RESPONSE TO COMMENTS

on the

DRAFT ENVIRONMENTAL ANALYSIS

Prepared for the

Advanced Clean Fleets Regulation

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

Released April 17, 2023
to be considered at the
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TABLE OF CONTENTS

1.0 INTRODUCTION 1

A. Requirements for Responses to Comments 1

B. Comments Requiring Substantive Responses 3

2.0 RESPONSES TO COMMENTS 5

A. Master Responses 7

B. Individual Comments and Responses on the Draft Environmental Analysis 24

7. Individual Comments and Responses on the Draft Environmental Analysis from the 15-day comment period 118

TABLE OF TABLES

Table 2-1: List Comments Receiving Responses for CEQA Purposes 5
Table 2-2: Total Well-to-Wheel Greenhouse Gas Emissions 66
Table 2-3: Forecasted Grid Demand from the Proposed Project 78

TABLE OF FIGURES

Figure 1: Projected Statewide ROG Tank-to-Wheel Emissions, Legal Baseline and Proposed ACF Regulation 35

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ABT	averaging, banking, and trading
AC	alternating current
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BEV	Battery Electric Vehicle
BIL	Bipartisan Infrastructure Law
CAISO	California Independent System Operator
CARB or Board	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CI	carbon intensity
CO_2	Carbon Dioxide
CPUC	California Public Utilities Commission
Draft EA	Draft Environmental Analysis
DRIVE Sustainability	Driving Research and Innovation for Vehicle Efficiency and Energy
EA	Environmental Analysis
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
EV	electric vehicle
GHG	greenhouse gases
HD	Heavy-Duty

ICE	internal combustion engine
IEA	International Energy Agency
IEPR	Integrated Energy Policy Report
IRP	Integrated Resource Plan
ISO	Independent System Operator
ISOR	Initial Statement of Reasons
Kg	kilogram
kW	kilowatts
kWh	kilowatt hour
LCFS	Low Carbon Fuel Standard
MY	model year
NACFE	North American Council for Freight Efficiency
NO_x	oxides of nitrogen
NZEV	near zero emission vehicle
PM	particulate matter
$PM_{2.5}$	particulate matter less than or equal to 2.5 micrometers
PRC	Public Resources Code
PSPS	Planned Service Power Shutoff
RD	renewable diesel
RFS	Renewable Fuel Standard
RNG	renewable natural gas
ROG	reactive organic gases
RTC	Response to Comments
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District

SCE	Southern California Edison
SIP	State Implementation Plan
SMUD	Sacramento Metropolitan Utility District
SO_x	oxides of sulfur
TOU	time-of-use
ZEV	zero emission vehicle

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1.0 INTRODUCTION

The California Air Resources Board (CARB) released a Draft Environmental Analysis (Draft EA) for the Advanced Clean Fleet Regulation, herein referred to as the Proposed Project (i.e., the Proposed Project under the California Environmental Quality Act [CEQA]) on September 2, 2022, for a 45-day public review and comment period that closed at the end of October 17, 2022. In addition, verbal and written comments were accepted at a public hearing on October 27, 2022. CARB received hundreds of written and verbal comments during that time. Staff released 15-day changes to the Proposed Project on March 23, 2023, the comment period for the proposed 15-day changes closed at the end of April 7, 2023. CARB staff will be returning to the Board on April 27, 2023 for a final vote on the Proposed Project. Written comment letters received are provided on CARB's website at https://www.arb.ca.gov/lispub/comm/iframe_bccommlog.php?listname=acf2022.

CARB staff carefully reviewed all comment letters received into the rulemaking record and at the public hearing on October 27, 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 the Board taking final action on the Proposed Project, 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 Project. The public hearing notice and related rulemaking materials (i.e., Initial Statement of Reason, and EA) for the Proposed Project are provided on CARB's website at: https://ww2.arb.ca.gov/rulemaking/2022/acf2022.

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. The level of detail contained in the response, however, may correspond to the level of detail provided in the comment (i.e., responses to general comments may be general). A general response may be appropriate when a comment does not contain or specifically refer to readily available information, or does not explain the relevance of evidence submitted with the comment.*

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 347 comment letters were submitted electronically on or before October 17, 2022, to the comment docket set up for the Proposed Project and its appendices, including the Draft EA. In addition, a total of 32 electronically submitted, written comment letters were submitted at the October 27, 2022, public hearing in addition to many verbal comments heard during public testimony. An additional 176 comments were submitted on or before April 7, 2023, during the subsequent 15-day comment period. During the 15-day comment period CARB staff also received comments purporting to raise environmental issues with the Proposed Project, which were submitted outside the 45-day CEQA comment period. Comments related to the Proposed Project's environmental impacts submitted after the 45-day CEQA comment period are untimely and do not require a response. (17 Cal. Code Regs., § 60004.2(b)(2).) Nevertheless, while it is not required to do so, CARB provided responses to these comments in section 2.C for transparency. Out of the 555 total written and numerous verbal comments received, 34 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 impacts related to the Proposed Project.

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 Project 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://www.arb.ca.gov/lispub/comm/iframe_bccommlog.php?listname=accii2022.

CARB acknowledges that several comments received were related to the economic impact of the Proposed Project. The Draft EA is not meant to address economic, social, or financial issues associated with the Proposed Project. Rather, the purpose of CEQA and the Draft EA is to fully analyze and mitigate the Proposed Project'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 and consistent with the comment docket opened for the Proposed Project. As stated above, a list of all the comment letters received, including those not responded to in this document are located at: https://www.arb.ca.gov/lispub/comm/iframe_bccommlog.php?listname=acf2022. Table 2-1 provides the list of comments that contain substantive environmental comments received during the 45-day comment period, written and verbal comments from the October 27, 2022 public hearing and from the subsequent 15-day comment period. Comments submitted on during the 45-day comment period are coded only with the docket number. Written comments and verbal comments submitted during the October 27, 2022 Board Hearing contain the prefix "PH". Comments submitted during the 15-day comment period contain the prefix "15." 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. 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 to date, including those received at the second Board Hearing, in the Final Statement of Reasons. All comments received at the October 27, 2022, hearing, during the 45-day comment period and during 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 Project, which will be considered during the April 27, 2023, Board hearing.

Table 2-1: List Comments Receiving Responses for CEQA Purposes

Comment Number	Date	Name	Affiliation
48	10/10/2022	Brian Mello	Associated General Contractors of California
60	10/10/2022	Mark Dowsing	Orion Construction
63	10/11/2022	Martin Keane	Coffman Specialties
83	10/11/2022	Blanca Rubio	California State Assembly
85	10/11/2022	Blanca Rubio	California State Assembly
93	10/12/2022	Amy Kay	Kay Construction
94	10/12/2022	Jon Kay	Kay Construction
104	10/11/2022	Mike McManus	Associated General Contractors of America – San Diego Chapter
137	10/13/2022	A.J. Shelton	Trane

Comment Number	Date	Name	Affiliation
222	10/17/2022	Nicole Collazo	Ventura County Air Pollution Control District
223	10/17/2022	Daniel Hamilton	City of Oakland
241	10/17/2022	David Lax	American Petroleum Institute
259	10/17/2022	Elizabeth Bourbon	Valero
261	10/17/2022	Kerry Shapiro	Jeffer Mangels Butler & Mitchell LLP
270	10/17/2022	Tanya DeRivi	Western States Petroleum Association
280	10/17/2022	Jeffrey Clarke	Natural Gas Vehicles for America
286	10/17/2022	Rick Marshall	Brady SoCal
290	10/17/2022	John Kinsey	Wanger Jones Helsley PC Attorneys
319	10/17/2022	Todd Campbell	Clean Energy
334	10/17/2022	Lee Brown	Western States Trucking Association
337	10/17/2022	Sean Edgar	Clean Fleets
PH-1	10/27/2022	John Kinsey	Wagner Jones Helsley PC Attorneys
PH-2	10/27/22	Sean Edgar	Clean Fleets
15-2	03/24/2023	Dustin Dodds	CA Business Affiliate
15-4	03/27/2023	Gil Oceguera	RPU
15-103	04/07/2023	Elizabeth Bourbon	Valero
15-104	04/07/2023	Tenille Otero	Otay Water District
15-105	04-07-2023	Prentiss Searles	American Petroleum Institute
15-108	04/07/2023	Larry Rennacker	ArrowTek
15-117	04/07/2023	Tanya DeRivi	Western States Petroleum Association and American Fuel & Petrochemical Manufacturers
15-135	04/07/2023	Suzanne Seivright Sutherland	CalCIMA
15-145	04/07/2023	Tim Vender Pol	Peninsula Truck Lines, Inc
15-158	04/07/2023	Mary Alyssa Rancier	Associated General Contractors of California
15-160	04/07/2023	Lee Brwon	Western States Trucking Association

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: Grid-Related Energy and Infrastructure Limitations for Electric Vehicle Use and Relationship to Planned Service Power Shutoffs

Comment:
Numerous comments were made related to increased zero emission vehicles (ZEV) usage from the Proposed Project. Commenters expressed concerns that the electrical grid and adequate infrastructure (primarily charging stations) may not be capable of meeting the demand generated by implementation of the Proposed Project.

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 Project, among other regulatory mechanisms such as the Renewable Portfolio Standard overseen by the California Energy Commission (CEC), the California Public Utilities Commission (CPUC), and utilities throughout the state; Senate Bill (SB) 32[1]; the State Implementation Plan (SIP); and guidance developed by local air districts that recommend decarbonizing new development and use of 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 Initial Statement of Reasons (ISOR), State and local government fleets, drayage trucks, high-priority fleets, and federal fleets 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 electric vehicles. 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.[2,3] 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

[1] SB 32 (Pavley, Stats. 2016, ch. 249).

[2] Pacific Northwest National Laboratory 2020. Kintner-Meyer, Michael, et al, Electric Vehicles at Scale – Phase I Analysis: High EV Adoption Impacts on the Western U.S. Power Grid. Pacific Northwest National Laboratory, 2020 (web link: https://www.pnnl.gov/sites/default/files/media/file/EV-AT-SCALE_1_IMPACTS_final.pdf, last accessed March 9, 2023).

[3] Muratori et al 2021. Matteo Muratori et al, "The rise of electric vehicles—2020 status and future expectations," 2021 (web link: https://iopscience.iop.org/article/10.1088/2516- 1083/abe0ad/pdf, last accessed March 9, 2023).

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.[4] Additionally, based on historical growth rates, sufficient energy generation and generation capacity is expected to be available to support a growing electric vehicle fleet.

State agencies and electric utilities have begun proactively planning for electrical distribution upgrades and new load for electric vehicles, including those that would be part of the Proposed Project 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 and maintain grid reliability.[5] 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.

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 electric vehicle) and will continue to be paramount for maximizing charging options in a future with many electric vehicles on the road. During a power outage, gas station pumps and electric vehicle charging stations all lose power and are not able to function without intervention. During PSPS and unplanned power outages, charging a ZEV may be a challenge but in areas of the state most likely to experience a PSPS, however public charging stations are backed up with stationary storage, batteries, and onsite generation.

The federal government recently enacted legislation providing significant support for ZEVs. The Inflation Reduction Act of 2022[6] provides significant tax credits for new and used ZEVs

[4] US DRIVE. 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 (web link: https://www.energy.gov/eere/vehicles/articles/summary-report-evs-scale-and-us-electric-power-system-2019, last accessed March 9, 2023).

[5] CPUC. "Electricity Rates and Cost of Fueling." California Public Utilities Commission, 2021 (web link: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/transportation-electrification/electricity-rates-and-cost-of-fueling, last accessed March 9, 2023).

[6] Pub.L. No: 117-169 (Aug. 16, 2022) 136 Stat. 1818.

(reviving the credit up to $7,500 for new and adding a credit up to $4,000 for used light-duty vehicles),[7] electric vehicle charging infrastructure (up to $1,000 credit for residential installations and up to $30,000 credit for commercial installations),[8] and other support for clean transportation technology. In addition, the Infrastructure Investment and Jobs Act[9], also known as the "Bipartisan Infrastructure Law" (BIL) provides approximately $350 billion for Federal highway programs over a five-year period (fiscal years 2022 through 2026) invests $7.5 billion to build out the first-ever national network of EV chargers in the United States and roughly $65 billion investment to upgrade our 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. It also invests in demonstration projects and research hubs for next generation technologies like advanced nuclear, carbon capture, and clean hydrogen. As one of these two new programs, the National Electric Vehicle Infrastructure Program or NEVI provides $5 billion as the first major Federal funding program that focuses on a nationwide development of EV charging infrastructure.

In addition to private investment, regarding the availability of EV charging infrastructure, CARB is working in tandem with CEC to invest in the charging infrastructure and technologies needed to transition the on-road mobile source section to ZEV throughout the state through its Clean Transportation Plan. CEC and CARB are also supporting strategic regional planning efforts (i.e., Regional Transportation Plans/Sustainable Communities Strategies) to support adoption of ZEVs. CEC is the primary state agency leading this transition and is building a corridor of conveniently located direct-current fast chargers to allow drivers of ZEVs, including trucks, with the freedom to travel throughout the state. As of December 2022, the state currently supports approximately 80,000 public and shared EV charging stations, including over 8,500 direct current fast changers, with additional investments underway to meet the 2025 goal of 250,000 public and shared EV charging stations as directed by Executive Order B-48-18. Pursuant to Assembly Bill (AB) 2127[10], CEC is required to publish a biennial report on the charging needs of 5 million ZEVs by 2030 and will adjust the level and degree of investments based on the reports' findings. The Proposed Project is also structured such that State and local government fleets, drayage trucks, high-priority fleets, and federal fleets would transition to a greater percentage of ZEVs well into the future (2042). The schedule of the Proposed Project gives fleet' flexibility in how ZEVs would be deployed into the future.

For more information on California's plug-in and hydrogen electric vehicle infrastructure status, public investments, and grid readiness, please see ISOR section I.G "Zero-Emission Vehicle Infrastructure."

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[7] Id., §§ 13401, amending 26 U.S.C. § 30D, and 13402, adding 26 U.S.C. § 25E.

[8] Id., § 13404, amending 26 U.S.C. § 30C.

[9] Federal Highway Administration, U.S. Department of Transportation, National Electric Vehicle Infrastructure Formula Program, 2022 (web link: https://www.federalregister.gov/d/2022-12704, last accessed February 2023).

[10] AB 2127 (Ting, Stats. 2018 ch. 365). Public Resources Code section 25229.

2. Master Response 2: Semi-Precious Metal Availability and Mining Impacts

Comment:
Some commenters expressed concerns that the Proposed Project's objective to electrify the on-road vehicle fleet would result in increased demand for lithium, among other semi-precious metals, such that global supply would not be capable of meeting this demand. Comments to the Draft EA also expressed concern regarding the potential adverse environmental effects from increased mining activity of lithium and other semi-precious metals.

Response:
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 Draft EA including Impacts 1-2 (aesthetics), 3-2 (air quality), and 4-2 (biological resources), among other impacts. Impact 12-1, beginning on page 78 of the Draft EA, provides an overarching evaluation of potential impacts related to the loss of mineral resources but also refers readers to other sections of the Draft EA as appropriate. The Draft EA analysis draws conclusions and makes disclosures while avoiding mere speculation, which is not allowed under CEQA.

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 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 Project, 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, similar to oversees oil extraction activities, 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 conservatively 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 Project are not solely responsible for an increase in

demand for these metals. Further, the degree to which the Proposed Project may increase demand for these metals may vary depending on evolving technologies, recycling practices, and how overall demand for ZEVs are met. Various international efforts are underway to electrify the mobile-source sector pursuant to commitments made in the UN Paris Accord, Kyoto Protocol, and by members of the Under2 Coalition. In response to those international efforts, the recycling of lithium-ion batteries may increase, as discussed throughout the Draft EA (e.g., pages 21 and 31), to ensure that minerals are recovered and reused instead of discarded. Additionally, new sources of lithium, among other minerals, have been identified internationally and domestically, including new mining in the Imperial Valley. The CEC's Lithium Valley Commission estimates that the Imperial Valley may have sufficient lithium supplies to meet 40 percent of the world's total lithium demand, which would be coupled with renewable energy and more sustainable extraction processes. The report notes that lithium recovery technologies proposed for use in Imperial County, direct lithium extraction from geothermal brine, result in a much lower environmental effect than hard rock mining and evaporation ponds. Direct lithium extraction technologies are designed to recover lithium and other minerals as the geothermal brine flows through pipelines and tanks and over a surface or substance that removes the lithium and other minerals before returning the brine deep underground.[11] While federal and international action are likely to independently cause environmental impacts related to critical minerals, including those impacts analyzed in the Draft EA for the Proposed Project, CARB has nonetheless conservatively analyzed the full range of reasonably foreseeable environmental effects that may result from the Proposed Project.

Pages 78-89 of the Draft EA summarizes potential short-term construction-related and long-term operational-related effects to mineral resource impacts and discloses data pertaining to worldwide production and reserves for lithium, nickel, cobalt, platinum, and palladium. However, formal quantification of the amount of each mineral resource that may be necessary as a result of implementation of the Proposed Project is considered variable due to a variety of factors including changing battery compositions, production method, manufacturer, level of recycling, and others. Appendix G of the CEQA Guidelines considers an impact on mineral resources to be the loss of availability of a known mineral resource that would be of value to a local entity, a region, or the state. As discussed above, facilities developed in response to implementation of the Proposed Project would be located in areas within existing footprints or in areas with consistent zoning where original permitting and analyses considered these issues. Implementation of the Proposed Project and associated compliance responses could result in an increase in mining for lithium, platinum, and other elements but would be generally small when viewed in the context of global lithium markets. Thus, implementation of the Proposed Project would not be anticipated to affect the economic potential related to known mineral resources or substantially affect supply.

