

RESPONSE TO COMMENTS
on the
DRAFT ENVIRONMENTAL ANALYSIS

Prepared for the
**2022 State Strategy for the
State Implementation Plan**

**California Air Resources Board
1001 I Street
Sacramento, California, 95814**

**Released September 16, 2022
to be considered at the
September 22, 2022 Board Hearing**

TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
A. Requirements for Responses to Comments	2
B. Comments Requiring Substantive Responses	4
2.0 RESPONSES TO COMMENTS.....	5
A. Individual Comments and Responses on the Draft Environmental Analysis	6
B. Responses to Comments Received Outside the CEQA 45-Day Comment Period	65
REFERENCES	69

Tables

Table 2-1: List of Comment Letters Receiving Responses for CEQA Purposes.....	5
---	---

ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
CARB	California Air Resources Board
CPUC	California Public Utilities Commission
Draft EA	draft environmental analysis
GHG	greenhouse gas
ICEVs	internal combustion engine vehicles
NOx	nitrogen oxide
PRC	Public Resources Code
ROG	reactive organic gases
SIP	State Implementation Plan
ZEV	zero-emission vehicle

1.0 INTRODUCTION

The California Air Resources Board (CARB) released a Draft Environmental Analysis (Draft EA) for the Proposed 2022 State Strategy for the State Implementation Plan (SIP), herein referred to as the Proposed 2022 State SIP Strategy (i.e., the proposed project under the California Environmental Quality Act [CEQA], Public Resources Code sections 21000 *et seq.*), on March 29, 2022, for a CEQA 45-day public review and comment period that closed on May 13, 2022. All written comment letters received on the Draft EA are provided on CARB's website at <https://www.arb.ca.gov/lispub/comm2/bccommlog.php?listname=2022sss-draftea-ws>.

On August 12, 2022, CARB posted a notice of public meeting for the CARB Board to consider adopting the Proposed 2022 State SIP Strategy. Along with that notice, CARB opened a docket for the public to submit comments on the Proposed 2022 State SIP Strategy through September 12, 2022. While this noticed comment period was explicitly for the Proposed 2022 State SIP Strategy and not the Draft EA prepared for the proposed 2022 State SIP Strategy, CARB received 2 comment letters that purported to raise environmental issues related to the Proposed 2022 State SIP Strategy. Comments raising environmental issues submitted on this public hearing docket related to the Proposed 2022 State SIP Strategy were untimely submitted, as the CEQA 45-Day comment period ran from March 29, 2022 through May 13, 2022, and do not require a response. (17 Cal. Code Regs., § 60004.2(b)(2).) Nevertheless, while it is not required to do so, CARB includes responses to these comments in Section 2.0B below for transparency. Comments received during the subsequent comment period for the Proposed 2022 State SIP Strategy are located here: [Submit Public Comments to CARB | California Air Resources Board](#).

CARB staff carefully reviewed all comment letters received directly related to the Draft EA or which purported to raise environmental issues. This document includes CARB staff's written responses to the comments received directly related to the Draft EA or raising environmental issues and will be provided to the Board for consideration prior to it taking final action on the Proposed 2022 State SIP Strategy, as amended through public input. CARB staff will be returning to the Board on September 22, 2022 for a final vote on the Proposed 2022 State SIP Strategy.

The public hearing notice and related materials (i.e., Proposed 2022 State SIP Strategy, and Final EA) for the Proposed 2022 State SIP Strategy are provided on CARB's website at <https://ww2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy>.

A. Requirements for Responses to Comments

CARB prepared these written responses to public comments on the Draft EA in accordance with CARB's certified regulatory program¹ to comply with CEQA. CARB's certified regulations states:

California Code of Regulations, title 17, Section 60004.2(b)(3). Response to Public Comment

CARB shall evaluate comments on environmental issues received during the noticed comment period and shall respond as follows:

- (A) Comments received during the noticed public comment period regarding environmental impacts that may result from the proposed project shall be considered, and a written response shall be prepared where required by section 15088 of title 14 of the California Code of Regulations.*
- (B) CARB may, but is not required to, respond to late comments made outside the noticed comment period.*
- (C) When responding to a comment raising significant environmental impacts from a public agency, a written proposed response shall be provided to that agency at least 10 days prior to certifying an Environmental Impact Analysis.*
- (D) The response to comment may be prepared in the form of (1) a revision to the draft Environmental Impact Analysis, (2) a separate section in or attachment to the Final Environmental Impact Analysis, or (3) a separate response to comments document.*
- (E) The response to comment shall include the following:*
 - 1. Comments and recommendations concerning significant environmental issues received during the noticed public review period on the draft Environmental Impact Analysis, either verbatim or in summary;*
 - 2. A list of persons, organizations, and public agencies commenting on the draft Environmental Impact Analysis during the noticed public review period; and*

¹ 17 Cal. Code Regs., Sec. 60000 et seq.

3. The responses to significant environmental issues raised during the noticed public review period.

Public Resources Code (PRC) Section 21091 also provides authority on reviewing and responding to public comments in compliance with CEQA. In accordance with its approved CRP program, CARB prepares its responses to public comments in a manner consistent with the goals and policies of CEQA.² 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.

PRC 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.

Title 14 CCR 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.

Title 14 CCR Section 15088 (a–c) states:

(a) The lead agency shall evaluate comments on environmental issues received from persons who reviewed the draft 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.

2 17 Cal. Code Regs., sec. 60003(b).

(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

In compliance with CEQA, CARB is required to prepare written responses to those comments that raise "significant environmental issues" associated with the proposed action, as outlined in Title 17 CCR Section 60007(a). A total of 6 comments were submitted electronically on or before May 13, 2022, to the comment docket set up for the Draft EA. While not all of the 6 comments received raised what are considered significant environmental issues related to the Draft EA, they were all submitted to a comment docket that was exclusively for the Draft EA. Therefore, while not all of the comments received meet the criteria to require a written response under CARB's certified regulatory program and CEQA, all 6 comments received a response in section 2.0A below. In addition CARB opened a separate docket for the public to submit comments on the Proposed 2022 State SIP Strategy from August 12, 2022 through September 12, 2022. While this noticed comment period was explicitly for the Proposed 2022 State SIP Strategy and not the Draft EA prepared for the proposed 2022 State SIP Strategy, CARB received 2 comment letters that purported to raise environmental issues related to the Proposed 2022 State SIP Strategy. These comments were untimely submitted as the CEQA comment period had previously closed on May 13, 2022 nevertheless, while it is not required to do so, CARB includes responses to these comments in Section 2.0B below for transparency.

All the comment letters received during the 45-day CEQA comment period on the draft EA are located here:

<https://www.arb.ca.gov/lispub/comm2/bccommlog.php?listname=2022sss-draftea-ws>.
Comments received during the subsequent comment period for the Proposed 2022 State SIP Strategy are located here: [Submit Public Comments to CARB | California Air Resources Board](#).

2.0 RESPONSES TO COMMENTS

The comment letters responded to in this document were coded by the order in which they were received and consistent with the comment docket for which they were submitted. Comments submitted to the Draft EA comment docket are coded using only the comment number assigned to the comment when it was submitted to the docket. Comments submitted to the 2022 State SIP Strategy comment docket are coded using "SIP" and then the comment number assigned to the comment when it was submitted to the docket.

Table 2-1 provides the list of comment letters that were submitted to the Draft EA comment docket as well as comments submitted to the 2022 State SIP Strategy docket that purport to raise environmental issues. Where applicable, verbatim excerpts from the comment letters are presented prior to the responses to the comments, which are provided below.

Table 2-1: List of Comment Letters Receiving Responses for CEQA Purposes

Comment Number	Date	Name	Affiliation
1	4/29/2022	Baily Gardiner	None
2	5/12/2022	Jim Verburg	Western States Petroleum Association
3	5/13/2022	Theresa Romanosky	Association of American Railroads
4	5/13/2022	Mike Corbett	Bradford White Corporation
5	5/13/2022	Bill Quinn	California Council for Environmental and Economic Balance
6	5/13/2022	Jessilyn Davis	SoCalGas
SIP-2	8/26/2022	Thomas Becker	T. Becker Power Systems
SIP-7	9/12/2022	Theresa Romanosky	Association of American Railroads

A. Individual Comments and Responses on the Draft Environmental Analysis

Comment Letter 1

4/29/2022

Bailey Gardiner

Comment 1-1: The commenter states “The 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy) describes the State’s strategy and commitments to reduce emissions from State-regulated sources needed to support attainment of the 70 parts per billion (ppb) 8-hour ozone standard (70 ppb ozone standard) as part of State Implementation Plans (SIPs) due in 2022. This document, the Draft 2022 State SIP Strategy, is the California Air Resources Board’s (CARB or Board) first draft release of the entire 2022 State SIP Strategy and identifies the proposed measures, associated emission reductions, and other elements needed to support attainment of the 70 ppb ozone standard. With the 2022 State SIP Strategy, CARB is exploring and proposing an unprecedented variety of new measures to reduce emissions from the sources under our authority using all mechanisms available. This level of action is needed to ensure federal air quality standards are attained and to deliver on our commitments to protect public health, particularly in light of the growing body of evidence on the adverse impacts of air pollution. You can also busy to stay at home with play any of your favorite video games like <https://x8spedersapk.id/> [sic]

CARB has over 50 years of experience reducing emissions from mobile and other sources of pollution under State authority that have improved air quality and helped mitigate climate change. During the 1960s, there were as many as 186 smog alerts in a single year; today, alerts have been eliminated due to improvement in air quality. Through these efforts, the State and our most polluted regions have seen dramatic improvements in air quality, all while California has achieved prosperous economic growth and become a world leader in environmental policies and clean technologies. Even with this progress, more than half (21 million out of nearly 40 million) of Californians live in areas that exceed the most stringent 70 ppb ozone standard¹, with many areas also exceeding the previous ozone standards of 75 and 80 ppb, as seen in Figure 1. Further, a disproportionate number of those most impacted by high ozone levels live in low-income and disadvantaged communities that also typically experience greater exposure to diesel exhaust and other toxic air pollutants compared to surrounding areas.”

Response to Comment 1-1: The comment does not raise any specific CEQA-related concerns regarding the Draft EA, but instead expresses support for the 2022 State SIP Strategy. As summarized on pages 56 through 58 of the Draft EA under the heading, “Impact 3-2: Long-Term Operational-Related Effects on Air Quality,” the 2022 State SIP Strategy is anticipated to result in reductions of over 200 tons per day nitrogen oxide (NOx) and 40 tons per day reactive organic gases (ROG) in 2037 when compared to the CEQA baseline levels as of 2021, which is further discussed in the Proposed 2022 State SIP Strategy. Additionally, Objective 3 of the Proposed 2022 State SIP

2022 State Strategy for the State Implementation Plan
Response to Comments

Strategy emphasizes that the measures of the strategy should complement existing programs and plans to ensure that emissions in disadvantaged communities are mitigated, such as those efforts undertaken pursuant to Assembly Bill (AB) 617. Staff has taken this comment under consideration and no further response is required.

Comment Letter 2

5/13/2022

James Verburg

Western States Petroleum Association

Comment 2-1: The comment states “To meet the State’s emission reduction goals and attain the federal health standards, it is important that a broad, technology-inclusive approach be reflected in the SIP. The proposed Draft 2022 SIP Strategy relies predominantly, if not exclusively, on zero emission vehicle (ZEV) technologies. This approach will leave the SIP vulnerable to not meeting California’s emission reduction requirements because its all-ZEV strategy will fall short due to unaddressed technical concerns about infrastructure and vehicle availability.

1. The 2020 State SIP Strategy’s inclusion of new objectives that introduce and require accelerated penetration of zero emission vehicles and technologies have demonstrably undermined strategies with greater and faster emission reductions.

The purpose of the State SIP Strategy has historically and legislatively been to develop emission reduction strategies that bring the State’s nonattainment areas into compliance with the federal ozone standard. However, within the Draft EA for the 2022 Draft State SIP Strategy, CARB includes two new objectives to “introduce zero-emission (ZE) technology in targeted applications to achieve CARB’s SIP goals” and to “establish manufacturer and fleet ZE technology requirements to accelerate the penetration of ZEV fleets to achieve CARB’s SIP goals”. Because of these objectives, CARB has developed a strategy that focuses nearly entirely on the deployment of ZEVs, despite the uncertainties of vehicle/infrastructure availability and the knowledge that emission benefits will only be realized during the late years of the programs.

The legislatively mandated purpose of the 2022 State SIP Strategy is to develop emission reduction strategies in conjunction with local air districts to bring the State’s nonattainment areas into compliance with the federal ozone standard. Yet CARB recognizes that an additional 47 tons per day (tpd) of NO_x emission reductions will be required in the South Coast by 2037 beyond those identified in the Draft 2022 State SIP Strategy.

As mentioned in WSPA’s March 4th comment letter, the current Draft 2022 State SIP Strategy does not provide a clear pathway to meeting the federal ozone standard, mainly due to an over-reliance on ZEV technologies. By refusing to discuss the broader use of lower-emitting internal combustion engine (ICE) technologies and fuels, CARB is leaving potential near-term emission reductions on the table and actively delaying attainment in the South Coast.”

Response to Comment 2-1: While the commenter points to the objectives included in the Draft EA, the comment does not actually raise an environmental issue. While no

2022 State Strategy for the State Implementation Plan Response to Comments

response is required for this comment, CARB is providing the following response for purposes of transparency and full disclosure.

Staff disagrees with the implication that CARB did not consider ICE technologies and fuels because the commenter fails to recognize that the same combustion-based strategies the commenter suggests or implies could be used to reduce NO_x from ICE vehicles have already been approved by the Board and are currently in the process of being implemented. These include CARB's Low-NO_x Omnibus Regulation and Heavy-Duty Vehicle Inspection and Maintenance (HD I/M) Regulation. These measures are already included in the emissions analysis and cannot be double counted as achieving new NO_x emission reductions.

Thus, a plan focusing on combustion vehicles would not meet many of the project objectives (including for the Proposed ZE Trucks Measure) because CARB has already considered combustion technology through a comprehensive set of rules and policies. ZEVs are the maximum feasible technology to achieve NO_x reductions because they have no tailpipe emissions and cannot become high emitters (combustion-technology vehicles have a tendency to generate higher emissions as their components age). In addition, they have lower PM emissions from reduced brake wear than even the cleanest ICE vehicles.

Staff further disagrees with the implication that the 2022 State SIP Strategy is not meeting its statutory obligations for developing emission reduction strategies, in conjunction with local air districts, to support attainment of the federal 70 parts per billion ozone standard. Throughout the development of the Proposed 2022 State SIP Strategy, CARB and the air districts including the South Coast AQMD have been coordinating to develop a pathway towards attaining the 70 ppb 8-hour ozone standard. The Proposed 2022 State SIP Strategy provides the necessary emissions reductions from State sources for nonattainment areas including the South Coast Air Basin to attain the 70 ppb 8-hour ozone standard. These air districts including the South Coast AQMD will include the 2022 State SIP Strategy measures and emissions reductions in their attainment plan SIPs, thereby demonstrating how each of their nonattainment areas will meet the 70 ppb 8-hour ozone standard.

The comment does not cite inadequacies in or make any direct claims against the content of the Draft EA. No further response is required.

Comment 2-2: The commenter states

"2. CARB must provide and analyze emission-reducing liquid/gaseous-fueled combustion technology alternatives, such as those in the approved 2016 SIP.

As stated in the March 4th comment letter, the Draft 2022 State SIP Strategy does not appear to deliver the emission reductions which had been promised under the 2016 State SIP Strategy because CARB abandoned key advanced technology measures that would reduce near-term NO_x emissions from ICE vehicles. Instead, the proposed

2022 State Strategy for the State Implementation Plan Response to Comments

strategy prioritizes certain longer-term policies at the expense of pathways that could attain the ozone standards set by the Federal Clean Air Act.

WSPA requested that CARB perform an analysis similar to Ramboll’s Heavy Heavy-Duty Truck (HHDT) case study to evaluate how the abandoned strategy of low NO_x technologies coupled with renewable liquid and gaseous fuels could provide greater reductions of NO_x emissions from key sectors on an earlier timeline than the ZEV-centric pathway provided.

The Ramboll case study showed that if CARB had implemented policies that encouraged the near-term adoption of zero-emission and low-NO_x HHDT as it committed to in the 2016 State SIP Strategy, CARB could have reduced NO_x emissions from this major NO_x source by greater amounts in comparison to CARB’s current ZEV-centric approach (See Table 1 below).

Table 1

Estimated NO _x Reduction Comparison (% Reduction) – CARB Draft 2022 SIP vs. Ramboll HHDT Study		
Year	CARB Draft 2022 SIP	Ramboll HHDT Case Study
2023	<1%	22%
2031	42%	63%
2037	71%	80%

It also showed that multi-technology approaches, which would require significantly less new infrastructure (whose cost and other impacts CARB has not completely understood) and vehicle costs, still match the NO_x emission reductions CARB has set for this major sector. (See Attachment A)

Instead of evaluating this strategy, CARB has provided alternatives in which portions of the 2022 State SIP Strategy measures are not implemented. This presented material does not satisfy the requirement that CARB evaluate all potential strategies to reduce significant environmental impacts, as required under the California Environmental Quality Act (CEQA). CARB must give proper consideration to these technology options to fulfil its obligation to facilitate compliance with the federal ozone standard.”

Response to Comment 2-2: The comment initially references advanced technology for NO_x emissions from combustion cars generally, but later clarifies by its analysis that it argues, specifically, that CARB did not analyze low-NO_x Heavy-Duty truck technology alternatives. Staff disagrees with this comment. A full discussion and analysis on the broader use of lower-emitting ICE technologies was considered in the Advanced Clean Fleets SRIA, which is a component of the Proposed 2022 State SIP Strategy that addresses heavy-duty truck NO_x emissions.

The emissions analysis for the Proposed ZE Trucks Measure and the Proposed Advanced Clean Fleets Regulation includes all adopted regulations in its business as

2022 State Strategy for the State Implementation Plan Response to Comments

usual (BAU) scenario including those affecting fuels (Proposed 2022 State SIP Strategy, p. 55-64). The 2021 baseline incorporated into the Draft EA estimated emissions impacts based on the emissions inventory reflecting the regulatory setting existing at that time (Draft EA, p. 43, 44; Draft EA Att. A, p. 13.). Therefore, any air emissions impacts associated with existing fuels regulations are already included in staff's analysis. The draft ZEV regulations do not regulate fuels in any way. To the extent future regulations, such as amendments to CARB's Low Carbon Fuel Standard, affect lower-emitting fuels, those impacts will be assessed when those regulations are being considered. Additionally, CARB has recently adopted regulations that will reduce NO_x emissions from ICE technologies. These include CARB's Heavy-Duty Omnibus regulation which was included in the BAU scenario when evaluating the Proposed Advanced Clean Fleets Regulation, and the HD I/M Regulation which was not considered in the BAU scenario. However, CARB staff conducted an additional emissions assessment provided as the Modified Baseline Appendix that included HD I/M and found that its inclusion does not substantially change the alternatives analysis considered in the Advanced Clean Fleets SRIA, nor the conclusions drawn when using the BAU scenario³ even though the proposed HD I/M program is projected to cut statewide NO_x emissions by 81.3 tpd and PM emissions by 0.7 tpd in 2037. For California to achieve federally mandated ozone NAAQS and provide clean air for all Californians, more must be done than what the cleanest ICE technologies and lowest CI fuels can achieve.

