

**Response To Comments**  
on the  
**Draft Environmental Analysis**

Prepared for the  
**In-Use Locomotive Regulation**

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

**Released April 14, 2023  
to be considered at the  
April 27, 2023 Board Hearing**

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## Acronyms and Abbreviations

AB	Assembly Bill
ACP	Alternative Compliance Plan
AFMO	Alternative Fleet Milestone Option
BIL	Bipartisan Infrastructure Law
CARB or Board	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CEC	California Energy Commission
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission
Draft EA	Draft Environmental Analysis
DOT	U.S. Department of Transportation
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
EV	electric vehicle
GHG	greenhouse gas
ISOR	Initial Statement of Reasons
NO <sub>x</sub>	nitrogen oxide
PM	particulate matter
PRC	Public Resources Code
SB	Senate Bill
U.S.	United States

WSA	Water Supply Assessment
ZEV	zero-emission vehicle

## 1.0 Introduction

The California Air Resources Board (CARB) released a Draft Environmental Analysis (Draft EA) for the In-Use Locomotive Regulation, herein referred to as the Proposed Regulation (i.e., the proposed project under the California Environmental Quality Act (CEQA)) on September 23, 2022, for a 45-day public review and comment period that closed at the end of November 7, 2022. CARB received 38 comment letters during that period. In addition, 7 written and many verbal comments were received at a public hearing on November 18, 2022. Staff released 15-day changes to the Proposed Regulation on March 1, 2023, and the comment period on the proposed 15-day changes closed at the end of March 16, 2023. CARB received 13 comment letters during that period. CARB staff will be returning to the Board on April 27, 2023, for a final vote on the Proposed Regulation. Written comment letters received are provided on CARB's website at <https://ww2.arb.ca.gov/applications/public-comments?p=comm&s=bccommlog&l=locomotive22>.

CARB staff carefully reviewed all comment letters received into the rulemaking record and at the public hearing on November 18, 2022, to determine which ones raised significant environmental issues related to the analysis in the Draft EA. This document includes CARB staff's written responses to that subset of comments and will be provided to the Board for consideration prior to it taking final action on the Proposed Regulation, as amended through public input.

Although this document includes written responses only to those comments related to the Draft EA, all other comments received will be responded to in the Final Statement of Reasons for the Proposed Regulation. The public hearing notice and related rulemaking materials (i.e., Staff Report, Statement of Reason, and EA) for the Proposed Regulation are provided on CARB's website at <https://ww2.arb.ca.gov/rulemaking/2022/locomotive>.

### A. Requirements for Responses to Comments

These written responses to public comments on the Draft EA are prepared in accordance with CARB's certified regulatory program to comply with CEQA. CARB's certified regulations state, in pertinent part:

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

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

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.*
- (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 has prepared written responses to those comments that raise "significant environmental issues" associated with the proposed action, as

outlined in Title 17 CCR Section 60004.2(b)(3)(E). A total of 38 comment letters were submitted electronically on or before November 7, 2022, to the comment docket set up for the Proposed Regulation and its appendices, including the Draft EA. In addition, a total of 7 electronically submitted, written comment letters were submitted at the November 18, 2022, public hearing, as well as many verbal comments. In addition, staff released 15-day changes to the Proposed Regulation on March 1, 2023, and the comment period on the proposed 15-day changes closed at the end of March 16, 2023. CARB received 13 comment letters during that period. Out of the 58 total written comment letters and many verbal comments received, 12 comment letters and 4 verbal comments were determined to include comments raising significant environmental issues related to the Draft EA and requiring a written response under CARB's certified regulatory program and CEQA. CARB staff was conservative and inclusive in determining which comments warranted a written response and even included comments that did not mention the analysis included in the Draft EA but did raise an issue related to potential adverse environmental impacts related to the Proposed Regulation.

This document provides responses to the comments that CARB staff determined raise significant environmental issues related to the Draft EA. All other comments received will be responded to in the Final Statement of Reasons for the Proposed Regulation, and all comments were taken into consideration when CARB staff returned to the Board for their final consideration at the April 27, 2023, Board hearing. All comment letters received, including those not responded to in this document are located at: <https://ww2.arb.ca.gov/applications/public-comments?p=comm&s=bccommlog&l=locomotive22>.

CARB acknowledges that a majority of the comments received were related to the economic impact the Proposed Regulation would have on locomotive operators. The Draft EA is not meant to address economic, social, or financial issues associated with the Proposed Regulation. Rather, the purpose of CEQA and the Draft EA is to fully analyze and mitigate the Proposed Regulation'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, these comments are acknowledged for the record and have been reviewed by CARB staff prior to returning to the Board for final consideration.

## 2.0 Responses to Comments

The comment letters responded to in this document were coded by the order in which they were received, consistent with the comment docket opened for the Proposed Regulation. As stated above, a list of all the comment letters received, including those not responded to in this document are located at: <https://ww2.arb.ca.gov/applications/public-comments?p=comm&s=bccommlog&l=locomotive22>. Table 2-1 provides the list of comment letters that contain substantive environmental comments received during the 45-day comment period, no comments raising new substantive environmental concerns were received during the 15-day comment period. Responses are provided to the comments in this document that CARB staff determined raise significant environmental issues related to the Draft EA and require a response under CARB’s certified regulatory program and CEQA. As previously explained, CARB staff was conservative and inclusive in determining which comments warranted a written response and even included comments that did not mention the analysis included in the Draft EA but did raise an issue related to potential adverse impacts related to the Proposed Regulation. Verbatim excerpts of the comments and responses to these comments are provided below.

In addition to the environmental comments addressed in this document, CARB staff will be responding to all other comments received, including those received at the second Board Hearing, in the Final Statement of Reasons. All comments received at the November 18, 2022, hearing and during the 45-day comment period and the 15-day comment period are part of the rulemaking record and were provided to Board members for their full consideration before acting on the Proposed Regulation, which will be considered during the April 27, 2023, Board Hearing.

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

Comment Number	Date	Name	Affiliation
8	11/4/22	Tracy Alves	Modesto And Empire Traction Company
10	11/4/22	Jeffrey Dunn	Metrolink
11	11/4/22	Michael Pimentel	California Transit Association
15	11/7/22	Brian Schmidt	San Joaquin Joint Powers Authority
19	11/7/22	Anthony Molina	California Grain and Feed Association
23	11/7/22	Theresa Romanosky	Association of American Railroads
24	11/7/22	Alexis Leicht	Orange County Transportation Authority
25	11/7/22	Paul Beard	Fisher Broyles on behalf of California Short Line Railroad Association (CSLRA)
30	11/7/22	Joanne Parker	Sonoma-Marin Area Rail Transit (SMART)
31	11/7/22	Sarah Yurasko	American Short Line and Regional Railroad Association (ASLRRA)
33	11/7/22	Steve Roberts	Rail Passenger Association of California and Nevada
H2	11/18/22	Chuck Baker	ASLRRA
PH-1	11/18/22	Chuck Baker	ASLRRA

Comment Number	Date	Name	Affiliation
PH-2	11/18/2022	Donald Norton	California Short Line Association
PH-3	11/18/2022	Tracy Alves	Modesto and Empire Traction Company
PH-4	11/18/2022	Steve Birdlebough	Self

**A. Master Responses**

The following Master Responses address recurring themes within the comments listed in Table 2-1. Master Responses are also cross-referenced within the individual responses, where applicable.

**1. Master Response 1: Increased Mode Shift to Trucks and Passenger Vehicles**

**Comment:**

Numerous comments were made during the Draft EA comment period related to increased mode shift to trucks and passenger vehicles. Commenters expressed that the Proposed Regulation would increase costs, thereby reducing locomotive freight and passenger rail service. Commenters contend that the mode shift would result in additional truck and vehicle traffic on highways and roadways, which in turn increases vehicle collisions and results in other safety concerns.