[11] Paz, Silvia (Chair); Kelley, Ryan E. (Vice Chair); Castaneda, Steve; Colwell, Rod; Dolega, Roderic; Flores, Miranda; Hanks, James C.; Lopez, Arthur; Olmedo, Luis; Reynolds, Alice; Ruiz, Frank; Scott, Manfred; Soto; Tom; Weisgall, Jonathan. Report of the Blue Ribbon Commission on Lithium Extraction in California. California Energy Commission. Publication Number: CEC-300-2022-009-D. Dec 2022 (web link: https://efiling.energy.ca.gov/GetDocument.aspx?tn=247861&DocumentContentId=82166, last accessed March 2022).

Expert research has shown how a zero-emission vehicle future can be achieved, including through battery recycling practices, which are anticipated to scale up along with Battery Electric Vehicle (BEV) prevalence.[12] Furthermore, CARB does not intend to limit the types of batteries that may be used to comply with new zero-emission vehicle sales requirements called for by the Proposed Project and recognizes that future zero-emission technologies may be developed that use other minerals, metals, or resources. CARB also recognizes that there are different sources of GHG emissions associated with different vehicle technologies. In the case of battery and electrified vehicle technology material requirements and manufacturing, the transportation of lithium, nickel, cobalt, and platinum domestically and worldwide would generate GHG emissions from vehicle and vessel movement that ship and distribute resources to global manufacturing facilities. Additionally, the mining of these resources would require the use of heavy equipment, which would likely be powered by diesel fuel, the combustion of which would produce GHG emissions. However, the emission benefits from the use of these materials in ZEVs would ultimately offset the emissions from combustion of gasoline, diesel, and other fossil fuels associated with the development and use of these battery materials resources. Finally, the development and transport of materials and fuels for conventional vehicles would need to be considered with an evaluation of the net GHG emissions when a conventional vehicle is not manufactured and used.

The recycling of lithium-ion batteries is also increasing to ensure that minerals are recovered and reused instead of discarded.[13] Widespread battery recycling would keep hazardous materials from entering the waste stream, both at the end of a battery's useful life and during its production. Work is now under way to develop battery-recycling processes that minimize the lifecycle impacts of using batteries in vehicles. Batteries that power vehicles will be recycled at recycling facilities, where they will be transformed into valuable scrap commodities like cobalt, copper, nickel, and lithium carbonate, which can then be used to produce another battery more efficiently. Battery recycling can also reduce the demand for virgin materials used in the production of new batteries. Circularity has the potential to contribute to an 8 to 44 percent reduction in the global resource use associated with lithium-ion batteries in 2050.[14] On average, Redwood Materials can recover greater than 95 percent of the critical battery elements in an end-of-life battery (including lithium, nickel, cobalt, manganese, and copper), and then use those metals to manufacture anode and cathode components domestically for U.S. battery cell manufacturers.[15] Recycling black mass will increasingly become a key feature of the BEV supply chain given the demand for critical

[12] Slowik, Peter, Lutsey, Nic, and Hsu, Chih-Wei. How Technology, Recycling, and Policy Can Mitigate Supply Risks to the Long-Term Transition to Zero-Emission Vehicles. December 2020 (web link: https://theicct.org/wp-content/uploads/2021/06/zev-supply-risks-dec2020.pdf, last accessed January, 2023).

[13] Redwood Materials, Inc. *California Electric Vehicle & Hybrid Battery Recycling Program.* 2022 (web link: https://www.redwoodmaterials.com/california-recycling-program, last accessed August 2022).

[14] Kosai, S.; Takata, U.; Yamasue, E. Global Resource Circularity for Lithium-Ion Batteries up to 2050: Traction and Stationary Use. Mining. 449–462. June 30, 2022 (web link: https://doi.org/10.3390/mining2030024, last accessed August 2022).

[15] U.S. DoE. Loan Programs Office. February 9, 2023. Press Release announcing a conditional loan commitment of $2 billion to Redwood Materials for the construction and expansion of a battery materials campus in McCarran, Nevada, February 9, 2023 (web link: https://www.energy.gov/lpo/articles/lpo-offers-conditional-commitment-redwood-materials-produce-critical-electric-vehicle , last accessed February 2022).

minerals and potential deficit of metals such as nickel and cobalt. As recovery technologies improve, battery material for recycling is expected to grow by 20 percent per year through 2040.[16] Policy recommendations aimed at ensuring that as close to 100 percent as possible of lithium-ion vehicle batteries in the state are reused or recycled at end-of-life in a safe and cost-effective manner have also been submitted to the California Legislature by the Lithium-Ion Car Battery Recycling Advisory Group.[17] Action is also underway at the federal level as the U.S. Senate has recently passed the Strategic Electric Vehicle Management Act which aims to maximize reuse and recycling of battery materials at the end-of-life for federal fleets.

In addition, and independent of the Proposed Project, the Inflation Reduction Act (IRA) of 2022[18] provides significant tax credits for new and used ZEVs[19] and electric vehicle charging infrastructure.[20] It provides an advanced manufacturing tax credit for production of critical minerals used in ZEV batteries[21] and appropriates $500 million for "enhanced use" under the Defense Production Act to incentivize critical mineral production.[22] It authorizes the Department of Energy to commit up to an additional $40 billion in loan guarantees (on top of an existing program of $24 billion) for innovative technologies, which includes projects that avoid GHGs and other air pollutants or that employ new or improved technologies.[23] In response to the IRA a wave of new planned electric vehicle battery plants will increase North America's battery manufacturing capacity from 55 Gigawatt-hours per year (GWh/year) in 2021 to nearly 1,000 GWh/year by 2030, this capacity is estimated to support 10 to 13 million ZEV per year, well beyond the project's estimated ZEV demand of 104 thousand by 2030.[24] In addition to BEV manufacturing, mining and recycling are also on the rise in North America. The Federal government just announced a conditional loan commitment of $2 billion to Redwood Materials for the construction and expansion of a battery materials campus in McCarran, Nevada that will support production of a fully closed-loop lithium-ion battery manufacturing process by recycling end-of-life battery and production scrap and remanufacturing that feedstock into critical materials.[25] Since these facilities are located in North America, environmental laws including the National Environmental Protection Act are

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[16] Green Car Congress. March 2023. Electra produces lithium from battery recycling trial (web link: https://www.greencarcongress.com/2023/03/20230314-electra.html, last accessed March 2023).

[17] California Environmental Protection Agency. Lithium-Ion Car Battery Recycling Advisory Group Final Report. March 16. (web link: https://calepa.ca.gov/wp-content/uploads/sites/6/2022/05/2022_AB-2832_Lithium-Ion-Car-Battery-Recycling-Advisory-Goup-Final-Report.pdf , last accessed June 2022).

[18] Pub.L. No: 117-169 (Aug. 16, 2022) 136 Stat. 1818.

[19] *Id.*, § 13401, amending 26 U.S.C. § 30D.

[20] *Id.*, § 13404, amending 26 U.S.C. § 30C.

[21] *Id.*, § 13502, adding 26 U.S.C. § 45X.

[22] *Id.*, § 30001.

[23] *Id.*, § 50141.

[24] DoE. January 2023. Electric Vehicle Battery Manufacturing Capacity in North America in 2030 is Projected to be Nearly 20 Times Greater than in 2021 (web link: https://www.energy.gov/eere/vehicles/articles/fotw-1271-january-2-2023-electric-vehicle-battery-manufacturing-capacity, last accessed March 2023).

[25] U.S. DoE. Loan Programs Office. February 9, 2023. Press Release announcing a conditional loan commitment of $2 billion to Redwood Materials for the construction and expansion of a battery materials campus in McCarran, Nevada, February 9, 2023 (web link: https://www.energy.gov/lpo/articles/lpo-offers-conditional-commitment-redwood-materials-produce-critical-electric-vehicle , last accessed February 2022).

in place to mitigate environmental impacts and the Occupational Safety and Health Act applies which provides protection for most North American workers.

In regards to battery disposal, the Department of Toxic Substance Control and Department of Resources Recycling and Recovery have worked to help develop policies ensuring that batteries used in ZEVs will be reused or recycled at the end of their useful life. Due to increasing demand for fleet electrification in California, increased quantities of waste lithium-ion batteries are predicted to require safe disposal and reuse or recycling. In California, batteries may be managed according to Universal Waste Regulations (Cal. Code Regs, title 22, division 4.5, chapter 23). Anyone that generates hazardous waste batteries including lithium- ion batteries must ensure that those batteries are not disposed of in the trash. Universal waste management requirements, apply to the generation, handling, and transportation of those wastes. Only facilities that have a permit or other type of authorization to treat, store or dispose of hazardous wastes may accept hazardous waste batteries.

Furthermore, industry is also rapidly moving to batteries with different chemistries or formats to address concerns with mineral supply chain issues or human rights concerns.[26] These alternative battery chemistries use different metals and can offer similar performance at a lower cost which will ultimately result in a lower vehicle cost to the fleet owner. For example there is a growing use of lithium iron phosphate batteries in the light-duty ZEV market which are generally a lower cost alternative and do not require cobalt mining.[27] Moreover, the Advanced Clean Cars II program requires that ZEV batteries be labelled to facilitate second use and recycling processes, enabling conservation of semi-precious metals used in the manufacturing process of ZEV batteries. The Advanced Clean Cars II program also includes provisions that would result in longer-lasting ZEVs, such as minimum requirements for range and durability, that could help reduce disposal impacts from ZEVs when compared to ICE vehicles.

3. Master Response 3: Failure to Consider a Reasonable Range of Alternatives

Comment:
Some commenters expressed the view that the Draft EA should have considered a wider range of alternatives and also expressed disagreement with the Draft EA's reasoning in rejecting certain alternatives.

Response:
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

[26] Visnic, Bill. "GM's Ultium Battery System Future-Proofed." *SAE International*. May 2020 (web link: https://www.sae.org/news/2020/05/gm-ultium-battery-update, last accessed March 2022).

[27] Chemical and Engineering News, Lithium Iron Phosphate comes to America, 2023 (web link: https://cen.acs.org/energy/energy-storage-/Lithium-iron-phosphate-comes-to-America/101/i4, last accessed February 2023).

substantially lessen one or more of the significant effects. "[T]here is no ironclad rule governing the nature or scope of the alternatives to be discussed in an EIR, other than the rule of reason." (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 576; *In re Bay-Delta etc.* (2008) 43 Cal.4th 1143, 1162–1164; CEQA Guidelines, § 15126.6, subd. (a).) Section 15126(a) states the "EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives."

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 nine alternatives.

Beginning on page 144, the Draft EA considered a No Project Alternative (Alternative 1), Less Stringent ZEV Purchase Requirement Alternative (Alternative 2), a Best Available Control Technology (BACT) Concept Alternative (Alternative 3), a Focus ZEV Requirements on Return to Base Concept Alternative (Alternative 4), a Match ACT and ACF ZEV Deployments Alternative (Alternative 5), an alternative that would exempt small fleets and interstate truckers (Alternative 6), an alternative that would include a timeline extension for Group 1 vehicles and exclude all other vehicles (Alternative 7), a Credit for ZEV or Natural Gas Vehicles Alternative (Alternative 8), and an alternative that exempts refuse fleets subject to SB 1383 (Alternative 9). Alternatives 4 through 9 were considered but rejected due to infeasibility, because such Alternatives would fail to meet most of the basic project objectives, or because they did not substantially reduce or avoid significant environmental impacts.

With respect to the first three alternatives, Alternative 1 (No Project) would involve no change in conditions compared to baseline. No additional adverse physical environmental impacts or beneficial impacts (i.e., further reductions of criteria pollutant, toxic air contaminant, and GHG emissions) would occur. As a result, this alternative would have no effect on the environment and would result in measurable reductions in the potential physical environmental impacts in comparison to the Proposed Project but would not achieve any of the basic project objectives.

Alternative 2 (Less Stringent ZEV Purchase Requirement) would provide for the use of engines certified to the California Heavy-Duty Omnibus engine standards. As noted on page 150 of the Draft EA, this alternative would result in fewer ZEV deployments, lower criteria emissions benefits, and lower climate reduction emissions reductions benefits. As a result,

Alternative 2 would fail to meet most of the basic project objectives to the degree of the Proposed Project, including GHG reduction goals outlined in Executive Orders N-79-20 and B-55-18. Physical environmental impacts associated with the provision would be reduced compared the Proposed Project due to the reduction of construction impacts associated with electrical vehicle charging/refueling infrastructure.

Alternative 3 (BACT Concept) would require a fleet owner to follow the "best available control technology" hierarchy, that allows for the purchase of a cleanest combustion vehicle if a ZEV or NZEV is not available for purchase. Overall, this alternative could result in some emission benefits from increasing the numbers of ZEVs in high priority fleets that would otherwise purchase NZEVs when ZEVs are available, but it could also reduce the number of ZEVs in drayage fleets. It would also not achieve any new emissions benefits from lower emitting combustion engines compared to the Proposed Project because engine manufacturers can average their emissions to comply in the Heavy-Duty Omnibus regulation and the NOx benefits already expected from this regulation are already reflected in the baseline and cannot be double counted. This alternative also suggests that using renewable fuels such as renewable natural gas (RNG) and renewable diesel (RD) will achieve additional GHG benefits. However, any reductions in GHG emissions attributed to using renewable fuels in lieu of fossil fuels are already attributed to California's Low Carbon Fuel Standard (LCFS) program and the federal Renewable Fuel Standard (RFS) and cannot be double counted. This alternative would also not achieve any new reductions compared to the Heavy-Duty Omnibus regulation, LCFS, and RFS. Ultimately, this alternative would be less effective than the project at meeting all of the project objectives with the unlikely exception of project objective 4, as this concept would force fleets to comply with the optional 0.010 gram NOx/bhp-hr standard beginning in 2027, but these theoretical benefits may not be realized as it assumes that engine manufacturers will certify to the optional standards which may not happen. It also assumes manufacturers would certify their engines below the required standard without taking advantage of the average banking and trading aspects of the Heavy-duty Omnibus regulation where manufacturers would be able to meet the same emissions average already reflected in the baseline. The NOx reductions could not be assured without amending the Heavy-duty Omnibus regulation and the proposal would have no significant GHG reductions. However, physical environmental impacts would be reduced compared to the Proposed Project due to the reduction in ZEV deployment and associated infrastructure needs.

Ultimately, the Draft EA presents a reasonable range of alternatives, evaluates their potential to achieve most of the basic project objectives, and evaluates whether the respective alternative would avoid or reduce the potential significant environmental impacts of the Proposed Project, in compliance with CEQA requirements.

4. Master Response 4: Failure to Perform a Full Lifecycle Emissions Model

Comment:
Some commenters request that CARB perform a lifecycle emissions model to assess the reductions achieved by the Proposed Project.

Response:

Staff disagrees with this comment because a full discussion and analysis on the broader use of lower-emitting ICE technologies and lower carbon fuels was considered in the ACF Standardized Regulatory Impact Assessments (SRIA). The emissions analysis for the Proposed Project includes all adopted regulations in its Legal Baseline including those affecting fuels. Therefore, any effects associated with existing fuels regulations are already included in staff's analysis. To the extent future regulations, such as amendments to CARB's Low Carbon Fuel Standard (LCFS), affect lower-emitting fuels, those impacts will be assessed when those regulations are being considered. To be conservative, and in light of the many factors affecting upstream sector behavior, CARB has opted not to account for specific upstream emissions reductions in the ACF ISOR – and even without accounting for such reductions, significant health benefits are expected from the Proposed Project.

Embedded carbon in products, also referred to as life-cycle emissions may be associated with sourced materials and materials produced outside a jurisdiction's borders, but can provide a broader scope for emissions associated with products we use. CARB's LCFS is based on the principle that each fuel has "life cycle" GHG emissions and therefore examines the GHG emissions associated with the production, transportation, and use of a given fuel, as well as significant indirect effects on GHG emissions, such as changes in land use for some biofuels.

Some of the major factors affecting upstream emissions include sources from fuel production facilities such as electricity power plants, hydrogen, biofuel production, and gasoline refineries, in addition to fuel feedstock collection (e.g., crude oil extraction from in-state wells) and finished fuel product transportation and distribution. The Draft EA also discussed the vehicle cycle emissions sources associated with manufacturing. In the case of battery and electrified vehicle technology material requirements and manufacturing, the transportation of lithium, nickel, cobalt, and platinum domestically and worldwide would generate GHG emissions from vehicle and vessel movement that ship and distribute resources to global manufacturing facilities. Additionally, the mining of these resources would require the use of heavy equipment, which would likely be powered by diesel fuel, the combustion of which would produce GHG emissions. However, the emission benefits resulting from the development and use battery materials and resources in BEVs would ultimately offset the emissions from combustion of gasoline, diesel, and other fossil fuels throughout both vehicles useful life. BEVs can be powered directly from the grid without the need to transport feedstock and fuels. Furthermore, the development and transport of materials and fuels for conventional vehicles would need to be considered with an evaluation of the net GHG emissions when a conventional vehicle is not manufactured and used. Also worth mentioning, in the long-term, refinery emissions are likely to decrease as demand for liquid fuel decreases, both of which can ease the toxic and criteria pollution burden of communities located in or around refineries or other fuel extraction, production, and distribution facilities. It should also be noted that ICE vehicles also require aluminum alloys, magnesium, iron, and steel, which are all metals that already require extensive mining with similar physical impacts to the environment as ZEVs. CARB recognizes that its rules and regulations aimed at decarbonizing the state through use of zero-emission technology may induce new demand for various metals including lithium, graphite, cobalt, nickel, copper, manganese, chromium, zinc, and aluminum. Additionally, the production of hydrogen fuel cells commonly requires

the use of platinum. Please see Master Response 2 for more information about mining impacts from battery mining.