Developing additional regulations that force vehicle retirement at the end of the vehicle's useful life, as defined by SB 1 (Beall, Chapter 5, Statutes of 2017), could reduce NO_x emissions from existing vehicles but more reductions can be achieved with ZEVs because they are the maximum feasible technology to achieve since they have no tailpipe emissions and cannot become high emitters. Outside the scope of the 2022 State SIP Strategy, but worth mentioning is ZEV also have lower PM emissions from reduced brake wear than even the cleanest ICE vehicles.

In addition, the comment indicates that a multi-technology strategy, compared to the 2022 State SIP Strategy, would yield higher NO_x reduction benefits and would not necessitate the same degree of new infrastructure, thus resulting in less significant environmental impacts.

Section 15126.6 (c) of the CEQA Guidelines addresses the selection of a range of reasonable alternatives. "The range of potential alternatives to a proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the

³ CARB. May 18, 2022. Advanced Clean Fleets Regulation, Standardized Regulatory Impact Assessment. (web link: https://dof.ca.gov/wp-content/uploads/Forecasting/Economics/Documents/ARB-ACF-SRIA_2022-05-18.pdf, last accessed July 2022)

2022 State Strategy for the State Implementation Plan Response to Comments

lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. Additional information explaining the choice of alternatives may be included in the administrative record. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts." These guidelines were followed and complied with in Chapter 7 of the Draft EA, which addresses three alternatives.

The Draft EA considered a No Zero-Emission Requirements Alternative, but, as discussed on page 141 of the Draft EA, this alternative was rejected from consideration because it was deemed infeasible and would not meet the majority of the 2022 State SIP Strategy objectives. The alternative presented in this comment does not advocate that the 2022 State SIP Strategy not include any ZEV technology, but requests that CARB evaluate a multi-technologies pathway that allows for the near-term use of liquid/gaseous-fueled combustion technology alternatives and prolong the timeline for ZEV implementation. In light of the comment received, the EA has been revised as follows to include an alternative that is considered and properly dismissed from further evaluation:

Page 142:

2. Emission-Reducing Liquid/Gaseous-Fueled Combustion Technology

An "emission-reducing liquid/gaseous-fueled combustion technology" alternative would allow for the use of liquid/gaseous fuels for use by heavy-duty trucks in the near term, and would extend the timeline for the implementation of ZEV technology compared to the proposed 2022 State SIP Strategy. This approach, however, would not achieve the same level of emissions reductions of criteria air pollutants compared to the 2022 State SIP Strategy and would not avoid the environmental impacts of the construction and operation of new infrastructure to support ZEV technologies, but rather would extend the schedule for when such impacts would be realized. This alternative would fail to meet the Objectives 1-3, 5, and 6 for the following reasons. The inclusion of liquid/gaseous fuels would not reduce criteria emissions to the degree needed for all of California's nonattainment areas to meet the federal 70 ppb 8-hour ozone air quality standard. Implementing the ZEV emission requirements as proposed in the 2022 State SIP Strategy would facilitate the transition away from emitting criteria emissions and dependence on petroleum energy as an energy resource. Internal combustion vehicles produce more criteria pollutant emissions than ZEVs. Criteria pollutants must be drastically reduced to attain the 70 ppb 8-hour ozone standard and SIP goals. Lastly, this alternative does not accelerate the deployment of vehicles that achieve the maximum emissions reductions possible in the long-term and fails to lead the transition to zero-emission technology. Lastly, the inclusion of this alternative would eliminate CARB's ability to use the 2022 State SIP Strategy to complement and not

2022 State Strategy for the State Implementation Plan
Response to Comments

interfere with existing planning efforts to reduce greenhouse gas (GHG) emissions in the state (e.g., the 2022 Scoping Plan) (Objective 3). Considering that this alternative would fail to meet most of the 2022 State SIP Strategy objectives, CARB staff did not pursue further evaluation of this alternative.

Comment 2-3: The comment states

“3. By not conducting an alternative analysis of technologies other than ZEVs, CARB does not analyze the cost effectiveness of this proposed pathway in comparison to other technology options.

The transition to ZEV technology will require an overhaul of the State’s transportation system and electric grid infrastructure, the likes of which is unprecedented and not analyzed in the Draft 2022 State SIP Strategy EA. The 2018 E3 Deep Decarbonization in a High Renewables Future Report (2018 E3 Report)² estimates that the cumulative cost for electric grid infrastructure development and maintenance for a high electrification scenario that includes the deployment of 35 million ZEVs is \$1.55 trillion from 2026-2050. This value further grows when necessary developments in battery manufacturing and recycling, critical mineral mining and exports, construction/operation of facilities to support zero-emission (ZE) technologies, and construction of new electricity generation facilities and electricity infrastructure are taken into account. Ramboll’s “Transportation Electrification” study projected that the cumulative transportation infrastructure costs (generation, transmission, distribution, maintenance and electric vehicle chargers) from 2020 to 2050 to achieve a statewide on-road ZEV fleet could be at least \$2.1 to \$3.3 trillion (See Attachment B). CARB does not provide estimates of these potential impacts. As a result, stakeholders cannot appreciate the true magnitude of the proposed actions under the Draft 2022 State SIP Strategy or how these impacts could be mitigated by a technology-neutral alternative.

Emission-reducing liquid/gaseous-fueled combustion technology alternatives, such as those in the approved 2016 SIP have been demonstrated to be technologically feasible and cost effective. As discussed in WSPA’s previous comment letters, low-NO_x and lower-carbon intensity (CI) drop-in fuels, such as renewable gasoline, bioethanol, renewable diesel, biodiesel, and renewable natural gas (RNG), could be used in new or existing vehicles. These fuels would utilize much of the existing fueling infrastructure, thus minimizing any near-term costs associated with infrastructure development while also providing critical near-term emission reductions.. Low-CI fuels have the potential to be an economically feasible pathway to achieving the State’s GHG and air quality targets on an accelerated timeline, yet continue to be wrongfully excluded from any of CARB’s regulatory strategies.”

Response to Comment 2-3: The Draft EA discusses short-term construction-related and long-term operational-related effects to energy resources on pages 68 through 70 using the criteria set forth in Appendix G of the State CEQA Guidelines, which ask whether implementation of a proposed project would:

2022 State Strategy for the State Implementation Plan Response to Comments

- “Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?”
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?”

As stated on page 69 of the Draft EA, the State’s energy capacity is expected to increase as a result of a menu of GHG reducing regulations and policies. To meet the statewide targets of 1990 levels of GHG emissions by 2020 (i.e., AB 32) and 40 percent below 1990 levels of GHG emissions by 2030 (i.e., SB 32), reductions will need to be made from several sectors including the energy and mobile source sectors. Statewide regulations such as the ZEV Mandate, Advanced Clean Fleet Regulation, Advanced Clean Transit Regulation, and the Innovative Clean Transit Regulation aim to achieve GHG reductions from the mobile source sector through the deployment of electric and zero and near-zero emission vehicles, which would replace vehicles powered by internal combustion engines. Utilities are working in coordination with the California Public Utilities Commission (CPUC) to fund infrastructure expansion projects to meet this future demand.

EVs will rely on the electric grid to provide consistent, on-demand power to fuel vehicles. Historically, the state’s electric grid has expanded and evolved as consumer demand for electricity services has grown, including with the recent emergence of EVs. California’s existing grid and approved investments occurring now will allow the state to handle millions of electric vehicles in the near-term, and projections show the broader western grid can handle up to 24 million electric vehicles without requiring any additional power plants. Longer term, transitioning to 100 percent passenger vehicle electrification is achievable with a gradual build out of clean energy resources – more gradual than during times of peak electricity sector growth in the past given electric vehicle loads can be distributed over non-peak hourly periods. Several studies have shown no major technical challenges or risks have been identified that would prevent a growing electric vehicle fleet at the generation or transmission level, especially in the near-term. Additionally, based on historical growth rates, sufficient energy generation and generation capacity is expected to be available to support a growing electric vehicle fleet.

Nevertheless, throughout the Draft EA, the impacts associated with new infrastructure to support EVs are identified and disclosed. For instance, on page 48 of the Draft EA, the discussion of aesthetic impacts states that “[d]evelopment of new facilities for the manufacture of zero- and near-zero emission vehicle-related equipment and infrastructure would be expected to occur in areas appropriately zoned; however, such facilities could conceivably introduce or increase the presence of visible artificial elements (e.g., heavy-duty equipment, new or expanded buildings, electric charging and hydrogen fueling stations) in areas of scenic importance, such as visibility from State scenic highways.” This narrative is consistent throughout the Draft EA and potential adverse impacts to aesthetics, air quality, biological resources, agriculture

2022 State Strategy for the State Implementation Plan Response to Comments

and forestry, cultural and tribal resources, hazards, noise and vibration, and transportation and traffic were identified. CPUC is also responsible for regulating Electric Power Procurement and Generation and evaluates the necessity for additional power generation by California utilities in both the short and long term.

Moreover, the 2022 State SIP Strategy would not interfere with or conflict with any local or statewide plans for renewable energy and energy efficiency. The 2022 State SIP Strategy would not prevent local utilities from meeting their statutory obligations under the Renewable Portfolio Standard to become increasingly more reliant on renewable energy resources, nor would the 2022 State SIP Strategy prevent Part 6 of the Title 24 California Building Code (California Energy Code) from becoming increasingly more energy efficient and decarbonized as updates occur. Therefore, the 2022 State SIP Strategy would not conflict with plans or measures to increase reliance on renewable energy or promote energy efficiency.

In addition, staff disagrees with the commenter's statement that a Low-CI fuel alternative would sufficiently reduce NO_x emissions because the commenter fails to recognize that the same combustion based strategies included in the Ramboll study cited by the Commenter to reduce NO_x from ICE vehicles have been incorporated into regulations previously approved by the Board and therefore are already a part of the emissions analysis. These regulations include CARB's Low-NO_x Omnibus Regulation (13 Cal. Code Regs, §§ 1900 *et seq.*) and Heavy-Duty Vehicle Inspection and Maintenance (HD I/M) Regulation (Proposed 13 Cal. Code Regs., §§ 2195 *et seq.*). They cannot be double counted as achieving new NO_x emission reductions.

Starting in 2024, emissions from ICE vehicles (diesel and CNG) will need to meet the Heavy Duty Omnibus standard, and the HD I/M Program will ensure these combustion vehicles operate as intended in the real world and do not become high emitters.

The Ramboll Study cited by the commenter is now out of date because new regulations have been adopted in California. It only evaluated a small sub-sector of heavy-duty trucks affected by the Proposed ZE Trucks Measure, and PM_{2.5} reductions were omitted by the study. The Ramboll Study showed that this small subsector could reduce NO_x emissions to meet SIP requirements when compared to baseline assuming the recently adopted combustion measures discussed above were not in place. This demonstrates how well CARB's Low-NO_x Omnibus Regulation and HD I/M could work for NO_x emission controls. Additionally, as discussed earlier, ZEVs are the maximum feasible technology to achieve NO_x reductions since they have no tailpipe emissions and cannot become high emitters. Outside the scope of the SIP, but worth noting, is PM_{2.5} emissions and black carbon were omitted from the study. PM_{2.5} and black carbon from diesel combustion are harmful air pollutants and powerful GHGs. CARB's Proposed ZE Trucks Measure will achieve about 17 times more PM_{2.5} reductions than the cleanest combustion technologies analyzed as Alternative 1 in the Proposed Advanced Clean Fleets Regulation SRIA. Recognizing that harmful mobile sources such as diesel trucks account for over 30 percent of total PM_{2.5} exposures, this omission is not trivial. The commenter should be aware that combustion of bio-

2022 State Strategy for the State Implementation Plan Response to Comments

CNG rather than fossil CNG does not achieve any additional NO_x reductions and GHG emissions reductions because use of those fuels are already addressed through CARB's LCFS Regulation and cannot be double counted as new emissions reductions. From a multi-pollutant perspective ZEVs emerge as the best technology to reduce NO_x from on-road mobile sources.

The remainder of this comment addresses the economic impact the 2022 State SIP Strategy. The Draft EA is not meant to address economic, social, or financial issues associated with the Proposed 2022 State SIP Strategy. Rather, the purpose of CEQA and the Draft EA is to fully analyze and mitigate the Proposed 2022 State SIP Strategy's potentially significant physical impacts on the environment. As such, comments related to economic or financial concerns are outside of the scope of the Draft EA and not addressed in this response to comments document. However, this comment is acknowledged for the record and has been reviewed by CARB staff prior to returning to the Board for final consideration. No further response is required.

Comment 2-4: The comment states "Links to our previous comments on the 2020/2021 MSS and 2022 SIP have been included as Attachment B for reference. Many of the comments and issues raised in those letters continue not to be addressed in the 2022 State SIP Strategy and its EA.

WSPA supports and recommends that CARB include greater scope for low-NO_x vehicle and equipment technologies in its 2022 SIP Strategy to meet its commitments and not simply act within the narrow reading of the Governor's Executive Order N-79-203 that would lead to a failure to meet the emission reductions required for ozone attainment in areas throughout the State. We believe the current path that CARB is pursuing with solely zero emission vehicles is going to miss an opportunity for immediate emission reductions and significant air quality benefits from technologies that currently exist."

Response to Comment 2-4: See Response to Comment 2-2 for a discussion of a reasonable range of alternatives considered in the Draft EA. See also Response to Comment 2-3 for a discussion about low-NO_x vehicle and equipment technologies considered and addressed by measures included in the 2022 State SIP Strategy.

The comment states many of comments listed in Attachment C⁴ on the 2020/2021 MSS – or the 2020 Mobile Source Strategy - and 2022 SIP are not addressed in the 2022 State SIP Strategy and the Draft EA. CARB reviewed the comment letters linked in Attachment C for any environmental comments about the 2022 Proposed State SIP Strategy or the Draft EA. The previously submitted letters on the 2020 Mobile Source

⁴ The letter erroneously states the letters are in Attachment B, which appears to be a typo. Attachment B is entitled "Ramboll Transportation Electrification Case Study" and contains a link to a link to a submittal on the 2022 Scoping Plan.

2022 State Strategy for the State Implementation Plan Response to Comments

Strategy were all submitted prior to publication of the 2022 Proposed State SIP Strategy and Draft EA and therefore did not raise any specific comments regarding CARB's analysis in the 2022 State SIP Strategy or Draft EA. The comments submitted for the 2020 Mobile Source Strategy are about impacts from that program and are outside the scope of the 2022 Proposed State SIP Strategy, so no response is required.

The comment letter about the Draft 2022 State SIP Strategy raised comments about the use of ZEV measures in the Strategy; consideration of alternative fuels and ICE technology; and the Ramboll Heavy-Duty truck study also attached as Attachment A to Comment Letter 2. See Response to Comment 2-2 and 2-3 for a discussion about a reasonable range of alternatives and CARB's response to the study referenced by the commenter. Similarly, the comment letter on the Draft 2022 State SIP Strategy also attached the same 2020 Mobile Source Strategy letters referenced in Attachment C. For the reasons stated above, no further response is required to those letters. In addition, as shown in Alternative 1 of the Proposed Advanced Clean Fleets SRIA⁵, two new regulations recently adopted by CARB's board, CARB's Heavy-Duty Omnibus Regulation and the HD I/M Program, will achieve maximum reductions from ICE technology. Staff would like to direct the reader to the SRIA for further evaluation, which can be downloaded from the Department of Finance website by using this link: https://dof.ca.gov/wp-content/uploads/Forecasting/Economics/Documents/ARB-ACF-SRIA_2022-05-18.pdf.

⁵ CARB. May 18, 2022. *Advanced Clean Fleets Regulation, Standardized Regulatory Impact Assessment*. (web link: https://dof.ca.gov/wp-content/uploads/Forecasting/Economics/Documents/ARB-ACF-SRIA_2022-05-18.pdf)

Comment Letter 3

5/13/2022

Theresa L. Romanosky
Association of American Railroads

Comment 3-1: The comment states “In light of these initiatives that truly have made a difference in air quality, AAR remains disappointed that CARB continues to discard the cooperative relationship of the past by proposing regulations that will not result in any creditable emissions reductions in California, and therefore cannot be relied on to achieve attainment as required by the Clean Air Act (“CAA”). The components of the In-Use Locomotive Regulation referenced in the Draft EA are impractical, would significantly burden both intrastate and interstate railroad operations, and would impose tremendous costs on railroads operating in California and their customers with little or no measurable improvements in air quality or reductions in greenhouse gas emissions.

Ironically, CARB is proposing to arbitrarily impose stringent requirements on one mode of goods movement (rail) that it does not impose on other more emissive and less efficient modes (e.g., trucking). CARB’s own Advanced Clean Fleets regulation allows diesel-powered trucks—assets with a far shorter life cycle and far lower capital cost—to operate in California through 2041. The In-Use Locomotive Rule will significantly increase costs to the railroads and impose burdens on railroad customers and communities where change-outs would occur, without imposing parallel costs on the trucking industry or other modes of goods movement—potentially increasing criteria, toxic, and climate pollutants by driving freight to transport modes with far more significant negative impacts on air quality. Indeed, in its Exchange Point study with the University of Illinois, CARB has reached the same conclusion.⁸

To those knowledgeable about the law, the industry, and the science, CARB’s planned rail regulatory initiatives are neither a lawful nor practical way to further reduce locomotive emissions. Instead, they are an arbitrary and capricious targeting of the railroad industry. As CARB continues down this flawed regulatory path and incorporates the proposed In-Use Locomotive regulation into its SIP and associated EA while also proposing federal actions further regulating locomotives, it is also failing to meet its obligations under CEQA by failing to fully disclose critical facts to the public.

⁸ See https://ww2.arb.ca.gov/sites/default/files/classic/railyard/docs/uoi_rpt_06222016.pdf at xii (“The North American Class 1 railroads have continually worked to remove barriers that prevent the seamless movement of freight. Operation with exchange points and a captive fleet in the South Coast reintroduces those barriers. Based on experience with captive fleets and lack of interoperability in Europe, operation with exchange points in the South Coast is likely to result in: increased operating costs, delays and network disruption due to locomotive exchange; decreased locomotive utilization, increased locomotive fleet size and the capital cost of establishing extra regional alternative-technology locomotive maintenance, servicing and fueling facilities. According to the European experience, the net result of these outcomes will likely be a decrease in freight rail market share.”).

2022 State Strategy for the State Implementation Plan Response to Comments

Response to Comment 3-1: This comment primarily addresses the economic impact the 2022 State SIP Strategy. The Draft EA is not meant to address economic, social, or financial issues associated with the 2022 State SIP Strategy. Rather, the purpose of CEQA and the Draft EA is to fully analyze and mitigate the 2022 State SIP Strategy's potentially significant physical impacts on the environment. As such, comments related to economic or financial concerns are outside of the scope of the Draft EA and not addressed in this response to comments document. However, this comment is acknowledged for the record and has been reviewed by CARB staff prior to returning to the Board for final consideration.

The In-Use Locomotive Regulation, which is a component of the 2022 State SIP Strategy, is a regulation intended to reduce emissions of criteria air pollutants and TACs through the electrification of locomotives over the next few decades. The comment asserts the regulatory mechanisms built into the In-Use Locomotive Regulation and the associated impacts are not disclosed in the Draft EA. The Draft EA provides a programmatic evaluation of the potential adverse environmental impacts of the various regulation, plans, and policies that are components of the 2022 State SIP Strategy, including the In-Use Locomotive Regulation, throughout Chapter 4 of the Draft EA. The EA provides a good-faith effort to evaluate programmatically the potential for significant adverse impacts associated with implementation of the 2022 State SIP Strategy based on what is known at this time.

