinely engage in stop-and-go operations; they typically operate at non-highway speeds and in non-cruise driving modes; and they otherwise operate on (and are certified on) urban and multi-purpose drive cycles that do not

lend themselves to enhanced aerodynamics. Indeed, less than 5% of vocational vehicles operate on the regional duty cycle that theoretically might accommodate increased aerodynamic performance.

Further, as expressly conceded in the 2016 SIP Strategy (see id. at p.52), CARB has not attempted to quantify the “criteria emission reductions” that might result from California-only Phase 2 requirements. Thus, in addition to being entirely out of context in an ozone SIP Strategy, CARB’s envisioned Phase 2 GHG add-ons are not calculated to yield any benefits for the attainment demonstrations at issue.

More fundamentally, U.S. EPA - which has the same regulatory objective as CARB - has carefully examined the appropriate Phase 2 GHG standards for vocational vehicles. EPA has determined properly that, for all the reasons noted above (and more), enhanced aerodynamic requirements are not appropriate for vocational vehicles. CARB should not assume in its SIP Strategy that a different conclusion is warranted.

Conclusion

The 2016 SIP Strategy, as it relates to HDOH engines and vehicles, is premised on significant over-estimations of future NO_x and ozone levels in the South Coast Air Basin ("SCAB"). CARB has derived those over-estimations from an outdated version of EMFAC and from its application of the Community Multi-Scale Air Quality ("CMAQ") model, which consistently has over-predicted future ozone levels in the SCAB over the past 25 years, including as recently as 2012 when CARB developed its last SIP submissions. In light of those consistent over-predictions of NO_x and ozone, CARB's assertion that ozone attainment in 2031 requires an additional 90% reduction in NO_x emissions from HDOH engines and vehicles - over and above the rigorous NO_x-control regulations that are already in place - is simply incorrect. While some future HDOH emission requirements may prove to be warranted and reasonable, the assumed premise for adopting a 90% lower NO_x standard in 2019 is fundamentally flawed. As a result, the 2016 SIP Strategy needs substantial revision, and should not be approved or adopted in its current form.

Similarly flawed is CARB's intended adoption of unique California-only Phase 2 GHG requirements for vocational vehicles. Separate California GHG requirements are directly at odds with the core premise of the pending U.S. EPA rulemaking for a nationwide Phase 2 GHG program, and are inherently unreasonable given the aerodynamic constraints under which vocational vehicles operate.

EMA appreciates the opportunity to submit these comments on the 2016 SIP Strategy, and we look forward to working with CARB staff to improve the accuracy of the underlying CMAQ and EMFAC models.

Respectfully submitted,

TRUCK AND ENGINE
MANUFACTURERS ASSOCIATION

Appendix C. Frequency of Occurrence of T&M and Malfunction and Resulting Emission Impact for 2010+ Model Year HHDD Trucks

Tampering and malmaintenance (T&M) and malfunction rates were developed for the model year group of 2010 and subsequent model year heavy-duty vehicles. This appendix provides a description of the frequency of occurrence of T&M and malfunction categories and the resulting emission impact for 2010+ model year HHDD trucks (further detail can be found in the staff report for the HDV OBD regulation; see Footnote 4 of this memo).

Frequency of Occurrence Rates

The table below shows the revisions to the frequency of occurrence of T&M and malfunction categories for 2010+ model year group.

Table C1. Frequency of Occurrence of T&M and Malfunction Acts for 2010+ HHDDTs"

EMFAC2002		Revised		
T&M Act	2003+	T&M and Malfunction Act	2010+	
			No OBD	w/OBD
Timing Advanced	2%	Timing Advanced	2%	1.33%
Timing Retarded	2%	Timing Retarded	2%	1.33%
Minor Injector Problem	8%	Injector Problem (Minor/Moderate/Severe)	13%	8.67%
Moderate Injector Problem	5%	NOx Aftertreatment Sensor	52.7%	40.1%
Severe Injector Problem	0%	Replacement NOx Aftertreatment Sensor	1.8%	10.8%
Puff Limiter Misset	0%	PM Filter Leak	13.9%	9.75%
Puff Limiter Disabled	0%	PM Filter Disabled	2%	1.33%
Max Fuel High	0%	Fuel Pressure High	0%	0%
Clogged Air Filter	15%	Clogged Air Filter	15%	10%
Wrong/Worn Turbo	5%	Wrong/Worn Turbo	5%	3.33%
Intercooler Clogged	5%	Intercooler Clogged	5%	3.33%
Other Air Problem	8%	Other Air Problem	8%	5.33%
Engine Mechanical Failure	2%	Engine Mechanical Failure	2%	1.33%
Excessive Oil Consumption	3%	Excessive Oil Consumption	3%	2%
Electronics Failed	3%	Electronics Failed	30%	20%
Electronics Tampered	5%	Electronics Tampered	5%	3.33%
Catalyst Removed	0%	Oxidation Catalyst Malfunction/Removed	5%	3.33%
EGR Stuck Open	0%	NOx Aftertreatment Malfunction	17.1%	12%
EGR Disabled	10%	EGR Disabled/Low Flow	20%	13.3%

a. Revised values shown in boldface (see text for discussions).