The commenter also appears to overlook that ACF ZEV sales mandates for new vehicle sales does not eliminate or ban existing internal-combustion-engine vehicles from the state. In addition, the fleet turnover requirements are phased in over a period of time, and it does not require action until the end of a vehicle's minimum useful life. Any vehicles at the end of their useful life would not be required to be scrapped and could be designated as a back-up vehicle or could be sold for use by other fleets and in other states or countries. While CARB did not commission a life-cycle emissions analysis for the EA, no such analysis is necessary. Numerous studies have shown the lifecycle GHG reduction potential of the types of vehicles relevant to CARB's electrification programs, where lifecycle emissions include well-to-wheel operations but also vehicle manufacturing and disposal. The use of different parts, materials, and processes to build components unique to electric vehicles, especially the type and size of batteries, means that emissions from building an electric vehicle differ from those of building comparable fossil fuel vehicles. With fossil fuel vehicles, vehicle in-use operations account for most of the lifetime emissions, while for BEV, emissions from manufacturing account for a higher proportion of total lifecycle emissions when compared to ICE vehicles. Ford and academic researchers have performed national full life-cycle studies for light-duty trucks that indicate in comparison to conventional vehicles, the lower GHG emissions from operating BEVs more than offsets the higher GHG emissions associated with manufacturing BEVs. The study found that production emissions are surpassed once the BEVs accrue around 25,000 miles, which is typically around the time the BEV is one and a half years old. Over the lifetime of the BEV, the study calculated approximately 64 percent lower cradle-to-grave life cycle emissions than ICE vehicles.[28] Other studies show that on a per mile basis, replacing a conventional gasoline or diesel truck with a BEV can reduce CO_2-equivalent emissions by 50 to 75 percent compared to conventional gas and diesel vehicles.[29] European Studies compared battery electric tractor trailer class 8 trucks and found that they emit between 51 to 67 percent less GHGs than equivalent fossil fuel powered trucks.[30] Similarly, the Department of Energy's cradle-to-grave lifecycle GHG emission analysis for small sport utility vehicles found that future BEVs and fuel cell vehicles (FCEVs) would have lower lifecycle emissions than ICE vehicles even the lowest carbon intensity drop-in renewable fuel, while

[28] Ford Media Release,2022 New Study Finds Greater Greenhouse Gas Reductions for Pickup Trucks than for other light duty vehicles. March 4,2022 (web link: https://media.ford.com/content/fordmedia/fna/us/en/news/2022/03/04/new-study-finds-greater-greenhouse-gas-reductions-for-pickup-tru.html, last accessed January, 2023).
[29] Ambrose, Hanjiro; Kendall, Alissa (2019), Life Cycle Modeling of Tech & Strategies for a Sustainable Freight System in California, Dryad, Dataset, October 13, 2019 (web link: https://datadryad.org/stash/dataset/doi:10.25338/B8NS4T, last accessed January, 2023).
[30] Earl, Thomas. Analysis of long haul battery electric trucks in EU Marketplace and technology, economic, environmental, and policy perspectives. Amended paper (August 2018) originally presented in: 8th Commercial Vehicle Workshop, Graz, 17-18, May 2018 (web link: https://www.transportenvironment.org/wp-content/uploads/2021/07/20180725_T&E_Battery_Electric_Trucks_EU_FINAL.pdf, last accessed January, 2023).

current BEVs, FCEVs, and PHEVs have lower lifecycle emissions than any ICE vehicle or hybrid gasoline vehicle.[31]

Despite higher GHG emissions from vehicle manufacturing, BEVs on average have much lower lifecycle GHG emissions than comparable ICE vehicles, as manufacturing emissions are quickly offset by reduced emissions from operation. A Life Cycle Analysis Report from SwRI (Project No. 26587), shows that sedan, crossover, and pickup BEVs on a 2019 California grid (using EIA database GHG intensity data) have lower carbon lifecycle emissions than virtually any other fuel (including low-carbon fuel) and technology combination.[32] As the carbon intensity of California's grid continues to decline per the 100 Percent Clean Energy Act of 2018[33], BEV lifecycle GHG intensities will also decrease. This study found that emissions over the lifetime of average medium-size BEVs registered today are already lower than comparable gasoline cars by 66 to 69 percent in Europe and 60 to 68 percent in the United States, additionally as the electricity mix continues to decarbonize, the life-cycle emissions for BEVs are also predicted to decrease.[34] Furthermore, the International Energy Agency (IEA) shows that the emissions associated with manufacturing ICE vehicles are slightly greater than the corresponding emissions for BEVs, with the battery assembly and mineral mining as additional. The IEA analysis shows the GHG emissions associated with BEV production (manufacturing, battery mining and assembly) are about 1.5 times greater than the corresponding GHG emissions for equivalent ICE vehicles, but after considering GHG emissions associated with vehicle operations, BEVs emit 50 percent less total GHGs than an equivalent ICE vehicle.[35] European studies on heavy-duty BEV bought today found that GHG emission savings of 63 to 76 percent or more are achieved over the vehicle's life cycle when compared to conventional ICE vehicles.[36]

CARB's LCFS already accounts for any emission reductions resulting from replacing fossil fuels with low-carbon fuels, and consequently, such reductions are already accounted for in the Legal Baseline. CARB is aware that some renewable fuel pathways, such as those that capture fugitive emissions or use waste gas as feedstock, can result in low and sometimes

[31] Elgowainy, Amgad, Jarod Kelly, Michael Wang. Life Cycle Greenhouse Gas Emissions for Small Sport Utility Vehicles, September 8, 2021 (web link: https://www.hydrogen.energy.gov/pdfs/21003-life-cycle-ghg-emissions-small-suvs.pdf, last accessed January, 2023).
[32] Boubon, Elizabeth. The SwRI report was submitted by Elizabeth Bourbon representing Valero to the Advanced Clean Cars docket (public comment letter OP-140), May, 31, 2022 (website: https://www.arb.ca.gov/lispub/comm/iframe_bccomdisp.php?listname=accii2022&comment_num=450&virt_num=140, last accessed January, 2023).
[33] Senate Bill 100, (De León, Stats. 2018, ch. 312).
[34] Bieker, George. 2021. A Global Comparison of the Life-Cycle Greenhouse Gas Emissions of Combustion Engine and Electric Passenger Cars, July 20, 2021 (web link: https://theicct.org/publication/a-global-comparison-of-the-life-cycle-greenhouse-gas-emissions-of-combustion-engine-and-electric-passenger-cars/, last accessed January, 2023).
[35] International Energy Agency. Comparative life-cycle greenhouse gas emissions of a mid-size BEV and ICE vehicle, October 26, 2022 (web link: https://www.iea.org/data-and-statistics/charts/comparative-life-cycle-greenhouse-gas-emissions-of-a-mid-size-bev-and-ice-vehicle, last accessed January, 2023).
[36] The International Council on Clean Transportation, February 2023. A Comparison of the Greenhouse Gas Emissions of European Heavy-Duty Vehicles and Fuels. (web link: https://theicct.org/wp-content/uploads/2023/02/lca-ghg-emissions-hdv-fuels-europe-feb23.pdf, last accessed February 2023).

negative carbon intensity (CI) scores. However, negative CI scores are limited to dairy/swine manure facilities and in some cases biomethane-derived from the anaerobic digestion of organic waste; those facilities capture methane that would otherwise be released into the atmosphere. Notably, California-sourced waste feedstocks such as used cooking oil and tallow, food waste, and dairy/swine manure have limited supplies. The Scoping Plan assumes renewable diesel from fats, oils and greases, if held constant at the total, presently-announced in-state refining capacity will cap out at approximately two billion gallons. California has the potential to produce approximately 90.6 billion cubic feet per year of RNG from dairy, landfill, municipal solid waste, and wastewater treatment facility sources[37] which represents only 4 to 5 percent of California's total annual consumption.[38] These limited supplies will be increasingly directed towards harder to decarbonize sectors and to other end uses besides transportation, which will reduce the available supply for on-road transportation.[39] The development of the average blend of biofuels and biogas in fossil diesel, gasoline, and natural gas based on current policies and projected supply was analyzed and, due to a number of factors, including competing demand from other sectors and high cost of production, researchers found it is not feasible to supply sufficient low-carbon biofuels such as residues and waste-based biodiesel, ethanol, or biomethane to substantially displace fossil fuels in combustion engine cars.[40]

ZEVs are significantly cleaner from a lifetime perspective than their internal combustion engine counterparts. From a well-to-wheel analysis, ZEVs pollute substantially less during use as they produce zero tailpipe emissions, they consume considerably less energy, and electricity has lower upstream emissions than gasoline or diesel. All manufacturing operations create pollution, but the emissions generally associated with the battery manufacturing process, are quickly offset by the substantial reductions generated through vehicle operation. Furthermore, upstream and manufacturing emissions are expected to decline over time as the carbon intensity of the California grid continues to decline per the 100 Percent Clean Energy Act of 2018.[41] Battery lifecycle emissions can vary quite a bit—depending on site specific factors such as supply chains, the size of the manufacturing facility or the scale, and the carbon intensity of the manufacturing plant's electricity source. Staff expects upstream emissions associated with the ZE component supply chains and manufacturing plants in California and in other subnational governments and nations with climate commitments will

[37] STEPS Program UC Davis, Jaffee et al. "The Feasibility of Renewable Natural Gas as a Large-Scale, Low Carbon Substitute Contract No. 13-307, 2016 (web link: https://ww2.arb.ca.gov/sites/default/files/classic/research/apr/past/13-307.pdf, last accessed May 2022).
[38] US Energy Information Administration, Natural Gas Consumption by End Use Data. December 2022 (web link: https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm, last accessed in July 2022).
[39] CARB. 2022 Scoping Plan for Achieving Carbon Neutrality. 2022 (web link: https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp.pdf, last accessed January 2023).
[40] Bieker, George. A Global Comparison of the Life-Cycle Greenhouse Gas Emissions of Combustion Engine and Electric Passenger Cars. 2021 (web link: https://theicct.org/publication/a-global-comparison-of-the-life-cycle-greenhouse-gas-emissions-of-combustion-engine-and-electric-passenger-cars/, last accessed January 2023).
[41] Senate Bill 100, Stats. 2018, ch. 312.

improve as ZEV production ramps-up to scale.[42,43] Beyond their carbon emissions benefits, ZEV also do not emit criteria and air toxics pollutants when operated and do not have upstream emissions of these pollutants from production and delivery of petroleum fuels – a substantial benefit to California's disadvantaged communities that are frequently located near freeways and other major vehicular transportation corridors. The lifecycle emissions of all pollutants are lower for ZEV than vehicles powered by combustion.

5. Master Response 5: Failure to Consider Cleaner Combustion and Renewable Fuels

Staff disagrees with the premise there could be early emissions reductions prior to 2024 because of this Proposed Project when it cannot be in effect until the end of 2023 at the earliest. Also, starting 2024, all engines sold in California must be certified to the Heavy-Duty (HD) Omnibus requirements and the emissions from diesel and natural gas engines will essentially be the same. It is also notable that HD Omnibus includes more stringent standards and test procedures, that includes NOx standards based on engine operation at low load and operating conditions; and longer emissions warranties and useful life periods (i.e., the time and/or operational periods that manufacturers are obligated to ensure emissions do not exceed applicable emissions standards). Data from engines certified to the prior "optional NOx standard" demonstrated higher emissions levels than their certification standards while in use. This is especially true after the end of the regulatory useful life period, as demonstrated by the 200 Truck study which found that engines certified to the prior "optional low NOx" standards are no cleaner than engines that will need to be certified under HD Omnibus starting in 2024. ICE vehicles with engines certified to prior "optional low NOx" standards had an average in-use emission rate of 0.07 g/bhp-hr, which is 3.5 times larger than their certification standard. The projected in-use rate for HD Omnibus engines, on the other hand, is expected to be 1.5 to 2 times the standard.[44] Real-world operational characteristics, such as idle time and duty cycles, as well as deteriorating emission control systems because of natural degradation or mal-maintenance as vehicles age and accumulate mileage can lead to real-world ICE vehicle emissions that are often much higher than their certification standard. In contrast, ZEV have zero tailpipe emissions to guarantee that air quality benefits can be achieved throughout engine lifetimes regardless of operation and duty cycles.

Some commenters propose that CARB require fleet owners who apply for, and are granted an exemption because a needed ZEV configuration is not available, to purchase a new ICE vehicle certified to CARB's new optional low NOx emission standards. The Proposed Project

[42] Kelly, J.C., Dai, Q. & Wang. Globally regional life cycle analysis of automotive lithium-ion nickel manganese cobalt batteries, 371–396, 2020. (web link: https://link.springer.com/content/pdf/10.1007/s11027-019-09869-2.pdf, last accessed March 2022).
[43] United Nations. COP26: Together for our planet, 2022 (web link: https://www.un.org/en/climatechange/cop26, last accessed January 2023)
[44] Leonard et al. January 2023. In-Use Emissions Testing and Activity Profiles for On-Road Heavy-Duty Vehicles: Summary of 200 Heavy-Duty Vehicle Emissions Testing Program from the University of California, Riverside and West Virginia University (web link: https://www.energy.ca.gov/publications/2023/use-emissions-testing-and-activity-profiles-road-heavy-duty-vehicles-summary-200, last accessed March 2023).

has been modified in response to this comment to now require a fleet owner to purchase a California certified engine when purchasing a new ICE vehicle, including when exemptions are granted. The regulation would not require a fleet owner to purchase engines certified to the prior "optional NOx standard" because that standard will be superseded by the HD Omnibus regulation by the time this Proposed Project starts in 2024. Also, there is no evidence to suggest that engines certified to the prior "optional NOx standard" will meet the HD Omnibus requirements. For example, as of February 1, 2023, three existing 2022 model year (MY) engines that were previously certified as 0.02 g/bhp-hr "optional low NOx standard" engine families left that program in 2023 MY—instead choosing to certify to 0.05g/bhp-hr HD Omnibus standard.

Additionally, staff is not proposing to require fleet owners to differentiate whether a particular engine was certified above or below the applicable HD Omnibus emissions limit because an engine certified below the standard means a higher emitting engine can be sold because of the averaging, banking, and trading (ABT) provision of the HD Omnibus regulation. The HD Omnibus regulation provides substantial credit multipliers that encourage engine manufacturers to bring "cleaner" engines to market sooner, however this credit multiplier would not apply to ZEV sales under the Proposed Program. The early engine certification credit means more higher emitting ICE engines can be sold. CARB staff estimates the credits for each early engine certified to the most stringent HD Omnibus standard could be used to offset up to 17 engines certified to the highest allowable FEL cap. Engine manufacturer compliance strategies are already driving decisions to move engines that had formerly been in the preexisting "optional low NOx" program into the credit earning ABT program regardless of fuel type. The commenter suggests that CNG engines should be required, but there is no basis to limit engines by fuel type, and any significant expansion of CNG truck sales, would also require new CNG infrastructure to store and/or dispense the fuel which could result in stranded assets when ZEVs do become available. Lastly, the Proposed Project was modified to provide more time for waste hauler and wastewater fleets who already have CNG engines and support the waste diversion requirements to produce biomethane. Therefore, CNG ICE engine purchases are expected to continue for several years, which will ultimately delay ZEV deployments and the associated emissions benefits from those fleets.

ZEVs are the maximum feasible technology to achieve criteria pollution reductions since they have no tailpipe emissions and cannot become high emitters. As explained in pages 107 to 117 of the Staff Report: Initial Statement of Reasons for the Proposed Project, new engine emissions standards and in-use control programs have already been adopted to maximize emissions reductions from internal combustion engines sold and operated in California. Worth noting is PM2.5 emissions and black carbon were omitted from the Ramboll study. $PM_{2.5}$ and black carbon from diesel combustion are harmful air pollutants and powerful GHGs. The Proposed Project achieves about 17 times more PM2.5 reductions than the cleanest combustion technologies analyzed as Alternative 1. Recognizing that mobile sources such as diesel trucks account for over 30 percent of total PM2.5 exposures, this omission is

not trivial.[45] The commenter should also note that combustion of biomethane rather than fossil CNG would not achieve any new NOx reductions starting in 2024 and any GHG emissions reductions from using biomethane and renewable diesel are already accounted for by CARB's LCFS Regulation and cannot be double counted as achieving new emissions reductions. Also, as indicated in the Scoping Plan, RNG or biomethane will largely be needed for harder-to-decarbonize sectors but may still play a targeted role in some fleets while the transportation sector transitions to ZEVs.[46] Please refer to Master Response 4 for more details on the LCFS. Finally, from a multi-pollutant perspective and through the lens of the SIP to meet Ozone Standards, ZEVs emerge as the best technology to reduce NOx from on-road mobile sources where feasible.