More specifically, CARB evaluated the Proposed In-Use Locomotive Regulation and determined the emission reductions to be approximately 7,455 tons of PM_{2.5} and 389,630 tons of NO_x, with the majority of emission reductions coming from regions with the highest locomotive activity, such as South Coast Air Basin and San Joaquin Valley.

The commenter acknowledges in their letter that Class 1 railroads are already testing and operating battery-electric and hydrogen fuel cell locomotives. CARB appreciates the railroads' commitment to addressing emissions from locomotive operations in California, and notes that the availability of such technology undercuts the commenter's claim that the Locomotive Regulation is impractical or would not result in credible reductions. CARB agrees with the commenter that some of these technologies will not reach commercial readiness in the near term. The Locomotive Regulation sets a target of 2030 and 2035 to begin the transition to zero-emission operation in California, along with technology reviews to ensure technology options keep pace with the regulatory requirements. CARB also notes that the Locomotive Regulation does not require the purchase of any zero-emission locomotive but instead is a performance requirement that requires locomotives to eventually operate in a zero-emission mode when operating in California. Purchase of a complete zero-emission hydrogen fuel cell or battery-electric locomotive are not the only options available to the railroads to ensure that their locomotives operate in a zero-emission mode in California.

2022 State Strategy for the State Implementation Plan Response to Comments

Additionally, California is making significant strides toward reducing PM_{2.5} and NO_x in other sectors, such as heavy-duty trucks. Since 2012, California has required heavy duty trucks to reduce their emissions through the Statewide Truck and Bus Rule. CARB adopted the Advanced Clean Trucks (ACT) Regulation and is developing the Advanced Clean Fleets (ACF) Regulation, which will move heavy-duty trucks toward zero emissions (ZE). Although these measures will bring substantial reductions in truck emissions, the reductions will not be enough for California to meet its State 2022 SIP Strategy goals.

The Locomotive Regulation, contrary to the commenter's claims, is an equitable response to years of CARB regulating heavy-duty trucks but not locomotives. In 2021, CARB published the 2021 CARB Draft Truck versus Train Analysis. This analysis showed that as the California truck regulations are implemented through 2023, trucks will produce less PM_{2.5} and NO_x emissions than locomotives and will be the cleaner mode to transport freight. Further, beyond 2023, additional CARB regulations, such as the ACT and ACF Regulations, will continue to reduce truck emissions, eventually bringing them to ZE.⁶

CARB further notes that much of the "costs" to which the commenter refers are the monies that the Locomotive Regulation requires railroads to set aside in a trust account to use for purchase of cleaner Tier 4 locomotives or zero-emission locomotives and related zero-emission requirements. The amount required to be set aside is a conservative estimate of the cost to Californians due to health related impacts of locomotive emissions. There is no right to pollute in California, yet to date, railroads have gotten a "free ride"—imposing the costs of locomotive emissions on Californians. The Locomotive Regulation takes the conservative approach of allowing railroads to invest money attributable to such emissions costs to operating cleaner locomotives. Commenter's suggestion that such costs are "high" or "inequitable" ignores the long history of railroad development in California and decades of CARB regulation of heavy-duty vehicles outside of locomotives.

Under the In-Use Locomotive Regulation staff do not assume any locomotive operational changes to occur. Costs and benefits associated with the locomotive regulation are based on the current locomotive fleet and operational practices as established using the data provided by the 1998 Locomotive NO_x Fleet Average Emissions Agreement in the South Coast Air Basin. Therefore, additional time needed for exchange points at the California border were not considered in the Draft EA.

The commenter suggests that the In-Use Locomotive Regulation will shift freight transport from locomotives to other modes that would generate greater adverse air quality impacts. Staff reviewed literature on freight diversion and mode shift (e.g., a shift from transport by train to transport by truck) and spoke with industry experts and

⁶ Draft Truck vs. Train Emissions Analysis, September 23, 2020 <https://ww2.arb.ca.gov/resources/fact-sheets/draft-truck-vs-train-emissions-analysis>

2022 State Strategy for the State Implementation Plan Response to Comments

did not find empirical research that focused on the impact of regulatory costs on freight diversion or mode shifts from rail to trucks. Staff researched and directly engaged industry stakeholders for their experience or data and found that the decision to divert freight from rail to truck is complex and unique to individual businesses.

Freight transport delivery companies rely on multiple factors and sophisticated proprietary models to guide decisions on when, where, and how to move freight. The factors include access to consumer markets and intermodal transportation networks; reliability and velocity of transport modes; trans-loading infrastructure; the overall efficiency of the supply chain as it is impacted by the availability of labor; congestion delays and other impediments; and costs, including compliance costs for all regulations. Staff has determined that mode shift from train to truck as a direct result of impacts from the Proposed Regulation is unlikely. The Standardized Regulatory Impact Analysis for the Proposed In-Use Locomotive Regulation⁷ contains a more detailed discussion about the potential for mode shift under the Proposed Regulation. It is not the intent of the Proposed Regulation to prompt a mode shift.

CARB projects California freight will continue growing in the future. In order to reduce emissions, all modes of transport will need to move to cleaner technologies—which includes transitioning the locomotive fleet from old, dirty locomotives to the cleaner, current U.S. EPA Tier 4 standard. The commenter appears to agree, discussing the railroads' efforts to transition to cleaner Tier 3 and Tier 4 locomotives. Ultimately, California freight growth and our increasing understanding of the localized harms of such emissions also means transitioning to operating locomotives in a zero-emission mode in California, as outlined in the Governor's Executive Order N-79-20, to support California's thriving economy and minimize community health risk. CARB does not favor one technology or mode of transport over another, and is pursuing emissions reductions from all modes of transport, which makes the commenter's claims regarding mode change or diversion due to cost of compliance with emissions standards for any one mode unlikely. CARB has made substantial progress toward reducing truck emissions and has mechanisms in place to move towards an even cleaner truck fleet. Conversely, the 2021 CARB locomotive emissions inventory projects Tier 4 locomotives, the cleanest Tier described by U.S. EPA, will account for only about 6 percent of freight line haul activity in California in 2021.

The 2022 State SIP Strategy also includes the Advanced Clean Fleets Regulation, the Zero-Emission Trucks Measure, and a suite of measures targeted to reduce emissions from commercial harbor crafts. These measures, similar to the In-Use Locomotive Regulation, will steadily electrify these sectors and/or increase their fuel efficiency, thus working in tandem with the In-Use Locomotive Regulation to reduce emissions

⁷ Proposed In-Use Locomotive Regulation Standardized Regulatory Impact Assessment (SRIA), May 26, 2022. (weblink: <https://dof.ca.gov/wp-content/uploads/Forecasting/Economics/Documents/SRIA-Locomotive.pdf>)

holistically. Please see Response to Comment 3-3 for a more detailed explanation of the methodology used to estimate the emissions reductions from the combination of all measures listed in Table 1 of the Draft EA.

Comment 3-2: The commenter states

“II. CARB’S DRAFT EA FAILS TO MEET THE STANDARDS REQUIRED BY CEQA.

The California Environmental Quality Act (“CEQA”) requires the preparation of an environmental impact report (“EIR”) in order “to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided.” Cal. Pub. Res. Code (“PRC”), §21002.1; see also 14 Cal. Code Regs. (“CEQA Guidelines”) §§ 15000-15387. CARB implements this requirement through the preparation of an Environmental Analysis (“EA”) under its certified equivalent program. See 17 CCR §§ 60000-60008. Nonetheless, the underlying substantive requirements of CEQA must be met by CARB’s EA 17 CCR 60004(b). The primary purpose of CEQA is to require state agencies to consider and disclose to the public the environmental implications of their actions in order to foster an informed and transparent public decision-making process.

For the reasons explained below, CARB’s Draft EA fails to adequately disclose the implications of its proposed In-Use Locomotive Regulation and requested federal actions and, as a result, CARB’s Draft EA fails to satisfy its obligations under CEQA.”

Response to Comment 3-2: This comment serves as an introduction to the following comments and does not specifically address the content of the Draft EA. CARB disagrees with the commenter’s statement that the EA fails to satisfy CEQA’s requirements. No further response is required.

Comment 3-3: The commenter states

“A. CARB’S Draft SIP and EA Fail to Accurately Quantify the Emissions Reductions Expected from both its In-Use Locomotive Regulations and its Proposed Federal Actions to Regulate Locomotives.

Under the Clean Air Act, states are required to establish plans to meet EPA’s standards for atmospheric pollutants, including ozone and particulate matter. 42 U.S.C. §§ 7407(a), 7408(a), 7409(a), 7410(a). When an area does not meet a standard, it is designated a “nonattainment” area. See *id.* §§ 7407(d)(1)(A), 7501(2). There are several degrees of nonattainment, ranging from marginal to extreme, *id.* § 7511(a)(1), and each classification imposes increasingly stringent requirements to reduce emissions and promote progress toward attainment. *Id.* § 7511a(b)(1)(A), (c)(2)(B), (d), (e). California has dozens of nonattainment areas ranging in severity from moderate to extreme.⁹

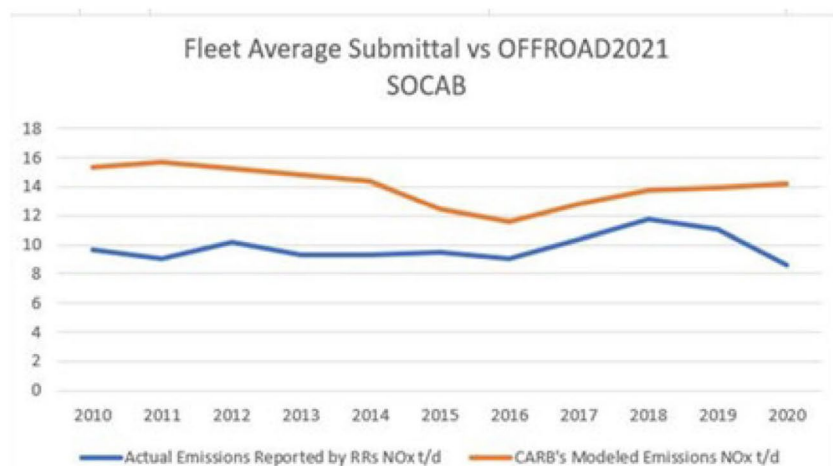
2022 State Strategy for the State Implementation Plan
Response to Comments

Notably, a state plan must “include enforceable emission limitations” to attain the relevant air quality standard. 42 U.S.C. § 7502(c)(2). For extreme ozone nonattainment areas, the plan must provide for reasonable further progress of “at least 3 percent of baseline emissions each year.” 42 U.S.C. § 7511a(c)(2)(B)(i), (d), (e). As explained below, CARB has failed to satisfy this criterion with respect to both its proposed In-Use Locomotive Regulations and its request for federal action with respect to the regulation of locomotives.

1. CARB Overestimates the Estimated NO_x Reductions Resulting from its Proposed In-Use Locomotive Regulations.

On October 19, 2021, CARB released the latest version of its emission inventory model for offroad equipment (OFFROAD2021). The model can be accessed here: EMFAC (ca.gov). This model is ultimately used for SIP and regulatory development. OFFROAD2021 incorporates CARB’s switch locomotive and line-haul locomotive models. AAR and the rail industry have been pointing out flaws in the line-haul forecasting methodology for the last two years, and as best as AAR can determine, this latest version of the OFFROAD model CARB has failed to address any of AAR’s concerns.¹⁰ CARB continues to rely on inflated and inaccurate emissions data in reaching its baseline estimates. As a result, actual emissions reductions resulting from its proposed In-Use Locomotive rule will be significantly lower than projected.

The graphic below compares the NO_x emissions in the South Coast Air Basin that are *predicted* by OFFROAD2021 for Union Pacific Railroad and BNSF Railway activities, compared with the *actual data* submitted by the railroads and accepted by CARB from 2010 to 2020 pursuant to the Fleet Average Agreement (“FAA”):



Actual NOx Emissions Reported by Railroads (t/d)	9.67	9.07	10.20	9.29	9.34	9.52	9.08	10.36	11.77	11.06	8.58
CARB's Modeled NOx Emissions (t/d)	15.36	15.73	15.25	14.80	14.41	12.49	11.55	12.80	13.76	13.97	14.20
Discrepancy (CARB vs FAA Submissions)	59%	73%	49%	59%	54%	31%	27%	24%	17%	26%	65%

As the data above demonstrate, CARB has consistently overestimated NO_x emissions from Class I locomotives in the South Coast Air Basin by approximately 40 percent. CARB’s current locomotive inventory methodology extrapolates the forecast of South

2022 State Strategy for the State Implementation Plan Response to Comments

Coast Air Basin emissions to the rest of the state (ignoring the detailed, localized data supplied by each railroad in most years); consequently, this overestimate occurs in CARB's statewide locomotive inventory as well.

As noted above, over the last two years AAR has repeatedly communicated to CARB its concerns regarding the locomotive inventory and has had several detailed technical discussions with CARB to convey these concerns. Specifically, AAR's comments were submitted in writing to CARB on July 22, 2020. That submission was followed by several calls, culminating in a presentation on September 10, 2020, in which AAR presented to CARB a more accurate line-haul locomotive forecast. In addition to the September 10, 2020, presentation, AAR's consultants (CEA) sent several emails and had several calls with CARB explaining rail industry concerns with the inventory.

CARB's Draft SIP and Draft EA fail to accurately portray the baseline of emissions from locomotives and consequently overestimate the reductions (i.e. benefits) that would result from the passage of the proposed In-Use Locomotive Regulation. CARB has failed to fulfill its obligations under CEQA to properly inform the public as to the consequences of its proposed action.

⁹ See <https://www3.epa.gov/airquality/greenbook/ancl.html>.

¹⁰ AAR did not have significant concerns regarding the switch locomotive model.

Response to Comment 3-3: As stated on page 58 of the Draft EA, the main purpose of the 2022 State SIP Strategy is to reduce mobile source emissions of criteria air pollutants to improve air quality and attain the NAAQS. Statewide, implementation of the 2022 State SIP Strategy is anticipated to result in statewide emissions reductions of over 200 tons per day NO_x and 40 tons per day ROG when compared to baseline levels in 2037. These emissions reduction were calculated based on the most up-to-date emissions inventory, CARB's California Emissions Projection Analysis Model (CEPAM), 2022 Emission Projections, Version 1.01, which was developed using the most current and updated data and models available for each source category

As it pertains to locomotives, the 2021 line haul emission inventory and 2022 switcher rail yard emission inventory used in the proposed In-Use Locomotive strategy are posted online, with inputs and methodology covered in detail, here: <https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-road>. The comment letter CARB received does not provide detailed methodology behind the comparison, so the difference in emissions from the commenter calculations and the inventory cannot be determined from the letter alone.

CARB's 2021 line haul inventory uses the South Coast MOU data from 2015 to 2018 as its baseline data, which is the same data referenced by the commenter. During the line haul emission inventory development process (occurring in 2019 and 2020), the 2018 MOU data was the most recently available data. For years after 2018, the emission inventory is a forecast from the base year of 2018. Prior to 2015, the emission

2022 State Strategy for the State Implementation Plan Response to Comments

inventory is not based on the MOU data directly. CARB's previous inventory used data provided by the rail lines in 2007 and 2011, and the emissions inventory spans the years 1990 to 2014.

One notable difference between the inventory methodology and the MOU data are the emission factors or emission rates. The MOU uses an averaging of locomotive engine certification data within each engine Tier. The emission inventory uses the emission factors developed by U.S. EPA and recommended for locomotive emission inventories (U.S. EPA, Emission Factors for Locomotives, April 2009⁸). The MOU data does not clearly delineate emission factors between linehaul and switcher engines and appears to average remanufactured engines with original engines (there are no Tier 0+, Tier 1+, Tier 2+ emission factors shown in the data). This certification data reflects certification tests on engines when they were manufactured and does not reflect any deterioration over the life of the engine. It is not clear if this variation in methodology is responsible for the majority of the difference in emissions estimates because the methodology was not noted in the letter. But it is a significant difference in emission calculation methodology.

CARB staff firmly believes the data used in our baseline inventory uses the best available data, uses the most appropriate methodology given current and historical trends, aligns with emission calculations and best practices used by U.S. EPA, and accurately reflects existing conditions. The comment letter provided no additional methodology, data, or analysis to support the claim that CARB's emission inventory was inaccurate. Providing the commenter's own emission estimation without the methodology, data sources, and supporting evidence provides no opportunity to critique the work or update or inform CARB's emission inventory. As with all of our emissions inventories, staff will continue to update the inventory to reflect more recent MOU data, and CARB remains available to work with the commenter or other parties to review methodology, inputs, and discrepancies between analyses, wherever that data is available.

Comment 3-4: The commenter states

"2. CARB Fails to Quantify its Expected Emissions Reductions Resulting from its Request for Increased Federal Regulation of the Rail Industry.

In its Draft SIP, CARB fails to quantify the anticipated emissions reductions associated with more stringent national emissions standards, zero-emission standards for switch locomotives, and changing the regulations governing the remanufacturing of locomotives. Instead, CARB simply lists "NYQ," or "not yet quantified," in its tables of anticipated emissions reductions. This error has not been corrected in its Draft EA, and

⁸ Document Display | NEPIS | US EPA

2022 State Strategy for the State Implementation Plan Response to Comments

thus the expected benefits and costs associated with the proposal cannot be accurately quantified.

This lack of quantification is notable and important, particularly because the zero-emission locomotives envisioned by CARB are not commercially ready. While first generation zero-emissions locomotives are now being offered for sale, the technology has not yet been proven to be safe and sufficiently reliable to justify purchase of such an expensive and long-lived asset. The industry is still working to ensure this new technology (both the locomotive and associated charging) functions both commercially and operationally. Several years of field testing are still required before this technology is commercially ready. In any event, the zero-emissions locomotives currently offered are only suitable for yard (switching) use. They are not sufficiently powerful to pull line-haul trains unless they are part of a consist with diesel locomotives. Such a hybrid approach to line-haul power provides only marginal emissions reductions. Additional research and development is needed before zero-emission line-haul locomotives are commercially available. Moreover, the necessary infrastructure to power zero emissions line-haul locomotives does not exist today—charging and refueling stations will be required across the nation before the rail industry can rely on battery-electric or hydrogen powered line-haul locomotives.

Moreover, approximately 16% and 30% of BNSF's and Union Pacific's (respectively) locomotive fleet is currently in storage or otherwise out of service. Accordingly, demand for new diesel locomotives has fallen to near-zero levels and is not expected to increase for several years. This is particularly true in light of CARB's proposal to ban the use of diesel locomotives decades before the end of these multi-million-dollar assets' useful life. Given these market conditions, CARB's proposal to change federal locomotive regulations is unlikely to lead to foreseeable or creditable emissions reductions.

Further, as explained above, in extreme nonattainment areas for some criteria pollutants, CARB's SIP must provide for reasonable further progress of "at least 3 percent of baseline emissions each year." 42 U.S.C. § 7511a(c)(2)(B)(i), (d), (e). CARB's proposed federal actions, the emissions reductions of which have not been quantified, cannot contribute to the reduction in baseline emissions because the federal actions may not impact railroad operations in California at all. For example, as noted above, zero-emission locomotives (including switchers) are not yet commercially ready. While there are several pilot projects ongoing, commercial viability of zero emissions locomotives is still several years away.

In addition, even if EPA were to eventually promulgate new regulations governing locomotive emissions and remanufacturing of locomotives, the North American rail industry does not operate within a single state's borders. Locomotives move between states and even countries. As such, even if new rules were promulgated, CARB could not attribute any resulting emissions reductions solely to California for the purposes of its SIP. Instead, these reductions would be spread across the United States as the locomotive fleet gradually turned over based on revised regulations. These reductions

2022 State Strategy for the State Implementation Plan Response to Comments

cannot be credited to California as part of its SIP because there is no way to isolate reductions within the state.”