For the frequency of occurrence rates in Table C1, staff modified several of the existing components to better reflect the technology that is expected to be used on 2010 and subsequent engines as well as to account for malfunction of components in addition to tampering or malmaintenance. Specifically, staff added categories for PM filter leaks, missing/tampered PM filters, NOx aftertreatment system malfunctions, and NOx aftertreatment control sensor malfunctions. Staff eliminated the categories deemed to be not applicable to 2010+ model years, such as puff limiter misset, puff limiter disabled, and EGR stuck open. Staff also merged minor, moderate, and severe injector problems into a single injector problem category, expanded EGR disabled to include EGR low flow/performance malfunctions, and modified the category for catalyst removed to oxidation catalyst malfunction/removed. The frequency of occurrence in Table C1 represents an average failure rate over the life of the 2010+ model year vehicles.

For the baseline "without OBD" values, staff estimated various failure rates for the categories. For the existing categories in the table (except for the electronics failed category), staff did not modify the estimated failure rates. However, for the added and modified categories staff estimated failure rates based on information from manufacturers, suppliers, and, where appropriate, experience with similar components in light-duty. In all cases, staff assumed any failures occurring during the warranty period would be fixed immediately, and thus a failure rate of 0% was assumed during the warranty period.

For EGR, staff increased the failure rate from 10% to 20% to account for nearly every engine using EGR in the 2010 timeframe and for the increased sensitivity and reliance to proper EGR performance on those engines. For the oxidation catalysts, staff increased the failure rate from 0% to 5% to account for nearly every engine being equipped with a catalyst, for combining oxidation catalyst performance malfunctions with oxidation catalyst tampered/removed into a single category, and for the increased sensitivity and reliance on proper oxidation catalyst performance to achieve PM filter regeneration.

For the electronics failed category, staff increased the frequency of occurrence from 3% to 30% to account for the significant increase in complexity of the 2010+ emission control systems. For these engines, a substantial number of sensors (e.g., temperature, mass air flow, pressure) and actuators (e.g., intake or exhaust throttles) are being added and other components have become more complex (e.g., high pressure common rail fuel injection system components, variable geometry turbos). In addition to actual sensor or actuator failures, each sensor and actuator has additional circuits and wiring that increase the chance for a failure in-use.

For the added category of PM filter leak, staff estimated a failure rate that increased over time starting with an approximately 6% failure rate at the end of useful life (~450,000 miles) and ramping up to a failure rate of 37% at 1,000,000 miles. In setting this failure rate, staff largely discounted the high failure rates currently being observed in the heavy-duty fleet (both OEM-equipped and retrofit) and estimated much more conservative failure rates. For the category of PM filter disabled (largely due to tampering), staff assumed a rate of only 2% .

At present, two competing NO_x aftertreatment technologies are being considered for 2010 model year applications. Accordingly, staff analyzed both systems and their associated components. It was assumed that a blend of the two would exist in the fleet, with some using a selective catalytic reduction (SCR) system with a single NO_x control sensor and reductant delivery (eg, urea) and some using a NO_x adsorber system with upstream and downstream air-fuel (A/F) control sensors. For the category of NO_x aftertreatment in Table C1, staff grouped together the SCR catalyst and the components associated with reductant storage and delivery or, in the case of an adsorber system, included failures of the adsorber itself. For these failures, staff again estimated a failure rate that increased over time. The failure rate for this category was ramped in starting with a 10% failure rate at 500,000 miles (50,000 miles beyond useful life) to a 50% failure rate by 1,000,000 miles. While failures of an SCR catalyst itself may be fairly limited, the associated hardware includes urea tank, tank heaters, in-exhaust injector, compressed air delivery to the injector, and urea supply pump and control system are all components subject to malfunction and can have the same emission impact as an SCR catalyst failure. In assuming that only half of the trucks left on the road at 1,000,000 miles will have experienced a failure of any one of these components at some point in its 1,000,000-mile life, staff believes the estimate is fairly conservative. For an adsorber system, the adsorber itself will likely have a significant failure rate in a 1,000,000-mile timeframe given the sensitivity to thermal damage and the need for periodic desulfation that must be conducted at temperatures extremely close to the thermal damage point. Further, each desulfation event will likely slightly deteriorate the performance of the adsorber leading to an eventual fail on some share of the engines. In some cases, adsorber systems may also rely on in-exhaust injectors, fuel supply lines, control, and metering systems that are subject to malfunction and can have a similar emission impact.