**Response:**

As noted in the Initial Statement of Reasons (ISOR), 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 did not find empirical research that focused on the impact of regulatory costs on freight diversion or mode shifts from freight 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. Transportation costs are only one of many factors determining the freight mode choice. Other 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. To date, the available data and research has been insufficient to quantify the potential effects of the Proposed Regulation regarding freight diversion or mode shift to trucks. According to research conducted by staff, it appears that mode shift due to the Proposed Regulation is not likely for a few salient reasons:

- 1) Locomotive operators often have longstanding clients that value their proximity and ease-of-access to the railyard,
- 2) Locomotives are more cost-effective for long-haul transport,
- 3) Some bulk commodity deliveries can be less time-sensitive and therefore realize cost savings from freight rail, and
- 4) California's trucking industry is currently operating at capacity and is not expected to have additional capacity in the near-term.

Quantifying the potential for the Proposed Regulation to cause freight diversion or mode shift requires a detailed understanding of how increased regulatory costs would impact each cargo owner's use of a specific mode of transport. Alternatively, absent industry knowledge, assessing the potential for diversion or mode shift would require making inferences about what changes in freight rail uses were caused by cost changes, and requires an understanding of all factors that affect choice of rail over other modes of freight movement.

Additional to the key factors that are considered when picking a mode to move goods, there are some commodities that are just not suited for transport via truck. For example, freight rail is considered to have an advantage over other modes of transport when moving heavy or oversized freight over long distances. Also, freight rail may be superior for items that are or can be carried in bulk or that are not containerized. Some examples of goods best suited for transport by freight rail are products such as coal, lumber, and ore, whereas trucks may be better suited to transport cargo that is time-sensitive or high value over shorter distances. Trucks are utilized most often for lower weight commodities and freight rail transports heavier freight over longer distances. Specifically, rail may be the only feasible mode of transport for some freight commodities. This suggests that locomotive operators could pass through costs of the Proposed Regulation, especially where they have a distinct market advantage.

Lastly, there could be indirect competitive disadvantages to California businesses that depend primarily on freight rail transport. California producers and their products compete with producers and products from other states and nations. The extent and nature of that competition depend on commodity type. For example, some California products are differentiated by source or brand, such as Napa Valley wines, California raisins, or Tesla autos. Since customers may not see wines, raisins, or autos from elsewhere as suitable substitutes, differentiated products can often command a somewhat higher price and have a greater ability to absorb transportation cost differences without losing market share. Other California products dominate their industry due to production volume and are somewhat shielded from competition because other sources cannot satisfy the market demand. However, California products that are not differentiated by source or brand must compete on delivered price and reliability of supply. Some California businesses may therefore face increased competition to the extent that their product prices are affected by increased transport costs associated with the Proposed Regulation.

As directed by the Board at the November 18, 2022, Board Hearing staff collaborated with California's passenger operators to develop the Alternative Fleet Milestone Option (AFMO) (section 2478.8) that may be used in lieu of directly complying with the Spending Account and In-Use Operational Requirements. Operators who choose to comply with the Proposed Regulation by opting into the AFMO have added flexibility in when they procure and operate cleaner locomotive technologies. This additional timing flexibility would aid in an operator's ability to secure grant and other incentive funds as well as allow time for the effects the pandemic had on passenger operators to dissipate. The Alternative Compliance Plan (ACP) is another compliance option that adds flexibility and can be used in lieu of directly complying with the Spending Account and/or the In-Use Operational Requirements. The ACP provides flexibility in timing while offering a different regulatory structure than the AFMO. Both alternative options allow passenger operators to continue to provide essential transportation services without impacting operations and would not result in mode shift from passenger rail to personal vehicles or airplanes.

CARB anticipates California freight will continue growing in the future. To reduce emissions, all modes of transport will need to move towards zero-emission (ZE) technology, 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; however, CARB has made substantial progress toward reducing truck emissions and has mechanisms in place to move towards zero emission. Conversely, the 2021 CARB locomotive emissions inventory projects Tier 4 locomotives, the cleanest Tier described by U.S. EPA, will account for only about six percent of freight line haul activity in California in 2021.

In light of the information presented above, CARB does not expect that mode shift from freight or passenger rail to trucks and passenger vehicles is a reasonably foreseeable compliance response. Therefore, the Proposed Regulation would not be expected to reduce freight and passenger rail service or result in additional truck and vehicle traffic on highways and roadways, thereby increasing vehicle collisions and other safety concerns. For further discussion on the potential for mode shift under the Proposed Regulation, see Appendix B of the ISOR, Standardized Regulatory Impact Analysis.

## 2. Master Response 2: Grid-Related Energy and Infrastructure Limitations

### **Comment:**

Several comments were made during the Draft EA comment period related to concerns that the electrical grid and related infrastructure (i.e., charging stations) may not be capable of meeting the demand generated by an increase in ZE locomotive usage from implementation of the Proposed Regulation.

### **Response:**

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 Proposed Regulation, 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; the State Implementation Plan; and guidance developed by local air districts that recommend decarbonizing new development and use of electric vehicle (EV) chargers, may increase electricity and hydrogen demand, while dramatically reducing fossil fuel usage, 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.

As noted in the ISOR, the Proposed Regulation would increase the demand for electric charging infrastructure needed to support the use of ZE locomotives, ZE capable locomotives, or other ZE rail technologies. Additional installations of electric charging infrastructure would support the use of these technologies, as well as other advanced technology equipment and vehicles. The increased use of electric charging infrastructure will also increase the demand for electricity supplied by utility providers and help the State’s investor-owned utilities meet the goals of SB 350. SB 350 requires the State’s investor-owned utilities to develop programs to accelerate widespread transportation electrification with goals to reduce dependence on petroleum, increase the uptake of ZE technologies, help meet air quality standards, and reduce GHGs. The three large investor-owned utilities in the State, Pacific Gas & Electric, San Diego Gas & Electric, and Southern California Edison, have either proposed or have been approved to establish new business electricity rate options that make charging more affordable during certain times of the day. Although not required by SB 350, several publicly owned utilities have taken similar action. For example, Los Angeles Department of Water and Power and Sacramento Municipal Utility District have made ready charging infrastructure programs and new commercial rates for charging. The Proposed Regulation supports the utilities’ programs and the goals of SB 350 by increasing the number of ZE locomotives operating in the State to make use of these utility investments and rates, where feasible.

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. Several studies have shown no major technical challenges or risks have been identified that

would prevent a growing electric vehicle or equipment fleet at the generation or transmission level, especially in the near-term.<sup>1,2</sup> Additionally, based on historical growth rates, sufficient energy generation and generation capacity is expected to be available to support a growing electric vehicle and equipment fleet.<sup>3</sup>

State agencies and electric utilities have begun proactively planning for electrical distribution upgrades and new loads for electric vehicles and equipment, including those that would be part of the Proposed Regulation, via statewide energy system planning processes, including CEC's Integrated Energy Policy Report forecasting, California Independent System Operator transmission planning, and CPUC's Integrated Resource Plan - proceeding for ten-year grid enhancement strategies. CPUC has already approved utility investments for upgrading the electric grid along with electricity rate changes to fund those investments. CPUC opened a new proceeding to modernize and prepare the grid in anticipation of multiple distributed energy sources. With this new proceeding, CPUC aims to evolve grid capabilities to integrate distributed energy sources including electric vehicle and equipment 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.<sup>4</sup> 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.