Response to Comment 3-4:

While the commenter points to emissions data included in the Draft EA, the comment does not actually raise an environmental issue. While no response is required for this comment, CARB is providing the following response for purposes of transparency and full disclosure

This Draft EA did not analyze the impacts of any of the Federal Actions Needed in the proposed 2022 State SIP Strategy, as each of these potential measures would be overseen by the U.S. EPA and other agencies subject to federal environmental laws and are beyond the purview of this CEQA analysis. That said, the Federal Actions Needed remain critical to support attainment of federal standards across California.

The Federal Actions Needed for locomotives are not yet quantified in the Proposed 2022 State SIP Strategy due to lack of information about when they would potentially be implemented by federal agencies. Ongoing analysis to identify benefits would be quantified in relation to estimated benefits from CARB’s proposed In-Use Locomotive Regulation. Components of the proposed In-Use Locomotive Regulation include zero-emission standards and changes to remanufacturing requirements. The proposed regulation incorporates both benefits and costs of these components. Quantifying additional, or separate, benefits for those components would be double-counting, or overestimating, emissions reductions and costs in the SIP already accounted for in the proposed In-Use Locomotive Regulation.

More stringent national emission standards (Tier 5) for line haul locomotives would also overlap and double-count benefits and costs if the totals were incorporated in the SIP. As we continue to develop the In-Use Locomotive Regulation and collaborate with our federal agency partners to advocate for federal action in this sector, potential emission reduction benefits of the Federal Actions Needed will be quantified.

CARB acknowledges that the requirements of the In-Use Locomotive Regulation will require substantial funding and additional investments in zero-emission technology. The In-Use Locomotive Regulation comprises four main components: Spending Account, In-Use Operational Requirements, Idling Limits, and Recordkeeping and Reporting. The regulation applies to all locomotives operating in the State of California except for: (1) Locomotives with an engine that has a total rated power of less than 1,006 horsepower; (2) Equipment designed for operation with both steel wheels for track-mounted operation, and rubber tires, for off-track operation is not a locomotive; and (3) Military Locomotives. Heritage Locomotives that do not exceed 10,000 gallons of fuel use per year are exempt from the Spending Account and In-Use Operational Requirement provisions of the regulation.

2022 State Strategy for the State Implementation Plan Response to Comments

The In-Use Locomotive Regulation includes a long-term schedule that would provide the locomotive industry with adequate time to comply with the aforementioned provisions. The specific details of the In-Use Locomotive Regulation will be published by CARB in the following months in its Staff Report (expected to be publicly available in Fall of 2022); the environmental effects of the regulation have also been disclosed in the Draft EA throughout Chapter 4.

CARB's 2017 *Technology Assessment: Freight Locomotives* report assessed the feasibility of electrifying the freight sector. The report summarizes the potential advanced locomotive technologies that could operate on existing rail networks that could feasibly be applied to this sector. The report also includes suggested pathways for research, development, and demonstration of zero-emission track-mile and zero-emission locomotives (CARB 2016). CARB believes that deployment of the In-Use Locomotive Regulation will support the development of new emissions standards, including Tier 5 standards, as well as market capacity to manufacture and supply these technologies to meet the benchmark goals of the regulation, similar to the response of the automotive market following the establishment of CARB's passenger vehicle and light-duty emissions standards through the Advanced Clean Cars program.

See Response to Comment 3-3 above for details pertaining to the methodology applied in estimating the potential reductions achieved by the 2022 State SIP Strategy, which includes the measures and regulatory requirements of the In-Use Locomotive Regulation.

Comment 3-5: The commenter states

"3. CARB fails to quantify the increase in emissions associated with the shift of interstate transportation from rail to truck associated with its proposed In-Use Locomotive rule and proposed changes to Federal locomotive regulations.

In its Draft EA, CARB fails to acknowledge the likelihood (or even the possibility) that its proposed In-Use Locomotive Rule or CARB's proposed changes to federal locomotive regulations will result in increased freight transportation (and especially interstate transportation) by trucks. This mode shift would result from the imposition of increased costs on rail freight transportation associated with CARB's proposals to limit the useful life of locomotives operated in California and CARB's proposed changes to federal locomotive remanufacturing requirements. These two elements of CARB's proposals would impose significant costs on rail freight transportation due to an arbitrary limitation on the effective life of locomotives, while there are no such cost burdens imposed on trucks carrying interstate freight.¹¹ Even if interstate freight trucks have zero emissions from their engines (setting aside the lifecycle emissions associated with the energy required to produce and charge batteries), those trucks will have particulate emissions from brake and tire wear—emissions that are not associated with locomotive operations.

2022 State Strategy for the State Implementation Plan Response to Comments

The potential for mode shift is real and is certainly no more speculative than the emission reductions CARB asserts will be associated with the proposed In-Use Locomotive rule and Federal rule changes. At its core, CEQA requires disclosure of potential environmental impacts associated with proposed regulatory actions, and not assertions of potential benefits and dismissal of potential disadvantages as “speculative.” CARB’s Draft EA fails to satisfy CEQA’s requirements by failing to address the potential mode shift associated with the locomotive provisions of the 2022 State Strategy for the California SIP.

11 This outcome is predicted in CARB’s Exchange Point study cited above where the costs evaluated were related to increased freight delays and the capital costs of unique California locomotive maintenance, service, and refueling facilities. The source of the increased costs imposed solely on locomotives—unique California infrastructure requirements or reduced useful life for locomotives—is not relevant to the conclusion that these increased costs will result in a shift of interstate freight transportation from rail to truck.”

Response to Comment 3-5: See Response to Comment 3-1 and Comment 3-3 above for details pertaining to the methodology applied in estimating the potential reductions achieved by the 2022 State SIP Strategy, including increased particulate emissions from brake and tire wear that could occur from increased reliance on heavy-duty trucks, which includes the measures and regulatory requirements of the In-Use Locomotive Regulation. For additional information on mode shift, see Response to Comment 3-1 above; see also the Standardized Regulatory Impacts Assessment for the In-Use Locomotive Regulation, pp. 143-147.

Comment 3-6: The commenter states

“B. CARB’s Locomotive Plan Exceeds the Agency’s Legal Authority and Thus Cannot Be Lawfully Promulgated.

The Draft EA states that the proposed In-Use Locomotive Regulation “would use mechanisms available under CARB’s regulatory authority to accelerate the adoption of advanced, cleaner technologies, and include zero emission technologies, for locomotive operations.” Draft EA at 27. However, as AAR (and others) have briefed CARB in the past, the Proposed Rules are subject to preemption under at least the ICC Termination Act of 1995, the Railroad Revitalization and Regulatory Reform Act of 1976, the Locomotive Inspection Act, the Clean Air Act, and EPA regulations. See AAR Comments on Draft State Strategy for the State Implementation Plan submitted to CARB on March 4, 2022. CARB’s proposed In-Use Locomotive Regulation is an unlawful state program. As such, CARB should disclose in its EA the risks associated with the challenges to its legal authority and likelihood of the vacatur of these rules by a federal court.”

Response to Comment 3-6: Throughout Chapter 2 of the Draft EA, CARB specifies the agencies that would oversee measures under the 2022 State SIP Strategy. CARB acknowledges that several measures in the 2022 State SIP Strategy would require federal action and coordination with the U.S. Environmental Protection Agency (U.S.

2022 State Strategy for the State Implementation Plan Response to Comments

EPA). In the case of the In-Use Locomotive Regulation, the requirements set forth by this regulation would use available mechanisms under CARB's regulatory authority to accelerate the adoption of advanced, cleaner technologies such as zero-emission technology for locomotive operations. The provisions of the In-Use Locomotive Regulation would not extend beyond CARB's regulatory authority and already includes exclusions to certain locomotive operations that are beyond CARB's legal authority to regulate including locomotive engines used in training of mechanics, equipment designed to operate both on roads and rails, and military locomotives.

The Draft EA is intended to programmatically disclose the potential environmental impacts of the 2022 State SIP Strategy, which are summarized throughout Section 4 of the Draft EA. The 2022 State SIP Strategy also does not contain measures that are legally indefensible. The comment does not raise any issues related to environmental impacts associated with the 2022 State SIP Strategy, but rather questions CARB's legal authority to adopt a certain regulation identified in the 2022 State SIP Strategy. CARB believes it has adequate authority to propose and implement the locomotive regulation identified in the 2022 State SIP Strategy. The extent to which anything in the 2022 State SIP Strategy would require an amendment due to unforeseen circumstances is highly speculative and is not required to be considered at this time. Any future amendments to account for those circumstances, if necessary, would be considered in accordance with the procedure provided by regulation and statute. No further response is required.

Comment 3-7: The commenter states

"III. CARB'S CHARACTERIZATION OF FEDERAL REGULATIONS AS A "LOOPHOLE" IS BOTH INACCURATE AND MISLEADING.

In multiple documents and presentations, CARB has referred to the need for EPA to "[a]ddress [the] locomotive remanufacturing loophole." Draft EA at 33. This characterization is both inaccurate and misleading and, by implying that this feature of EPA's lawfully promulgated regulatory scheme was a mistake, misinforms the public regarding the existing regulatory scheme.

Notably, CARB supported EPA's adoption of these regulations, including the provisions it now characterizes as a "loophole." CARB submitted comments on or related to the proposed regulations in 1997, 2004, 2006, and 2007. In its 2004 comment, CARB "fully support[ed] the direction that U.S. EPA is taking to control emissions from [locomotives []] in the [Advanced Notice of Proposed Rulemaking on the Control of Emissions of Air Pollution from New Locomotive Engines].¹² A significant portion of that proposed regulation, which was later finalized and promulgated, related to the emissions standards for remanufactured locomotives. At no point during that rulemaking did CARB assert that a limit should be imposed on the number of times a particular locomotive can be remanufactured. For CARB to now refer to this federal program as a "loophole" is disingenuous at best.

2022 State Strategy for the State Implementation Plan Response to Comments

EPA has promulgated nationwide regulations governing the lifespan of locomotives and has expressly prohibited states from promulgating their own conflicting regulations. In CAA section 209(e), Congress preempted state and local governments from adopting or enforcing “any standard or other requirement relating to the control of emissions from . . . new locomotives or new engines used in locomotives.” 42 U.S.C. § 7543(e)(1)(B). EPA defines “new locomotive” as a “locomotive or locomotive engine which has been remanufactured” that was built after January 1, 1973. 40 C.F.R. § 92.2 (emphasis added). Because EPA’s regulations address not only newly built, but also remanufactured engines, they establish the national standards with respect to the lifecycle and emissions requirements for locomotives operating in the United States.

CARB, acknowledging its lack of legal authority to impose different standards on its own, characterizes these lawfully promulgated federal regulations as a “loophole.” In its Draft EA, CARB incorrectly states that “[t]he result [of the federal regulations] is continued remanufacturing of old and polluting locomotives to the same pollution tier standards, and persistent pollution from these sources.”¹³ This is plainly incorrect. In fact, EPA regulations require that when a tier 0, 1, or 2 locomotive is first remanufactured it must be upgraded to meet lower emission rates. For example, a Tier 0 locomotive must be remanufactured to meet Tier 0+ standards, which achieve a 16% reduction in NO_x emissions and a 63% reduction in PM emissions.

CARB contemplates a petition to EPA to close this “loophole” by inventing a novel definition of “useful life” and other provisions that differ from current EPA regulations, thus altering the certification system for all U.S. and Canadian locomotives.

CARB’s proposal is a breathtakingly broad request, given the interconnected nature of the U.S. and North American rail network and the federal regulatory framework that exclusively governs it. But describing these regulations as a “loophole” is also inaccurate and misleading. The regulations governing the remanufacture of locomotive engines were originally promulgated in 1998 and revised 2008. 73 Fed. Reg. 37096. As with all lawfully promulgated regulations, EPA published its proposed rule for public comment prior to finalization. In the notice, EPA stated that “[t]he near-term program [] includes new emission limits for existing locomotives and marine diesel engines that apply when they are remanufactured and take effect as soon as certified remanufacture systems are available, as early as 2008.” *Id.* Put differently, the regulations governing emissions standards for remanufactured locomotive engines are a central feature of EPA’s regulatory regime, not a “loophole.”

EPA’s approach to remanufactured locomotives makes sense: locomotives have lifecycles that can span many decades. EPA’s regulations ensure that remanufactured locomotives meet emissions limits. Contrary to CARB’s assertion that the regulations allow older locomotives to be remanufactured and to the “same pollution tier standard,” the regulations allow tier 0, 1, and 2 locomotives to be remanufactured to be more efficient with lower emissions than when first manufactured. For example, remanufacturing a Tier 0 locomotive engine to a Tier 0+ reduces particulate and NO_x

2022 State Strategy for the State Implementation Plan Response to Comments

emissions by as much as 33 percent. Similar reductions are achieved by remanufacturing many engines.

12 Letter from Alan C. Lloyd, Ph.D., Chairman, Air Resources Board, to Margo T. Oge, Director, Office of Transportation, US EPA (Aug. 26, 2004)."

13 This is plainly incorrect. In fact, EPA regulations require that when a locomotive is first remanufactured it must be upgraded to meet lower emission rates. For example, a Tier 0 locomotive must be remanufactured to meet Tier 0+ standards, which achieve a 16% reduction in NO_x emissions and a 63% reduction in PM emissions.

Response to Comment 3-7: The comment does not directly address the environmental analysis of the Draft EA, or raise other environmental issues; however, CARB acknowledges the mischaracterization of the U.S. EPA definition of remanufacturing as a loophole, and has made edits to the Final EA as necessary.

Comment Letter 4

5/13/2022

Eric Truskoski

Bradford White Corporation

Comment 4-1: The commenter states “On behalf of Bradford White Corporation (BWC), we would like to thank you for the opportunity to comment on the California Air Resource Board (CARB) Appendix B - Draft Environmental Analysis for the proposed 2022 State Strategy for the State Implementation Plan.

BWC is an American-owned, full-line manufacturer of residential, commercial, and industrial products for water heating, space heating, combination heating, and water storage. In California, a significant number of individuals, families, and job providers rely on our products for their hot water and space heating needs.

The 2022 Draft Environmental Analysis proposes a zero-emission standard for space and water heating in the report Chapter 2, Section 5(b). In addition, it proposes additional building and appliance emission standards in report Chapter 2, Section 5(f), as referred to below:

- 5(b) Zero-Emission Standard for Space and Water Heating: 2025-2030
 - o Appendix B - Draft Environmental Analysis for the proposed 2022 State Strategy for the State Implementation Plan states on page 26, “Reasonably foreseeable compliance responses associated with the Zero-Emission Standard for Space and Water Heaters would be accommodated within the footprint of existing manufacturing facilities. It is expected that manufacturing needs for new heaters would largely be met by the existing market, and no new infrastructure or manufacturing facilities would be anticipated to be required.”
- 5(f) Additional Building and Appliance Emission Standards: Under staff review
 - o Appendix B - Draft Environmental Analysis for the proposed 2022 State Strategy for the State Implementation Plan states on page 38, “Reasonably foreseeable compliance responses associated with the Additional Building and Appliance Emission Standards would be accommodated within the footprint of existing manufacturing facilities and would be implemented through an increased rate of appliance turnover. It is expected that manufacturing needs for new heaters would largely be met by the existing market, and no new infrastructure or manufacturing facilities would be anticipated to be required. Turnover may result in recycling or scrapping of old appliances or selling appliances to areas outside of California”

We have concerns that the magnitude of the transition proposed by CARB will place significantly more stress on an already constrained supply chain under the proposed timeline and does not adequately take into account several factors that may hinder the ability of the state to transition successfully. The proposed phase-out timeline of five

2022 State Strategy for the State Implementation Plan Response to Comments

years beginning in 2025 and full adoption by 2030 is overly optimistic. We respectfully request more information from CARB on how it concluded that existing manufacturing facilities can accommodate the annual volume of zero-emission water heating equipment needed in California based on normal equipment turnover.

California may be on the forefront by setting this target, however, other states and countries are working on similar plans to decarbonize and reduce emissions. Thus, contributing to a much larger demand for these products than California alone. CARB must consider global demand for heat pump water heaters (HPWH), not just California, in their assessment to determine a feasible timeline for transitioning the state to only allow the sale and distribution of zero-emission water heating technology.

HPWH technology currently only represents a very small portion of the California and overall United States' markets. Like any new technology, it will take time for the supply chain to scale up. In California and across the United States, several collaborative efforts are taking place with manufacturers, industry stakeholders, state regulators, and the U.S. Department of Energy to make this transition successful. Most notably, the California Energy Commission (CEC) opened a docket, 22-DECARB-01 that specifically addresses the state's heat pump goals, supply chain, and programs.

The CEC held the first staff workshop for docket 22-DECARB-01 on April 5, 2022, where multiple stakeholders presented, including manufacturers, on the challenges and opportunities associated with meeting the statewide goal of six million heat pumps installed by 2030. Several common themes emerged from the workshop, including investment in programs and infrastructure, HPWH application in existing homes and commercial buildings, business certainty and supply chain barriers, and transitioning to low global warming potential (GWP) refrigerants."

Response to Comment 4-1: The comment quotes portions of the Draft EA that summarize the potential compliance responses of the Zero-Emission Standard for Space and Water Heating, which states on page 26 that "it is expected that manufacturing needs for new heaters would largely be met by the existing market, and no new infrastructure or manufacturing facilities would be anticipated to be required." Also quoted from page 39 of the Draft EA summarizing the Additional Building and Appliance Emission Standards, the comment reiterates that it "is expected that manufacturing needs for new heaters would largely be met by the existing market, and no new infrastructure or manufacturing facilities would be anticipated to be required. Turnover may result in recycling or scrapping of old appliances or selling appliances to areas outside of California." The comment indicates that CARB's assertion that no new manufacturing facilities or infrastructure would be needed to meet this increased market demand is incorrect and not accounted for in the Draft EA.

CARB staff disagrees with the commenter's assertion. CARB reached this determination reasonably given the information available at the time of preparing the

2022 State Strategy for the State Implementation Plan Response to Comments

Draft EA for the Proposed 2022 State SIP Strategy. Based on California market projections that the estimated number of heat pump water heaters would increase by 4-5 fold between 2020 and 2024, CARB staff assumed that existing manufacturing facilities could accommodate the increase in demand from this draft measure. CARB assumed that 20 percent of space and water heating turned over in California would be heat pumps starting in 2026 ramping up annually to reach 100 percent of sales to be zero-emission by 2030. Heat pump manufacturing capacity may need to ramp up significantly to meet California's ambitious goals; however, how industry will plan to respond to this demand will ultimately be influenced by a number of policy, technical, and economic variables, including, but not limited to, cost of production, infrastructure considerations, consumer demand, and technology development, performance and cost. Due to these uncertainties, it is not feasible at this time to foresee how all impacted industries will alter their business operations to address supply chain scale up. Doing so would require making assumptions that would be speculative and inappropriate for a programmatic EA. However, the volume of overall water heaters and space heaters sold in California would be the same regardless of this measure and CARB expects that existing manufacturing facilities could be repurposed to meet the demand.

Furthermore, the level of detail in this EA appropriately reflects that the Proposed 2022 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 CARB or other agencies may decide to pursue to reduce greenhouse gas emissions and 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 Proposed 2022 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 Proposed 2022 State SIP Strategy.