[45] California Air Resources Board, A Method to Prioritize Sources for Reducing High PM2.5 Exposures in Environmental Justice Communities in California. CARB Research Contract Number 17RD006, 2019 (web link: https://ww2.arb.ca.gov/sites/default/files/classic/research/apr/past/17rd006.pdf, last accessed March, 2022).

[46] California Air Resources Board, The AB 32 Scoping Plan (final), 2022 (web link: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents, last accessed May 2022).

B. Individual Comments and Responses on the Draft Environmental Analysis

Comment Letter 48

10/10/2022 Brian Mello
Associated General Contractors of California

48-1: The commenter states "While AGC of California supports actions that reduce greenhouse gas emissions making our communities an even safer place to live, we urge CARB to consider the feasibility of the ACF regulation. At this moment in time, there is no current technology to reliably initiate this regulation. According to the CalMatter's article, "California's electric grid is not ready to meet climate goals," California's electrical grid was largely developed in the last century and was designed with natural gas fired generation located in urban areas, supplemented by remote hydro, nuclear, and geothermal energy (2022). The electrical grid was not designed to accommodate phasing out urban gas-fired generation and tripling the among of energy delivered from remote wind and solar energy. Additionally, the most recent 10-year plan developed from the Public Utilities Commission does not take shutting down gas power plants into account from now to 2031. This is concerning because rolling blackouts have been increasing over the years.

On January 13, 2021, the California Independent Systems Operator, California Public Utilities Commission, and California Energy Commission released a report regarding the root-cause analysis of the mid-August extreme heat wave power blackouts. This report states that the root-cause was attributed to "extreme weather conditions, resource adequacy and planning processes, and market practices". Additionally, it states "[t]he energy markets can help fill the gap between planning and real-time conditions, but the West-wide nature of this extreme heat wave limited the energy markets' ability to do so". This remains a consistent problem within the state of California. Governor Gavin Newsom signed a Proclamation of a State of Emergency starting August 31, 2022 and lasting until September 7, 2022 allowing the use of back-up generators to reduce the strain of the electrical grid due to another extreme heat event. Pacific Gas & Electric issued numerous "flex alerts" requesting residents and businesses to conserve power during peak times to protect against blackouts. Although there was some success in preventing rolling blackouts, there were still thousands of people who lost electricity in Silicone Valley and southern and inland areas of the San Francisco Bay Area, according to the USA Today article, "California avoids rolling blackouts amid record-breaking heat wave; State issues another 'flex alert'," by Christine Fernando (2022). This demonstrates the need to have carefully thought-out regulations that take California's current resources into consideration, as opposed to initiating a regulation that is not practical.

A further demonstration that California does not have the electrical resources to meet current demand is that California is already importing approximately 30% of its power needs. Since California cannot meet the current electrical demand, how will the state meet the future demand when the ACF regulation will only increase the demand for daily charging? All in all, AGC of California urges CARB to upgrade the electrical grid as soon as possible so that

energy can reliably get to consumers that would make this regulation obtainable. It is optimal to have the electricity available before implementing such regulations."

Response: Please refer to Master Response 1.

48-2: It is argued that the environmental impacts outweigh the economic costs of the regulation, however, there is some evidence that suggests environmental impacts may be exaggerated. Environmental Research Letters published the article, "Environmental and economic impact of electrical vehicle adoption," where the authors conducted a comprehensive impact assessment of battery electric vehicle (BEV) adoption (Chen, Carrel, Gore, & Shei, 2021). In this article the authors state that "[a]lthough BEV adoption leads to decreases in tailpipe emissions, increased manufacturing activity as a result of productivity increases or subsidies can lead to growth in non-tailpipe emissions that cancels out some or all of the tailpipe emissions savings". Additionally, the Emissions Analytics released a newsletter in May 2022 highlighting research that demonstrates pollution from tire wear can be 1,850 times worse than car exhaust emissions in real-world settings. Since CARB does not take tire wear emissions into consideration when evaluating the cost versus the benefit of the regulation, the proposed environmental impacts may be misleading.

Emissions Analytics first released information in their 2020 press release that pollution of tire wear can be 1,000 times worse than car exhaust emissions, however, since then they have conducted more testing and analyses under a wide range of driving conditions and performed a detailed chemical analysis. Tire wear mass emissions were measured by high-precision scales to weigh all four wheels (tires and rims together without detaching) over at least 1,000 miles on real roads along with a proprietary sampling system that collects particles at a fixed point immediately behind each tire that are drawn into a real-time detector measuring the size of distribution of particles by mass and number. Particles from 10 microns down to 6 nanometers were measured. Tailpipe particles were measured using a diffusion charger analyzer for dynamic mass concentration and condensing particle counter for number concentration, coupled with a standard Portable Emissions Measurement System (PEMS). Their results indicate that tire wear emissions are 1,850 times greater than tailpipe emissions. Additionally, they discuss risks associated with battery electric vehicles (BEVs): battery weight can result in tire emissions that are almost 400 more times greater than real-world tailpipe emissions. While AGC of California supports action to decrease tailpipe emissions, it is important that benefits outweigh the costs imposed by the regulation. While it may be impractical to incorporate all possible factors into the model, it is important that as many key factors be incorporated as possible to ensure that real-world situations are taken into consideration.

Response: The comment requests consideration of potential tire wear emissions as part of the proposed regulation and broadly states that potential environmental impacts may be exaggerated. In general, the EA presents a reasonably conservative analysis of the potential physical environmental impacts of the Proposed Project, but also, in compliance with CEQA, does not 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. The EA acknowledges the discretion of lead agency and potential developers of

facilities that would support implementation of the Proposed Project, and includes mitigation measures related to how project-specific analyses should occur, consistent with CEQA requirements.

The commenter assumes that the Proposed Project will increase manufacturing activity because of productivity increases, staff fundamentally disagrees. Please refer to response to Master Response 4. The commenter is mistaken regarding tire wear emissions. The best available information for vehicle brake and tire wear emissions are accounted for in the Proposed Project's environmental impact analysis, see Appendix F of the ISOR for methods and results of the emissions inventory analysis, and Chapter 4.B.3. in the Final Environmental Analysis for an evaluation of air quality impacts, particularly Figure 2. This analysis shows notable decreases overall in fine particulate matter emissions from the Proposed Project. CARB notes the premise that all ZEVs are heavier than their ICE counterparts during the regulatory analysis is speculative and misleading. Please refer to response to comment 270-3. CARB further notes that commenter's framing is unclear and potentially misleading. The commenter does not specify the actual volume of emissions, just that the emissions attributable to tire wear might be magnitudes higher. The commenter's claim is not meaningful in context of the overall effect of the Proposed Project on total fine particulate matter emissions or any potential health impacts. Furthermore, the commenter mischaracterizes the fact that ZEVs by their definition emit zero exhaust. Non-exhaust emissions from operating any on-road vehicle, including entrained road dust, break and tire wear, will always be greater than zero. CARB continues to monitor the development and peer-reviewed research regarding all relevant emissions from vehicles in California.

Comment Letter 60

10/10/2022 Mark Dowsing
Orion Construction

60-1: The commenter states "We request CARB to engage with the PUC and other relevant agencies to develop a report that exams the feasibility of whether or not the energy grid can be upgraded and how the grid will need to be upgraded to meet these new demands including the overall costs, ratepayer increase and a feasible timeline to accomplish this herculean feat, before deciding on enacting the proposed ACF.

We need to know the plans for addressing DC charging stations along the highways and for remote locations."

Response: Please refer to Master Response 1.

60-2: The commenter states "A single big rig truck will need up to 15,000 pounds in batteries that will ultimately become hazardous waste. We request that CARB work with DTSC and EPA on developing a report that outlines how this massive new amount of hazardous waste will be managed, before deciding on enacting the proposed ACF."

Response: As noted on pages 105 through 107 of the Draft EA, the potential for increased disposal needs for batteries, as well as potential recycling of lithium-ion batteries, was evaluated as part of the Proposed Project's CEQA analysis. In particular, disposal of lithium-ion batteries would be required to comply with applicable regulations, including California's Universal Waste Rule (22 CCR Chapter 23) and California's Hazardous Waste Control Law and implementing regulations. With respect to battery recycling, typical recycling procedures (i.e., hydrometallurgical recovery, high-temperature or pyrometallurgical, and direct recycling) recover an average of approximately 97 percent of the battery material, redirecting about 3 percent of battery waste to landfills. However, as noted in the Draft EA, some batteries would require disposal within local/regional landfills, in a manner consistent with the aforementioned regulations as overseen by local jurisdictions and regional waste management authorities. Please also refer to Master Response 2.

60-3: The commenter states "We request that CARB prepare an environmental impact report required under CEQA for the estimated 500,000 new high voltage charging stations that must be in place to make this new proposed mandate feasible."

Response: Please refer to Master Response 1. The EA presents a reasonably conservative analysis of the potential physical environmental impacts of the Proposed Project, but also, in compliance with CEQA, does not 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. The EA acknowledges the discretion of lead agency and potential developers of facilities that would support implementation of the Proposed Project, and includes mitigation measures related to how project-specific analyses should occur, consistent with CEQA requirements.

Comment Letter 63

10/11/2022 Martin Keane
Coffman Specialties

63-1: The commenter states "We request CARB to engage with the PUC and other relevant agencies to develop a report that exams the feasibility of whether or not the energy grid can be upgraded and how the grid will need to be upgraded to meet these new demands including the overall costs, ratepayer increase and a feasible timeline to accomplish this herculean feat, before deciding on enacting the proposed ACF.

We need to know the plans for addressing DC charging stations along the highways and for remote locations."

Response: Please refer to Response to Comment 60-1.

63-2: The commenter states "A single big rig truck will need up to 15,000 pounds in batteries that will ultimately become hazardous waste. We request that CARB work with DTSC and EPA on developing a report that outlines how this massive new amount of hazardous waste will be managed, before deciding on enacting the proposed ACF."

Response: Please refer to Response to Comment 60-2.

63-3: The commenter states "We request that CARB prepare an environmental impact report required under CEQA for the estimated 500,000 new high voltage charging stations that must be in place to make this new proposed mandate feasible."

Response: Please refer to Response to Comment 60-3.

Comment Letter 83

10/11/2022 Blanca E. Rubio
California State Assembly

83-1: The commenter states "As all batteries have a limited life, we need to know if plans are identified for the coordination with DTSC and EPA to manage the hazardous waste disposal. A single Class 8 day cab can have up to 15,000 pounds in batteries that will ultimately become hazardous waste."

Response: As noted on pages 105 through 107 of the Draft EA, the potential for increased disposal needs for, as well as potential recycling of, lithium-ion batteries was evaluated as part of the Proposed Project's CEQA analysis. In particular, disposal of lithium-ion batteries would be required to comply with applicable regulations, including California's Universal Waste Rule (22 CCR Chapter 23) and California's Hazardous Waste Control Law and implementing regulations. With respect to battery recycling, typical recycling procedures (i.e., hydrometallurgical recovery, high-temperature or pyrometallurgical, and direct recycling) recover an average of approximately 97 percent of the battery material, redirecting about 3 percent of battery waste to landfills. However, as noted in the Draft EA, some batteries would require disposal within local/regional landfills, in a manner consistent with the aforementioned regulations as overseen by local jurisdictions and regional waste management authorities. Please also refer to Master Response 2.

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

Comment Letter 85

10/11/2022 Blanca E. Rubio
California State Assembly

85-1: The commenter states "4. As all batteries have a limited life, we need to know if plans are identified for the coordination with DTSC and EPA to manage the hazardous waste disposal. A single Class 8 day cab can have up to 15,000 pounds of in batteries that will ultimately become hazardous waste."

Response: Please refer to Response to Comment 83-1. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 93

10/12/2022 Amy Kay
Kay Construction

93-1: The commenter states "A single big rig truck will need up to 15,000 pounds in batteries that will ultimately become hazardous waste. We request that CARB work with DTSC and EPA on developing a report that outlines how this massive new amount of hazardous waste will be managed, before deciding on enacting the proposed ACF."

Response: Please refer to Response to Comment 83-1. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 94

10/12/2022 Jon Kay
Kay Construction

94-1: The commenter states "A single big rig truck will need up to 15,000 pounds in batteries that will ultimately become hazardous waste. We request that CARB work with DTSC and EPA on developing a report that outlines how this massive new amount of hazardous waste will be managed, before deciding on enacting the proposed ACF."

Response: Please refer to Response to Comment 83-1. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 104

10/12/2022 Mike McManus
Associated General Contractors of America – San Diego Chapter

104-1: The commenter states "The proposed regulation is far too broad in scope. For example, it requires the Public Utilities Commission and many private utility companies to take actions involving billions of dollars and as of now, unknown environmental impacts to ensure grid readiness to accommodate the massive increase in electrical capacity required by the proposed ACF regulation. This would seem to cry out for multiple pieces of legislation to cause such a massive action, and not just a regulation approved by an air quality regulator."

Response: Please refer to Master Response 1.

104-2: The commenter states "Another example would be that it also requires unknown future actions by the Department of Toxic Substance Control to regulate a large new stream of toxic waste. This would be the used batteries of unknown quantities and toxicities generated because of this regulation. This again would seem to be the purview of the Legislature not an air resources regulator."

Response: Please refer to Response to Comment 60-2.

104-3: The commenter states "A DC charging network for these vehicles envisioned by the proposed ACF does not exist today anywhere let alone in California. Some charging stations are now available for passenger vehicles, however a DC charger would need many hours to charge these large vehicles which is impractical for most business operations. First of all there has not been an agency identified in state government to take the lead in studying the feasibility of such a network. Nor has any agency been identified to take the lead on completing a CEQA environmental report for the estimated 500,000 charging stations needed. Nor has any funding been identified for these 500,000 stations to make these regulations feasible. Again, infrastructure first—then regulations."

Response: Please refer to Response to Comment 60-3.

Comment Letter 137

10/13/2022 A.J. Shelton
Trane

137-1: The commenter states "We request CARB to engage with the PUC and other relevant agencies to develop a report that exams the feasibility of whether or not the energy grid can be upgraded and how the grid will need to be upgraded to meet these new demands including the overall costs, ratepayer increase and a feasible timeline to accomplish this herculean feat, before deciding on enacting the proposed ACF.

We need to know the plans for addressing DC charging stations along the highways and for remote locations."

Response: Please refer to Response to Comment 60-1.

137-2: The commenter states "A single big rig truck will need up to 15,000 pounds in batteries that will ultimately become hazardous waste. We request that CARB work with DTSC and EPA on developing a report that outlines how this massive new amount of hazardous waste will be managed, before deciding on enacting the proposed ACF."

Response: Please refer to Response to Comment 60-2.

137-3: The commenter states "We request that CARB prepare an environmental impact report required under CEQA for the estimated 500,000 new high voltage charging stations that must be in place to make this new proposed mandate feasible."

Response: Please refer to Response to Comment 60-3.

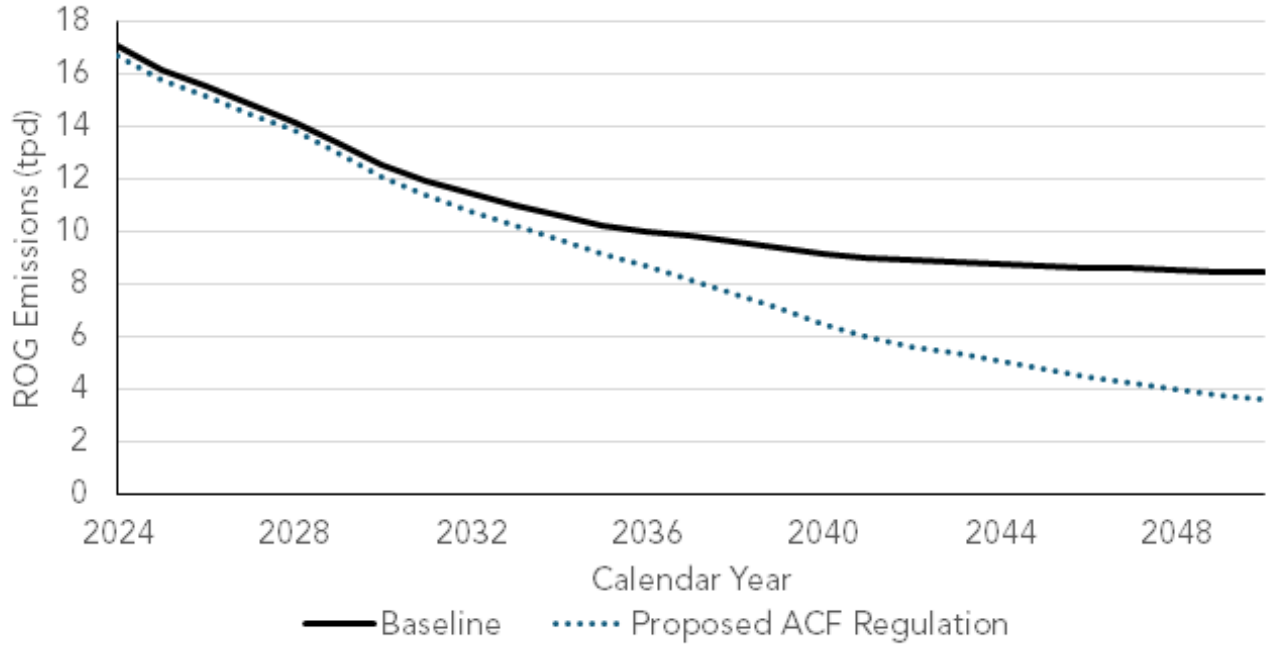
Comment Letter 222

10/17/2022 Nicole Collazo
Ventura County Air Pollution Control District

222-1: The commenter states "The draft EA does not contain an analysis or quantification on the reactive organic compounds (ROC) emissions as a result of the project. The Air Quality section includes an analysis on the $PM_{2.5}$ and nitrous oxides (NO_x) but is missing analysis on ROC emissions, as can also be seen in Figure 4 and Figure 5. As a comparison, the draft EA for the 2022 Scoping Plan Update includes a NO_x and ROC emissions analysis that can be summarized in Table 4-3 of the draft document. The only reference to ROC in the EA for the Advanced Clean Fleet Regulation is found in Page 38 (missing its acronym but spelled out)."