The ZE requirements are phased in over one to two decades, providing time for planning infrastructure deployment, and would not occur overnight. Additionally, many sites already have some electrical capacity to support charging activity. Gradual transitioning to ZE operations will allow investments from recently enacted federal government legislation supporting the Infrastructure Investment and Jobs Act, also known as the "Bipartisan Infrastructure Law" (BIL). BIL provides approximately \$65 billion in investments to upgrade power infrastructure, creates a new Grid Deployment Authority, invests in research and development for advanced transmission and electricity distribution technologies, and promotes smart grid technologies that deliver flexibility and resilience. BIL also invests in

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<sup>1</sup> US DRIVE 2019, Summary Report on EVs at Scale and the U.S. Electric Power System. U.S. Driving Research and Innovation for Vehicle Efficiency and Energy Sustainability (DRIVE), 2019 (weblink: <https://www.energy.gov/sites/prod/files/2019/12/f69/GITT%20ISATT%20EVs%20at%20Scale%20Grid%20Summary%20Report%20FINAL%20Nov2019.pdf>, last accessed August 2022).

<sup>2</sup> Muratori et al 2021. Matteo Muratori et al, "The rise of electric vehicles—2020 status and future expectations," 2021 (weblink: <https://iopscience.iop.org/article/10.1088/2516-1083/abe0ad/pdf>, last accessed August 2022).

<sup>3</sup> California Air Resources Board 2022 (August). Public Hearing to Consider the Proposed Advanced Clean Fleets Regulation, Staff Report: Initial Statement of Reasons. (weblink: <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf>, last accessed January 2023).

<sup>4</sup> Ibid.



demonstration projects and research hubs for next generation technologies like advanced nuclear, carbon capture, and clean hydrogen.

State agencies, including the CEC, CPUC, and California Independent System Operator closely coordinate with CARB in forums such as the weekly Joint Agency Steering Committee. Through such forums, state agencies collectively monitor existing and upcoming regulations to support CEC development of the annual electric demand forecast in the Integrated Energy Policy Report, which is the basis of planning for the distribution grid, transmission grid, and generation infrastructure needed to meet regulatory requirements.

A resilient and reliable electric grid is the backbone for the smooth functioning of today's transportation sector (e.g., powering petroleum refineries, moving fuels along pipelines across the State, pumping fuel at gas stations, charging an EV) and will continue to be paramount for maximizing charging options in a future with many ZE vehicles and equipment. During a power outage, fuel pumps and ZE charging stations all lose power and are not able to function without intervention. During planned and unplanned power outages, charging ZE vehicles and equipment may be a challenge. However, in areas of the State most likely to experience a planned service power shutoff, charging stations are often backed up with stationary storage, batteries, and onsite generation. Further, the Proposed Regulation includes a temporary operating waiver due to emergency events including, but not limited to, fires, floods, earthquakes, embargoes, epidemics, quarantines, war, acts of terrorism, riots, strikes, or lockouts, which allows the operation of a locomotive that would otherwise be prohibited from operation in California under the Proposed Regulation.

Regarding the availability of ZE charging infrastructure, CARB is working in tandem with CEC to invest in the charging infrastructure and technologies needed to transition locomotives to ZE throughout the State through incentive programs. CEC and CARB are also supporting strategic regional planning efforts (i.e., Regional Transportation Plans/Sustainable Communities Strategies) to support adoption of ZE technologies. Pursuant to Assembly Bill (AB) 2127, CEC is required to publish a biennial report on the charging needs to support Executive Order N-79-20, which requires the State to transition to 100 percent zero-emission off-road vehicles and equipment by 2035, where feasible, and will adjust the level and degree of investments based on the reports' findings.

### 3. Master Response 3: Speculation is not Required

**Comment:**

Several comments were made during the Draft EA comment period stating that certain compliance responses were not too speculative to be evaluated in detail.

**Response:**

CEQA does not require evaluation of speculative impacts (Cal. Code Regs., tit. 14, § 15145). An environmental document is not required to speculate about the environmental consequences of future development that is unspecified or uncertain or where the design and siting details have not yet been established. Section I.B. on pages 8 and 9 of the Draft EA explains why it would be too speculative to analyze the impacts of certain compliance responses and specific locations for facilities and infrastructure that may be required to implement the Proposed Regulation.

The level of detail of impact analysis is necessarily and appropriately general because the Proposed Regulation is programmatic. The analysis is based on reasonably foreseeable compliance responses that are based on a set of reasonable assumptions. While the compliance responses described in this Draft EA are not the only conceivable ones, they are the reasonably foreseeable ones; thus, they provide a credible basis for impact conclusions that are consistent with available evidence. 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.

While the general locations of railyards and rail lines in California are known, decisions by the regulated entities regarding compliance options and locations are unknown. 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, §§ 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, § 15064(d)(3)). Attempting to predict decisions by entities regarding the specific location and design of infrastructure within or near railyards or other areas throughout the State, which involves extensive decision-making processes in response to implementation of the Proposed Regulation, is speculative given the influence of other business and market considerations in those decisions. Specific actions undertaken to implement the Proposed Regulation would undergo project-level environmental review and compliance processes as required at the time they are proposed.

The EA generally does not analyze site-specific impacts when determinations regarding the location of future facilities or other infrastructure would be speculative. However, the EA does examine regional (e.g., local air district and/or air basin) and local issues to the degree

feasible, where appropriate. As a result, the impact conclusions in the resource-oriented sections of Chapter 4, "Impact Analysis and Mitigation Measures," cover broad types of impacts, considering the potential effects of the full range of reasonably foreseeable actions undertaken in response to the Proposed Regulation.

Additionally, "a general response may be appropriate when a comment does not contain or specifically refer to readily available information...." (CEQA Guidelines, section 15088(c)). The commenters criticize CARB's CEQA analysis in a conclusory manner on the issue of compliance response speculation, but they do not present readily available information that would better inform the analysis of impacts associated with the Proposed Regulation. Commenters do not provide information of specific projects where there is no uncertainty as to the scope, siting, and design of the projects, all of which are bare minimum details for a proper evaluation of a project's impacts on the environment. CARB also does not have those details, without which CARB cannot conduct site-specific impact analyses. Therefore, a general response to these comments, which lack readily available information to better perform the impact analysis, is appropriate.

## B. Individual Comments and Responses on the Draft Environmental Analysis

### Comment Letter 8

11/3/2022

Tracy Alves

Modesto and Empire Traction Company

**8-1:** The commenter states, "Agricultural commodities ship primarily into an area, known as our transload, which receives between 9,000-10,000 annual units. This traffic is shipped via unit trains, 100+ cars, or manifest/single cars. If this number is converted to truck traffic, the number grows to 40,000 new, additional truckloads on the California highway system. The additional truck traffic adds to our already congested roads, needing taxpayer dollars to maintain."

**Response:** Please refer to Master Response 1. No further response is required.

**Comment Letter 10**

11/4/2022

Jeffrey Dunn  
Metrolink

**10-1:** The commenter states “The regulation as written risks unintended harm to the public by impacting Metrolink’s ability to operate a robust schedule of passenger rail service – with the potential unintended consequence of increasing transportation sector emissions and Vehicle Miles Travelled (VMT) across Southern California if our passengers turn to vehicles.”

**Response:** Please refer to Master Response 1. No further response is required.

**Comment Letter 11**

11/3/2022

Michael Pimentel  
California Transit Association

**11-1:** The commenter states, “the proposed regulation would proceed on a timeline that is faster than technology and market readiness and resource availability would permit, creating negative operational and financial impacts to rail service that would undermine the state’s ability to reduce vehicle miles traveled and that would create travel “leakage” to other modes, like personal automobiles and airplanes.”