For the two NO_x aftertreatment control sensor categories, a two-part failure rate was estimated and modeled as two separate categories. For SCR systems using a single NO_x control sensor, the model assumes the sensor has an initial fail, some portion of those sensors are replaced, and a second fail occurs later in the life of the new sensor. For NO_x adsorber systems with two A/F sensors, the model assumes one of the two sensors has an initial fail, some portion of those sensors are replaced, and a second fail occurs later in the life of the engine which could be either a failure of the replaced sensor or a an initial failure of the other A/F sensor on the vehicle.

For the initial failure in both systems, a single failure of a control sensor was estimated to ramp in starting with a 35% failure by 250,000 miles and peaking at a 90% failure rate after a subsequent 200,000 miles (i.e., by 450,000 miles). Staff based these failure rates on discussions with engine manufacturers expressing concern that they had not been convinced that NO_x sensor durability was sufficient to last 100,000 miles, much less the useful life period of 450,000 miles. Discussions with sensor suppliers suggest significant potential for further improvement in durability over the next few years. Accordingly staff assumed essentially a 0% failure rate for twice the current expected life of the sensor before ramping the failure up to near complete failure at 4.5 times the current expected sensor life. Further, A/F sensors are commonplace in light- and medium-duty vehicles and Inspection and Maintenance (I/M) program data indicates these sensors are failing in I/M on approximately 2.5% of the fleet at 100,000 miles. Assuming this failure rate were to grow linearly at a failure

rate of 2.5% per 100,000 miles, that would represent a cumulative failure rate of 7.5% at 250,000 miles. Additionally, this 2.5% failure rate only includes the subset of vehicles with a malfunctioning A/F sensor vehicles that ignore an illuminated warning light and actually fail the I/M test. Data from non-I/M areas would support that the actual in-use failure rate is higher than that and is a result of a portion of the people fixing the vehicle prior to the I/M test. When adjusting that number to reflect the more realistic situation that the failure rate increases non-linearly overtime, that the actual in-use failure rate in light-duty is actually higher than the 2.5% that show up in I/M, and that each engine with a NOx adsorber system is projected to use two A/F sensors, a 35% failure rate at 250,000 miles is reasonable. To further assume that 90% of the sensors will have failed once by 450,000 miles is consistent with a continued increase of the failure rate and engine manufacturers' expressed opinions that the sensors will not last through the useful life. This initial failure of the control sensor is represented in the category for NOx Aftertreatment Sensor.

The second part of the failure rate for the NOx aftertreatment control sensor categories estimates the percentage of the fleet that will repair/replace the first failed sensor and then experience a subsequent failure of the repair/replaced sensor while still within the first 1,000,000 miles of the engine life. For this failure rate, staff assumed the same sensor durability and failure rate (i.e., failure rate ramps in at 35% beginning 250,000 miles after the previous sensor repair/replacement and peaks at 90% after an additional 200,000 miles) but only applied it to the fraction of vehicles which were estimated to already have a failed sensor and a subsequent repair. This second part of the failure rate of the control sensor is represented in the category for Replacement NOx Aftertreatment Sensor.

OBD Repair Rate

While the frequency of occurrence rates shown in Table C1 are a single number that represents the average failure rate, or probability of occurrence, the model actually assumes that there are constantly some additional failures and repairs that are occurring in the fleet. For the baseline (without OBD) scenario described above, these numbers represent the failures that are above and beyond what is being routinely repaired in the field.

To account for the adopted HD OBD program, staff estimated a repair rate for all the categories in Table C1. A 33% reduction in the frequency of occurrence across all categories was estimated to simulate the malfunctions that are repaired due to the presence of the OBD system. The rationale for the 33% repair rate was that all the malfunctions estimated in the categories would likely result in MIL illumination. It is expected that some fraction of vehicle owners or operators would take repair action simply because they were alerted to the presence of a malfunction by the MIL. Additionally, California has two inspection programs that are applicable to heavy-duty vehicles. First, the heavy-duty vehicle inspection program (HDVIP) conducts roadside testing and issues citations or notice-of-violations for trucks that fail either a snap-idle opacity test or a visual inspection. This inspection program currently tests about 6% of the heavy-duty fleet in California. Secondly, California has a fleet annual self-inspection program whereby all fleets (defined as anybody with two or more trucks) are required to perform self-inspections for snap-idle opacity on an annual basis, repair any vehicles that fail the inspection, and retain records of the inspection for review by ARB inspectors. Currently, about 75% of the California fleet is subject to this fleet self-inspection.