Response: ROCs or reactive organic gases (ROG) emissions were initially omitted from staff's analysis as heavy-duty vehicles are not a significant emitter of these emissions. In response to these comments, staff have added an analysis showing ROG emissions in the baseline and under the proposed regulation. Staff's analysis shows the regulation is expected to result in a net reduction in ROG emissions as shown in Figure 1.

Figure 1: Projected Statewide ROG Tank-to-Wheel Emissions, Legal Baseline and Proposed ACF Regulation



Comment Letter 223

10/17/2022 Daniel Hamilton
City of Oakland

223-1: The commenter states "The timeline for implementation is not realistic and encourages a piecemeal approach to installing required EV charging infrastructure due to the tight timelines. This is neither realistic nor cost effective. It is relatively straight forward to add charging capability up to existing facility electrical available, but the next step beyond this is typically a large-scale increase to power to the he [sic] facility. Additionally, multiple fleet customers all building out EV charging infrastructure to maximum on the same circuit may be expected to identify and trigger issues at any weak spots in the existing grid that may not necessarily be an issue at existing demand. This may also be expected to increase cost and extend compliance timelines. These costs and timelines are largely facility specific, however installing a typical additional power drop to a facility by PG&E prior to ACF took about 18-24 months. Since every fleet in the state will now be asking for similar improvements/upgrades, the actual adjusted timeline needs to be identified and accommodated for in the implementation plan. Furthermore, due to the large numbers of fleet customers requiring significantly larger amounts of electricity, it can be expected that some locations will actually require a more involved solution such as a sub-station or other larger scale grid projected to support the multiplied customer demand. Accommodations to the implementation plan need to be made to allow for these activities which may require CEQA or other time-consuming approvals. Most recently, a transformer shortage is contributing to upgrade timeline delays and cancellations as existing transformers are held in inventory for replacement of existing transformers that fail in service or otherwise become unserviceable."

Response: Please refer to Master Response 1. In 2013, the Governor's Office of Planning and Research prepared a guidebook, "Zero-Emission Vehicles in California: Community Readiness Guidebook" which describes in detail how CEQA may relate to building ZEV infrastructure. That guidebook found that many local governments have determined that charger installations are not subject to CEQA. However, assessment under CEQA is required when government funding is used for a project. For example, the Bipartisan Infrastructure Law enacted as the Infrastructure Investment and Jobs Act (IIJA)[1], includes a total of up to $7.5 billion in dedicated funding to help make EV chargers accessible to all Americans for local to long-distance trips. Projects receiving IIJA funds are categorically exempt from CEQA.[2] Finally, some local governments have found that installing ZEV charging equipment can be used as a CEQA mitigation measure in large projects when concerns exist about environmental impacts such as transportation-related impacts. In such cases, lead agencies can use ZEV charging equipment as a mitigation measure because it reduces overall greenhouse gas emissions generated by a development.[3] Since that guidebook was first

[1] Pub. L. No. 117-58, 135 Stat. 429 (117th Cong.) (Nov. 15, 2021),

[2] PRC 21080[b]; 14 CCR 15260 et seq

[3] Office of Planning and Research. 2013. Zero-Emission Vehicles in California: Community Readiness Guidebook: Toward 1.5 Million Zero-Emission Vehicles on California Roadways by 2025. (web link: https://opr.ca.gov/docs/ZEV_Guidebook.pdf, last accessed February 2023).

published, AB 1236 (2015)[4] and AB 970 (2021)[5], were codified in Government Code Sections 65850.7 and 65850.71, which require cities and counties to adopt streamlined permitting procedures for electric vehicle charging stations, including a streamlining ordinance and checklist.

The Proposed Project will require fleets to install depot charging or to rely on a network of regional ZEV charging and fueling stations. In response to stakeholder comments, staff added a provision after the Proposed Regulation Order release on August 30, 2022, to consider an extension for fleet owners or contracted third parties who are experiencing delays due to circumstances beyond their control when building ZEV fueling and charging infrastructure. The infrastructure delay would allow a fleet to maintain compliance for up to five years after a compliance deadline. One of the criteria for eligibility under the construction-related delay is a delay in the manufacture and shipment of zero-emission charging and fueling infrastructure equipment The extension was modified after the comment was received to provide an initial extension for up to 3 years that can be renewed for another 2 years based on updated information to cover a fleet that is experiencing a delay in completing construction or in obtaining power from a utility. The extension would also apply to delays in power needed for charging equipment and electrolyzers used in the production of hydrogen. However, the impacts of infrastructure construction would still occur, but at a later time.

[4] AB 1236 (Chiu, Stats. 2015, ch. 598); Govt. C section 65850.7.
[5] AB 970 (McCarty, Stats. 2021, ch. 710):,Govt. C sections 65850.7 and 65850.71.

Comment Letter 241

10/17/2022 David Lax
American Petroleum Institute

241-1: The commenter states "**A Full Lifecycle Greenhouse Gas Analysis for the Vehicle/Fuel System is Needed**

A performance-based lifecycle well-to-wheels approach, combined with fuel carbon intensity reductions, provides a broad spectrum of industries that power the transportation system with incentives to reduce GHGs. When combined with an assessment of all technologies compared on an equal footing and considered within the framework of a fuel/vehicle pathway, the most effective solution to carbon emission reductions will be adopted and implemented. It does not appear that CARB undertook this approach in either the ISOR or in the draft EA. CARB estimated the reductions in tailpipe GHG emissions from the proposed ACF regulation, but it did not fully account for the changes in upstream (well-to-tank) GHG emissions or the potential increases in vehicle cycle emissions that would occur. Vehicle cycle emissions are associated with vehicle material recovery and production, vehicle component fabrication, vehicle assembly, and vehicle disposal/recycling.[8] Failure to account for the full lifecycle GHG impacts, including increasing the incremental power demand sourced from the grid exchange, misrepresents the actual environmental effects of the proposed rule and could lead to incorrect conclusions.

[8] See, for example, Burnham, A. (2012). *Updated vehicle specifications in the GREET vehicle-cycle* model. Center for Transportation Research, Argonne National Laboratory. https://greet.es.anl.gov/publication-update-veh-specs"

Response: Please refer to Master Response 4. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 259

10/17/2022 Elizabeth Bourbon
Valero

259-1: The commenter states "**V. CARB Does Not Adequately Consider Feasible Alternatives or the Full Range of Environmental Impacts.**

CARB's Draft Environmental Analysis ("EA") does not meet requirements under the California Environmental Quality Act ("CEQA") because it (1) fails to consider low-carbon fuel and engine technologies as feasible alternatives and (2) ignores a number of potentially significant environmental impacts.

A. The Environmental Analysis Must Consider Low-Carbon Fuel and Engine Technologies and Alternatives

CARB's Environmental Analysis summarily rejects any alternative that does not meet the Governor's conclusory directive to accelerate adoption of EV and FCEV. However, CEQA demands that CARB consider a reasonable range of alternatives, including "*alternatives that are proposed as less burdensome and equally effective* in achieving the purposes of the regulation in a manner that ensures full compliance with the authorizing statue or other law being implemented or made specific by the proposed regulation."[57] This aligns with the California Environmental Quality ACT ("CEQA") Guidelines, which also specify that CARB must consider a reasonable range of alternatives that "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."[58] The CEQA Guidelines define "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."[59] Specifically, when considering the feasibility of alternatives, the CEQA Guidelines provide the following factors to consider: "economic viability, availability of infrastructure, general plan consistency, other plans, or regulatory limitations, [and] jurisdictional boundaries."[60]

Importantly, CARB is prohibited from predetermining a particular method in order to narrow the alternatives it considers for achieving the agency's ultimate policy goals. When examining whether or not alternatives or particular features have been foreclosed by the agency, courts look "to the surrounding circumstances to determine whether, as a practical matter, the agency has committed itself to the project as a whole or to any particular features, so as to effectively preclude any alternatives or mitigation measures that CEQA would otherwise require to be considered."[61]

CARB states that its evaluation of reasonable alternatives to the proposed rule concluded that no alternative proposed was found to be less burdensome and equally effective in achieving the purposes of the regulation.[62] However, some of the objectives CARB identifies as the basis for rejecting reasonable alternatives to the proposed rule have no support in California law; rather, they derived from the policy preferences articulated in Executive Orders issued by the Governor and CARB's own policy bias. For instance, Objective 6 ("Lead the transition of California's medium- and heavy-duty transportation

sector from internal combustion engines to ZE technology…") is based only on Executive Order N-79-20 and CARB Resolution 20-19; Objective 8 ("Incentivize and support emerging ZE technology that will be needed to achieve CARB's SIP goals") lacks any basis other than staff's conclusory statements that these technologies- and only these technologies – will contribute to meeting SIP goals; and Objective 10 ("Provide market certainties for ZE technologies and fueling infrastructure to guide the acceleration of the development of environmentally superior medium- heavy-duty vehicles…") similarly derives from CARB's policy preference but lacks any statutory support.

It is therefore unreasonable and inconsistent with CARB's obligations under CEQA to summarily reject reasonable alternatives such as the "Cleaner Combustion" approach advocated by the California Council for Economic and Environmental Balance ("CCEEB") on the basis that it does nothing to advance CARB's policy preference to force adoption of BEV and FCEV technologies. Further, CARB incorrectly asserts that the "Cleaner Combustion" alternative will not result GHG reductions equivalent to those sought in the proposed rule, overlooking the potential for on-board carbon filtration and capture systems to be installed quickly and at low cost on medium- and heavy-duty vehicles. CARB failed to consider whether engines meeting the Heavy-Duty Omnibus Standard (thus achieving 90% NO_x reductions) equipped with on-board carbon capture could in fact achieve the statutorily supported objectives of the rule at a lower cost and in an accelerated time frame.

Similarly, CARB inappropriately rejects the California Trucking Association's suggestion to exempt Group 2/3 vehicles and extend the timeline for purchase of Group 1 vehicles on the basis that this alternative "would not be as effective at advancing the adoption of medium- and heavy-duty ZE technologies and develop[ing] a self-sustaining ZEV market…"[63] An alternative advocated by the Owner-Operator Independent Drivers Association that would provide relief for small businesses and low-mileage truckers was rejected because "This alternative would not apply to long-haul applications" (an objective that is odds with the dormant Commerce Clause of United States Constitution to the extent it seeks to regulate miles driven outside of California) and because it "would not provide the market certainty for the needed infrastructure investments to develop a charging or hydrogen fueling network."[64] Another alternative offered by CCEEB that would limit the ZEV purchase requirement to fleets that use centralized depot charging was similarly rejected on the basis that it would not do enough to advance adoption of medium- and heavy-duty ZE technologies.[65]

By dismissing alternatives that do not support the Governor's and CARB's policy preference to prop up the electric and fuel-cell vehicle markets, CARB shirks its duty to consider and evaluate alternatives to the proposed rule that may meet statutory objectives to reduce criteria pollutant and GHG emissions in a less burdensome and more cost-effective manner. By objectives, CARB is effectively predetermining the outcome of this proceeding. This predetermined outcome is not only arbitrary and capricious but also a violation for CARB's statutory obligations to consider costs and benefits of reasonable alternatives to the proposed rule.

[57] California Government Code § 11346.2(b)(4)(A).

[58] Cal. Code Regs. tit. 14, § 15126.6(c).

[59] *Id. §* 21061.1*; Bay Area Citizens v. Ass'n of Bay Area Governments*, 248 Cal. App. 4th 966, 1018 (2016).

[60] Cal. Code Regs. tit. 14, § 15126.6(f)(1).

[61] *Save Tara v. City of W. Hollywood*, 45 Cal. 4th 116, 139 (2008), *as modified* (Dec. 10, 2008).

[62] ISOR at 235.

[63] *Id.* at 257.

[64] *Id.* at 258.

[65] *Id.* at 261."

Response: Please refer to Master Responses 3 regarding the reasonable range of alternatives considered by Draft EA and Master Response 4 regarding lifecycle emissions benefits of CARB's LCFS program.

On-board carbon filtration and systems to capture CO_2 from the exhaust stream of an internal combustion engine may be a suitable choice for train and ship transports, but exhaust variations are expected for cars, trucks, and buses which makes this emission control technology less effective for those applications. Additionally, this emission control technology has not been sufficiently demonstrated in real-world on-road applications. Lastly, the performance standard of zero exhaust emissions would not be achieved since this technology has only demonstrated a 90 percent effectiveness rate in reducing emissions of CO_2 and only for the most suitable applications,[6] which is clearly as not as effective as ZEVs in reducing exhaust emissions since ZEVs, by definition, emit no levels of criteria or GHGs in their exhaust emissions.

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

259-2: The commenter states "**B. The Draft EA Fails to Consider Potentially Significant Environmental Impacts.**

CEQA requires that the Draft EA and Final EA contain "[a] discussion and consideration of environmental impacts, adverse or beneficial, and feasible mitigation measures which could minimize significant adverse impacts identified," as well as "[a] discussion of cumulative and growth-inducing impacts"[66] The Draft EA for the Proposed Regulation fails to consider the following potentially significant environmental impacts:

- In view of the devastating wildfires in recent years that have been ignited due to failures of strained and poorly maintained electrical infrastructure, CARB must evaluate how the increased demand for electricity resulting from the proposed rule will increase

[6] Carbon Dioxide Capture From Internal Combustion Engine Exhaust Using Temperature Swing Adsorption Front. Energy Res., 16 December 2019 Sec. Carbon Capture, Utilization and Storage Volume 7 - 2019 | https://doi.org/10.3389/fenrg.2019.00143 (web link: https://www.frontiersin.org/articles/10.3389/fenrg.2019.00143/full)

the risk of wildfires, and CARB must further evaluate the potential impacts more frequent wildfires will have on public health and the environment. Wildfire smoke substantially contributes to $PM_{2.5}$ emissions. A recent study by researchers from Stanford found that "the contribution of wildfire smoke to $PM_{2.5}$ concentrations in the US has grown substantially since the mid-2000s, and in recent years has accounted for *up to half of the overall $PM_{2.5}$ exposure in western regions.*"[67] Exposure to wildlife smoke can contribute to "a range of negative health consequence[s]," and increased emissions from wildfires can "erode gains from efforts aimed at reducing $PM_{2.5}$ from other pollution sources."[68] By substantially increasing demand for electricity, the proposed ACF rule may increase wildfire risks to the additional detriment of air quality and public health, undermining not only clear legislative priorities but also CARB's responsibility to "coordinate, encourage, and review the efforts of all levels of government as they affect air quality."[69] As the agency charged with overseeing attainment for state criteria pollutant standards, CARB cannot overlook these impacts and the significant risk that increased wildfires will exacerbate existing nonattainment issues.

[66] Cal Code. Regs. tit. 17 § 60004.2(a).

[67] M. Burke, et al., *The Changing Risk & Burden of Wildfire in the United States*, PROCEEDINGS NTL. ACADEMY SCI. (Jan. 11, 2021), https://www.pnas.org/doi/10.1073/pnas.2011048118.

[68] *Id*.

[69] HSC § 39500"

Response: Please refer to Master Response 1. To the extent necessary under CEQA for the evaluation of potential wildfire impacts associated with the Proposed Project, these are presented on pages 107, 108, and 139 of the Draft EA. No edits to the Draft EA are required in response to this comment. No further response is required.

259-3: The commenter states:

"• CARB does not adequately consider how increased demand on the electric grid due to significantly increased ZEV use will require additional increases in electric utility construction, which will likely include gas or nuclear power units to make up for the intermittency of renewable resources such as wind and solar. The construction and operation of these facilities may have negative environmental impacts, including impacts on biological resources and increased GHG emissions."

Response: Please refer to Master Response 1. As disclosed in Chapter 2 of the Draft EA, 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. 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. 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. Additionally, new dispatchable capacity, storage and other zero-carbon resources, as well as demand-side management, can be utilized to maintain reliability with high concentrations of renewables. Vehicle smart charging systems can also help manage load to ensure that only critical charging is done during peak demand hours. The potential for vehicle-to-grid technology, where vehicles can support electricity load, hold the promise to support grid resiliency in the future.

As analyzed throughout the Draft EA, CARB anticipates the increased deployment of ZEVs as a result of the Proposed Project would require new or modified electric utility installation, connections, and expansions. The Draft EA also analyzes the impacts of potential construction that could foreseeably develop as a result of the Proposed Project, including under the Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Noise and Vibrations, and Tribal Cultural Resources, among others. However, where, when, and how construction occurs in building additional electric utility infrastructure is very fact-dependent and varies depending on factors such as natural resources, consumer demand, economic influences, geography, and other factors. It is speculative and not reasonably foreseeable at this time to anticipate all the environmental impacts of all downstream projects to this programmatic Draft EA. In addition, any new or modified facilities, no matter their size and location would be required to seek local or State land use approvals prior to their development. New or modified facilities in California would qualify as a "project" under CEQA, and part of the land use entitlement process for facilities proposed in California requires that each of these projects undergo environmental review consistent with the requirements of CEQA and the CEQA Guidelines. In addition, CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority.