**Response:** Please refer to Master Response 1. No further response is required.

**Comment Letter 15**

11/7/2022

Brian Schmidt

Capitol Corridor Joint Powers Authority, San Joaquin Joint Powers Authority, Los Angeles – San Diego – San Luis Obispo Rail Corridor Agency

**15-1:** The commenter states, “Requirements to purchase additional Tier-4 vehicles in the interim and their subsequent use across the vehicle’s useful life could represent a net increase in emissions over the ZE Strategy and would divert funding away from ZE pilot and procurement projects.”

**Response:** The Proposed Regulation would not require Tier 4 locomotives to be purchased prior to zero emission (ZE) locomotives. Staff encourages the commenter to continue with plans to go full ZE by 2035. Additionally, as directed by the Board at the November 18, 2022, Board Hearing, staff included an alternative compliance option that expedites fleet turnover to ZE (Alternative Fleet Milestone Option (AFMO)).

**15-2:** The commenter states, “We encourage CARB to restructure the emissions formula for passenger rail agencies to weight emissions by passenger. Under both the spending account and ACP scenarios, an agency that has increased service, even with Tier-4 vehicles, would show as increasing overall emissions. In some cases, an agency may be required to reduce their emissions to comply with the regulation by reducing service. This could have the unfortunate effect of increasing overall emissions as travelers use private automobiles for travel in lieu of the reduced train service.”

**Response:** Throughout the development of the Proposed Regulation, passenger operators have made it clear that setting aside funds into a Spending Account may be difficult due to passenger agencies’ funding structure. The Proposed Regulation includes both the Alternative Compliance Plan (ACP) and AFMO that can be used in lieu of directly complying with the Spending Account and In-Use Operational Requirements. With the added flexibilities of the ACP and AFMO, staff believes passenger operators can continue to operate without jeopardizing essential passenger services.

**Comment Letter 19**

11/7/2022

Anthony Molina  
California Grain & Feed Association

**Comment:**

The commenter raises several comments related to certain compliance responses not being speculative that could be evaluated in detail.

**Response:**

CARB disagrees that specific information regarding batteries and hydrogen fuel cells could be included in a reasonably foreseeable compliance response because that is too speculative for the purposes of evaluating the Proposed Regulation. As stated in Master Response 3, CEQA does not require the evaluation of impacts that are too speculative for evaluation. The level of detail provided in the analysis is appropriate because of the programmatic nature of the Proposed Regulation, and precise locations for battery and hydrogen facilities and related infrastructure are unknown. Please refer to Master Response 3 for a general response, with additional details provided in the responses below, where applicable.

**19-1:** The commenter states “The Draft Environmental Analysis (EA) prepared in support of the regulation is woefully inadequate. It does not identify many of the reasonably foreseeable consequences of the proposed regulation, fails to analyze many of the reasonably foreseeable consequences, and misrepresents many of the impacts that were analyzed. The rationale offered by CARB for not analyzing the project in more detail was to not be “unduly speculative”. This is unacceptable, as it does not require much speculation to identify many potential impacts that could have been, but was not, evaluated.”

**Response:** Please refer to Master Response 3. Furthermore, the comment does not raise specific issues related to the adequacy of the environmental analysis and does not provide substantial evidence that impacts were misrepresented or not analyzed adequately. No edits to the Draft EA are required in response to this comment. No further response is required.

**19-2:** The commenter states, “The 2016 Technical Assessment describes two potentially viable replacement locomotive technologies: (i) batteries and (ii) hydrogen fuel cells. If batteries are selected, the existing power grid either has the capacity to recharge the batteries, or more power plants would be needed. If hydrogen technology is selected, existing hydrogen plants would either have the capacity or new hydrogen plants would be needed. This is a total of just four scenarios, none of which require much speculation, and none of which were analyzed in the EA.”

**Response:** The impacts associated with the use of battery and hydrogen technology have been evaluated at a programmatic level in the Draft EA. For the purpose of evaluating the costs of the Proposed Regulation, staff made assumptions on which ZE locomotive technologies would be adopted, battery-electric or hydrogen. However, the Proposed Regulation would not prescribe any one technology for compliance. Locomotive operators



would be free to choose the technology which best suits their individual operating needs. This may include purchasing or converting locomotives to battery-electric or hydrogen fuel cell locomotives, installing overhead power (catenary), or even replacing locomotive operations with other equipment such as ZE rail car movers. Speculating on the specific assumptions to provide a detailed evaluation of the environmental impacts from compliance with the Proposed Regulation is not reasonable or possible. Furthermore, the comment makes conclusory statements without substantial evidence to support claims that impacts were misrepresented or not analyzed adequately. No edits to the Draft EA are required in response to this comment. Please refer to Master Response 3 regarding the level of specificity and the need to not speculate for reasonably foreseeable compliance responses.

**19-3:** The commenter states, "The EA states that no new power plants would be required to recharge battery tenders, which contradicts the 2016 CARB Technology Assessment, which identifies the need to construct five 50 MW power plants to support battery-powered locomotives in the South Coast Air Basin alone. Power plants consume fuel, have localized air quality impacts, emit GHG, and consume water for cooling."

**Response:** Please refer to Master Response 3. Should new power plants be required, the responsible jurisdictions would undertake separate CEQA processes that address the detailed impacts of the proposed facilities. The Proposed Regulation is not based on the 2016 CARB Technology Assessment, but rather the more current assessments of the ISOR published on September 20, 2022.

**19-4:** The commenter states, "If CARB contends that no new power plants would be required, no adverse impacts would be expected. However, the EA does not evaluate the cumulative impacts associated with the State's EV mandate for on-road vehicles. The EV mandate will require significant upgrades to the State's electrical infrastructure, including possibly new power plants and transmission lines. Recharging battery-powered locomotives will exacerbate any infrastructure challenges. Because the EV mandate has already been adopted, it requires no speculation to determine that this potential issue exists."

**Response:** Please refer to Master Responses 2 and 3. Furthermore, the comment makes conclusory statements without substantial evidence to support claims that impacts were misrepresented or not analyzed adequately. No edits to the Draft EA are required in response to this comment. No further response is required.

**19-5:** The commenter states, "The EA describes the project's impacts on long-term operational air quality as beneficial. While the proposed regulation may reduce total State-wide air emissions on a mass basis and may reduce pollutants in the vicinity of existing rail facilities, there is the potential for localized air quality impacts in the vicinity of any newly constructed power plant(s) built to support the proposed regulation. Adverse air quality impacts associated with those power plants were not evaluated."

**Response:** Please refer to Master Response 3. Should new power plants be required, the responsible jurisdictions would undertake separate CEQA processes that address the detailed impacts of the proposed facilities. Furthermore, the comment makes conclusory statements without substantial evidence to support claims that impacts were not analyzed adequately. No edits to the Draft EA are required in response to this comment. No further response is required.

**19-6:** The commenter states, "Alternatively, solar power plant(s) may be viable for battery recharge. Solar power plants need significant acreage and are typically constructed in sensitive desert habitats. Desert tortoises, burrowing owls, fringe-toed lizards, and other sensitive and endangered species may be impacted by solar plant construction/operation. The EA does not evaluate the potential biological resource impacts associated with solar energy facilities, and the proposed biological resource mitigation measures do not address these potential impacts."

**Response:** Please refer to Master Response 3. Should new solar power plants be required, the responsible jurisdictions would undertake separate CEQA processes that address the detailed impacts of the proposed facilities. Furthermore, the comment makes conclusory statements without substantial evidence to support claims that impacts were not analyzed adequately. No edits to the Draft EA are required in response to this comment. No further response is required.