While it was appropriately determined that production of water and space heaters would not result in new manufacturing facilities, the EA does provide a programmatic evaluation of the potentially adverse environmental effects from the construction and operation of new manufacturing facilities and infrastructure associated with other measures contained in the Proposed 2022 State SIP Strategy. Several measures of the Proposed 2022 State SIP Strategy, such as the Advanced Clean Fleets Regulation and Zero-Emission Trucks Measures would necessitate the construction and operation of new manufacturing facilities, EV charging stations, and hydrogen fueling stations. The potentially adverse environmental consequences of these reasonably foreseeable compliance responses have been documented in the EA, and project-level mitigation has been recommended where appropriate. No changes to the EA are required in response to this comment. No further response is required.

Comment 4-2: The commenter states: “**Investment in programs and infrastructure**

The state has recently funded three programs (i.e., BUILD, TECH, SGIP) aimed at increasing market share and understanding the barriers to installing heat pump technology. These programs are designed to identify installation barriers in new construction, retrofit, and most importantly, fuel substitution applications. The programs go beyond incentives and focus on contractor training, financing, and supply chain. Given the currently low market share of heat pump technology and these programs being in their initial kickoff stage, CARBS’s proposal to begin market transformation in 2025, will likely overlook installation, technology, and financing challenges that have yet to be identified and outpace the market’s ability to adopt HPWH technology.

CARB will need to be able to fund the necessary improvements to infrastructure, as well as early adoption of HPWH technology if this transition will be successful. CARB should work to establish a statewide funding program for homeowner and business electrical upgrades and work with utilities to modernize vulnerable portions of the electrical grid. Additionally, CARB should establish and fund a technical advisory committee, similar to the one proposed by the Bay Area Air Quality Management District. The technical advisory committee’s role would be to study all available HPWH technology, commercial and residential, and evaluate for performance in a variety of climate zones and building types. Through the advisory committee work, CARB can better evaluate market readiness for technology and have a more comprehensive understanding of where adoption barriers may exist. These findings should be made publicly available.

Though existing buildings represent the bulk of the opportunity to decarbonize the state, much of the existing building stock is not constructed to today’s building standards. Therefore, it increases the complexity of retrofitting to zero-emission water heating. It is imperative to include a broad group of stakeholders, including manufacturers, in the conversation regarding how to transition existing building stock to zero emission water heating technology. Without a broader group of stakeholders involved in these conversations, CARB may overlook crucial barriers to retrofitting buildings, including electrical infrastructure, space constraints, technology limitations, opportunities for new technology applications, and cost considerations to the customer.

The state has made considerable inroads in advancing HPWH technology in residential new construction through the adoption of the 2022 Title 24 Energy Code, which favors HPWH technology. Even so, this only accounts for a small proportion of the annual installations needed to meet state emission reduction goals. Further, the state has set aside nearly \$300 million in incentives in addition to already established local and utility programs to encourage early adoption of HPWH technology in existing homes. While this is a crucial step towards transitioning the state towards zero-emission water heating technology, it does not address the larger problem of emergency replacements.

2022 State Strategy for the State Implementation Plan Response to Comments

Over 90% of residential water heater replacements are done on an emergency basis where the water heater has failed and is not necessarily easily or cost effectively repaired. It is essential that ample products are available, and customers need to be able to have these products installed as timely as possible to satisfy their needs. This would be unlikely if manufacturers do not have the right product mix, and those products are not stocked by local distributors, forcing the consumer to wait.

Having the right products available for the right application is only one piece of the puzzle. As mentioned above, barriers such as electrical infrastructure and space constraints can add to the complexity and cost of replacement and place a significant and unfair burden on the customer who is simply trying to restore hot water service. If CARB chooses to adopt the proposed timelines, then CARB must also ensure there is a robust program and funding in place to help property owners prepare for the transition well in advance of needing a new water heater.

While the state is off to a good start increasing adoption of residential HPWH technology, the commercial sector has not been addressed with the same attention level, increasing the barriers to transition in this sector. The recently adopted 2022 Title 24, California Energy Code does not address HPWHs in existing commercial and nonresidential buildings, largely because there are very few commercially available products on the market today.

There has not been adequate cost-effectiveness analysis completed on adopting all-electric replacements in existing commercial and nonresidential buildings. For a cost-effectiveness analysis to be comprehensive there needs to be a sizeable population of existing installations in which to evaluate. Installations of HPWH technology outside of the residential building space are few and far between, and there is not enough data to thoroughly conduct a feasibility study. This is particularly true when considering the diversity of building types in existing commercial and nonresidential buildings.

Currently, statewide decarbonization programs do not offer incentives for commercial electric water heating equipment. Most recently, the California Public Utilities Commission (CPUC) released its proposed program guidelines for the Self Generation Incentive Program (SGIP), which explicitly recommends against offering incentives for electric HPWH technology for commercial and nonresidential applications. The CPUC staff, and supporting public comments, cite the primary reason as nonresidential HPWH technology not being commercially available to support market transformation currently.

A shift to require that existing commercial and nonresidential buildings be retrofitted to use all electric water heating technology will require significant time, money, and collaboration by manufacturers and plumbing trade associations to train the workforce to ensure quality installations. This is an effort that will take many years to come to fruition, as new technology becomes commercially available, likely extending well beyond 2030.”

2022 State Strategy for the State Implementation Plan Response to Comments

Response to Comment 4-2: The comment does not address the adequacy of the analysis contained in the Draft EA. The comment emphasizes that there are several barriers to deployment of the aforementioned standards including cost and availability of these technologies. This comment addresses the economic impact the Proposed 2022 State SIP Strategy. The Draft EA is not meant to address economic, social, or financial issues associated with the Proposed 2022 State SIP Strategy. Rather, the purpose of CEQA and the EA is to fully analyze and mitigate the Proposed 2022 State SIP Strategy's potentially significant physical impacts on the environment. As such, comments related to economic or financial concerns are outside of the scope of the Draft EA and not addressed in this response to comments document. However, this comment is acknowledged for the record and has been reviewed by CARB staff prior to returning to the Board for final consideration.

It is worth noting that the majority of incentives and funding programs for installing heat pumps and electrical upgrades are managed by other state agencies. Without funding dedicated in the State budget or by the legislature, CARB is not able to establish a statewide funding program. However, CARB coordinates with other agencies on building decarbonization policy and will share this recommendation with agencies who do oversee funding programs.

In addition, see Response to Comment 3-3 for a detailed explanation of the methodology used to calculate the foreseeable emissions reductions achieved through implementation of the Proposed 2022 State SIP Strategy, including those reductions that could be achieved through these relevant standards. No changes to the Draft EA are required in response to this comment. No further response is required.

Comment 4-3: The commenter states "Business Certainty for Manufacturers and Supply Chain Barriers"

In 2019, the Washington Department of Commerce (DOC) enacted a regulation making it the first state to require demand response capabilities for electric storage water heaters. Under the regulation, heat pump water heaters sold and installed in the state had to be demand response capable by January 1, 2021, followed by the same mandate for electric resistance water heaters on January 1, 2022. Since this regulation being finalized, supply chain challenges, caused largely by the COVID-19 pandemic, have made it difficult for manufacturers to produce a sufficient quantity of compliant products.

In response, the Washington DOC has enacted an emergency rule that temporarily delayed the enforcement of the regulation until March 1, 2022, for both heat pump and electric resistance storage water heaters. And a second delay was issued to delay the enforcement until June 29, 2022. Oregon had a similar experience as Washington, as the Oregon Department of Energy (ODOE) has delayed the enforcement of demand response controls for electric and HPWH equipment and is presently considering extending this delay until July 1, 2023.

2022 State Strategy for the State Implementation Plan Response to Comments

While many supply chain barriers are external and out of the control of manufacturers, there are several requirements in place within California that will impede adoption of HPWH technology. See below:

- JA-13 requirement for connected HPWHs. While JA-13 was originally included as an extra compliance option in the Title 24 energy calculations, it has since been included in rebate programs like SGIP. JA-13 compliance adds functionality to HPWHs, which in turn adds cost. At this time, it is a feature being required without a clear pathway for how it will be used by the state to control water heaters. These challenges are further compounded when considered along with the Washington and Oregon case studies detailed above.
- Northwest Energy Efficiency Alliance's (NEEA) Advanced Water Heating Specification (AWHS). This specification was originally designed to ensure HPWH performance in cold climates but has since been adopted by the state as the governing standard for HPWHs. The AWHS continues to raise the bar on efficiency and other requirements that are not necessarily tied to increasing efficiency or reducing emissions.
 - o New construction experiences the greatest hurdle. The Title 24 energy designer must specify a make and model HPWH, which then must be installed by the plumbing contractor. This eliminates the ability for the plumber to solicit bids for multiple HPWH brands and models.

Many supply chain barriers add cost and uncertainty to the manufacturer and end customer. As we identified above, there are barriers that can be removed to help drive market demand with the currently available products and help the state work towards its emission reduction goals. Similar to how the state must balance efficiency, demand response, storage, and emission reduction goals, manufacturers must also take into account how these goals amount to added features, benefits, and costs"

Response to Comment 4-3: The comment does not address the adequacy of the analysis contained in the Draft EA. The comment pertains to specific regulatory standards contained in the Proposed 2022 State SIP Strategy. CARB staff are aware of supply chain barriers and will be cognizant of these barriers in developing any future regulations.

No changes to the Draft EA are required in response to this comment. No further response is required.

Comment 4-4: The commenter states "**Transitioning to Low GWP Refrigerants**

While BWC recognizes that refrigerants play a role in reducing the state's emissions, transitioning to low GWP refrigerants, in an expedited timeframe is problematic for HPWHs. One of the main arguments for transitioning to low GWP refrigerants is to enable the HPWH to deliver higher water temperatures (i.e., 150°F or greater). The

2022 State Strategy for the State Implementation Plan Response to Comments

state suggests driving the HPWH industry towards CO2 technology in a relatively short timeframe. While CO2 is a low GWP refrigerant that can achieve higher stored water temperatures to help reduce the grid's peak demand at times, this same objective can be achieved with other refrigerants and technology. For example, certain compressor technology exists today that would allow common refrigerants to produce delivered water temperatures up to 150°F or higher, while still achieving relatively high efficiency values.

Driving the industry down to a GWP limit of 150 will also continue to increase the already high cost of HPWHs compared to other water heating equipment and further hinder market adoption. Low GWP refrigerant is significantly more expensive than what is being used today, requires special equipment and training for installers to utilize, and some refrigerants may also be flammable. With relatively few commercial HPWH options available in the market today, CARB should not limit manufacturer's ability to innovate by further regulating refrigerants for these products, at this time.

In closing, we would like to reiterate the need for CARB to work with manufacturers to determine how to accomplish transitioning to zero-emission water heating equipment across all sectors. We fully understand the state's goals to reduce emissions and want to play a part in ensuring it is successful in doing so.

BWC thanks CARB for the opportunity to provide feedback on the Draft Environmental Analysis for the Proposed 2022 State Strategy for the State Implementation Plan. Please let me know if you have any questions or would like to schedule a meeting to discuss our comments further."

Response to Comment 4-4: The comment does not address the adequacy of the analysis contained in the Draft EA. The comment emphasizes that there are several barriers to deployment of the aforementioned standards including cost and availability of these technologies. This comment addresses the economic impact of the Proposed 2022 State SIP Strategy. The Draft EA is not meant to address economic, social, or financial issues associated with the Proposed 2022 State SIP Strategy. Rather, the purpose of CEQA and the Draft EA is to fully analyze and mitigate the Proposed 2022 State SIP Strategy's potentially significant physical impacts on the environment. As such, comments related to economic or financial concerns are outside of the scope of the Draft EA and not addressed in this response to comments document. However, this comment is acknowledged for the record and has been reviewed by CARB staff prior to returning to the Board for final consideration.

The comment pertains to specific regulatory standards contained within the Proposed 2022 State SIP Strategy. There will be a separate effort within CARB to regulate the GWP of refrigerants used in heat pumps. The proposed zero-emission space and water heating standard would not include any GWP limits for refrigerants.

See Response to Comment 3-3 for a detailed explanation of the methodology used to calculate the foreseeable emissions reductions achieved through implementation of

2022 State Strategy for the State Implementation Plan
Response to Comments

the Proposed 2022 State SIP Strategy, including those reductions that could be achieved through these relevant standards. No changes to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 5

3/15/2022

Bill Quinn

California Council for Environmental and Economic Balance

Comment 5-1: The commenter states “The Draft EA Fails to Meet the Basic Purpose of CEQA, Even If Legally Defensible

Guidelines for the implementation of the California Environmental Quality Act (CEQA) state that the basic purposes of CEQA review are to (1) inform decision makers and the public about potential significant environmental effects that could occur from a project, (2) identify ways to avoid or reduce damage, (3) prevent significant but avoidable damage through the use of alternatives and mitigation measures, and (4) disclose to the public reasons why an agency might approve a project even if it results in significant environmental effects.¹ While CCEEB has no doubt that CARB’s counsel is well versed on CEQA case law and statutory requirements for environmental review, we wonder if the simple intent of CEQA – to inform decision makers and the public about possible tradeoffs, and discuss, in earnest, ways to avoid or mitigate harm – has been lost over time. Put simply, we did see not a clearly articulated discussion of the very real and potentially significant environmental questions related to the 2022 SIP, despite the more than three hundred pages of carefully worded text and tables. This may pass legal muster and judicial review; however, it does not seem meaningful to decision makers or the public. Problems with CARB’s environmental review can be put into two general buckets: key environmental questions that largely go unanswered, and general assumptions that are questionable or lack rigor and data. Put together, CCEEB believes these limitations detract from the usefulness of the draft EA and fail to meet the basic purpose of CEQA. We provide some examples to help illustrate our point.

¹ See California Code of Regulations, Title 14, Division 6, Chapter 3, Article 1.”

Response to Comment 5-1: The comment serves as an introduction to more specific issues related to the content and legal defensibility of the Draft EA. These specific issues are addressed in the responses below. However, in response to the comment regarding the basic purpose of CEQA, CEQA Guidelines Section 15151 states that “[d]isagreement among experts does not make an EIR inadequate, but the EIR should summarize the main point of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.” The EA provides a good-faith effort to evaluate programmatically the potential for significant adverse impacts associated with implementation of the Proposed 2022 State SIP Strategy based on what is known at this time. In Section 2.0, “Project Description,” the EA provides an overview of the project objectives, concepts of the Proposed 2022 State SIP Strategy, and outlines the potential compliance responses that could occur because of implementation of the recommended actions. As described in the last paragraph on page 2 of the EA, “[t]he level of detail of impact analysis is necessarily and appropriately general because the Proposed 2022 State SIP

2022 State Strategy for the State Implementation Plan Response to Comments

Strategy is programmatic.” The reasonably foreseeable compliance responses are analyzed in a programmatic manner for several reasons: (1) any individual action or activity would be carried out under the same program; (2) the reasonably foreseeable compliance response would result in generally similar environmental effects that can be mitigated in similar ways (Cal. Code Regs., tit.14, Section 15168 (a)(4)); and (3) while the types of foreseeable compliance responses can be reasonably predicted, the specific location, design, and setting of the potential actions are unknown at this time. The Proposed 2022 State SIP Strategy, by design, is flexible.

CEQA is clear that an indirect impact should be considered only if it is a reasonably foreseeable impact caused by the project. (Cal. Code Regs., tit. 14, Sections 15064(d)(3), 15358(a)(2).) An environmental impact that is speculative or unlikely to occur is not reasonably foreseeable. (Cal. Code Regs., tit. 14 Section 15064(d)(3).) Attempting to predict decisions by regulated entities that may oversee construction or operation of facilities or infrastructure built as compliance responses to the actions included in the Proposed 2022 State SIP Strategy is inherently speculative, as these actions involve extensive decision-making processes. As a result, CARB’s CEQA analysis covers all reasonably foreseeable activities, and avoids engaging in speculation about what specific actions may occur at specific locations.

The Draft EA makes a good faith effort to disclose the potentially adverse environmental impacts of the reasonably foreseeable compliance responses under the Proposed 2022 State SIP Strategy and satisfies CARB’s legal requirements under its certified regulatory program. The Draft EA is intended to be programmatic. No further response is required.

Comment 5-2: The commenter states “Examples of Key Questions that Go Largely Unanswered

Battery Recycling and Mining Metals

Perhaps the most obvious example can be seen in CARB’s limited review of the impact from the increased demand for batteries, which results from measures to electrify combustion sources, like heavy-duty vehicles, cargo handling and off-road equipment. Here we note that CCEEB supports California’s climate and carbon neutrality goals, and recognizes that deploying electric batteries across many applications will be a critical part of achieving those goals. However, we believe that California should avoid, as much as possible, creating tomorrow’s environmental problem as we try to solve the problems of today. In terms of batteries, this means addressing the whole spectrum of potentially significant impacts that can occur from mining to recycling.

Although the draft EA does acknowledge, in general terms, issues related to mining and recycling, it largely absolves CARB and the State from responsibility by citing jurisdictional boundaries, even though it will be CARB mandates that require the shift to batteries and fuel cells in the first place. The only mitigation measures offered are an explanation that any battery recycling or heavy metal mining operation in California

2022 State Strategy for the State Implementation Plan Response to Comments

would be subject to project-level CEQA review by a local lead agency, and that any remaining impacts are unavoidable.

“Because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and the programmatic level of analysis associated with this Draft EA does not attempt to address project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts. Although unlikely after implementation of Mitigation Measure 9-2, it is possible that significant impacts related to hazards and hazardous materials could still occur.

“Consequently, while impacts could be reduced to a less than significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project proponent seeks a permit for compliance-response related project, this Draft EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that the potential long-term operation-related impacts regarding hazards and hazardous materials associated with the 2022 State SIP Strategy would remain potentially significant and unavoidable.”²

Strikingly, no mention is made of either AB 1125 (Pavley, 2005), the Rechargeable Battery Recycling Act, or AB 2832 (Dahle, 2018), which established the Lithium-Ion Battery Recycling Advisory Group at CalEPA, and certainly no mention is made of California’s responsibility for mining impacts that occur outside the state, which if poorly managed can lead to severe local environmental outcomes and increased GHG emissions.³ Importantly, the AB 2832 advisory group is in the final stages of drafting recommendations for end-of-life (EOL) policies for lithium-ion batteries, with a particular focus on batteries used in electric vehicles. Table 2 of the draft report lists lithium-ion recyclers in North America, including those planned for development, noting that, “As EVs have not yet retired at a large scale, the feedstock for these facilities is primarily production scrap from manufacturing and consumer electronics.”⁴ Not one is in California, suggesting that many if not most of California’s battery recycling will occur somewhere else and that the state will export its environmental impacts. As the draft report concluded, “Since EVs are not currently being retired at a large scale, California does not currently have the needed capacity in terms of trained personnel to handle high voltage batteries. Lack of infrastructure in California could encourage EV battery retirement in other states or international export.”⁵

CCEEB’s point here is that the discussion in the draft EA does very little to illuminate the very real challenges inherent to ramping up use of rechargeable batteries, and provides CARB decision makers and the public with no sense of the options or alternatives that could potentially help mitigate the problem. It also seems to assume that new facilities could somehow be permitted in California to meet the state’s need

2022 State Strategy for the State Implementation Plan Response to Comments

for battery recycling, ignoring the more likely scenario that California would simply export its problem elsewhere.⁶ Similarly, impacts from mining happen elsewhere and, as such, are outside of CARB's requirements for CEQA review, and other impacts, such as increased fire risks and illegal disposal, are not mentioned at all.⁷

² See "2022 State Strategy for the State Implementation Plan: Draft Environmental Analysis," pages 74-75 and pages 78-79. Nearly identical language is used for Mitigation Measures 9-1 (short term) and 9-2 (long term).