259-4: The commenter states:

"• CARB does not consider potential environmental and safety risks associated with production, storage and distribution of large volumes of hydrogen, particularly in high-density population areas where hydrogen fueling hubs may be located."

Response: Contrary to statements made in this comment, the Draft EA presents an evaluation of potential risks associated with hydrogen fuel cells, including installation and use, on pages 67 through 73 of the Draft EA. As noted on page 71 of the Draft EA, hydrogen possesses several hazardous properties such as a very wide flammability range, very low ignition energy, low viscosity, high diffusivity, and is chemically lighter than air.[7] Impact 9-2 evaluates the potential risks associated with the use and storage of various hazardous materials, including hydrogen, and considers the storage and handling of such materials in accordance with applicable regulations and manufacturing standards (e.g., installation of a

[7] Health and Safety Executive. Fuel Cells: Understand the Hazards, Control the Risks. First edition, published in 2004. Available: www.thenbs.com/PublicationIndex/documents/details?Pub=HSE&DocID=278597, last accessed May 2022).

hydrogen detector at fuel stations and vehicle maintenance facilities) as part of its significance conclusion.

259-5: The commenter states:

"• CARB does not consider the impact of the rule on owners of fleets that are not subject to the requirements of the rule. If diesel ceases to become accessible or affordable, small operators may be forced to drive longer distances to obtain fuel, frustrating the emissions reductions goals of the rule.

- CARB does not consider how the negative economic impact the ACF rule will have on the petroleum industry could result in the abandonment of carbon capture, utilization, and storage technology already being developed, thereby increasing GHG emissions.

- CARB does not consider how the negative economic impact this Proposed Regulation will have on the renewable fuels industry could result in the abandonment of further technological advancements in fuels that already outperform ZEVs from a GHG emission and cost perspective."

Response: This comment addresses the economic impact of the Proposed Project "Evidence of social or economic impacts that do not contribute to, or are not caused by, physical impacts on the environment" is not substantial evidence of a significant impact on the environment. (Public Resources Code, section 21080(e)(2).) "A general response may be appropriate when a comment does not contain or specifically refer to readily available information…." (CEQA Guidelines, section 15088(c).) As such, comments related to economic or financial concerns, like these which are based on unsubstantiated opinion that do not present evidence of economic impacts that contribute to, or are caused by, physical impacts on the environment 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. CARB staff will be responding to all comments received to date, including those received at the second Board Hearing, in the Final Statement of Reasons. No further response is required.

259-6: The commenter states:

"• CARB does not consider the additional GHG emissions over the life cycle of ZEVs beyond the narrow snapshot in time of emissions at the tailpipe. The local air quality benefits of ZEVs' tailpipe emissions in California, if any, are thus offset and surpassed by these additional life cycle emissions, which exacerbate the global issue of climate change that the ACF rule is intended to address."

Response: Please refer to Master Response 4. No edits to the Draft EA are required in response to this comment. No further response is required.

259-7: The commenter states:

"• CARB has not considered how increased demand for critical minerals and the resulting mining and smelting in potentially sensitive environments may adversely impact critical habitat, watershed impacts, endangered species, and indigenous people."

Response: Please refer to Master Response 2. No edits to the Draft EA are required in response to this comment. No further response is required.

259-8: The commenter states:

"• CARB has not adequately addressed increased potential for human rights and labor abuses resulting from the significant increase in demand for minerals necessary for large-scale forced electrification."

Response: This comment addresses a potential social impact of the Proposed Project. Please refer to Master Response 2 and to Response to Comment 259-5. No edits to the Draft EA are required in response to this comment. No further response is required.

259-9: The commenter states:

"• CARB does not consider the cumulative effects of the factors mentioned above that could result in increases of GHG and criteria pollutant emissions.

Valero asks that CARB fully consider and provide mitigation measures for these factors, as it must do under CEQA.[70] Notably, supporting low-carbon fuels and efficient ICE technologies would be a potential mitigation measure.

[70] *Id.* § 60004.2(b)."

Response: To the extent required under CEQA, the potential cumulative impacts of the Proposed Project are presented in Section 5.0 of the Draft EA. As noted in the responses provided above, "evidence of social or economic impacts that do not contribute to, or are not caused by, physical impacts on the environment" is not substantial evidence of a significant impact on the environment. (Public Resources Code, section 21080(e)(2).) "A general response may be appropriate when a comment does not contain or specifically refer to readily available information…." (CEQA Guidelines, section 15088(c).) As such, comments related to economic or financial concerns, like these which are based on unsubstantiated opinion that do not present evidence of economic impacts that contribute to, or are caused by, physical impacts on the environment are outside of the scope of the Draft EA and not addressed in this response to comments document. Further, the potential mitigation suggestions provided by the commenter are already considered to be a part of other existing regulatory programs, including the Low Carbon Fuel Standard program (LCFS), and the Heavy-duty Omnibus regulation and would not constitute mitigation measures but would instead constitute existing regulatory compliance requirements already reflected in the baseline.

Comment Letter 261

10/17/2022 Kerry Shapiro
Jeffer Mangels Butler & Mitchell LLP

261-1: The commenter states "**3.The ISOR Does Not Adequately Address or Respond to the Infrastructure Necessary to Implement the Regulation**.

CEQA requires an analysis to evaluate the effects of indirect impacts, including foreseeable future growth, both as the result of the requirement or incentive to provide that growth, as well as the necessity of that growth to realize objectives of the Regulation the ISOR characterizes as central. CEQA Guidelines §15064(d)(2). Foreseeable indirect or secondary effects that occur later in time or more spatially distant than direct effects also require analysis. CEQA Guidelines §§ 15064(d)(3), 15358(a)(2). Indirect effects include growth-inducing and other effects such as changes in land use, population density, or growth rate induced by a project. 14 Cal Code Regs §15358(a)(2). In *City of Antioch v. City Council of the City of Pittsburg*, 187 Cal. App. 3d 1325, 1336 (1986), found that analysis of a road and sewer project also must evaluate the housing those improvements could facilitate, because the infrastructure could not "be considered in isolation from the development it presages." Id. Accordingly, the court held the project should not go forward until such impacts were evaluated under CEQA. *See id*. at 1337-38.

The ISOR and EA need not precisely identify the locations of future infrastructure—physical development that they acknowledge is required to implement the Regulation—to attempt to provide a reasonable analysis of the associated environmental effects. Rather, the EA must disclose all that it reasonably can. *Friant Ranch*, 6 Cal.5th at 520. As the *Friant Ranch* court stated, the impact analysis must give a sense of the "nature and magnitude of the health and safety problems… [or] explain why it was not feasible to provide an analysis." 6 Cal.5th at 520. That EIR's conclusion that implementation of MM would "substantially reduce" impact, without further explanation or factual support, amounted to a "bare conclusion" that did not satisfy CEQA's disclosure requirement. 6 Cal.5th at 522. Similarly, in *City of Hayward v Board of Trustees of Cal. State Univ.*, 242 Cal.App.4th 833, 859 (2015), an EIR for a university campus expansion plan and enrollment increase failed to evaluate the secondary environmental effects that could result from increased student use of nearby parks, and that failure fatally compromised the EIR."

Response: "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 commenter criticizes CARB's CEQA analysis in a conclusory manner but does not present readily available information that would better inform the analysis of impacts associated with the Proposed Project. Further, the case decision cited by the commenter is distinctly different from the Proposed Project in that the improvement of a road and sewer have distinct endpoints, and the location of potential housing as a result of that infrastructure extension could be reasonably inferred. CEQA does not require evaluation of speculative impacts (Title 14 CCR Section 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. Sections I.C. and 2. on pages 9 and 10 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 Project. Please also refer to Master Response 1.

261-2: The commenter states "**(a) The ISOR and EA Fail to Evaluate and Disclose the Potential Construction-Related Effects of the Regulation Regarding Electricity Supply and Infrastructure.**

Here, the Regulation would both effectively require—and is expressly intended to facilitate—expansion of electricity and fuel cell conveyance and charging/filling infrastructure. Thus, the connection here between the Regulation and future development is at least as immediate as in *Hayward, supra*. Section 4.B.19 (Utilities) of the EA provides a limited discussion of energy demand, generation, and transmission, but simply dismisses any ability to discuss the impacts associated with improvements. Rather, the analysis and the ISOR appears simply to assume the availability of adequate generation capacity at the time(s) and location(s) needed.

But reasonable assumptions regarding certain elements of infrastructure are possible: indeed, the analysis estimates the number and type of charging and fueling stations anticipated to meet projected demand, and describes some initiatives to provide for that construction. However, despite the availability of reasonable assumptions regarding development, the discussion of construction-related impacts does not even attempt to quantify emissions or tie those emissions to public health outcomes, and no evidence in the record states why reasonable assumptions for analysis are not possible. Further, even to the extent the discussion addresses some construction effects, it relies on future discretionary action by other agencies, such as air districts or other local agencies; but these actions may or may not require discretionary action, and therefore may not provide opportunities to impose any specific mitigation measures other than those already required by applicable rules and regulations. For all of these reasons, the EA here must consider the potential for development that could occur under the terms of the Regulation. The failure of the EA to consider that growth necessarily results in the failure adequately to disclose the nature and extent of Project impacts, and the failure of the Regulation to provide adequate safeguards for operators for whom infrastructure and generation capacity are unavailable when required for compliance."

Response: "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 commenter criticizes CARB's CEQA analysis in a conclusory manner but does not present readily available information that would better inform the analysis of impacts associated with the Proposed Project. Please refer to Master Response 1 and response to comment 223-1.

261-3: The commenter states "**(b) Electrification will Substantially Increase Demand for Electrical Generation Capacity**.

The electricity and equipment needed to shift to a BE fleet is substantial. Existing infrastructure, even to existing facilities that operate heavy machinery with high electricity demand, cannot deliver the necessary loads. For example, a 50-truck base-case fleet, with 100 kW of required charging capacity at 480 volts, would require an input of 111kW AC at 134 amperes. The ability to charge the entire fleet simultaneously would require about 6,700 amperes. This capacity alone would require four transformers rated at 1.5 megavolt amperes ("MVA") and four pieces of 2000-ampere switchgear; greater charging capacity would require more equipment. Even assuming the ready availability of this equipment—which itself would require a major capital expenditure—the extension of infrastructure to such a site represents a major undertaking for both utilities providers and owners and operators, and also would require the availability of power in the local area.

The ISOR suggests that operators would not need to maintain charges for entire fleets, and analogizes to fleets in which some of the trucks would routinely remain partially fueled. But the nature of ICEVs permits storage of unfueled (or nearly unfueled) trucks in ways that are not practical with BE-powered trucks: specifically, fueling a truck to place it into service as a primary or backup piece of equipment requires minutes; charging a BE truck can require hours before it can be put into service. Consequently, although it may be possible that some small portion of a fleet could be maintained at minimal charge, as a practical matter it is not true that any substantial portion could be so maintained."

Response: Please refer to Master Response 1 and response to comment 223-1. No edits to the Draft EA are required in response to this comment. No further response is required.

Fleets that use smart charging and fleet management software for depot charging overnight can increase operational cost savings and lower the amount of charging infrastructure required through better utilization of TOU energy price plans or rates and optimized charging schedules designed to minimize battery wear.[8,9] Fleets utilizing smart charging and fleet management software would not simultaneously charge all the batteries at once, thereby reducing the need to design for maximum capacity. Additionally, fast charge equipment can charge a BEV to 80 percent in just 20 minutes to 1 hour.[10]

To fully realize the economic, air quality, and climate benefits of electrification, California must pursue greater vehicle-grid integration, or coordination of charging with grid needs, to ensure that charging is better aligned with clean, renewable electricity without sacrificing driver convenience. The timing of charging is a key determining factor. ZEVs are a unique electric load and are potentially advantageous compared to other types of load. In most

[8] Klein, P. S., & Schiffer, M. (2022). *Electric vehicle charge scheduling with flexible service operations*. Ithaca: Cornell University Library, arXiv.org. (web link: https://arxiv.org/pdf/2201.03972.pdf)
[9] U.S. Department of Transportation. Rural EV Toolkit, (web link: https://www.transportation.gov/rural/ev/toolkit/ev-basics/charging-speeds, last accessed February 2023).
[10] Houbbadi A, Trigui R, Pelissier S, Redondo-Iglesias E, Bouton T. Optimal Scheduling to Manage an Electric Bus Fleet Overnight Charging. *Energies*. 2019; 12(14):2727. https://doi.org/10.3390/en12142727

circumstances, electric vehicles do not draw energy at the same time they are operating, and charging time is usually much shorter than vehicle dwell time. This provides flexibility to charge at times that are less impactful to the grid and at times of abundant renewable generation availability. Electric vehicles are also able to take advantage of grid friendly vehicle-grid integration strategies, such as rate design, to encourage specific vehicle charging behaviors. Additionally, more advanced strategies, such as onsite and local software and hardware solutions, can shift a large portion of charging loads to hours that are less impactful to the grid, or to charge with renewable generation.

There are significant efforts underway to alter the load shape generated by vehicle charging, whether by use of electricity pricing incentives, actively managed or smart charging, or onboard programming of charging times. These would have the effect of moving the load off the peak. Modeling results from the CEC's AB 2127 report suggest that with some residential charging management strategies, a large amount of charging load will align with daytime solar generation. Furthermore, demand for DC fast charging, as well as public and work Level 2 charging occurs mostly during the day. However, more than half of total charging energy demand still occurs outside solar generation hours (9 a.m. to 5 p.m.) and the sudden spike in charging load at midnight due to the simultaneous response to off-peak time-of-use rates may overload distribution equipment and affect power quality.

At a system level, due to diversity of charging times, the electricity demand of these types of vehicles is relatively low; however, many ZEVs charging at once can affect utility generation and transmission assets. The potential stresses on the electric grid can be avoided through asset management, system design practices, and managed charging to shift a significant amount of the load away from system peak. Charging management strategies beyond time-of-use rates, including those that reflect wholesale prices and carbon intensity, will be needed to align electric vehicle loads with daytime solar generation. And residential charging technologies should be coordinated with distribution systems to lessen the impact of charging timed to begin at midnight. At current ZEV adoption rates, the electric system is likely able to accommodate increasing EV loads in the short term. However, depending on near-term adoption rates and longer-term growth, local distribution system impacts and transmission level constraints, (particularly when accounting for electrification across multiple vehicle classes), may occur and need to be planned for now. Traditional system planning and investments can be combined with new strategies, such as managed/smart charging. Further, storage could manage peak loads from charging in California, and models suggest that EV charging can reduce renewables curtailment anywhere from 25–90 percent.

The CEC, California Independent System Operator (ISO), CPUC, CARB, and other stakeholders are working to update the state's roadmap to integrate electric vehicle charging needs with the needs of the electrical grid. The update will reflect advancements in VGI technology and include actions the state can take to advance the goals established by the Governor's Executive order N-79-20.

SB 676[11] enacted Public Utilities Code Section 740.16 which requires the CPUC to establish strategies and quantifiable metrics to maximize the use of feasible and cost-effective electric vehicle (EV) integration into the electrical grid by January 1, 2030. In December 2020, the CPUC adopted a decision on VGI which created metrics and strategies for advancing VGI and authorized almost $40 million for the utilities to spend piloting VGI technologies and programs. In November 2021, the CPUC adopted a Resolution creating a pathway for alternating current (AC) interconnection for vehicle-to-grid integration and allowing some PEVs to more easily enable bidirectional mode.[12] The CPUC is continuing to consider streamlining procedures for both PEV charging and bidirectional PEV interconnections.

Furthermore, battery technology is rapidly evolving which is resulting in a higher battery energy density and lower battery weight and FCEV offer even greater energy density and are well suited for longer range applications. These ZEV options, BEV or FCEV, allows for fleet owners to select the technology that best fits the range and weight requirements for their fleet. The Proposed Project is implemented over two decades and would not phase out ICE vehicles from any fleet until 2035 at the earliest, and it also allows for designated backup vehicles to remain as ICE as long as the vehicle is operated less than 1,000 miles per year excluding any mileage travelled under contract while performing emergency operations in support of a declared emergency event.

261-4: The commenter states "**(c) The Utilities Discussion Simply Assumes, without Evidence, the Availability of Infrastructure and Electricity**.

The ISOR, and the Utilities and Service Systems analysis in the EA (Appx. D, § IV.B.19; the entirety of which comprises two pages), simply assume the Regulation's, "increased deployment of ZEVs ***could result in a relatively small increase*** in production of electricity and hydrogen fuel" (emphasis added), as well as additional extraction of minerals and other effects. (p. 105.) The discussion relies on a number of assumptions for which the EA does not appear to provide substantial evidentiary support. Chief among these is the omission of any construction impacts discussion associated with infrastructure build-out, to accommodate the anticipated loads and serve facilities that house and charge EVs, and a sole focus on long-term operational impacts. (See pp. 105-106.)

The analysis concedes, as it must, the necessity of the construction of additional infrastructure for electricity and hydrogen, but simply declares any actual analysis of effects speculative. This is despite the ISOR referencing "robust" CPUC planning policies that could permit some reasonable assumptions regarding capacity, and—as described above—the discussion itself providing estimates of the number and types of charging/fueling facilities anticipated.