**19-7:** The commenter states, "The EA describes the long-term operational impacts to hydrology and water quality as potentially significant, but only lists mitigation measures that would limit impacts to stormwater run-off. As noted above, the proposed regulation may trigger the need to construct multiple new power plants to support battery recharge. Conventional natural gas-fueled power plants commonly use water for cooling."

**Response:** Please refer to Master Response 3. Should new power plants be required, the responsible jurisdictions would undertake separate CEQA processes that address the detailed impacts of the proposed facilities. Furthermore, the comment makes conclusory statements without substantial evidence to support claims that hydrology and water quality impacts were not analyzed adequately. No edits to the Draft EA are required in response to this comment. No further response is required.

**19-8:** The commenter states, "The EA suggests a Water Supply Assessment (WSA) be conducted for any projects triggered by the regulation. Since any WSA would be conducted after the adoption of the regulation, the regulation would have impacts that were not evaluated in advance, as required by CEQA. In a State that has a stressed water supply and that endured a persistent, decade-long drought, the EA should analyze the impacts on water supply in advance of the adoption of the regulation, not after."

**Response:** Please refer to Master Response 3. Should specific projects trigger the need for a WSA, the responsible jurisdictions would undertake separate CEQA processes that address

the detailed impacts of the proposed facilities. No edits to the Draft EA are required in response to this comment. No further response is required.

**19-9:** The commenter states, "If hydrogen-fueled locomotives are the chosen technology, hydrogen would either be produced at existing hydrogen plants, or new plants developed for the railroad industry. Hydrogen is a highly flammable fuel; it is odorless, colorless, and burns with an invisible flame. Hydrogen is currently produced at 'Gas Plants' that are almost exclusively located at or near existing refineries, as hydrogen use in hydrocracking is the most significant industrial use of hydrogen. Because California has an EV mandate, it is reasonable to assume these existing hydrogen plants will have excess capacity in the future, as petroleum demand declines. Further, it is reasonable to assume that the gas plant operators want to continue operations and sell hydrogen to the locomotive market. Since the location of all existing hydrogen plants is known, it requires no speculation to evaluate the impacts[.]"

**Response:** Please refer to Master Response 3. No edits to the Draft EA are required in response to this comment. No further response is required.

**19-10:** The commenter states, "Transporting hydrogen from existing gas plants to railyards would require transport via rail on existing railroad rights-of-way (most refineries are serviced by rail) or trucking on public roadways. Because hydrogen is a flammable/explosive gas, hydrogen transportation potentially exposes the general public to fire and explosion hazards that were not analyzed in the EA. Because the gas plants are existing facilities, servicing the rail industry would, likely, NOT require an environmental assessment by any public agency, as no discretionary permit(s) would be needed. Thus, a reasonably foreseeable adverse impact to the community (i.e., an explosion hazard) could result from rule adoption that has not been, nor ever would be, analyzed under CEQA."

**Response:** Pages 83-84 of the Draft EA, Impact 9-2: Long-Term Operation-Related Impacts on Hazards and Hazardous Materials, discuss the potential impacts from use of hydrogen fuels, including the entire cycle of fuel production, manufacturing, transportation, storage, distribution, and usage. The transport, use, and disposal of hazardous materials would be required to comply with all current and future applicable federal, state, and local laws that would reduce the potential for accidents and require certain actions should a spill or release occur. Transport of hazardous materials are regulated under the U.S. Department of Transportation (DOT), which requires the safe and reliable transportation of hazardous materials by all modes. DOT's Hazardous Materials Regulations govern the transportation of fuels and blends by rail, air, motor carrier, and barge. In addition, Code of Federal Regulations, Title 49, Part 172 lists and classifies those materials that DOT has designated as hazardous materials for purposes of transportation and prescribes the requirements for shipping papers, package marking, labeling, placarding, emergency response, training, and safety applicable to the shipment and transportation of those hazardous materials. Requirements for carriage by rail, including operating, loading, and unloading requirements, along with detailed requirements for Class 3 (flammable liquid) materials are provided in

Code of Federal Regulations, Title 49, Part 174. However, the potential remains for the release of hazardous materials into the environment.

The Draft EA acknowledges that there are also inherent risks associated with the installation and use of hydrogen fuel cells, including fire and explosion, electric shock, and exposure to toxic materials. Hydrogen possesses several hazardous properties, such as a very wide flammability range, very low ignition energy, low viscosity, and high diffusivity, and it is chemically lighter than air. However, fuel cell manufacturers developed and extensively safety-tested carbon-fiber hydrogen tanks, which can withstand environmental and human-made damage, including crash testing and ballistics. Hydrogen tanks are designed with multiple safety enhancements to prevent leaks in both routine use and extreme circumstances. Should a leak and subsequent ignition happen, the low radiant heat of a hydrogen fire and high diffusivity of hydrogen would reduce any potential damage, especially when compared to a gasoline fire.

Furthermore, while CARB does not have the authority to require implementation of mitigation measures related to new or modified facilities or infrastructure that would be approved by State or local jurisdictions or jurisdictions outside of California, Mitigation Measure 9-1 has been incorporated to minimize the impacts. Recognized practices that are routinely required to avoid upset and accident-related impacts include the following:

- Proponents of new or modified facilities or infrastructure constructed as a result of reasonably foreseeable compliance responses to the Proposed Regulation would coordinate with state or local land use agencies to seek entitlements for development and meet all necessary environmental review requirements (e.g., those under CEQA). The local or state land use agency or governing body must follow all applicable environmental regulations as part of approval of a project for development.
- Based on the results of the environmental review, proponents would implement all feasible mitigation identified in the environmental document to reduce or substantially lessen the significant environmental impacts of the project on hazards and hazardous materials. Any mitigation specifically required for a new or modified facility or infrastructure would be determined by the state or local lead agency. However, future environmental documents prepared by state or local lead agencies could include the following mitigation measures:
  - Handling of potentially hazardous materials/wastes should be performed by or under the direction of a licensed professional with the necessary experience and knowledge to oversee the proper identification, characterization, handling and disposal or recycling of the materials generated as a result of the project. As wastes are generated, they should be placed, at the direction of the licensed professional, in designated areas that offer secure, secondary containment and/or protection from stormwater runoff. Other forms of containment may

include placing waste on plastic sheeting (and/or covering with same) or in steel bins or other suitable containers pending profiling and disposal or recycling.

- The temporary storage and handling of potentially hazardous materials/wastes should occur in areas away from sensitive receptors, such as schools or residential areas. These areas should be secured with chain-link fencing or a similar barrier with controlled access to restrict casual contact from non-project personnel. All project personnel who may encounter potentially hazardous materials/wastes should have the appropriate health and safety training commensurate with the anticipated level of exposure.

**19-11:** The commenter states, "Alternatively, the EA discusses the possibility of constructing and operating new hydrogen plants, should hydrogen become the fuel of choice for the ZE locomotives. The generation, storage, and transport of hydrogen represent risks to the community that requires detailed analysis. The EA suggests that the hydrogen plants would be constructed at or near the rail facilities. Since the location of all existing railyards is known, it requires no speculation to evaluate the impacts on the affected communities from the construction and operation of new hydrogen facilities collocated at those facilities."

**Response:** Please refer to Master Response 3. Should new hydrogen plants be required, the responsible jurisdictions would undertake separate CEQA processes that address the detailed impacts of the proposed facilities. No edits to the Draft EA are required in response to this comment. No further response is required.