³ <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/sustainable-and-responsible-development-of-minerals>

⁴ AB 2832 Advisory Group Draft Report, revised March 11, 2022, pages 17-19. Accessed online at https://calepa.ca.gov/wp-content/uploads/sites/6/2022/03/AB-2832-Final-Draft-Policy-Recommendations-Lithium-ion-Car-Battery-Recycling-Advisory-Group-As-of-3-11-22.a.hp_.pdf#page=1 on May 5, 2022.

⁵ Ibid, page 34.

⁶ Lead acid batteries are also used in battery electric vehicles and pose their own EOL problems. The now shuttered Exide battery recycling facility in Vernon became one of the state's largest industrial cleanup sites in California, costing tax payers hundreds of millions of dollars and causing one of the worst environmental injustices in recent memory. After the closure of Exide, Quemetco in the City of Industry remains the only lead acid battery recycling facility west of the Rockies, and itself is under close scrutiny by impacted communities and regulators. If nothing else, the history of these facilities serves as an example of how permitting new battery recycling facilities could face serious challenges and community opposition.

⁷ In addition to the work by the AB 2832 Advisory Group to understand EOL issues, CARB should also review data from the Department of Toxic Substances Control on the recycling of consumer rechargeable batteries. This shows that rates of recycling have declined since 2016, when data first began being collected. See <https://dtsc.ca.gov/how-is-california-doing-with-recycling-rechargeable-batteries>. "

Response to Comment 5-2: The Draft EA makes a good faith effort to disclose the potentially adverse environmental impacts related to the mining, manufacturing, and recycling of lithium-ion and even nickel-hydride batteries throughout its analysis consistent with Section 15002(g) of the State CEQA Guidelines. Potentially adverse impacts related to mining activities are identified in various portions of the EA including Impacts 1-1, 3-2, and 4-2, among other impacts. The Draft EA also discloses the potentially adverse construction and operational impacts associated with new facilities constructed to manufacture and recycle batteries in response to the Proposed 2022 State SIP Strategy. The Draft EA analysis draws conclusions and makes disclosures while avoiding mere speculation, which is not allowed under CEQA (discussed above in Response to Comment 5-1).

As emphasized in the Draft EA throughout Chapter 4 following the recommendation of resource-specific project-level mitigation measures, the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and the programmatic level of analysis associated with the Draft EA does not attempt to address project-specific details of mitigation; there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts. The Draft EA makes a good

2022 State Strategy for the State Implementation Plan Response to Comments

faith effort to disclose potentially significant impacts, and proposes project-level mitigation measures that could be implemented to reduce impacts. Pursuant to Section 15002(g) of the CEQA Guidelines, the Draft EA identifies a significant effect, and CARB, the legal entity approving the Proposed 2022 State SIP Strategy, determines whether the adverse environmental effects can be substantially reduced and explains why they may not. In the context of the Draft EA, and the potentially significant impacts identified that may occur outside of the State, CARB cannot, with a high degree of certainty, precisely predict the locations of these impacts nor account for the regulatory environment that may be capable of reducing impacts to a less-than-significant level. For instance, mining activities that occur overseas in countries that may have fewer regulations in place to mitigate environmental impacts are beyond CARB's authority to mitigate or regulate. Nevertheless, these potential adverse impacts are identified and disclosed in the Draft EA.

CARB recognizes that its rules and regulations aimed to decarbonize the state through the use of zero-emission technology may induce new demand for various metals including lithium, graphite, cobalt, nickel, copper, manganese, chromium, zinc, and aluminum; however, CARB and the Proposed 2022 State SIP Strategy are not solely responsible for an increase in demand for these metals. Various international efforts are underway to electrify the mobile-source sector pursuant to commitments made in the Kyoto Protocol and by members of the Under2 Coalition. In response to international efforts, the recycling of lithium-ion batteries is increasing to ensure that minerals are not wasted. Additionally, new sources of lithium, among other minerals, have been identified internationally and domestically, including new mining in the Imperial Valley, which the California Energy Commission's (CEC's) Lithium Valley Commission estimates may have sufficient lithium supplies to meet 40 percent of the world's total lithium demand (a final report is expected to be submitted to the State Legislature by October 2022).

The comment also suggests the Draft EA does not disclose potential impacts from the illegal disposal of batteries. CEQA does not require a lead agency to predict potentially adverse environmental impacts associated with illegal activities. CEQA analyses account for regulatory mechanisms that are intended to reduce hazards, such as California's Universal Waste Rule (Cal. Code Regs., tit. 22, Chapter 23), which regulates the disposal of batteries among other solid waste. CEQA cannot account for human behaviors or predict the degree that regulations and laws will not be complied with. Therefore, the Draft EA discloses potentially adverse environmental impacts associated with the reasonably foreseeable compliance responses to the Proposed 2022 State SIP Strategy within the state's regulatory framework.

No further response is required.

Comment 5-3: The commenter states "CARB's Actions Foretell and Require Additional Analysis on Electrification"

Control measures in the 2022 SIP that seek to electrify sources of combustion in California will necessarily lead to major and significant infrastructure development that need to be analyzed as part of the draft EA. These include measures affecting heavy-duty vehicles, transport refrigeration units, cargo handling equipment, off-road vehicles and equipment, locomotives, and residential and commercial space and water heaters. The choice by CARB to require electrification directly leads to more demand, which in turn leads to the development of solar and wind projects in the state, which then lead to reasonably foreseeable environmental impacts. These can't be ignored under CEQA.

However, the draft EA asserts that CARB neither knows where specific projects will be located, nor does it have authority over these projects. "Because CARB cannot predict the location, design, or setting of specific projects that may result and does not have authority over implementation of development that may occur, the programmatic analysis in the Draft EA does not allow for identification of the precise details of project-specific mitigation." CCEEB disagrees with this assertion, and notes that modeling done by CARB contractors E3 for its Scoping Plan includes multiple studies laying out fairly specific areas in California that wind and solar and infrastructure for ZEVs will be deployed.

CCEEB is concerned that CARB has made no attempt to quantify the levels of increased electricity demand, or how many additional generation, distribution, or transmission assets may be needed to facilitate the increased electricity demand that will surely stem from implementation of the Project, or how the actual construction or relocation of such assets could impact the environment. Using the Scoping Plan's high electrification scenario as an example, new solar arrays and wind power farms will need to be fabricated, transported to, and installed throughout California at more than five times the historical rate of deployment every year for the next 25 years.⁸ This deployment will significantly impact the physical environment in all California communities throughout the state. The fabrication, transportation and construction of the required generation facilities will also generate GHG emissions in and outside of each community that could have cumulative climate change impacts. Even a lesser level of this activity would likely create CEQA impacts that must be discussed and analyzed.

Unfortunately, CARB has not demonstrated how the Project will impact existing electricity demand. The draft EA does not analyze (or even acknowledge) how development of foreseeable additional renewable generating resources will impact the environment. Because it is likely that CARB can determine with particularity the amount of MW or MWh that will be needed to fully implement the Project in years to come, an accompanying analysis of generating resources and their potential environmental impacts must be provided to comply with CEQA's requirements. These renewable resource facilities are known to have environmental impacts in their own

2022 State Strategy for the State Implementation Plan Response to Comments

right, including but not limited to, impacts on federal and California sensitive species, water quality and quantity, nearby noise receptors, and project-related air quality impacts.

As more electric energy is utilized throughout California, new energy transmission capacity must be fabricated, transported to, and installed throughout the state to connect with thousands of miles of new nationwide transmission lines. Additional transmission facilities will have significant impacts to the physical environment and result in aesthetic and potentially cultural impacts. The fabrication, transportation, and construction of new transmission equipment and capacity will also generate GHG emissions which would have cumulative climate change impacts.

In addition, California communities and businesses will be required to install onsite charging, hydrogen fueling, and power storage infrastructure in order to comply with CARB mandates, as described in the 2022 SIP. For heavy-duty vehicles, at least, CARB collected detailed facility data through its Advanced Clean Trucks (ACT) Large Entity Reporting requirements, and has address-specific information about where facilities are located and where infrastructure will be needed. As the draft SIP notes, the volume of these projects is not insignificant; between the ACT rule and the proposed Advanced Clean Fleets rule, CARB expects 651,000 heavy-duty ZEVs will be deployed by 2037, all requiring extensive infrastructure to support load demand, charging, power storage, and hydrogen fueling. The fabrication, transportation, and installation of materials and equipment from these projects would have significant hazardous materials, human health, fire, fire suppression and policing services, GHG emissions, and physical impacts. For example, the energy intensity of battery core raw material mining, transportation, and fabrication alone could be expected to result in cumulatively significant climate change impacts.

CEQA caselaw holds that EIRs must consider the effects of changes to the environment that can result from an expansion of facilities, services, or utilities to serve the project. *Goleta Union Sch. Dist. v. Regents of Univ. of Cal.* (1995) 37 Cal.App.4th 1025; *El Dorado Union High Sch. Dist. v. City of Placerville* (1983) 144 Cal.App.3d 123. CCEEB believes that approach taken in the draft EA is inadequate, and that CARB does have data it can use to improve analysis of impacts stemming from its electrification policies.

⁸ See the September 19, 2019 comments from the Clean Air Task Force to the California Energy Commission on the SB 100 Joint Agency Report, "Charting a Path to 100% Clean Energy Future. The Task Force explains that to meet its climate goals with renewable power alone, California would need to deploy new solar and wind generation at five times the state's historical rate every year for the next quarter century and install "the equivalent of nearly ten of the world's largest onshore or offshore windfarms every year." Accessed via [https://efiling.energy.ca.gov/GetDocument.aspx?tn=229800&DocumentContentId=61244.](https://efiling.energy.ca.gov/GetDocument.aspx?tn=229800&DocumentContentId=61244)"

Response to Comment 5-3: Guidance on evaluation of energy impacts in CEQA Guidelines Section 15126.6(b) states that the "analysis is subject to the rule of reason and shall focus on energy use that is caused by the project." CEQA does not require

2022 State Strategy for the State Implementation Plan Response to Comments

energy use forecasting. While it is foreseeable that implementation of the Proposed 2022 State SIP Strategy, among other regulatory mechanisms such as the Renewable Portfolio Standard overseen by CEC, as well as actions pursued by the California Public Utilities Commissions (CPUC), and utilities throughout the state, would induce electricity demand and change the composition of the electrical grid as the state continues to pursue its long-term GHG reduction goals of carbon neutrality by 2045, given that CEQA does not require energy use forecasting, it is not necessary for the 2022 State SIP Strategy to project the future supply of electricity in the state. However, the Draft EA addresses the environmental impacts that may arise from additional infrastructure built as a result of the 2022 State SIP Strategy.

See Response to Comment 2-3 for a more detailed explanation of CARB's legal requirements to address energy impacts consistent with the criteria established in Appendix G of the State CEQA Guidelines. No further response is required.

Comment 5-4: The commenter states "Zero-Emission Vehicles and Equipment During Electrical Emergencies

Also not addressed in the draft EA are questions about what happens to zero-emission vehicles and equipment during electrical power emergencies. This problem has two main aspects to consider in terms of environmental effects: facilities that have backup power, and facilities that don't. For the former, a few facilities and homeowners may choose to install newly emerging zero-emission options, like onsite battery storage or fuel cells, but most likely will opt for traditional diesel-fueled emergency generators, especially in early years when the incremental cost of zero-emission options will be prohibitive. For example, a study of the recent increase in permitted emergency generators found that 90 percent were diesel fueled.⁹ CARB has made no attempt to discuss or quantify the air pollution impacts from this likely outcome, nor has the need for backup power been materially addressed in any of its zero-emission rulemakings or public meetings.

For facilities that do not have onsite backup power, other environmental and public safety effects could occur. For example, all-electric buildings and homes could face risks from a loss of heating, cooling, and refrigeration during emergency events or power shutoffs, and manufacturing and industrial operations could face workplace hazards due to a sudden or persistent loss of power. CCEEB has raised the need for contingency planning in the past to CARB staff, and reiterates its request here, even if it happens outside the scope of the draft EA.

⁹ See <https://www.businesswire.com/news/home/20211006005088/en/New-Study-Shows-a-Rapid-Increase-of-Diesel-Fueled-Backup-Generators-Across-California>.

Response to Comment 5-4: CARB and its regulations are not solely responsible for the timing and effects caused by planned service power shutoffs (PSPS), and the Proposed 2022 State SIP Strategy would not cause a PSPS. A wide variety of environmental and economic influences affect the timing and length of PSPS including

2022 State Strategy for the State Implementation Plan Response to Comments

vegetative cover, wind speed, temperature, and subjective decision making by a utility company. As noted by the comment, the potential loss of heating, cooling, and refrigeration potential incurred during a PSPS for a building is outside of the scope of the Draft EA and is a recurring problem that has occurred throughout recent decades for a myriad of reasons. The use of generators during PSPS and associated emissions directly tied to the energy demand needed to charge an electric vehicle (EV) is speculative at this programmatic stage, as generators used during these periods would be delivering electricity to homes for multiple needs. A generator may be supplying electricity to power appliances including, but not limited to, refrigerators, electric stoves, microwaves, HVAC systems, lighting systems, and groundwater pumps in addition to charging an EV. These emissions are speculative, and CARB cannot claim these emissions as a potentially significant environmental impact from implementation of the Proposed 2022 State SIP Strategy alone and are thus not disclosed in the Draft EA.

State agencies and electric utilities have begun proactively planning for electrical distribution upgrades and new load for electric vehicles via statewide energy system planning processes, including the CEC's Integrated Energy Policy Report (IEPR) forecasting, California Independent System Operator (CAISO) transmission planning, and the CPUC's Integrated Resource Plan (IRP) proceeding for 10-year grid enhancement strategies. The CPUC has already approved utility investments for upgrading the electric grid along with electricity rate changes to fund those investments. The CPUC opened a new proceeding to modernize and prepare the grid in anticipation of multiple distributed energy sources. With this new proceeding, the CPUC aims to evolve grid capabilities to integrate distributed energy sources including electric vehicle charging. The CPUC also approved time-of-use (TOU) rates which provides signals to electricity rate changes at different times of the day that would impact the cost to fuel for electric vehicle drivers that charge at home. This decision was made to optimize grid resources, maintain grid reliability, and provide reasonable rates for residential electric vehicle charging. Additionally, recent policy changes allow investor-owned utilities in California to establish rules and tariffs under general rate case proceedings for electrical distribution infrastructure on the utility side of the meter to support transportation electrification charging stations.

Moreover, the automotive industry is advancing technology and design features of EVs to facilitate the use of stored electricity in car batteries to power homes during PSPS and unplanned power outages. Bidirectional charging, which is a feature currently available in Ford's F-150 Lightning, Nissan's Leaf (ZE1), Mitsubishi's Outlander, and Eclipse's plug-in hybrid are capable of sensing when a power outage occurs and automatically feeds power back to a home through the vehicle's charging port. Additionally, Tesla's Powerwall batteries are capable of storing up to 13.5 kWh of electricity and may be relied upon by consumers to secure and store electricity for use during PSPS and unplanned outages. Thus, as these technologies continue to be developed, EVs and home battery storage systems may provide greater electrical security to homes during PSPS and unplanned power outages.

2022 State Strategy for the State Implementation Plan Response to Comments

No edits to the Draft EA are required in response to this comment. No further response is required.

Comment 5-5: The commenter states “Examples of Questionable Assumptions or Lack of Data

Air Quality Emissions Inventory Based on Outdated 2012 Data

CCEEB was surprised that the air quality section of the draft EA offered no quantification of either emission reduction benefits or increases due to compliance actions stemming from the proposed SIP measures. Moreover, the inventory used to establish the environmental setting in the draft EA is based on 2012 data and simply repeats (verbatim) what was used in CARB’s 2016 SIP. CCEEB is concerned by this failure to quantify air impacts, particularly for the measures that shift emissions from the tailpipe to the power generation sector. For example, some experts estimate that electrifying heavy-duty vehicles in California could increase peak demand by as much as 11 gigawatts, based on California Energy Commission forecasts of charging infrastructure needed. This level of load represents about twenty percent of California’s historical peak demand. Rather than assess how load growth could affect air quality over time (or how communities in proximity to power generation or renewable energy facilities could be impacted by near-source pollution), the draft EA simply recites the SB 100 goal to have 100 percent renewable energy by 2045, and says that the purpose of the SIP in any case is to reduce mobile sources of emissions.

CCEEB is unclear why CARB ceased production of its Air Almanac, as it was a useful document that showed 20-years of air quality trends for all five criteria pollutants, as well as ten high priority toxic air contaminants. CCEEB believes it should be updated, especially if CARB intends to use it for SIP purposes. Additionally, CCEEB believes that the Air Almanac was meant to serve the purpose of meeting CARB’s statutory requirements to develop a statewide emissions inventory for mobile and area sources, and to compile this data along with air toxics data reported quadrennially by stationary sources to the air districts.¹⁰ Indeed, it was this same section of code that staff used to justify some of its recently adopted changes to the AB 2588 Emissions Inventory Criteria and Guidelines.¹¹ CCEEB does not understand why CARB is collecting new data, ostensibly for the statewide inventory, but not actually publishing the inventory. That is, we do not understand why staff stopped implementing the statewide inventory program after the 2013 version of the Air Almanac, or why all previous iterations of the quadrennial inventory are no longer posted to the CARB website. We believe that this historical trend analysis provides value to the public, policy decision makers, and CARB partner agencies, and that it should be reinstated.

¹⁰ See Health & Safety Code Section 44345

¹¹ See the Staff Report: Initial Statement of Reason for the Amendments to the Emission Inventory Criteria and Guidelines Report for the Air Toxics “Hot Spots” Program, September 29, 2020, page 50: “In addition, the information on activity of mobile sources also supports the estimation of toxics

2022 State Strategy for the State Implementation Plan Response to Comments

from mobile and areawide sources that CARB is required to compile pursuant to Health and Safety Code Section 44345(b).”

Response to Comment 5-5: The Draft EA provides a programmatic evaluation of the potential adverse environmental impacts of the various regulation, plans, and policies that are components of the Proposed 2022 State SIP Strategy throughout Chapter 4 of the Draft EA. The EA provides a good-faith effort to evaluate programmatically the potential for significant adverse impacts associated with implementation of the Proposed 2022 State SIP Strategy based on what is known at this time. Statewide implementation of the Proposed 2022 State SIP Strategy is anticipated to result in statewide emissions reductions of over 200 tons per day NO_x and 40 tons per day ROG when compared to baseline levels in 2037.

Staff disagrees with the commenter’s assertion that air quality emissions inventories are based on outdated data. Emissions reductions are estimated using the most current emissions inventory that is available at that time – for the Proposed 2022 State SIP Strategy and attainment plans being developed for the 70 ppb 8-hour ozone standard, emissions are based on the current versions of CARB’s California Emissions Projections Analysis Model (CEPAM)⁹, 2019 CEPAM 1.04 and 2022 CEPAM 1.01. Each nonattainment area SIP will include an appropriate analysis of the emissions inventory based on CEPAM data and trends. While emissions reductions were calculated for the Proposed 2022 State SIP Strategy, this is a programmatic EA and emissions reductions for each measure will be further discussed and analyzed in the EA for that regulatory effort.

As for the shift in power generation sector, staff provided a response to Comment 6-2 about back-up generators. The response to Comment 6-2 includes an analysis demonstrating that the overall impact of additional load on the national grid due to rapid electrification is expected to be modest. For example, by 2035, full vehicle electrification adds less than 15 percent to the summer peak load, with heavy-duty electrification representing half of that amount. Under full national electrification scenarios—including transportation, buildings and industrial—electricity demand would grow at a lower rate from 2020 to 2050 (2.2 percent) than the highest historical demand growth in history from 1975 to 2005 (2.6 percent), demonstrating that the potential demand growth is not unprecedented. In addition, California’s ability to rapidly add renewable energy capacity while both decarbonizing the electric grid and growing load was successfully accomplished through the 2010’s¹⁰.