While both programs are currently focused on smoke emissions and visual tamper inspections, it is expected that they will both be updated to include an inspection of the OBD system and to fail vehicles that have an illuminated MIL. When combining these three factors together (voluntary response to an illuminated MIL, HDVIP inspections, and fleet self-inspections), staff believes it is fairly conservative to expect that one third of the illuminated MILs will be repaired.

Staff also considered that some malfunctions could also cause degraded drivability, performance, or fuel economy, and those impacts would also influence the repair rate. However, as stated above, these failure rates already assume that additional failures and repairs are currently occurring in the fleet and will continue to. Furthermore, in analyzing the categories created by staff, the failures with the largest emission impacts (eg., PM filter malfunctions and NOx aftertreatment related categories) are not expected to have an adverse impact on drivability or performance and may actually result in an improvement to fuel economy, thus negating any additional incentive to repair the detected malfunction.

Malfunction Emission Rates

Staff also modified the associated emission rates for each of the categories of Table C1 to better reflect the best estimates available at this time based on the expected 2010 and subsequent emission control systems. For the existing categories that result in an increase in PM emissions, staff reduced the estimates for the PM emission increases by a factor of 0.95 based on the expectation that all 2010 engines will be equipped with a PM filter which will trap 95% of any engine-out increases in PM. For the added categories of PM filter leaks and PM filter missing/tampered, staff estimated PM increases of 600% and 1,000%, respectively. For the PM filter leaks, this represents an emission level of 0.07 g/bhp-hr, which is above the adopted OBD threshold of 0.05 g/bhp-hr but reflects industry's contention that most PM filter leaks will rapidly grow beyond a small leak. For the category of PM filter missing/tampered, staff estimated the emissions would approach that of an engine without a PM filter for an increase of 1000% (to 0.10 g/bhp-hr).

For HC emission rates for the existing categories, staff estimated the presence of larger oxidation catalysts to achieve sufficient exotherms for PM filter regeneration would convert 50% of any increases in engine-out HC rates and thus reduced the HC emission increases by a factor of 0.5. For the added categories related to PM filters and malfunctions associated with NOx aftertreatment or the aftertreatment control sensors, staff assumed a small HC increase due to reduced conversion of HCs within the PM trap itself or improper reductant malfunctions (e.g., overdosing fuel in a NOx adsorber system). For a malfunction of the oxidation catalyst itself, staff assumed a 50% increase in HC emissions.

For NOx emission rates for those existing categories, staff estimated that engine-out NOx increases would be reduced by the presence of NOx aftertreatment to varying degrees. For smaller engine-out NOx increases, the aftertreatment was estimated to convert 75% of the excess NOx (thus reducing the emission rate by multiplying by a factor of 0.25). For larger engine-out NOx increases, a lower aftertreatment conversion efficiency (65%) was used to reflect the reduced ability of the system to handle large feed gas concentration increases. For the added categories of NOx aftertreatment control sensors, an emission increase of

200% (to a tailpipe emission level of 0.6 g/bhp-hr NO_x) was assigned based on the assumption that a loss of feedback control (either a NO_x sensor for SCR or an A/F sensor for an adsorber) would result in significantly lower NO_x conversion rates because the system would likely shut off reductant delivery or go into a conservative open loop operation that injects minimal reductant to minimize the risk of overdosing or inefficient use of reductant. For the added category of NO_x aftertreatment, a failure was calculated to have a 300% increase (to reflect a tailpipe emission level of 0.8 g/bhp-hr NO_x). This represents an intermediate level between an MIL failure (at 0.5 g/bhp-hr) and a complete loss of NO_x aftertreatment (at 1.2 g/bhp-hr). Considering that this category includes failures of the SCR catalyst or adsorber itself as well as failures of the reductant delivery system (exhaust injectors, reductant tank, reductant delivery lines, reductant metering, reductant heaters, and compressed air delivery system), many of which would likely result in shutting off reductant delivery or defaulting to open loop operation, a 300% emission increase seems to be appropriate. Staff also adjusted the emission rates and frequency of occurrence rates for both the NO_x aftertreatment system category and the NO_x aftertreatment sensor categories to properly account for the combined emission impact (eg., an engine with a failure in both categories will get a 300% NO_x increase, not a combined 200% NO_x increase from the aftertreatment control sensor failure and an additional 300% NO_x increase from the aftertreatment failure). Lastly, while there is a category for EGR malfunctions in EMFAC, the NO_x emission increase associated with an EGR failure was previously set to a 0.0% increase. This was modified to a NO_x emission increase of 150% (to a tailpipe level of 0.5 g/bhp-hr NO_x). This emission rate was calculated by assuming a complete loss of EGR would cause engine-out NO_x to go from 1.2 to 2.4 g/bhp-hr for an increase of 1.2 g/bhp-hr and then assuming that the NO_x aftertreatment would convert 60% of that increase leaving a tailpipe increase of 0.48 g/bhp-hr. Thus, EGR failures were estimated to range from the OBD MIL on point of 0.3 g/bhp-hr to a complete loss of EGR at 0.68 g/bhp-hr with a nominal middle failure point of 0.5 g/bhp-hr.