**19-12:** The commenter states, "The EA describes the long-term operational impacts on hazardous materials as potentially significant, but only lists mitigation measures that deal with the temporary handling or storage of hazardous materials or waste, i.e., during construction. The EA does not address the hazards associated with the generation, storage, or transport of hydrogen that may be used to fuel ZE locomotives.

CARB appears to suggest that replacing the health risk impacts from diesel particulate matter (DPM) exposure with the potential for explosion impacts from a hydrogen storage accident can be made without analysis or public review. While it is possible (and likely) that an environmental assessment would be required prior to the construction of a new hydrogen plant, at that point, it is too late – once the rule is adopted, the railroad industry would be on a path that could require hydrogen production."

**Response:** Please refer to Master Response 3. Should new hydrogen plants be required, the responsible jurisdictions would undertake separate CEQA processes that address the detailed impacts of the proposed facilities. No edits to the Draft EA are required in response to this comment. No further response is required.

**19-13:** The commenter states, “The EA does not adequately address battery recycling requirements, despite the fact that CARB’s Technology Assessment estimates that the batteries in thousands of battery tenders will have to be replaced every 5 years.”

**Response:** Please refer to Master Response 3. The Draft EA addresses the potential impacts from increased battery recycling facilities at a programmatic level. No edits to the Draft EA are required in response to this comment. No further response is required.

**19-14:** The commenter states, “While CGFA agrees that an EA should not have to evaluate every possible consequence of regulation at a detailed level, CARB commissioned a study through the University of Illinois in 2016 and prepared its own Technology Assessment in 2016 that evaluated the technologies that would potentially be employed to comply with this regulation. Both studies provide substantial details with respect to the development and infrastructure requirements necessary to implement ZE technologies.”

**Response:** Please refer to Master Response 3. Furthermore, the comment does not raise specific issues related to the adequacy of the environmental analysis. No edits to the Draft EA are required in response to this comment. The 2016 Final Technology Assessment: Freight Locomotive (<https://ww2.arb.ca.gov/resources/documents/technology-assessment-freight-locomotives>) was completed by CARB as a snapshot in time of locomotive technologies. To support the technology assessment, CARB contracted with the University of Illinois for the report on Transitioning to a Zero or Near-Zero Emission Line-Haul Freight Rail System in California: Operational and Economic Considerations. Neither study provided details on which technologies would be used for the Proposed Regulation as development of the regulation did not begin until 2019. No further response is required.

**19-15:** The commenter states, “What makes this situation untenable for the regulated community is that upon adoption of the regulation, the regulated community will either have to recharge batteries or refuel with hydrogen, without certainty that the power and/or hydrogen will be available. CARB’s studies indicate that power plants will have to be constructed, and/or hydrogen gas plants will have to be constructed. Both power plants and hydrogen gas plants would likely trigger review under CEQA, but there is no guarantee that such projects would be approved. Power plant projects are routinely canceled because CEQA approval cannot be secured, or the projects are delayed for years because the approval process is so time-consuming. Approval of new hydrogen plants, especially small plants co-located at rail facilities, may not be possible due to concerns with explosion hazards, and there is certainly no track record of such approvals. Without CEQA approval of power and/or hydrogen projects, the regulated community would have no means of achieving compliance and would have no recourse under the rule for relief.”

**Response:** Please refer to Master Response 3. Furthermore, the comment does not raise specific issues related to the adequacy of the environmental analysis. No edits to the Draft EA are required in response to this comment. The Proposed Regulation would not prescribe any one technology to be used for compliance. Operators are free to choose the technology

that is best for their individual operations. Until 2030, locomotive operators may purchase or repower to Tier 4 locomotives. Under the Proposed Regulation, these locomotives could be operated in California for 23 years. Thus, an operator may not be required to operate ZE locomotive technologies until the 2050s, allowing many years for the development and siting of power facilities, if necessary, for California's ZE goals. Additionally, as part of the Proposed Regulation's 15-day changes, staff included the "Compliance Extension Based on Delays Due to Compliant Equipment Manufacture Delays, Installation Delays, or Unavailability." Compliant equipment includes ZE infrastructure. Therefore, operators could apply for an extension for infrastructure delays outside of their control. No further response is required.

**19-16:** The commenter states, "CARB has had six years since its studies were published to develop an EA that analyzes the impacts of rule implementation and could have/should have evaluated the rule impacts based, at a minimum, on its own studies. It is simply not enough to say in the EA that the fallout from rule implementation cannot be analyzed because the details are "unduly speculative," or that the impacts will be evaluated by some other agency at some later date. The development and infrastructure requirements necessary to implement the rule have already been identified, and failure to achieve CEQA approval of the necessary infrastructure may render compliance impossible.

CGFA strongly recommends that CARB undertake a thorough CEQA evaluation of the regulation prior to rule adoption. Further, CGFA recommends that CARB conduct a public scoping meeting in advance of further EA development so that the EA can be as comprehensive as possible."

**Response:** Please refer to Master Response 3. Furthermore, the comment does not raise specific issues related to the adequacy of the environmental analysis. No edits to the Draft EA are required in response to this comment. Staff assumes when the commenter says, "CARB has had six years since its studies were published..." they are referring to the 2016 [Final Technology Assessment: Freight Locomotives](#) that was completed by CARB as a snapshot of locomotive technologies in 2016. However, development of the Proposed Regulation began in 2019 and regulatory concepts were first presented to stakeholders at an October 2020 workshop (CEQA scoping meeting). No further response is required.

**19-17:** The commenter states, "Finally, CGFA takes exception to the use of the term "zero emission (ZE)" in association with this regulation. Advanced technology locomotives may reduce emissions but do not eliminate emissions. CGFA recommends that the terminology be replaced with something that better reflects the actual purpose of the rule –e.g., reduced emissions. While this distinction may appear trivial, the general public is being misled to think that the rule will achieve zero emissions, which is not the case. An electric locomotive will require line power, and a battery-powered locomotive would have to be recharged – the emissions from the use of these technologies will occur at power plants. Public receptors near the railyard may benefit from reduced emissions, but public receptors near power plants may be adversely impacted. The 2016 CARB Technology Assessment suggests that multiple 50 MW power plants would have to be constructed near rail facilities to recharge tender

batteries for use in the South Coast Air Basin alone – these power plants would not be zero emission facilities.

Similarly, hydrogen production will emit pollutants. If hydrogen is produced electrolytically, emissions will occur at a power plant. If hydrogen is produced via steam methane reforming, there will be combustion emissions from heating the process and GHG emissions as a byproduct of the process itself. Thus, the use of the term zero emissions misrepresents the reality of the technology and misleads the public.”

**Response:** The definition of ZE used in the Proposed Regulation is consistent with the Code of Federal Regulations, California Code of Regulations, and commonly accepted definitions of ZE equipment. Under Code of Federal Regulations, Title 40, Part 88.1(b)(3) lists the following types of vehicles as qualifying as ZE:

1. Electric vehicles (see [40 CFR 86.1803-01](#)).
2. Any other vehicle with a fuel that contains no carbon or nitrogen compounds, that has no evaporative emissions, and that burns without forming oxides of nitrogen, carbon monoxide, formaldehyde, particulate matter, or hydrocarbon compounds.

Additionally, California Code of Regulations, title 13, section 1962.2, defines a zero emission vehicle (ZEV) as a “vehicle that produces zero exhaust emissions of any criteria pollutant (or precursor pollutant) or greenhouse gas under any possible operational modes or conditions.”

The “zero emission” definition found in the Proposed Regulation does not include lifecycle emissions, because CARB traditionally uses the term “zero emission (ZE)” to refer to exhaust emissions. As an airborne toxics control measure, one of the main goals of the Proposed Regulation is to reduce exposure near regulated sources. Emissions due to electricity generation and hydrogen production may be addressed by other regulations and are transitioning towards ZE and renewable sources.