Comment 5-6: The commenter states “Draft EA Assumes Infrastructure Projects Will Stay Within Existing Facility Footprint

⁹ Criteria Pollutant Emission Inventory Data | California Air Resources Board

¹⁰ Abhyankar, Nikit et.al., University of California, Berkeley, 2030 Report: Powering America’s Clean Economy, 2022 (web link: <https://energyinnovation.org/wp-content/uploads/2021/04/2030-Report-FINAL.pdf>, last accessed June 2022).

2022 State Strategy for the State Implementation Plan Response to Comments

Throughout the draft EA, CARB assumes that development of new or expanded facilities in response to the 2022 SIP measures would occur “in areas within existing footprints or in areas with consistent zoning.” This core assumption applies to mining-related impacts, construction impacts, impacts to tribal cultural resources, wildfire impacts, expansion of public services like utility electricity distribution lines, manufacturing of ZEVs and zero-emission equipment, battery recycling and refurbishing, and other impacts. What is not addressed is the physical footprint of needed charging and hydrogen fueling infrastructure, which will be needed at publicly accessible facilities as well as in-depot/at-residence to support ZEVs. Impacts from building out this infrastructure will be significant and will affect the environment, yet have not been considered in the draft EA at all.¹²

¹² In contrast, the Port of Long Beach did a comprehensive public charging study for its drayage fleets, with detailed assessment of physical footprint requirements, costs, and electricity/grid demand, among other impacts. See <https://www.businesswire.com/news/home/20211006005088/en/New-Study-Shows-a-Rapid-Increase-of-Diesel-Fueled-Backup-Generators-Across-California>.”

Response to Comment 5-6: The comment is incorrect in its assertion that the Draft EA does not disclose potentially significant effects from the construction and operation of new infrastructure to support zero-emission technologies. Throughout the Draft EA these impacts are identified and disclosed. For instance, on page 48 of the Draft EA, the discussion of aesthetic impacts states that “[d]evelopment of new facilities for the manufacture of zero- and near-zero emission vehicle-related equipment and infrastructure would be expected to occur in areas appropriately zoned; however, such facilities could conceivably introduce or increase the presence of visible artificial elements (e.g., heavy-duty equipment, new or expanded buildings, electric charging and hydrogen fueling stations) in areas of scenic importance, such as visibility from State scenic highways.” This narrative is consistent throughout the Draft EA and potential adverse impacts to aesthetics, air quality, biological resources, agriculture and forestry, cultural and tribal resources, hazards, noise and vibration, and transportation and traffic were identified. No edits to the Draft EA are required in response to this comment as impacts related to the construction and operation of new EV infrastructure have been disclosed. No further response is required.

Comment 5-7: The commenter states “Draft EA Assumes Total Heavy-Duty Vehicle Population Will Decrease Over Time”

Although the draft EA does not present CARB assumptions about changes in the number of heavy-duty vehicles operating in California, data shared with the California Energy Commission for demand forecasting purposes seems to indicate that CARB staff assume the total population of vehicles will decrease as compared to the reference scenario (i.e., baseline conditions). That is, CARB assumes that ZEVs will ship more than their combustion counterparts; therefore, fewer vehicles will be needed for the same share of goods movement. CCEEB questions this assumption, especially given reduced payload capacities for battery electric vehicles. Moreover, assumptions about lower downtime for repairs and maintenance have not been substantiated by real-

2022 State Strategy for the State Implementation Plan Response to Comments

world studies, and in most applications, there are no or insufficient numbers of heavy-duty ZEVs deployed to provide any data. Indeed, lessons learned from early adopters and pilot projects indicate that more than one ZEV is needed to replace a single combustion-powered vehicle, suggesting that the total population of heavy-duty vehicles would need to increase over time to handle the same amount of goods movement. More trucks could mean more particulate matter from road dust and tire wear, which has not been evaluated, as well as increased noise and congestion from roadways and vehicular transportation corridors.”

Response to Comment 5-7: Staff disagrees with this comment. Staff cannot respond to the comment about data shared with CEC for forecasting purposes because the data being referenced is neither cited, nor adequately described in the commenter’s letter.

Staff analyses are typically based on the EMFAC model when forecasting on-road vehicle emissions. The projections typically use the exact same mileage and population criteria for both baseline conditions and projected scenarios, which show significant growth in vehicle population and vehicle miles travelled. For example, for the draft ACF regulation, a statewide vehicle population forecast of scenarios were recently published in the Advanced Clean Fleets Standardized Regulatory Impact Assessment (SRIA) and demonstrates that CARB expects an increase in the Class 2b-8 vehicle population and vehicle miles travelled in both the baseline and in the scenarios evaluated. Figure 11 in the SRIA shows that the medium- and heavy-duty vehicle population, consisting of ZEVs and ICE vehicles, is estimated to increase from about 1.8 million vehicles in 2024 to about 2.4 million vehicles in 2050. In addition, Figure 10 of the SRIA shows that the High Priority and Federal fleet population, which is primarily made up of heavy-duty vehicles, is expected to increase from about 380,000 vehicles in 2024 to about 620,000 vehicles in 2050.

Comment 5-8: The commenter states “A Multi-Technology Pathway Should Have Been Considered for the Alternatives Assessment

In October 18, 2021 comments to the Board on the Mobile Source Strategy, CCEEB asked that a multi-technology pathway be considered in the draft EA alternatives assessment for the 2022 SIP. CCEEB and others had previously raised the near-term benefits of a more nuanced, multi-technology approach to CARB, including work done by the Center for Environmental Research and Technology at the University of California, Riverside,¹³ as well as comments to CARB from the South Coast Air Quality Management District about the need for near-term actions.¹⁴ We are disappointed that no effort was made by CARB staff to incorporate any of these points or emissions analyses into the alternatives assessment. Again, we reflect back on statutory language of intent for CEQA review, and find the draft EA unfortunately lacking.

¹³ See Arun S.K. Raju, Barry R. Wallerstein, Kent C. Johnson, “Achieving NOx and Greenhouse gas emissions goals in California’s Heavy-Duty transportation sector,” Transportation Research Part D:

2022 State Strategy for the State Implementation Plan Response to Comments

Transport and Environment, Volume 97, 2021, 102881, ISSN 1361-9209,
<https://doi.org/10.1016/j.trd.2021.102881> .

14 See, for example, the May 14, 2021 SCAQMD letter to Executive Officer Corey on the Revised Draft 2020 Mobile Source Strategy. Accessed online via https://ww2.arb.ca.gov/sites/default/files/2021-05/6-SCAQMD_Comment_RevisedDraft2020MobileSourceStrategy.pdf#page=2."

Response to Comment 5-8: Please see Response to Comment 2-2 for an explanation of CARB's statutory requirements under its certified regulatory program and CEQA, as well as additional text added to the Draft EA dismissing this alternative. No further response is required.

Comment 5-9: The commenter states "CCEEB appreciates the work that staff has done in developing the proposed 2022 SIP and its efforts to engage with stakeholders and agency partners like the SCAQMD and San Joaquin Valley Air Pollution Control District. CCEEB also recognizes CARB's need to conduct legally defensible CEQA impact assessments for its programs and rules, as well as the expertise of its legal counsel and air planners responsible for these tasks. Our comments on the draft EA are not meant as a criticism on CARB staff or its work. Instead, we have tried to use our comments as an opportunity to raise important questions about tradeoffs and unintended consequences that we believe should be discussed by the Board, senior staff, and stakeholders across the spectrum of interests. CEQA, which was originally intended as the mechanism for these types of considerations and policy debates, does not seem to be as useful for such purposes anymore, and the draft EA appears more perfunctory than thought provoking.

CCEEB will continue to look for ways to engage with CARB and all interested parties to have these discussions and find space to explore and (hopefully) solve implementation challenges. For example, we were encouraged by the recent series of infrastructure work group meetings held in support of the Advanced Clean Fleet rulemaking. While these meetings have only started the conversation about ZEV infrastructure, they reflect what we hope is a genuine desire at CARB to have substantive discussions and to look for innovative ways to explore complex issues with the public. For now, we recommend that CARB think seriously about reinstating its Air Almanac and updating the statewide emissions inventory, and that CARB continue to facilitate multi-agency discussions on infrastructure and energy challenges that will come from implementation of the 2022 SIP.

If you have any questions or wish to discuss these concerns further, please contact CCEEB's Air Project Regulatory Manager, Jon Costantino with Tradesman Advisors at jon@tradesmanadvisors.com. Thank you."

Response to Comment 5-9: This comment is conclusory in nature. See responses to the comment made above for additional information about specific issues referenced in this comment letter. No further response is required.

Comment Letter 6

3/15/2022

Kevin Barker
SoCalGas

Comment 6-1: The commenter states “Southern California Gas Company (SoCalGas) appreciates the opportunity to provide comments on the California Air Resources Board (CARB) Draft Environmental Analysis (Draft EA) for the Proposed 2022 State Strategy for the State Implementation Plan (Draft 2022 State SIP Strategy) released March 29, 2022. We recognize and appreciate the effort put into evaluating the potential significant impacts on the environment due to the implementation of the Draft 2022 State SIP Strategy measures. SoCalGas supports the implementation of policies to reduce emissions from State-regulated sources, however it is imperative that ozone attainment and air quality policies, especially those adopted for widespread implementation and with equally widespread effects, be developed with a thorough and fact-based understanding of prospective benefits, consequences, and results. Thus, our comments consider these reasonably foreseeable impacts of the Draft 2022 State SIP Strategy: (1) Zero emissions standards may increase diesel backup generator use which could offset benefits gained from proposed measures; and (2) Zero-emission heavy-duty vehicles will reduce exhaust emissions from combustion but could increase vibrations and non-exhaust emission.”

Response to Comment 6-1: This comment is introductory in nature. See responses to the comment made below for additional information about specific issues referenced in this comment letter. No further response is required.

Comment 6-2: The commenter states “(1) **Zero emissions standards may increase diesel backup generator use which could offset benefits gained from proposed measures**

The Draft EA states that “implementation of the 2022 State SIP Strategy would minimize criteria air pollution to meet the national ambient air quality standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) both regionally and statewide” and concludes that, for these reasons, long-term operational-related air quality impacts would be beneficial.¹ Yet, the Draft 2022 State SIP Strategy is clear that reductions estimated from the measures identified and quantified to date for proposal in the 2022 State SIP Strategy are not enough to attain the 70 ppb ozone standard in the South Coast.² Given that the South Coast may not reach attainment, it is crucial that the analysis of long-term operational-related air quality impacts from the proposed zero emission standards account for reasonably foreseeable impacts of implementing the various measures. One of the impacts that is not accounted for in the Draft EA is the air quality impacts from the increased use of diesel backup generators during public safety power shutoff (PSPS) events and other related reliability events.

2022 State Strategy for the State Implementation Plan Response to Comments

Power outages, especially those that are long-duration and system-wide, are costly and affect millions of Californians. For example, in October 2020 a large-scale power outage in Northern and Central California impacted 2.7 million people and cost \$2.5 billion.³ In response to the need for reliable power, diesel-fired generation is growing at a rapid pace in California. According to a recent analysis, there are 14,785 back-up generators (BUGs) capable of generating 7.3 GW of power in the South Coast Air Basin.⁴ Since April 1, 2020, the South Coast Air Quality Management District (AQMD) has seen a 22 percent increase (3,331 units) in permitted BUGs, which collectively have the potential to emit an estimated 37.8 MT of volatile organic compounds and 645.56 MT of NO_x.⁵ The South Coast AQMD estimated that during a 2019 Public Safety Power Shutoff (PSPS) event in Los Angeles and San Bernardino Counties, fewer than 2,000 diesel back-up generators emitted 6 tons of NO_x per day (tpd). This is higher than average daily emissions from the largest refinery in its jurisdiction.⁶ In areas that are prone to these PSPS events, operation of these generators could produce NO_x emissions that offset benefits gained from proposed control measures such as the 5.8 tpd expected emissions reductions of NO_x from the Zero Emission Standard for Space and Water Heaters⁷.

The scope of review under the California Environmental Quality Act (CEQA) is not confined to “immediate effects but extends to reasonably foreseeable indirect physical changes to the environment.”⁸ The CEQA Guidelines define and provide examples of reasonably foreseeable indirect changes to the environment, which are not immediately related to the project, but which are caused indirectly by the project. For instance, the increase in air pollution as an indirect impact caused by the construction of a new sewage treatment plant which may facilitate population growth in the service area due to the increase in sewage treatment capacity.⁹ While environmental assessments for broad programs such as the Draft 2022 State SIP Strategy are not required to be as detailed as specific projects, lead agencies are nevertheless required by CEQA to analyze such reasonably foreseeable significant environmental effects of the project and should not defer such analysis to a later tier environmental impact report or negative declaration.¹⁰ The air quality impacts from the increased use of diesel backup generators could increase as more energy demand is met with electricity, making more load vulnerable to PSPS and other reliability events and, as discussed above, it is a fact that the increasing diesel back-up generator use is causing adverse environmental impacts. It is, thus reasonably foreseeable that, in order to for customers to reliably provide electricity for their load, back-up generator installations will proliferate. The impacts of this policy should include calculating the anticipated emissions resulting from back-up generator use, including potential episodic ozone precursor emissions that detract from attainment progress

¹ Draft Environmental Analysis for the Proposed 2022 State Strategy for the State Implementation Plan, pg. 58.

² Draft 2022 State Strategy for the State Implementation Plan, pg. 38.

³ Stevens, P., “PG&E power outage could cost the California economy more than \$2 billion,” CNBC, October 10, 2019, available at: <https://www.cnbc.com/2019/10/10/pge-power-outage-could-cost-the-california-economy-more-than2-billion.html>.

2022 State Strategy for the State Implementation Plan Response to Comments

- ⁴ See M. Cubed, "Diesel Back-Up Generator Population Grows Rapidly in the Bay Area and Southern California," Available at <https://www.bloomenergy.com/wp-content/uploads/diesel-back-up-generator-population-grows-rapidly.pdf>.
- ⁵ Ibid.
- ⁶ See SCAQMD Legislative Update Presentation by Philip Crabbe to the Environmental Justice Community Partnership Advisory Council held September 2, 2020, available at <http://www.aqmd.gov/home/news-events/webcast/live-webcast?ms=0U9KfvvcV3w>.
- ⁷ Draft 2022 State Strategy for the State Implementation Plan, pg. 39.
- ⁸ California Unions for Reliable Energy v. Mojave Desert Air, 178 Cal.App.4th 1225, 1242 (2009).
- ⁹ Union of Medical Marijuana Patients, Inc. v. City of Upland, 245 Cal.App.4th 1265, 1272-73 (2016).
- ¹⁰ CEQA Guidelines at Section 15152(b)

Response to Comment 6-2: Guidance on evaluation of energy impacts in CEQA Guidelines Section 15126.2(b) states that the "analysis is subject to the rule of reason and shall focus on energy use that is caused by the project." It is foreseeable that implementation of the 2022 State SIP Strategy, among other regulatory mechanisms such as the Renewable Portfolio Standard overseen by the California Energy Commission (CEC), the California Public Utilities Commissions (CPUC), and utilities throughout the state; Senate Bill (SB) 32; and guidance developed by local air districts, would induce electricity and hydrogen demand and change the composition of the electrical grid as the state continues to pursue its long-term GHG reduction goals of carbon neutrality by 2045. However, given CEQA does not require energy use forecasting, it is not necessary for the 2022 State SIP Strategy to project if there is sufficient supply of electricity overall.

CARB disagrees with the commenter's assertions about the use of back-up generator (BUG) system. BUG systems are not expected to be used by most ZEV fleets because PSPS events are frequently of limited duration and would only present an operational risk if power is unavailable for more than a day. The daily needs of most vehicles are well below 100 miles per day such that a given BEV could operate more than one day without charging. This would be similar to ICE vehicles because most gasoline and diesel fueling stations do not have backup generators and cannot operate during PSPS events. Similarly, electric CNG fueling station compressors cannot work during PSPS events unless they have diesel back-up systems with the same pollution issue the commenter suggests and combustion powered compressors have emissions on a daily basis.

Staff recognizes there still could be some potential air quality impacts associated with any increase in the use of BUGs and back-up systems as more energy demand is met with electricity.

CARB recently conducted an analysis identifying the emissions impact from additional generator usage associated with the PSPS events (which are planned grid outages designed to mitigate fire hazards) that occurred in October of 2019. The assessment identified that 806 PSPS events impacted almost 973,000 customers (or 7.5% of

2022 State Strategy for the State Implementation Plan Response to Comments

households in California) and resulted in excess BUG emissions of 166 tons of NO_x and 19 tons of PM.

Nevertheless, analysis has demonstrated that the overall impact of additional load on the grid due to rapid electrification may be modest. For example, by 2035, full vehicle electrification would add less than 15 percent to the summer peak load with heavy-duty electrification representing half of that amount. Under full national electrification scenarios—including transportation, buildings and industrial—electricity demand would grow at a lower rate from 2020 to 2050 (2.2 percent) than the highest historical demand growth in history from 1975 to 2005 (2.6 percent), demonstrating that the potential demand growth is not unprecedented. As noted in the Advanced Clean Cars II Regulation Response to Comments, historically, the state’s electric grid has expanded and evolved as consumer demand for electricity services has grown, including with the recent emergence of electric vehicles. California’s existing grid and approved investments being undertaken now will allow the state to handle millions of electric vehicles in the near-term, and projections show the broader western grid can handle up to 24 million electric vehicles without requiring any additional power plants.¹¹ In addition, California’s ability to rapidly add renewable energy capacity while both decarbonizing the electric grid and growing load was successfully accomplished through the 2010’s.

As also noted in the ACC II rulemaking, California’s electric grid is in a period of transition, with several thousand megawatts of firm and dispatchable resources currently slated to be retired over the next few years, including gas-fired facilities through cooling coastal power plants and potentially the Diablo Canyon Nuclear Power Plant. At the same time, the State continues to rapidly expand deployment of renewables and plan for greater electrification – which, paired with the clean electricity grid target established under The 100 Percent Clean Energy Act of 2018, SB 100,– is designed to help achieve carbon neutrality no later than 2045. Because the State is proposing to lean heavily on the electricity sector to transition away from fossil fuels in the transportation, buildings, and industrial sectors, the demand for electricity will be increasing between now and 2045. This load increase must be supported by sustained and significant build-out of electricity infrastructure in the form of generation, energy storage, and transmission and distribution infrastructure. At the same time, the integration of greater amounts of variable renewable resources (e.g., wind and solar photovoltaic) and the increasing and unpredictable extreme-weather impacts of climate change mean that strategies for ensuring grid reliability are also needed. New dispatchable capacity, energy storage, and other zero-carbon resources, as well as demand-side management through measures like requirements for greater building

¹¹ Response to Comments on the Draft Environmental Analysis Prepared for the Advanced Clean Cars II Program (Aug. 24, 2022), p. 7. Available at: <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acii/acciirtc1.pdf>.

2022 State Strategy for the State Implementation Plan Response to Comments

and appliance energy efficiency, can be utilized to maintain reliability with high concentrations of renewables.¹²

Electric vehicles (EV) have the potential to serve as secondary storage to help with curtailment where additional demand can absorb excess grid capacity. Work is ongoing to support the development of vehicle to load or back feeding into the grid. The recent CPUC Decision 20-06-017 has potential to build support for distributed generation using localized microgrids that provide resiliency during power loss events, such as PSPS events and other declared emergencies.