[11] SB 676, Bradford, Ch. 484, Stats. 2019.

[12] CPUC Resolution E-5192. Pacific Gas and Electric Company Advice Letter 6259-E requests approval of four vehicle-grid integration pilots pursuant to Decision 20-12-029 (web link: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M456/K322/456322989.PDF)

Further, the discussion of operational effects does not address energy delivery, but only secondary effects such as increased construction of BE vehicles and increased mining activity for minerals used in BE technology, particularly batteries, and disposal issues associated with the same. (*Id.*) The discussion and Regulation assume that energy will simply be available when needed. This appears based on the assertion in the ISOR that because policy generally requires a 15% buffer between demand and generation capacity for electricity, electricity generally will be available. The same discussion briefly acknowledges the existence of reliability and climate-related variability issues and the need for more robust systems; however, a single passing mention fails to illustrate the scale of the problem and the potential impact on electrification efforts. For example, according to Climate Central, 83 percent of power outages across the United States between 2000 and 2021 resulted from weather conditions that are expected to worsen.[3] California reported the third-most outages in the country, with 44 outages—more than one third of the 129 outages since 2000—occurring between 2019 and 2021, of which California Independent System Operator ("CalISO") initiated 14 pre-emptively to avoid broader outages.[4] The CalISO only narrowly avoided rolling power outages in the summer of 2022,[5] and officials anticipate conditions will worsen[6].

The reliance of the ISOR on local agencies to develop infrastructure and resources exacerbates this problem. CARB explicitly renounces responsibility for construction, oversight, or permitting for infrastructure and energy development projects, and does not exercise or purport to exercise any authority to ensure or even accelerate delivery. Consequently, CARB cannot provide any assurance of availability, and neither the ISOR nor the Regulation provide any meaningful discussion of—or relief to address—this issue.

Based on the above, CARB must revise the ISOR and Regulation to include the following:

- Reflect the extent of the new generation capacity and associated infrastructure necessary to its implementation, and

- Provide appropriate relief to owners and operators that do not have the access to these resources that is necessary to comply with the Regulation.

The Regulation could incorporate these provisions into an existing exemption (e.g., Infrastructure Unavailability—addressed below) or create a new exemption, but must do so in some form. Absent any attempt to do so, the analysis has no basis for its conclusion, and does not provide the information necessary to permit the public and decisionmakers to draw accurate conclusions regarding the relative benefits and adverse effects of the Regulation, or for the ability of operators to comply with the Regulation if electrical infrastructure or generation capacity is not available.

[3] https://www.cnn.com/2022/09/14/us/power-outages-rising-extreme-weather-climate/index.html; https://www.climatecentral.org/climate-matters/surging-weather-related-power-outages.

[4] *Id.*

[5] September 6, 2022 Emergency Alert Declaration available at: https://www.caiso.com/Documents/rotating-power-outages-are-now-possible-to-protect-grid.pdf.

[6] https://www.climatecentral.org/climate-matters/surging-weather-related-power-outages."

Response: Please refer to Master Response 1 and Response to Comment 223-1 on how the infrastructure delay extension was amended to better address potential delays in infrastructure installation for reasons beyond the control of the fleet owner, and response to comment 270-10 for how the Proposed Project impacts the grid. The extension would provide for up to a 5-year delay. Staff do not believe it is reasonable to assume that infrastructure can never be made available where needed to operate ZEVs as that is a regular activity for utilities to supply their customers. California law requires utilities to provide service within their service territory with the following exceptions, unsafe or dangerous conditions, fraud cases, or the abandonment of a service location. A utility may end service after giving notice to a customer for not paying an outstanding bill or providing a security deposit, or breaking a rule that applies to the utility service.[13,14]

The ZEV requirements are phased in over one to two decades providing time for planning infrastructure deployment and would not occur overnight, most sites have some electrical capacity to support some ZEVs, and retail networks are being expanded and fuel cell electric vehicles are likely to be another ZEV option in the near future. Climate change is causing unprecedented stress on California's energy system—driving high demand and constraining supply. Heat, drought, and wildfires can both reduce electricity supply from reductions in hydropower generation and impacts on generation and transmission performance, and increase demand, especially in the evening hours when solar generation is declining.

California has experienced three straight years of energy reliability challenges, including a multi-day extreme heat event across the western United States with temperatures up to 20 degrees above normal in California, resulting in rotating outages in August 2020. In 2021, heat waves in June prompted a Grid Warning and the onset of emergency conditions, and the Bootleg Fire caused the loss of one transmission line, reducing import capability by 3,000 megawatts into the California Independent System Operator (CAISO) balancing authority area. And from August 31–September 9, 2022, a 10-day extreme heat event resulted in an unprecedented, sustained period of high peak loads in the CAISO system, averaging 47,000 MW and maxing at an all-time record of over 52,000 MW on September 6.

The Western region also hit its record peak load on September 6, at 167.5 GW. Reliable electricity service was maintained throughout the 10-day September 2022 heat wave in spite of the record-breaking load levels. Factors that contributed to this outcome include the installation of over 3,500 MW of lithium-ion battery storage since summer 2020 which is

[13] Office of Attorney General website on protecting consumers and utilities (web link: https://oag.ca.gov/consumers/general/utilities, last accessed February 2023).

[14] CPUC, Frequently Asked Questions about Utility Complaints, 2023 (web link: https://www.cpuc.ca.gov/consumer-support/file-a-complaint/utility-complaint/cab-faqs, last accessed February 2023).

crucial to reducing curtailments of wind and solar, enhanced coordination and communication within and outside of California, engagement with customer groups and other stakeholders, state actions to reduce load during critical times, and the additional capacity provided through the Strategic Reliability Reserve and other new state programs authorized in the 2022 Budget to provide load reduction and support the grid in extreme events.

CEC, CPUC, CAISO, and the California Department of Water Resources will continue to build out strategies to enhance reliability in light of the increasing and compounding impacts of climate change on the electricity system.

261-5: The commenter states "**(d) The Infrastructure Unavailability Exemption Requires Additional Flexibility to Address Actual Conditions with Respect to Infrastructure and Electricity Generation Capacity.**

In any case, neither the ISOR nor the EA provides any basis for the assumption that electrical infrastructure and generation capacity would be available in the amounts needed at the time fleet owners and operators would be required to purchase vehicles and support their operation. Consequently, the current exemption for infrastructure construction delay, provided in § 2015.3(c) of the Regulation, is too narrowly drawn:

> "Infrastructure Construction Delay Extension. Fleet owners shall receive ***a one-year extension*** from the ICE vehicle removal requirements of section 2015.1(b) and delay delivery of ordered ZEVs that would be reliant on the ZEV charging or fueling infrastructure ***for one year*** if the criteria described in section 2015.3(c) are met."

Emphasis added.) Section 2015.3(c) appears to provide only for a single one-year extension per project, and only for construction delays that occur subsequent to signed contract for infrastructure installation. It does not address the key issue of whether infrastructure is available in the area that a utility could extend to a facility, particularly if that facility is located in a remote area; it also does not address whether sufficient electricity generation is available even if the infrastructure were available to deliver it at the time that compliance with the Regulation requires orders of BE vehicles or other ZEVs. No evidence demonstrates—or even suggests—that one year is sufficient to assure delivery of infrastructure or electricity where either may not be available.

Consequently, CARB must revise the exemption to include the following:

- An exemption period that applies as long as owners or operators can substantiate the lack of availability of infrastructure, as otherwise required by the Regulation; and

- The exemption also must apply when owners or operators can demonstrate electricity is unavailable, even where infrastructure is available.

Incorporating these revisions would allow the Regulation to account for State-wide and/or local conditions that prevent timely compliance, and would prevent operators becoming subject to penalties for the failure of utilities to provide adequate generation capacity or a means of delivering the energy to an area or facility. Further, the proposed language would permit application for the extension at the time an operator must order vehicles to comply with the milestones provided in the Regulation. This language also would align the Regulation with the stated uncertainties in the ISOR regarding electricity supply, and would mitigate the effects of those uncertainties."

Response: Please refer to Master Response 1 and response to comment 223-1. No edits to the Draft EA are required in response to this comment. No further response is required.

261-6: The commenter states "**5.The Alternatives Analysis Dismisses Feasible Alternatives without Adequate Justification.**

The ISOR characterizes the purpose of the Regulation in the following general ways: accelerate adoption of zero-emission vehicles ("ZEVs"), provide emission reductions consistent with the State Implementation Plan for the Clean Air Act (the "SIP") and human health, maintain and continue reductions in GHGs in accordance with adopted legislation, and providing "market certainty" for zero-emission technologies and infrastructure. However, the ISOR and EA reject certain alternatives based on narrow readings of these objectives, or addressing only a subset of these objectives. This error resulted in the improper rejection of Concepts 7 and 8 in the ISOR, and CalCIMA provides suggestions for addressing this impropriety.

The use of unduly narrow project objectives violates CEQA. *In Re Bay Delta Coordinated Environmental Impact Report Proceedings*, 43 Cal. 4th 1143, 1166 (2008) ("A lead agency may not give a project's purpose an artificially narrow definition"). Here, the Project objectives are read too narrowly. For example, although the Alternatives discussion of the ISOR (§ IX.B) discusses a range of concepts that the discussion did not carry forward for full analysis, the objectives regarding acceleration of ZEV adoption and GHG reductions are read so narrowly as to preclude limited protections for early adopters of technologies CARB previously encouraged and incentivized as GHG- and other emission-reducing measures.[7]

In its initial comments on the proposed Regulation, the Western States Trucking Association ("WSTA") suggested early action credit for adopters of RNG vehicles. The ISOR considered but rejected this alternative as Concept 7, based on the objective of the Regulation to reduce "GHGs"; that is, the objectives of the Regulation appear too narrowly drawn to exclude a number of criteria pollutants in "tailpipe emissions," and do not consider the lifecycle GHG emissions differences of fuel alternatives, including RNG; had it done so, CARB would have recognized the relative benefits of permitting RNG as longer-term bridge technology for companies that followed CARB's guidance by investing in the technology. Further, the discussion does not appear to consider other pollutants for which California counties currently remain in non-attainment, such as ozone and carbon monoxide ("CO").[8]

The ISOR also claims this concept would not reduce PM_{10} from tire wear, compared to existing vehicles, but does not explain how the Regulation would do so in comparison; indeed, a one-for-one replacement of vehicles would, in the absence of any data to the contrary, generate identical tire wear for distances travelled. However, the discussion—and the ISOR—does not establish the availability of direct replacement equipment for certain vehicles or vehicle types; rather, availability is hypothesized. For example, the regulation could foreseeably result in the availability only of lower-capacity vehicles for certain types, particularly specialty vehicles such as aggregate haul trucks or concrete mixers, which would result in significantly larger fleet sizes to maintain approximate current operations, increasing tire and brake wear and associated $PM_{2.5}$ and PM_{10} emissions. Lastly, the ISOR claims this Concept would not achieve the goal of maximizing transportation electrification while resulting in no additional NO_x, but the future use of hydrogen fuel cell ("HFC") technology—which is assumed and for which the ISOR provides a pathway—also would not appear to meet this objective.

Similarly, the best available control technology ("BACT") alternative (Concept 8) would allow the use of BACT for compliance with the Regulation and incorporates the concept of availability as a one-to-one correspondence of internal combustion-engined vehicles ("ICEVs") to ZEVs. The discussion asserts this concept would treat Non-ZEVs and ZEVs equally, and uses the example of drayage trucks to assert the concept could result in fewer ZEVs and more ICEVs. But this draws the concept—and its intent—too narrowly, and appears designed to permit rejection of this concept, particularly given the admittedly minor percentage of vehicles at issue:

> "The number of Class 2b-8 CNG vehicles projected for 2025 is already relatively small at ***approximately one percent of California's statewide heavy-duty vehicles***. Allowing a narrow exemption for an extremely small percentage of California's heavy-duty vehicles could result in unnecessary financial risk and the potential for stranded assets as ZEV technology improves and ZEV infrastructure expands. Staff is also concerned that the cost to operate existing CNG fueling stations and maintenance shops will grow with declining usage."

(Emphasis added.) But this again simply assumes the availability of ZEVs and associated infrastructure, and ignores the stranded assets this Regulation would create: as described above, CARB's prior rulemaking promoted RNG vehicles and encouraged their early purchase; the Regulation would itself create stranded assets by requiring the replacement of RNG vehicles, which were recently purchased and infrastructure recently installed, with diesel vehicles. In contrast, providing some form of relief for the existing early adopters of RNG vehicles would only represent, in the ISOR's own words, "a narrow exemption for an extremely small percentage" of vehicles, but still would provide significant environmental benefit.

[7] For example, alternative fuels encouraged in the 2018 Low Carbon Fuel Standard ("LCFS") rule amendments included renewable natural gas ("RNG") for the net reduction in NOx and particulate matter ("PM"). Both the ISOR and EA for that action defended RNG.

[8] U.S. EPA, 2022. California Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. September 30. Available at: https://www3.epa.gov/airquality/greenbook/anayo_ca.html."

Response: Please refer to Master Response 3. This comment misstates the rationale for rejecting the alternatives offered by CTA, WSTA, and EMA. Both of the listed alternatives are less effective at reducing criteria and greenhouse gas emissions and would result in fewer deployments of ZEVs than the Proposed Project. These alternatives were rejected due to their inability in meeting all or most of the objectives identified. The commenter appears to misunderstand that the use of RNG and lower emitting combustion engines are already part of the baseline and cannot be double counted as achieving something new.

Regarding other pollutants, heavy-duty vehicles are major emitters of oxides of nitrogen, a precursor to ozone, and particulate matter but are not a major emitter of carbon monoxide. Zero-emission vehicles produce no tailpipe emissions and do not produce ozone or carbon monoxide, but because medium- and heavy-duty vehicles do not produce significant amounts of these emissions, the additional benefit of ZEVs was not quantified. In addition, the PM emissions analysis also includes an estimated 50 percent reduction in non-exhaust PM associated with brake-wear for EVs due to regenerative braking when compared to conventional vehicles and did not assume changes associated with tire wear.[15]

In response to stakeholder comments, staff added a provision after the Proposed Regulation Order release on August 30, 2022 to consider early investments made in CNG vehicles involved in the transfer and processing of organic waste diverted from landfills as required by SB 1383.[16] Waste and wastewater fleets with existing CNG vehicles will be given a longer ZEV phase-in for vehicles involved in the transfer and processing of organic waste as long as they utilize renewable natural gas to power those vehicles. This provision was added to give the waste and wastewater sectors more time to expand RNG to other markets besides directly as a combustion fuel for on-road transportation and avoids stranded assets from installing new RNG fueling infrastructure since the CNG vehicles eligible for this extension must already be in the fleet and by extension the CNG fueling infrastructure should already be in-place. This provision temporarily delays emissions reductions as RNG use and the Heavy-duty Omnibus regulation are in effect and are part of the baseline.

261-7: The commenter states "**(a) Similar Alternatives to Those Rejected are Needed to Address the Lack of ZEV Options for Specialty Construction Vehicles**.

CalCIMA appreciates that CARB has recognized the inherent limitations and challenges of implementing BE-powered specialty vehicles and weight-sensitive vehicles. CalCIMA also agrees with CARB that market segment will drive sensitivity to weight; as CARB noted on page 100 of the ISOR,

[15] National Renewable Energy Laboratory, BAE/Orion Hybrid Electric Buses at New York City Transit (web link: https://afdc.energy.gov/files/pdfs/42217.pdf, last accessed January 2022).
[16] SB 1383 (Lara, Stats. 2016, ch. 395).

"[t]he sensitivity to weight is dependent on the market segment (e.g., bulk haulers, refrigerated haulers, dry van general freight operation). For example, bulk haulers (petroleum products, chemicals, aggregates) are the most weight-sensitive market segment, but only account for 2 percent of the total trucks on the road."

Trucks that haul aggregate to construction site are weight-dependent construction vehicles. However, other types are highly weight-dependent, as well: concrete mixers and bulk haulers of cement also constitute weight-dependent construction vehicles, and the Regulation must consider their status as such.

In this context, CARB's assessment is likely correct that viable BE solutions likely will not enter the market until the late 2030s. As the ISOR accurately observed,

> "It is necessary to limit the definition to Class 8 vehicles (GVWR >33,000 lbs.) because lighter vehicles can be rated into a higher weight class category if needed to adjust to any weight impacts from ZEV powertrains when Class 8 vehicle cannot. ***It is prudent to allow more time for technology improvements and expected weight reductions for heavier vehicles***."

(Appx. H-2; emphasis added.) Further, we understand CARB recognizes that vehicle weight reductions and associated shifts to less robust materials likely will not provide viable options for construction specialty vehicles, which must transport heavy payloads and operate on undeveloped, unpaved, and uneven surfaces. Collectively, these observations demonstrate that CARB (correctly) does not expect viable zero emissions technology for heavy-duty uses until sometime after 2030. Further, CARB considers construction specialty vehicles among the least likely for which a zero emission solution may become available in any case.

The Regulation as currently drafted would only provide relief from a ZEV requirement for these vehicles by permitting the continued use of diesel vehicles, rather than promote the use of RNG vehicles as a bridge technology. This will, perversely, ensure continuation of emissions-heavy diesel fleets for longer periods of time, until suitable ZEV vehicles are available. Thus, without a quantified understanding of how "bridge" technologies can support GHG reductions, while battery-electric ("BE") and HFC vehicular technology continue to advance, leaves the discussions of Concepts 7 and 8 unsupported by substantial evidence, and does not represent a good-faith effort to address those alternatives, as required by CEQA.