**Comment Letter 23**

11/7/2022

Theresa Romanosky  
Association of American Railroads

**23-1:** The commenter states “Moreover, CARB fails to evaluate the safety implications of hydrogen technology. Hydrogen is unlike today’s diesel fuels. Safety risks associated with hydrogen include fire/explosion and asphyxiation. Hydrogen is characterized by a short quenching distance, wide flammability limits, low ignition energy, and flames that are nearly invisible in daylight. It also is associate with steel embrittlement. Hydrogen is a colorless, tasteless gas yet no odorant is light enough to travel and disperse with hydrogen.”

**Response:** The impacts on hazards and hazardous material are evaluated in the Draft EA. Please refer to Master Response 3. No edits to the Draft EA are required in response to this comment. No further response is required.

**23-2:** The commenter states “Moreover, the amount of energy and related infrastructure required to convert the entire rail network to a battery-electric solution cannot be supported by the nation’s current electric grid and infrastructure, much less California’s. The United States and California must make significant investments in their own infrastructure before industry is able to rely on it as a stable source of electricity to power locomotives and other equipment. The current grid cannot handle even today’s load, much less the increased demand of several entire industries electrifying over a short period of time. The nation’s rail network cannot rely on battery-electric technologies if forced to depend on an inadequate supply of energy, forced brownouts, and demands to refrain from charging electric vehicles.

**Response:** Please refer to Master Response 2.

**Comment Letter 24**

11/7/2022

Alexis Leicht

Orange County Transportation Authority

**24-1:** The commenter states, "The framework penalizes the operations of Tier 4 locomotives with renewable petroleum-free fuel, which are the cleanest, most fuel-efficient diesel locomotives available today. Higher service levels that increase fuel consumption further financially penalizes operators. The State is inversely incentivizing operators to delay or forgo increasing service, which further increases statewide VMT and emissions from personal vehicles."

**Response:** Please refer to Master Response 1.

**Comment Letter 25**

11/7/2022

Paul Beard II  
Fisher Broyles

**25-1:** The commenter states “Modal diversion to truck will in turn stress road networks and subject Californians to roadway congestion, greater road and bridge wear, higher highway accident/death rates, and ironically, at least over the next 20 years, greater air pollution because of the modal shift.”

**Response:** Please refer to Master Response 1.

**Comment Letter 30**

11/7/2022

Joanne Parker  
Sonoma-Marín Area Rail Transit

**30-1:** The commenter states "SMART is concerned regarding several impacts not sufficiently analyzed in the Draft Environmental Analysis for the Proposed In-Use Locomotive Regulation. These include impacts in the areas of (3) Air Quality, (4) Biological Resources, (8) Greenhouse Gas Emissions, (11) Land Use and Planning, (14) Population and Housing, (15) Public Services, (16) Recreation, (17) Transportation, (19) Utilities and Service Systems, and (20) Wildfire."

**Response:** The commenter states concern that several impacts were not sufficiently analyzed in the Draft EA but does not raise any specific issues related to the adequacy of the environmental analysis or provide any definitive proof that these resource areas were not sufficiently analyzed. No edits to the Draft EA are required in response to this comment. No further response is required.

**30-2:** The commenter states "Failure to make significant progress on SMART's local voter endorsed scope jeopardizes SMART's sales tax reauthorization efforts and with that the ability to continue operating. If SMART ceases operating the Public Service of pathway, passenger and freight rail, due to the expiration of the 2008 sales tax, our communities will be forced into returning to the private automobile model of travel along the corridor for their trips to school, to work, to access health care and other services. Or they will simply not have access. This will eliminate the ability of local jurisdictions to development urgently needed housing in a transit-oriented manner, as tile rail transit system around which the development is being organized would no longer be operating. This, in turn, would have significant negative impacts to the Appendix D categories of (3) Air Quality, (8) Greenhouse Gas Emissions, (11) Land Use and Planning, (14) Population and Housing, (15) Public Services, (16) Recreation, (17) Transportation, and likely others.

**Response:** Please refer to Master Response 1 regarding mode shift to private automobile travel. The commenter does not provide any specific documentation to justify their claim that the Proposed Regulation would have significant negative impacts to the resource areas identified in their comment. Further the comment does not raise specific issues related to the adequacy of the environmental analysis. No edits to the Draft EA are required in response to this comment. No further response is required.

**30-3:** The commenter states "The Proposed Regulation's requirement that Alternative Compliance Plans include emission offset projects within 1-3 miles of railyards and tracks may create significant negative impacts to (4) Biological Resources along SMART's Brazos line and freight railyard at Schellville, a largely undeveloped wetland environment."

**Response:** The comment does not raise specific concerns that can be addressed relative to biological resources and wetland environments or other issues related to the adequacy of the

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

**30-4:** The commenter states “Additionally, SMART has recent direct experiences in the arenas of Utilities and Wildfire that contradict the analysis in Appendix D - DRAFT Environmental Analysis for the Proposed In-Use Locomotive Regulation sections (19) Utilities and Service Systems and (20) Wildfire.

Specifically, section (19) Utilities and Service Systems states "the electricity for wayside power required to charge electric locomotives is anticipated to be supplied by local utility companies. Because of the size of the locomotives, it is not expected that the increase in electricity use would be so large that utility companies would have insufficient energy supply”.

Section (20) Wildfires states “The Proposed Regulation would not exacerbate wildfire risks related to existing fire safety provisions and compliance with the California Department of Forestry and Fire Protection, the California Public Utilities Commission, and California Fire Code regulations for facilities related to manufacturing facilities and battery production/recycling. Thus, the Proposed Regulation would not result in a cumulatively considerable contribution to wildfire impacts”.

SMART has had to operate in extreme wildfire conditions multiple times during the first five years of passenger service, including evacuation of the fleet twice and standing ready per California's Office of Emergency Services request, for population evacuation purposes. The Proposed Rule Environmental Analysis regarding Utilities assumes that capacity exists to accommodate a zero-emission electric rail fleet. That capacity can be viewed as both baseline ability to power and systemic reliability. The north of SMART's 70-mile passenger rail and pathway corridor is rural and, as such, does not currently have the systemic capacity to accommodate SMART without further study and significant investment expense to create the baseline capacity. Regarding reliability, on multiple occasions local utility Power Safety Power Shutoffs have resulted in extended periods of no power, including 10 days in the north of SMART's corridor in 2019. These extended power outages require SMART to back up lack of electric power at rail grade crossings with portable generator equipment and would make powering of zero-emission electric fleet impossible. Until more analysis regarding future grid reliability in SMART's specific area is complete, it will be difficult to understand the cost and Infrastructure requirements of this Proposed Rule.

The Proposed Rule Environmental Analysis regarding Wildfire examines only the impacts related to manufacturing facilities and not the impacts of the ruling on passenger rail emergency operation capabilities. This includes the need to evaluate the impacts on the ability of the passenger rail services to operate under extreme failure scenarios on the part of the utilities.

**Response:** Please refer to Master Response 2 regarding grid reliability and capacity. Grid reliability and capacity, as well as the costs and infrastructure requirements for specific operators, are not specifically environmental issues that can be addressed under CEQA and are beyond the scope of this EA. CEQA requires the evaluation of impacts of the Proposed Regulation on the environment, not the impacts of the environment on the Proposed Regulation, or on individual operators. No edits to the Draft EA are required in response to this comment. No further response is required.