California has approved changes to grid connection rules that will open the door for the interconnection of EVs with two-way charging capabilities to the grid. This vehicle-to-grid concept will allow ZEVs to turn into 'virtual power plants', where ZEVs would store and dispatch electrical energy stored in networked vehicle batteries which together act as one collective battery for 'peak shaving' (sending power back to the grid when electricity demand is high) and 'valley filling' (charging at night when demand is low). This will also help during a power outage or emergency, as ZEVs could also work as mobile power stations or backup power stations. For example, the F-150 Lightning and its Intelligent Backup Power, can automatically kick in to power a house if the electricity goes out. Once power is restored, the truck automatically reverts to charging its battery. Based on an average 30 kWh of use per day, a fully charged F-150 Lightning with extended-range battery provides full-home power for up to three days. These vehicles also have the ability to be used as a portable workstation that also powers worksite tools and appliances and could result in decreased generator use at work sites. The potential for vehicle-to-grid technology, where vehicles can support electricity load, hold the promise to support grid resiliency in the future.

The State's process to plan for future electricity demand is robust. CPUC has a comprehensive Long-Term Procurement Planning process that evaluates electricity needs on a ten-year time horizon and then authorizes the procurement. The process evaluates reliability needs of the overall electric system, local reliability needs specific to areas with transmission limitations, and flexibility needs like the resources required for renewable energy integration. These efforts are expected to reduce the need for and use of diesel back-up generators

Since analysis has demonstrated that additional load will be modest, ZEVs have the potential to turn into "virtual power plants", and policies to improve grid resiliency and reliability are being undertaken; CARB anticipates that excess emissions from additional usage of BUGs to meet future electricity demand associated with ZEV expansion, particularly from PSPS events, are small or are unlikely to be significant.

¹² *Id.*

Comment 6-3: The commenter states “(2) Zero-emission heavy-duty vehicles will reduce exhaust emissions from combustion but could increase vibrations and non-exhaust emissions.

The draft EA states that “the main purpose of the 2022 State SIP Strategy is to reduce mobile source emissions of criteria air pollutants to improve air quality and attain the NAAQS”.¹¹ This is evident from the numerous ZEV standards proposed in the Draft 2022 State SIP Strategy. However, currently plug-in technologies cannot replace conventional fast-fuel technologies at a one-to-one ratio, especially for heavy duty vehicles. In fact, a 2020 study found that 19 diesel drayage trucks would have to be replaced by 36 zero-emission (ZE) drayage trucks.¹² This means that deploying proposed zero emissions truck measures would significantly increase fleet sizes. For instance, the South Coast has 17,000 drayage trucks operating, replacing these trucks with ZE trucks, at a 19:36 ratio, would require 32,211 ZE trucks.¹³ It is reasonably foreseeable that an 89% increase in fleet size due to the ZEV transition would increase traffic congestion, vibration and could increase non-exhaust particle emissions, yet such impacts were not considered in the Draft EA.

These impacts should be evaluated in the Draft EA as evidence shows that particulate matter (PM) emissions have significant implications for human health. Non-exhaust particle emissions from road traffic consist of airborne PM generated by the wearing down of brakes, clutches, tires, and road surfaces, as well as by the suspension of road dust. In a recent study, Emissions Analytics, an organization that conducts independent emissions tests, found that emissions of particulate matter from tire wear can be 1,000 times worse than from tailpipes and the increased weight and torque drive characteristics of battery electric cars are expected to increase tire emissions.¹⁴ Due to the weight of the battery, ZEVs with battery packs enabling a driving range of 300 miles or higher emit an estimated 3-8% more PM_{2.5} than internal combustion engine vehicles.¹⁵ Studies have established that exposure to non-exhaust PM emissions, particularly PM_{2.5}, is associated with an increased risk of cardiovascular, respiratory, and developmental conditions, as well as an increased risk of overall mortality.¹⁶

Provided that the increased weight of battery powered ZE trucks will increase tire emissions and the fact that currently ZEVs cannot replace diesel trucks on a one-to-one basis it is reasonably foreseeable that a complete transition to ZE heavy-duty trucks would increase traffic congestion and vibrations and could increase non-exhaust emissions. As such, the Draft EA should evaluate these environmental impacts associated with the expansion in the population of heavy-duty ZE trucks, which will be required to move goods at the same rate as combustion vehicles, due to the proposed zero emissions trucks measures.

¹¹ Draft Environmental Analysis for the Proposed 2022 State Strategy for the State Implementation Plan, pg. 58.

2022 State Strategy for the State Implementation Plan Response to Comments

- ¹² Genevieve Giulliano, Maged Dessouky, et al., *Developing Markets for ZEVs in Short Haul Goods Movement*, UC Davis: National Center for Sustainable Transportation, 2020, available at <https://escholarship.org/uc/item/0nw4q530>.
- ¹³ See “Near-Zero Emission Natural Gas Truck Technology Proven Ready for the Rigors of Port Drayage Operations,” Available at <https://www.aqmd.gov/docs/default-source/news-archive/2020/CNGVP-port-drayage-operations-may28-2020.pdf>
- ¹⁴ See “Tyres Not Tailpipe,” Available at <https://www.emissionsanalytics.com/news/2020/1/28/tyres-not-tailpipe>
- ¹⁵ See “Non-exhaust Particulate Emissions from Road Transport,” Available at <https://www.actu-environnement.com/media/pdf/news-36643-rapport-ocde-emissions-hors-echappement.pdf>
- ¹⁶ Ibid.”

Response to Comment 6-3: The comment’s assertion that vibration impacts would occur from the transition to an electric vehicle fleet relies on the notion that future EVs will continue to be heavier than internal combustion engine vehicles (ICEVs). While EVs are significantly heavier, EVs are constructed differently than ICEVs. The batteries of EVs are located at the base of the vehicle, which distributes the vehicle’s weight more evenly when compared to an ICEV thus reducing the vibration generated by the vehicle (Vibration Research 2022). The comment also asserts that the future vehicle fleet will increase in size to accommodate the same output performed by ICEVs. Staff disagrees with the premise of this comment because it assumes an overnight transition to ZEVs which is not realistic.

The commenter’s basis appears to be an estimated 89% increase in fleet size due to ZEVs replacing conventional vehicles greater than a one-to-one ratio resulting in more traffic congestion, vibration, and non-exhaust PM emissions (from brake and tire wear) as if the fleet would be replaced overnight. However, the commenter does not consider that the draft ACF regulation and ZE truck measures would be phased in over more than 2 decades. Specifically, SB 1 guarantees conventional vehicles a minimum useful life between 13 to 18 years before they are required to be replaced with ZEVs. In addition, the ZEV milestone schedule in the draft ACF regulation provides fleet owners with flexibility to begin the transition to ZEVs for the trucks that are best suited for their operation. The schedule is also phased in with ZEV suitability in mind. For example, the first ZEV milestone requirements start in 2025 for 10 percent of the group 1 vehicles that are already available as ZEVs today. These vehicles include yard tractors, box trucks, buses and vans which generally have stable routes and return-to-base operations, such as last mile delivery. These vehicles have daily ranges well below 150 miles without compromising payload capacity. Other vehicle types such as day cab tractors and work trucks would phase-in ZEVs starting at 10 percent of the vehicles in 2027. Finally, specialty truck and sleeper cab tractor phase-in requirement start in 2030. By this time ZEV technology is expected to have advanced to the point that range, and vehicle weight are no longer barriers. In the event there are barriers to deploying ZEVs, the regulation also includes a number of provisions to address likely uncommon situation where ZEVs may not be commercially available or a ZEV is unable to meet the daily usage needs of a fleet, among other provisions.

2022 State Strategy for the State Implementation Plan Response to Comments

The EMFAC model includes non-exhaust emissions from brake wear in regulatory analyses to demonstrate impacts of the Proposed 2022 State SIP Strategy. Recent analysis from CARB’s Standardized Regulatory Impact Assessment (SRIA) for the proposed ACF regulation describes the benefits of medium and heavy-duty ZEV deployment. The SRIA shows that PM_{2.5} emissions are anticipated to result in cumulative reductions of about 9,000 tons from 2024 to 2050 for regulated medium- and heavy-duty vehicles ZEVs, with a significant portion attributed to non-exhaust emissions¹³. In addition, BEVs are inherently quieter than their conventional combustion counterpart, resulting in significantly lower vehicle vibration. In addition, less vibration in the truck cab results in reduced health impacts to truck drivers, including a reduction in “driver’s fatigue”.^{14, 15, 16}

When considering payload capacity, it is estimated that 88 percent of tractors never travel at maximum weight because their trailers will reach the volumetric capacity “cube out” before reaching weight capacity “gross out”, or because their routes and cargo patterns are not conducive to traveling with a full trailer¹⁷. The characteristics of drayage fleets show that these trucks generally travel a limited number of miles daily and then return to a home base. According to the I-710 Project Key-Performance Parameters for Drayage Trucks CALSTART 2013 survey, approximately 81 percent of drayage trucks that visit California’s seaports report most trip distances under 60 miles¹⁸. This is consistent with other studies that have found that most drayage trucking companies are located within 10 miles of the port complex¹⁹. In addition, Large Entity Reporting daily mileage data collected for Class 3-8 vocational trucks shows that 90 percent of trucks travel less than 150 miles a day and 78 percent travel less than 100 miles per day²⁰. As a result, existing data shows that currently available

¹³ California Air Resources Board, Advanced Clean Fleets Standardized Regulatory Impact Assessment, May 2022, weblink: https://dof.ca.gov/wp-content/uploads/Forecasting/Economics/Documents/ARB-ACF-SRIA_2022-05-18.pdf, last accessed July 2022)

¹⁴ Institute of Transport Economics, Experiences from Battery-Electric Truck Users in Norway, 2020 (web link: <https://www.mdpi.com/601754>, last accessed January 2022).

¹⁵ Bose Corporation, The impact of different seats and whole-body vibration exposures on truck driver vigilance and discomfort, 2017 (web link: <https://doi.org/10.1080/00140139.2017.1372638>, last accessed January 2022).

¹⁶ RAND Corporation, Evaluating the Impact of Whole-Body Vibration (WBV) on Fatigue and the Implications for Driver Safety, 2015 (web link: www.rand.org/t/rr1057, last accessed January 2022).

¹⁷ NACFE, Confidence Report: Lightweighting, 2021 (web link: <https://nacfe.org/wp-content/uploads/2021/02/Lightweighting-Confidence-Report-Feb2021.pdf>, last accessed March 2022).

¹⁸ CALSTART, Performance Parameters for Drayage Trucks Operating at the Ports of Los Angeles and Long Beach, 2013 (web link: https://calstart.org/wp-content/uploads/2018/10/I-710-Project_Key-Performance-Parameters-for-Drayage-Trucks.pdf, last accessed March 2022).

¹⁹ Port of Long Beach, Fueling the Future Fleet: Assessment of Public Truck Charging and Fueling Near the Port of Long Beach, 2021, (web link: <https://polb.com/download/379/zero-emissions/12744/final-polb-charging-study-12-sep-2021.pdf>, last accessed March 2022).

²⁰ California Air Resources Board, LER statewide aggregated data, 2022 (weblink: https://ww2.arb.ca.gov/sites/default/files/2022-02/Large_Entity_Reporting_Aggregated_Data_ADA.pdf, last accessed March 2022).

2022 State Strategy for the State Implementation Plan Response to Comments

BEVs with daily ranges up to 150 miles match well with expected Class 2b-8 vocational duty cycles without compromising payload.

Given that the simulated 2020 ZEV replacement ratio cited by the commenter does not consider the ZEV transition timelines including the SB 1 minimum useful life requirements, the ACF ZEV phase-in schedule, nor consider battery and fuel cell vehicle technology improvements the assumptions made by the commenter are misplaced.

Therefore, any impacts related to non-exhaust emissions and vehicle vibrations associated with an increase in ZEVs greater than a one-to-one replacement, if any increase exists, would be negligible at best and would be unlikely to increase traffic congestion nor the associated claim about vibrations.

The comment also states that, due to their weight, EVs produce 3-8 percent more fine particulate matter (PM_{2.5}) emissions from brake and tire wear when compared to ICEVs. EVs are equipped with regenerative braking technology, which recovers kinetic energy that typically is expelled as heat and converts it into electricity to power the vehicle's battery. Regenerative braking is common throughout all available EVs and plug-in hybrids and ultimately reduces the need for physical brakes, thus decreasing the potential generation of PM from brake wear when compared to ICEVs. A 2022 report also shows that, due to the longer lifespans of EV brake pads compared to ICEVs, EVs do not generate extensive non-exhaust PM_{2.5} to negate the reductions achieved by eliminating exhaust PM_{2.5} (RAC 2022).

No edits to the Draft EA are required in response to this comment. No further response is required.

Comment 6-4: The commenter states "We appreciate the effort put into identifying and disclosing the 2022 State SIP Strategy's potential significant impacts on the environment and the consideration of our comments. SoCalGas supports the implementation of air quality polices to achieve attainment but reiterate the need to look at the reasonably foreseeable impacts of the measures. CARB Staff has done an admirable job in developing a statewide implementation plan and we look forward to receiving and reviewing the actual measures when proposed. SoCalGas is committed to a collective, collaborative transition to cleaner energy, and appreciates a continued open and collaborative process among policymakers, stakeholders, and energy market participants to develop the solutions needed to achieve our shared goals."

Response to Comment 6-4: This comment is conclusory in nature. See responses to the comment made above for additional information about specific issues references in this comment letter. No further response is required.

B. Responses to Comments Received Outside the CEQA 45-Day Comment Period

As previously state above in section 1.0, on August 12, 2022 CARB posted a notice of public meeting for the CARB Board to consider adopting the Proposed 2022 State SIP Strategy. This notice also opened a comment docket for the Proposed 2022 State SIP Strategy, this comment period ran through September 12, 2022. Many of the environmental comments submitted during this comment period were previously submitted during the 45-day comment period on the Draft EA, and CARB provided comprehensive responses to those comments in section 2.0A above. To the extent those comments have already been addressed, responses will refer to answers already provided by CARB staff.

Comment Letter SIP-2

8/26/2022 Thomas Becker
 T Becker Power Systems

Comment SIP-2-1: This is a corrected version of a comment submitted earlier.

- 1- The SIP contains several strategies for reducing ground level ozone and other pollutants.
- 2- The SIP contains strategies, standards and regulations that have or will require a CAA 209(b) waiver from US EPA.
- 3- Two of those strategies that require EPA waivers are the ACC and ACC II regulations.
- 4- The emission reductions the state is achieving or wishes to achieve from the entire CAA 209(b) program, which includes the ACC and ACC II regulations, can be achieved without the CAA 209(b) program by replacing all current CAA 209(b) standards with applicable EPA standards, not implementing any new CAA 209(b) standards and reducing statewide VMT 30% from a 2019 baseline by 2030 and 55% by 2040. In other words, the entire CAA 209(b) program is no longer needed.
- 5- As part of the state's SIP review/update, I am submitting an alternative to the entire CAA 209(b) waiver program. I request CARB staff prepare an analysis comparing the emission reductions achievable from all current and proposed CAA 209(b) strategies to the alternative found in in comment #4. This request is made pursuant to CEQA requirements, as well as EPA requirements under CAA 209(b)(1).

Response to Comment SIP-2-1: The comments submitted were not timely submitted during the noticed 45-day CEQA comment period. However, for transparency CARB staff provide the following response:

2022 State Strategy for the State Implementation Plan Response to Comments

The comment states this submission is a corrected version of a comment submitted earlier. CARB was unable to identify a comment in the 45-CEQA comment period or in either the informal or formal Proposed 2022 State SIP Strategy comment period any comment from this commenter or any comment raising similar alternatives.

The comment requests CARB consider an alternative that replaces measures requiring a 209(b) waiver – specifically, the Advanced Clean Cars II program – with a measure that consists of reducing VMT across the state by 30% by 2030 and 55% by 2040. The commenter requests CARB perform an analysis of this alternative under CEQA. However, this proposal is not an alternative to the proposed project, but rather specifically directed at eliminating the entire CAA 209(b) waiver program. The commenter did not provide any specifics about what this proposed alternative would entail, what requirements would be used to accomplish the objective, or how the proposed alternative would be structured or enforced within CARB’s jurisdiction. Therefore, it is unclear whether this alternative objective would be feasible. In addition, the suggested alternative objective does not meet the project objectives of either ACC II or the State SIP Strategy to reduce emission rates from vehicles or meeting the National Ambient Air Quality Standards. Relying on VMT reductions in lieu of ACC II to meet the National Ambient Air Quality Standards, may require a permanent or declining limit VMT because vehicular emissions and emission rates would likely increase in the absence of vehicle and engine emission standards, and thus would likely raise additional significant social and environmental impacts from compliance responses. VMT demand is also variable and a matter of individual choice, and a reduction of 30% by 2030 and 55% by 2040 would be much more impractical to measure and enforce against individuals than a vehicle and engine standard that all vehicle manufacturers must meet when they produce vehicles. In the context of ACC II and other zero-emission standards, reducing VMT without reducing vehicle emissions does not eliminate toxic emissions from liquid fuel production and use and there are no known safe exposure levels for toxics. Therefore, this proposal does not meet the project objectives of reducing the public health threat from exposure to toxic air contaminants. Therefore, reducing VMT across the state by 30% in 2030 and 55% in 2040 is neither feasible nor meets program objectives of the Proposed 2022 State SIP Strategy.

Furthermore, within Chapter 7 of the Draft EA CARB followed and complied with Section 15126.6 (c) of the CEQA Guidelines, which addresses the selection of a range of reasonable alternatives. “The range of potential alternatives to a proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency’s determination. Additional

2022 State Strategy for the State Implementation Plan
Response to Comments

information explaining the choice of alternatives may be included in the administrative record. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts.”

The remainder of this comment relates to aspects outside the scope of the Draft EA, therefore no further response required.

2022 State Strategy for the State Implementation Plan
Response to Comments

Comment Letter SIP-7

9/12/2022

Theresa L. Romanosky
Association of American Railroads

Comment SIP-7-1: The commenter resubmitted their May 13, 2022 comment letter previously submitted during the 45-day CEQA comment period regarding the Draft EA, identified above as Comment Letter 3.

Response to Comment SIP-7: The environmental comments submitted during the noticed comment period for the Proposed 2022 State SIP Strategy were previously submitted during the 45-day comment period on the Draft EA, and CARB provided comprehensive responses to those comments in section 2.0A above. Please see response to comments 3-1, 3-2, 3-3, 3-4, 3-5, 3-6 and 3-7.

REFERENCES

- California Air Resources Board. 2016. Technology Assessment: Freight Locomotives. Available: https://ww2.arb.ca.gov/sites/default/files/2020-06/final_rail_tech_assessment_11282016%20-%20ADA%2020200117.pdf. Accessed July 13, 2022.
- RAC. 2022. Do Electric Vehicles Produce More Tyre and Brake Pollution than Petrol and Diesel Cars? Authored by Dr. Euan McTurk, Plug Life Consulting, for the RAC March 2022. Available: <https://www.arb.ca.gov/lispub/comm2/bccommlog.php?listname=2022sss-draftea-ws>. Accessed July 13, 2022.
- Vibration Research. 2022. Comparison of Electric Vehicle and Internal Combustion Engine Vibration Analyses. Available: <https://vibrationresearch.com/resources/compare-electric-vehicle-internal-combustion-engine-vibration-analysis/>. Accessed July 13, 2022.