American Trucking Associations
950 North Glebe Road, Suite 210 * Arlington, VA * 22203
www.truckline.com

15

July 18, 2016

Clerk of the Board
California Air Resources Board
1001 I Street
Sacramento CA 95814

Submitted Electronically: <http://www.arb.ca.gov/lisdu/b/com/m/bclst.oho>

RE: Proposed 2016 State Strategy for the State Implementation Plan and the Draft Environmental Analysis

Dear Chair Nichols and Members of the Board:

While the American Trucking Associations (ATA) recognizes the significant challenges the Board faces in developing a plan to demonstrate attainment of federal air quality standard, we urge the Board to reconsider the proposed actions for several of the measures.¹

The trucking industry has gained a great deal of experience with the implementation of emissions regulations over the past two decades. The combination of engine emission standards and fleet turnover will ultimately reduce both NOx and particulate emissions by more than 90 percent. In addition, fuel efficiency standards for large trucks are projected to reduce greenhouse gas emissions by as much as 23 percent with additional reductions soon to be announced. To achieve these emissions reductions, the trucking industry spends billions of dollars annually on emissions control technologies.

As purchasers of transportation equipment, the industry relies heavily on suppliers to provide reliable and proven technologies. The recourse for products that fail to live up to industry standards is to delay purchases until the technology matures or avoid the technology altogether. Unfortunately, this extends the age of existing equipment and results in both operational and environmental impacts that could otherwise be avoided. Therefore, it is important that the agency's proposed actions do not result in unintended consequences.

ATA is very concerned the agency's insistence upon zero-emission technologies will deter the advancement of other promising technologies and result in a lack of adequate charging infrastructure. In contrast to light-duty partial and zero-emission vehicles, the development of zero-emission technologies in the medium and heavy-duty fleet is largely unproven and in its

¹ The American Trucking Associations (ATA) is the largest national trade association for the trucking industry. Through a federation of 50 affiliated state trucking associations and industry-related conferences and councils, ATA is the voice of the industry America depends on most to move our nation's freight.

Proposed 2016 State Strategy for the State Implementation Plan and the Draft Environmental Analysis
Comments of the American Trucking Associations, July 18, 2016
Page 2 of 5

infancy. As a result, the agency should move cautiously to avoid mandates that force unproven and unreliable technologies onto trucking companies - technologies that may ultimately become stranded assets and taint the appetite for these technologies.

With this focus in mind, ATA submits the following comments related to the Proposed 2016 State Strategy for the State Implementation Plan and the Draft Environmental Analysis.

A) Mandates on equipment purchasers will not ensure market readiness and should be replaced by technology development targets.

Predicting the advancement of technology is difficult at best. The Board's nearly three-decade effort to commercialize zero-emission passenger vehicles (ZEVs) is a prime example. Today, ZEV sales account for an estimated 3 percent of the state's new car sales, well below the initial targets envisioned in 1990.² One of the lessons learned from this experience is the need to match technology to consumer preferences. The range, capacity and cost of ZEVs are factors that only recently have begun to meet consumer expectations. For larger vehicles, these factors and more continue to fall short of expectations.

Placing mandates on equipment purchasers assumes the technology satisfies consumer demand without ensuring market readiness. A prime example is the Board's Truck and Bus Rule where aftermarket retrofits were anticipated to be the primary compliance option. In reality, this technology has captured less than half of the demand estimated by the rule.³ Clearly, differences between technology readiness and consumer acceptance have been in play.

Proposed measures which pursue purchase mandates include Last Mile Delivery¹ and Transport Refrigeration Units Used for Cold Storage. Placing zero-emission vehicle/equipment mandates on equipment purchasers will not ensure the adequacy of the technology or charging infrastructure. While a "market pull" approach tends to assume technology readiness, in reality, a host of issues must be addressed by manufacturers and infrastructure providers to ensure market acceptance. The Board should acknowledge this reality by replacing the proposed purchase mandates with technology development targets focused on manufacturers and infrastructure providers,

B) To ensure business competitiveness in the state, the Board should identify the enforcement resources which are needed to implement the plan.