**Comment Letter 31**

11/7/2022

Sarah Yurasko

American Short Line and Regional Railroad Association

**31-1:** The commenter states “This Proposed Rule Will Dramatically Decrease Highway Safety in California.

Should CARB’s Proposed Rule become final, much of the freight carried by short line railroads will continue to be shipped through California even as the short lines themselves are forced to cease operations given their inability to meet the financial burdens imposed by the rule. This will inevitably result in a modal shift of freight traffic from rail to its competing mode of truck transportation. The freight that had previously moved by rail will move to truck and the highways leading to an increase in accidents, injuries, and fatalities, not to mention an increase in cost to the public to maintain the road network.

The most recent data from the U.S. Department of Transportation with a direct comparison of fatalities per billion ton-miles is incorporated in the Federal Railroad Administration’s 2010 National Rail Plan Progress Report to Congress and as shown below – it is illustrative of the vast difference in safety between shipping by rail vs. truck. This difference has only grown over the past twelve years as rail safety has consistently improved and truck safety has declined.

A study of FRA safety data shows that train accidents per million train-miles have dropped 33 percent since 2000 and five percent since 2020. On the other hand, the total estimated fatalities in crashes involving at least one large truck, increased by 13 percent from 2020 to 2021. This estimate is based on involvement of large trucks, both in commercial and non-commercial use at the time of the crash. Nationwide, in 2008 there were 4,245 truck-involved fatalities, and in 2021, there were 5,601 fatalities, an increase of nearly 32 percent. On the other hand, freight trains incur 14 percent of the fatalities that large trucks do per trillion ton-miles. Additionally, freight trains incur about 3 percent of the injuries that large trucks do per trillion ton-miles. The freight railroad rate of hazmat incidents per billion ton-miles is about 7 percent that of trucks, and railroads incurred no fatalities from 2012 through 2020 due to hazmat while trucks incurred 81.

Eliminating short line freight rail service in California will decrease safety to the motoring public on California roadways by substantially increasing a substantial the number of trucks on the roadways. In fact, it would have taken approximately 9.3 million additional trucks to handle the 167.4 million tons of freight that moved by rail in California in 2019. While much smaller than their Class I partners, short line railroads contribute to a significant portion of this movement. According to the 2018 California State Rail Plan, California’s short line railroads operate 1,296 route miles, or nearly 33 percent of the California railroad network.

As an example, in its comments, Class III railroad MET states, “our largest customer in this segment ships approximately 265 cars per week, Monday - Friday. Converting these

shipments to truckloads, equates to approximately 1,100 truckloads per week.” If the Proposed Rule is passed, threatening the economic viability of short line railroads, the elimination of this single short line railroad would add 57,200 trucks annually to the California highway system, leading to additional fatalities, injuries, and property damage. Given the large percentage of miles of short line freight operation, the multiplier effect of a modal shift could potentially be catastrophic to the safety of California highways. It would also increase maintenance costs and reduce the expected lifetime of the roadbed on the California Highway system, putting a higher burden on the California taxpayer.”

**Response:** Please refer to Master Response 1. While the commenter provides statistics on safety and crash data for rail and trucks, the commenter does not provide evidence that the Proposed Regulation would result in a mode shift from rail to trucks. CARB disagrees with this assertion based upon literature review and speaking with industry experts, and it is not the intent of the Proposed Regulation to prompt a mode shift. Therefore, the Proposed Regulation would not be expected to result in additional truck and vehicle traffic on highways and roadways, thereby increasing vehicle collisions and other safety concerns.



**Comment Letter 33**

11/7/2022

Steve Roberts  
RailPAC

**33-1:** The commenter states “The proposed rulemaking also needs to consider the entire life-cycle GHG emissions of such a proposal. The battery conversion noted above yields GHG savings years ahead of the proposed rule, while repurposing most of the sunk carbon cost represented by the life-expired retired diesels. Premature retirement of recently purchased renewable fueled diesel locomotives and replacing them with new locomotives has a very high carbon and air pollution cost. Included in the analysis should be the GHG generated by the mining and refining of copper, aluminum, turning iron or into steel, energy used in manufacturing and transportation and many other elements. These factors should be included in the analysis and not ignored because they occur outside of California or in third world countries.”

**Response:** The impacts of increased production of locomotives are evaluated in the Draft EA. The Proposed Regulation is an airborne toxic control measure focused on toxic diesel PM, and also provides NOx reductions, and GHG reductions as a co-benefit. In addition, CARB has traditionally used the term “zero emission (ZE)” to refer to exhaust emissions, instead of lifecycle emissions, because of the goal to reduce exposure near regulated sources. Emissions due to other processes will need to be addressed and directed towards ZE by other regulations. Furthermore, in “Evaluation of Life Cycle Air Emission Factors of Freight Transportation” by Facanha and Horvath (2007), the authors determine that, from a lifecycle perspective, the overwhelming majority of PM, NOx, and GHG emissions come from the fuel combustion phase for the typical diesel-electric locomotive. Emissions from locomotive manufacture are small in comparison. No edits to the Draft EA are required in response to this comment. No further response is required.

**Comment Letter H2**

11/18/2022

Chuck Baker

American Short Line and Regional Railroad Association

**H2-1:** The commenter states "If some short lines were eliminated, it would result in higher greenhouse gas emissions nationally, and also a variety of other problems here in California. Shippers would either need to move their freight by truck instead of rail or pack up and abandon California. If the freight moves by truck instead of rail, that will result in more fatalities and injuries on the road- rail is 3-20x safer than truck depending on how you count it. It will also add congestion to the already famously congested California roads, increase the burden on the California taxpayer to pay for the road damage of those heavy trucks, and increase the amount of micro plastics in the environment and water supply as it would increase the number of heavy truck tires shredding rubber on the roads."

**Response:** Please refer to Master Response 1.

### C. Public Hearing Oral Comments

11/18/2022      Chuck Baker  
National Short Line Association

**PH-1:** The commenter states, "If the freight moves by truck instead of rail, the will result in more fatalities and injuries, more congestion on California's roads, more burden on the California taxpayer to pay for road damage, and more microplastic from shredded truck tires in the environment."

**Response:** Please refer to Master Response 1. No further response is required.

11/18/2022

Donald Norton  
California Short Line Association

**PH-2:** The commenter states, "And a massive modal shift by cargo that is able to change from rail to truck. This modal shift will cause additional damage to roads and bridges, greatly increase roadway congestion, and cause a significant rise in highway deaths and injuries. And to put a number on it. Caltrans estimated in 2019 that there were 9.3 million truck trips per year in California that were avoided by use of rail and a significant portion of those are on shortlines.

**Response:** Please refer to Master Response 1. No further response is required.

11/18/2022

Tracy Alves  
Modesto and Empire Traction Company

**PH-3:** The commenter states, "However, our customers do face the daunting task of funding an alternative mode of transportation. Many customers are set up to accommodate a mix of rail and truck traffic. However, few, if any, have the footprint to shift completely to truck transportation. The typical railcar holds three and a half to four truckloads and the average train is 100 railcars. Without railroad service, California highway systems will see additional tens of thousands of trucks per month in the Modesto Area alone, which only causes more congestion and safety concerns on the highway systems."

**Response:** Please refer to Master Response 1. No further response is required.

11/18/2022

Steve Birdlebough

**PM-H:** The commenter states, "As you've heard from many of the speakers, there are many, many problems that affect the shift of locomotives. One of them is that you can end up shifting some of the freight to less efficient trucks. The second one is that you can shift the locomotives to other states. The railroads are not simply going to scrap these locomotives. They're going to use them elsewhere. And so nationally, we're not having a big effect on the reduction of GHG emissions. The last one is that you can shift riders to cars if you reduce the availability of trains."

**Response:** Please refer to Master Response 1. No further response is required.