The Board's recent enforcement report serves to highlight the difficulty of enforcing the state's existing in-use requirements. Under both the Transport Refrigeration Unit and Truck and Bus regulations, more than 1 out of every 3 vehicles inspected is issued a citation for non-

² California Air Resources Board. *Low Carbon Transportation and Fuels Investments and Air Quality Improvement Program (AQIP)*. Presentation to the Board. June 23, 2016.

³ Manufacturers of Emissions Control Association, *MECA releases Diesel Retrofit Figures for 2014* (March 18, 2015) and *MECA Releases Diesel Retrofit Figures for 2013, California On-Road Retrofit Sales Still Less Than Expected* (April 7, 2014).

Proposed 2016 State Strategy for the State Implementation Plan and the Draft Environmental Analysis
Comments of the American Trucking Associations. July 18, 2016
Page 3 of 5

compliance.^{4,5} As these regulations have been in place since 2004 and 2008, respectively, compliant companies remain concerned about this degree of noncompliance. The ability to adequately staff and conduct inspections on the nearly 1.2 million trucks that operate in the state, not to mention the millions of other types of vehicles and equipment which are subject to the Board's current regulations, remains a major obstacle.

Enforceability is one of several criteria upon which control measures must be evaluated. While some of the proposed measures increase the stringency of existing programs, others will create new programs and/or increase the number of entities subject to regulation. For example, new facility monitoring and reporting requirements are proposed under the Transport Refrigeration Unit measure. With the prospect of several thousand additional facilities being subject to regulation under this one measure alone, the additional resources necessary to successfully enforce all the measures proposed in the plan should be identified. This focus will not only address the enforceability of the plan but can help shape the proposed actions by identifying the necessary enforcement resources.

C) ATA cannot support the proposed Low-NOx Engine Standard at this time.

ATA acknowledges the best way to reduce the contribution heavy-duty trucks make toward air pollution is to set emission standards in a manner that allows for, and encourages, improvements in productivity and fuel efficiency. These emissions standards must be technologically feasible and thoroughly-tested so as not to cause market disruptions for operators or manufacturers.

At this time, ATA cannot support the proposed Low-NOx Engine Standard given the unknown feasibility of achieving a 0.02 g/bhp-hr NOx reduction level across all trucking types and applications. While the Board and others are funding research to investigate the feasibility of reducing NOx emissions to levels significantly lower than the existing standards, much more work needs to be done.

Uncertainties over technology[^], costs and impacts exist. For example, the Board's website indicates potential low-NOx strategies are being evaluated; however, these strategies are increasing fuel consumption. With the trucking industry spending billions of dollars to reduce fuel consumption and associated greenhouse gas emissions, a low-NOx standard may adversely impact these efforts. In addition, the cost of achieving this type of standard is unknown.

Given these uncertainties, it is incumbent upon the agency to recognize the trucking industry's previous experience implementing a low-NOx standard and work to alleviate the industry's concerns. In addition to failed attempts to meet the previous standards which have resulted in litigation; maintenance, reliability, and durability issues have increased warranty claims despite equipment cost increases averaging \$30,000 (more than four times the original cost

⁴ California Air Resources Board, *2015 Annual Enforcement Report* (June 2016).

⁵ *Federal Register*. Volume 74, pp. 2945 - 2.954.

Proposed 2016 State Strategy for the State Implementation Plan and the Draft Environmental Analysis
Comments of the American Trucking Associations, July 18, 2016
Page 4 of 5

projections)?⁶⁷ The Board's efforts to advance a low-NOx standard will only reach expectations if a concerted effort is made to adequately address industry's concerns.

D) The emission impacts from the increased use of zero-emission vehicles need to be assessed.

The draft Environmental Analysis should programmatically assess how increasing the volume of zero-emission vehicles in the state will impact the electrical generation network. Even though the state has adopted a renewable electricity procurement goal, natural gas and other resource types which produce emissions are likely to continue to play prominent roles in the state's electrical generation network.⁸⁹ The announced closure of the state's last nuclear power plant in 2025 is likely to cause the reallocation of electrical generation resources while at the same time additional demand is being created by an expanding zero-emission vehicle fleet. The environmental impacts associated with increased electrical generation as a result of the proposed SIP measures need to be analyzed. And with some of California's electricity generation initiated outside the state, both in-state and out-of-state impacts must be assessed.

15-1

E) The baseline and projected emissions inventories need to be updated.

Current events which are projected to impact emissions in California include the recent Volkswagen emissions settlement and the expansion of the Panama Canal. While the Board has been involved in the development of the Volkswagen settlement agreement to offset the adverse emissions impacts over time, how excess emissions generated from these vehicles are impacting the existing monitoring network and corresponding baseline emissions inventory have not been addressed.

In addition, the recent expansion of the Panama Canal is projected to impact California's port traffic. According to the latest research, as much as 10 percent of container traffic between East Asia and the U.S. could shift from West Coast ports to East Coast ports by the year 2020.⁹ The impact of this decrease in container traffic on future emission inventories need to be addressed in the plan.

ATA remains committed to improving air quality throughout the nation. And while the Board faces significant challenges in meeting the federal air quality standards in California, revisions to the plan are necessary to ensure the trucking industry will be able to respond to the challenges ahead. These revisions will allow trucking companies to continue to do what they do best; move the nation's goods as efficiently as possible, while directing technology development at manufacturers and infrastructure providers. This change in focus will help to better ensure market readiness.

⁶ Caterpillar, Inc. *C13 and C15 Engine Products Liability Litigation* (6/27/2016).

⁷ CARB, *Evaluation of Particulate Matter Filters on On-Road Heavy-Duty Diesel Vehicle Applications* (May 8, 2015).

⁸ California Energy Commission, *Electricity Generation by Resource Type (1983 - 2014)*.

⁹ Bratton, Jennifer, Dustin Burke, Peter Ulrich, Sri Laxmana, and Steve Ractz, *Wide Open: How the Panama Canal is Redrawing the Logistics Map*, The Boston Consulting Group and C.H. Robinson, (June 2015)

Proposed 2016 State Strategy for the State Implementation Plan and the Draft Environmental Analysis
Comments of the American Trucking Associations, July 18, 2016
Page 5 of 5

Respectfully,

A handwritten signature in black ink, appearing to read "Mike Tunnell". The signature is fluid and cursive, with a long horizontal stroke at the end.

Mike Tunnell
Director, Energy and Environmental Affairs
American Trucking Associations

Ms. Sutkus
Ms. Cayabyab
May 8, 2016
Page 2

"This standard would complement existing ARB programs that incentivize increased use of renewable fuels as substitutes for conventional gasoline and diesel fuels, and will focus on more completely transitioning the fuel mix away from petroleum based diesel to a cleaner, renewable mix of diesel substitute fuels. Potential diesel substitutes that may be considered include renewable diesel from biomass, NOx mitigated biodiesel, renewable natural gas from biomethane, gas to liquid diesel from biomethane, renewable hydrocarbon diesel, and/or co-processed renewable hydrocarbon diesel. The proposed measure is anticipated to diversify the fuel pool, as it will incentivize increased production of Low-Emission Diesel fuels. This proposed measure would require incremental progress toward a goal of Low-Emission Diesel comprising 50 percent of the on and off-road diesel sold in State by 2031. "

Specifically, WSPA has several concerns regarding the above proposal that we believe need to be addressed before moving forward with the proposed Low -Emission Diesel program:

Concern 1 - Lack of Clarity in Defining Low-Emissions Diesel

WSPA has several key questions regarding Low-Emissions Diesel (LED). What is the disposition of conventional gas to liquids (GTL) fuels and other like fuels in this strategy? Why add the carbon intensity component to the LED when the LCFS standard and Cap and Trade program already does this? This fuel could provide significant NO_x and PM reductions similar to renewable diesel. This measure should focus on emissions and allow the market to determine how to get there within the confines of the regulations currently in place.

Concern 2 - Questionable Projection Methodology

Unlike the "Top-down" approach used in estimating Renewable Diesel (RD) volumes through 2020 in the Low Carbon Fuel Standard (LCFS) and for Advanced Diesel Fuels (ADF), this analysis is based on "bottom-up projections." Top-down in this context means looking at what RD plants are in operation (or may be in operation in the subject time frame) to arrive at a total renewable diesel available figure to which a "how-much-of-that-is-coming-to-CA" factor is applied. The MSS estimates appear to go all the way to starting with available feedstock that could be converted to RD globally. If this is a correct interpretation of how estimates are calculated, then the estimate could potentially yield an increase in RD into California that is 3 times (or more) higher than the 2020 estimates in ARB's illustrative scenario case (which may be an overestimate to begin with). WSPA requests that ARB explain the assumptions used to determine the available feedstock.

Concern 3 - Lack of Demonstration of Measurable Benefit

By ARB's own figures, later model year trucks equipped with NO_x traps and PM filters will constitute more than 90% of the fleet by 2023. In addition, there is another measure in the MSS that drives the engine manufacturers to ever lower exhaust emission targets. With those two key elements in mind, it is not clear what the benefits of the resultant potentially highly-expensive fuel would be. WSPA would like ARB provide a forecast of market share for legacy on-road diesel vehicles in 2025 as well as the projected off-road licet. How did ARB separate the impact of vehicle technology from the impact of the LED fuel? What is the incremental benefit of the LED fuel over the new technology vehicles?

1415 L Street, Suite 600, Sacramento, California 95814
(805) 701-9142 ■ Fax: (916) 444-5745
tom@wspa.org ■ www.wspa.org

Ms. Sutkus
Ms. Cayabyab
July 18, 2016
Page 3

Concern 4 - Uncertainty in Demand for Diesel

Ute ARB proposal suggests that for LED which would create a set of circumstances that do not exist today. To fully analyze this issue, WSPA believes that ARB would need to answer several sets of critical questions:

- a. For example, what are the incremental criteria and GHG emissions resulting from the potentially displaced volume of diesel being exported from California? Does ARB assume that the displaced diesel will be exported or that refinery capacity will be reduced proportionally?
- b. Where does ARB anticipate the additional renewable diesel will come from? Is it produced in-state? What are emissions from this production?
- c. If it is imported into California, where does it come from and how does it get here? What are the emissions from the transportation of the renewable diesel?
- d. What would be the AB 32 Cap & Trade Program implications of the increase in renewable diesel imports? Would this cause emissions leakage and/or require border carbon adjustments?

241
1
J-
249
1

These are important questions that must be addressed before proceeding with the MSS as it is currently written.

WSPA requests that ARB take an additional look at each of these concerns and provide a response that not only addresses the concerns but provides viable options to eliminate or minimize these concerns. Further, WSPA believes that a better approach needs provided (through consultation with the industry sector) than the broad state-wide measure currently put forward. Obviously, the need for emission reductions is regional (i.e., not state-wide) while the availability of LED will be extremely limited and the costs prohibitively high. The logic of not directing that limited volume only to the areas where the needs are greatest should be examined closely by ARB. This effort could include analysis of the implication of "leakage" into the area of non-LED fuel and out of the area of LED fuel, of potentially bifurcating on-road and off-road diesel supply, and other potential distribution optimization opportunities.

WSPA appreciates ARB's consideration of our comments, and we look forward to your responses. If you have any questions, please contact me at (805) 701-9142 or email tom@wspa.org.

Sincerely,



cc: Richard Corey - ARB
Eddie Chang - ARB
Cathy Reheis-Boyd - WSPA

1415 L Street, Suite 600, Sacramento, California 95814
(805) 701-9142 ■ Fax: (916) 444-5745
tom@wspa.org ■ www.wspa.org

Ms. Sutkus
Ms. Cayabyab
July 18, 2016
Page 3

Concern 4 - Uncertainty in Demand for Diesel

The ARB proposal suggests that for LED which would create a set of circumstances that do not exist today. To fully analyze this issue, WSPA believes that ARB would need to answer several sets of critical questions:

- a. For example, what are the incremental criteria and GHG emissions resulting from the potentially T displaced volume of diesel being exported from California? Does ARB assume that this displaced diesel will be exported or that refinery capacity will be reduced proportionally?
- b. Where does ARB anticipate the additional renewable diesel will come from? Is it produced in-state? T 24-2 What are emissions from this production?
- c. If it is imported into California, where does it come from and how does it get here? What are the T 24.3 emissions from the transportation of the renewable diesel?
- d. What would be the AB 32 Cap Sc Trade Program implications of the increase in renewable diesel T 24.4 imports? Would this cause emissions leakage and or require border carbon adjustments?

24-1
L
-L
J-

These are important questions that must be addressed before proceeding with the MSS as it is currently written.

WSPA requests that ARB take an additional look at each of these concerns and provide a response that not only addresses the concerns but provides viable options to eliminate or minimize these concerns. Further, WSPA believes that a better approach needs provided (through consultation with the industry sector) than the broad state-wide measure currently put forward. Obviously, the need for emission reductions is regional (i.e., not state-wide) while the availability of LED will be extremely limited and the costs prohibitively high. The logic of not directing that limited volume only to the areas where the needs are greatest should be examined closely by ARB. This effort could include analysis of the implication of "leakage" into the area of non-LED fuel and out of the area of LED fuel, of potentially bifurcating on-road and off-road diesel supply, and other potential distribution optimization opportunities.

WSPA appreciates ARB's consideration of our comments, and we look forward to your responses. If you have any questions, please contact me at (805) 701-9142 or email tom@wspa.org.

Sincerely,



cc: Richard Corey - ARB
Eric Chang - ARB
Cathy Reheis-Boyd - WSPA