This omission has even greater importance, because prior rules asked and incentivized CalCIMA's members to reduce vehicle emissions now and in the near-term. In response, many have heavily invested in currently available CNG/RNG technology, which provides significant reductions in emissions of criteria pollutants and GHGs from diesel. These investments occurred recently and with the reasonable expectation of a full lifecycle of use. Further, we believe CARB is aware of recent studies demonstrating that the environmental benefits of RNG, in comparison to diesel, are substantially greater than originally assumed.[9] This data conclusively contradicts prior assumptions embedded in CARB's analysis, and

demonstrates that RNG has a place in emissions reductions strategies, particularly where ZEVs are not and may not be available in the short term.

Based on the above, CalCIMA proposes the following addition to section 2015.2(e) of the Regulation to address this narrow issue—CARB estimates two percent of trucks, of which we address only a subset—and allow immediate and substantial reductions of emissions (particularly NO_x and $PM_{2.5}$) that advance CARB's stated objectives for the Regulation:

> **"(6) Class 8 Construction Vehicle Exemption: Class 8 specialty vehicles that deliver construction materials and/or conduct work on construction sites (examples include concrete mixers, powder trucks, and construction aggregate trucks) shall be exempted from this regulation, and fleet owners may continue to purchase natural gas-powered ICEVs until 2039, if the vehicles meet the following criteria:**
>
> **(i) Based at a facility that is contracted to install or has installed depot fueling for natural gas vehicles; and**
>
> **(ii) Part of a fleet for which the owner or operator has established fuel delivery contract provisions that require delivery of RNG to the extent feasible.**

This measure is consistent with CARB's rejection of early-adopter credits for RNG vehicles (alternative Concept 8, as discussed above). This issue also is important because, as described above, the Air Quality analysis for the Regulation (Appx. D, § IV.B.3) fails to evaluate and disclose the potential emissions of the Regulation for all but two criteria pollutants (NO_x and $PM_{2.5}$) and GHGs, and purports to conclude that the only direct effect of the Regulation is beneficial. Even if the objectives of the analysis concern tailpipe emissions and GHG reductions, the analysis still must disclose other foreseeable criteria pollutant and GHG emissions that could result from implementation of the Regulation, including the different GHG emissions benefits of RNG when compared to electric vehicles from a lifecycle perspective. Although the analysis later concedes the indirect effects, such as construction activities associated with infrastructure build-out, would be significant, it does not even attempt to quantify any of those impacts, and therefore fails fully to disclose those impacts and fails to serve as an adequate informational document."

[9] See the presentation to the South Coast Air Quality Management District, available at: http://www.aqmd.gov/docs/default-source/technology-research/clean-fuels-program/clean-fuels-advisory-group-agenda_september-8-2022.pdf?sfvrsn=21"

Response: Please refer to Master Response 5. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 270

10/17/2022 Tanya DeRivi
Western States Petroleum Association

270-1: The commenter states "Inadequate Environmental Assessment: CARB has failed to fully assess the impacts of the proposed ACF regulation on particulate matter (PM) and greenhouse gas (GHG) emissions, critical mineral resources, and California's water supply. Additionally, CARB has failed to evaluate an alternative that would allow for low-carbon intensity (low-CI), low-NO_X technologies to compete with ZEVs in their alternative analyses presented in the draft Environmental Assessment for the proposed ACF. Refer to Comments A.2 through A.7 in Attachment A for further details."

Response: The comment provides introductory information and an overview of more detailed comments made later in the comment letter. Please refer to Responses to Comments 270-2 through 270-10 below. As shown in the below responses, the Draft EA's analysis is considered valid, appropriate, and in accordance with CEQA requirements. Further, the Draft EA presents a reasonable range of alternatives that achieve most of the basic project objectives, as required under CEQA.

270-2: The commenter states "*Additional Environmental Impacts*: CARB's Draft EA does not consider potentially significant environmental impacts, in contravention of CARB's CEQA obligations. CEQA requires that the Draft EA contain "[a] discussion and consideration of environmental impacts, adverse or beneficial, and feasible mitigation measures which could minimize significant adverse impacts identified," as well as "[a] discussion of cumulative and growth-inducing impacts." Cal. Code Regs. title17, § 60004.2(a). As detailed in Comments 5-8, CARB's Draft EA is deficient in several respects—CARB fails to account for energy impacts associated with increased electricity production, impacts on hydrology and water quality from increased hydrogen production, impacts from mining of lithium and other rare earth metals, and cumulative impacts for the State's electrical generation, transmission, and distribution infrastructure."

Response: Contrary to statements made in this comment, the Draft EA does evaluate the potential energy, hydrology/water quality, mineral resources, and cumulative impacts of the Proposed Project. Refer to Impacts 6-1 (page 56 of the Draft EA), 6-2 (beginning on page 56 of the Draft EA), 10-1 (beginning on page 74 of the Draft EA), 10-2 (beginning on page 76 of the Draft EA), and 12-1 (beginning on page 78 of the Draft EA), as well as Chapter 5, "Cumulative and Growth-Inducing Impacts" located on pages 111 through 139 of the Draft EA. Within those impact analyses, the Draft EA evaluates the potential reasonably foreseeable compliance responses to the Proposed Project, including an increase in mining, manufacturing, and other associated facilities. Also refer to Master Response 2 regarding the assessment of mining impacts of the Proposed Project. With respect to proposed plans to expand the State's electrical grid, refer to Response to Comment 259-3 and Master Response 1.

270-3: The commenter states "**A.2 The ISOR and Draft EA fail to assess all of the impacts of the proposed ACF regulation on the statewide particulate matter emission inventory.**

As noted on Page 15 of the Draft EA one of the primary objectives of the proposed ACF regulation is to "accelerate the deployment of Zero-Emission Vehicles (ZEVs) that achieve the maximum emissions reduction possible from medium- and heavy-duty vehicles to assist in the attainment of NAAQS for criteria air pollutants."[11] Several regions of the State are in non-attainment of the Federal PM_{10} and $PM_{2.5}$ standards.[12] Hence CARB should analyze the impacts of the proposed ACF regulation on total statewide and region specific PM_{10} and $PM_{2.5}$ emissions inventories and not limit its analysis to just the portions of the particulate matter inventories where it projects reductions with the adoption of this regulation.[13]

While the ISOR provides estimates for the changes in exhaust particulate matter and break wear, **it does not assess particulate matter impacts from tire wear or entrained road dust**. The ZEV vehicles that would replace the existing ICE vehicles under the proposed ACF are generally heavier and would cause greater tire wear and entrained road dust emissions. If heavier zero emission (ZE)trucks are allowed under the regulation, then the impacts of these on increased entrained road dust must be quantitatively evaluated. If overall l truck weight restrictions remain enforced, additional ZE trucks would be needed to move the same tonnage of cargo. If truck weight restrictions are increased for ZE trucks, increased emissions of tire wear and entrained road dust must be accounted for. The tire wear and entrained road dust emissions account for >80% of the total PM emissions associated with medium and heavy-duty vehicles. Including these emissions in the analysis could potentially change the conclusions of CARB's analysis and the significance finding of the Draft EA, hence CARB must evaluate these emissions.

As shown in CARB's methodology for Entrained Road Travel and Paved Road Dust,[14] the AP-42 emission factor equation used to estimate paved road dust emissions per vehicle mile travelled is proportional to vehicle weight. ZEVs add significant weight as compared to comparable ICE vehicle models. A study by the American Transportation Research Institute (ATRI)[15] found that the weight of a BEV Class 8 Sleeper Cab tractor is nearly double that of a comparable internal combustion engine vehicle (ICE), weighing 32,016 pounds (lbs) versus 18,216 lbs. So, converting ICE vehicle to ZEVs under the proposed ACF regulation would significantly increase the average vehicle weight on the California roadways, which in turn would increase the entrained road dust emission factors and emissions.

CARB also assumes that tire wear emissions for ZEV are the same as ICE vehicles and takes no consideration of how the significant increase in ZEV vehicle weight as compared to ICE vehicles will increase tire wear emissions. The 2016 study titled "Non-Exhaust PM Emissions from Electric Vehicles"[16] concluded that increased vehicle weight would increase both tire wear and entrained road dust emissions. The assumption that a ZEV, which would have a higher average weight, would have the same tire wear emissions as an ICE is made without citation and should be reassessed and evaluated in the ACF ISOR.

The cost benefit analysis in the Standardized Regulatory Impact Assessment (SRIA) for the proposed ACF estimated monetized health benefits associated with the reductions in exhaust and brake wear particulate matter emissions. These benefits were used to calculate the benefit-cost ratio of the proposed regulation. As noted in the above paragraphs there are other portions of the total particulate matter emissions (e.g., tire wear and entrained road dust) that would increase as a result of the proposed ACF and have not been considered. CARB should complete their benefit-cost analysis to consider all changes in total particulate matter emissions and associated health impacts.

[11] CARB. 2022. Advanced Clean Fleets Draft Environmental Analysis. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appd.pdf. Accessed: October 2022

[12] Ambient Air Quality Standards Designation Tool. Available here: https://ww2.arb.ca.gov/aaqs-designation-tool. Accessed: October 2022.

[13] California Health & Safety Code ("HSC") § 39602.5 requires CARB to consider ambient air quality standards and attainment in its ACF Proposal.

[14] CARB. Miscellaneous Process Methodology 7.9: Entrained Road Travel, Paved Road Dust. 2021. Available here: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf. Accessed:October 2022.

[15] ATRI. Understanding the CO2Impacts of Zero-Emission Trucks.2022. Available here: https://truckingresearch.org/wp-content/uploads/2022/05/ATRI-Environmental-Impacts-of-Zero-Emission-Trucks-Exec-Summary-5-2022.pdf.Accessed: October 2022.

[16] Timmers, Victor and Peter Achten. "Non-exhaust PM emissions from electric vehicles". March 2016. Available here: http://www.soliftec.com/NonExhaust%20PMs.pdf. Accessed: October 2022."

Response: CARB staff disagrees with the comments related to the Advanced Clean Fleets assessment of PM emissions being incomplete. In the Initial Statement of Reasons (ISOR), staff estimates that the regulation will result in a reduction of approximately 8,638 tons of PM emissions between 2024-2050 from both exhaust emissions and non-exhaust brake wear emissions. An estimated 50 percent reduction in PM associated with brake-wear is the result of the regenerative braking capability of EVs when compared to conventional vehicles.[17] This methodology also assumes that tire emissions, and the associated entrained road dust from EVs will be the same as for ICE vehicles.

CARB staff also disagrees with the commenter's assertion that the effects of increased ZEV weight may result in significant non-exhaust PM emissions. The proposed ACF regulation is designed to provide flexibility for fleet owners to electrify vehicles and operations that are best aligned with current ZEV technology. As described in the ISOR, most truck applications are *not* weight sensitive, and most regulated fleets are characterized as having stable routes where nearly all trucks travel less than 100 miles per day except for a portion of the tractor

[17] National Renewable Energy Laboratory, BAE/Orion Hybrid Electric Buses at New York City Transit. 2008 (web link: https://afdc.energy.gov/files/pdfs/42217.pdf, last accessed January 2022).

fleet. Today's battery technology for ZEVs with 100 mile per day range generally do not have any increase in total vehicle weight. As further described in the ISOR, battery technology is rapidly evolving which is resulting in a continued trend of higher battery energy density and lower battery weight and volume. As for FCEVs, hydrogen's greater energy density is well suited for longer range applications. These ZEV options, BEV or FCEV, allows for fleet owners to select the technology that best fits the range and weight requirements of a fleet's operations. Bigger batteries cost more and fleet owners are unlikely to purchase higher cost vehicles unless they are necessary to meet their needs. Fleet owners may also opt to use shorter range trucks with supplemental fueling at strategic locations.

Similarly, CARB staff disagrees with the use of the study "Non-Exhaust PM emissions from electric vehicles" as a proxy to support the claim that an increase in vehicle weight may result in significant non-exhaust PM emissions. The study referenced by the commenter, states that battery electric vehicles emit 1-3 percent less PM2.5 emissions than ICE vehicles and concludes that "EVs are not likely to have a large impact on PM emissions from traffic".[18] The authors of this study also state that "measurements of non-exhaust emissions so far have produced divergent results, depending on the measurement method used",[19] which raises doubt about the accuracy of non-exhaust emissions data and how to quantify any effect of weight. It is also important to note that CARB does not have any relevant data about tire wear and road dust emissions to accurately quantify potential emissions differences between ZEVs and ICE vehicles due to any vehicle weight differences. Nonetheless, the study referenced by the commenters supports CARBs assumption that non-exhaust emissions from brake wear and entrained road dust from ZEVs will have negligible effects, if any, on overall PM emissions reductions estimated by CARB.

CARB staff also disagrees with the comment that CARB did not provide evidence in the ISOR to support the statement that vehicle weight increases from ZEVs will only impact a small percentage of vehicles. According to the North American Council for Freight Efficiency (NACFE), and as described in the ISOR, "the majority of tractors (i.e., dry van general freight operation), about 88 percent, 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 trailer."[20] Payload capacity and range concerns are much less of a factor for Class 3-8 vocational trucks using existing battery technology. According to NACFE, and as described in the ISOR, "vehicle weight for Class 3-6 medium-duty EV applications do not present a significant risk for fleet operators because they have sufficient freight weight margins or have alternate

[18] Atmospheric Environment, Non-exhaust PM emissions from electric vehicles, 2016 (web link: https://www.sciencedirect.com/science/article/abs/pii/S135223101630187X?via%3Dihub, page 16, last accessed January 2023).

[19] Atmospheric Environment, Non-exhaust PM emissions from electric vehicles, 2016 (web link: https://www.sciencedirect.com/science/article/abs/pii/S135223101630187X?via%3Dihub, page 15, last accessed January 2023).

[20] NACFE, Confidence Report: Lightweighting, 2021 (web link: https://nacfe.org/wpcontent/uploads/2021/02/Lightweighting-Confidence-Report-Feb2021.pdf, last accessed August 2022).

choices in vehicle designs and GVWR ratings.[21] In addition, most Class 3-8 vocational trucks have operations characterized by stable routes and home base locations that work well with the current state of battery technology without needing high mileage battery packs." Data from NACFE also suggests that "98 percent of Class 3-6 trucks travel between 50 and 150 miles a day."[22] As a result, existing data shows that ZEVs with daily ranges up to 150 miles match well with expected Class 3-8 vocational duty cycles without compromising payload. This German study shows that in an average case the required battery would restrict the payload to only 80 percent of a usual diesel truck payload that might be acceptable considering trucks loaded to a volume of over 90 percent only use about 70 percent of their payload on average.[23] Ford's E-Transit van has a targeted range designed to fulfill fleet needs based on insight from 30 million miles of customer telematics data and has an available targeted range of 126 miles in the low-roof cargo van configuration.[24]

Therefore, the commenter's assumptions that the proposed ACF regulation will require the use of two ZEVs to perform the functions and operations of one ICE vehicle due to weight and result in an increase in VMT is misplaced. As described in the ISOR, weight is not a major concern for ZEVs that are below Class 7 because lighter vehicles typically operate less than 150 miles per day, have available payload capacity, don't require large batteries, and can be upsized to the next higher weight class if a high mileage is needed. The flexibility in the proposed ACF regulation provides fleet owners additional time to purchase ZEVs for long-haul applications, and also provides options to deploy ZEVs in applications that are best suited for this technology before needing to upgrade the vehicles with more challenging applications. As a result, fleet operators will not require a greater than one-to-one replacement of ZEVs to meet their operational needs because current technology is already capable of meeting current demand of most affected fleets and CARB expects that as technology advances, ZEVs will meet the future demand of long range and weight sensitive operations as technology matures and the retail infrastructure network is expanded.

270-4: The commenter states "**A.3 CARB did not conduct a full life-cycle greenhouse gas emissions assessment for the vehicle/fuel system to assess GHG emission impacts of their proposal and alternatives. This results in a misrepresentation of the impacts of the proposed regulation**.

To understand the potential GHG impacts of the proposed ACF regulation, CARB **must quantitatively assess the proposal**. This should include cost-effectiveness and cost-benefit analysis.[17] CARB's proposal fails to consider the following:

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[21] NACFE, Guidance Report: Medium-Duty Electric Trucks Cost of Ownership, 2018 (web link: https://nacfe.org/wp-content/uploads/2018/10/medium-duty-electric-trucks-cost-of-ownership.pdf, last accessed August 2022).

[22] NACFE, Guidance Report: Electric Trucks-Where They Make Sense, 2018 (web link: https://nacfe.org/downloads/full-report-electric-trucks/, last accessed August 2022).

[23] Mareev, Ivan, Jan Becker, and Dirk Sauer. "Battery Dimensioning and Life Cycle Costs Analysis for a Heavy-Duty Truck Considering the Requirements of Long-Haul Transportation." Energies (Basel) 11.1 (2017): 55–. Web

[24] Ford, E-transit, 2023 (web link: https://media.ford.com/content/fordmedia/fna/us/en/products/evs/e-transit/2022-ford-e-transit.html, last accessed February 2023).

- Upstream fuel cycle GHG emissions are not considered, and
- GHG emissions associated with vehicle production and end of life-cycle (e.g., recycling) changes required by the proposed regulation are not considered.

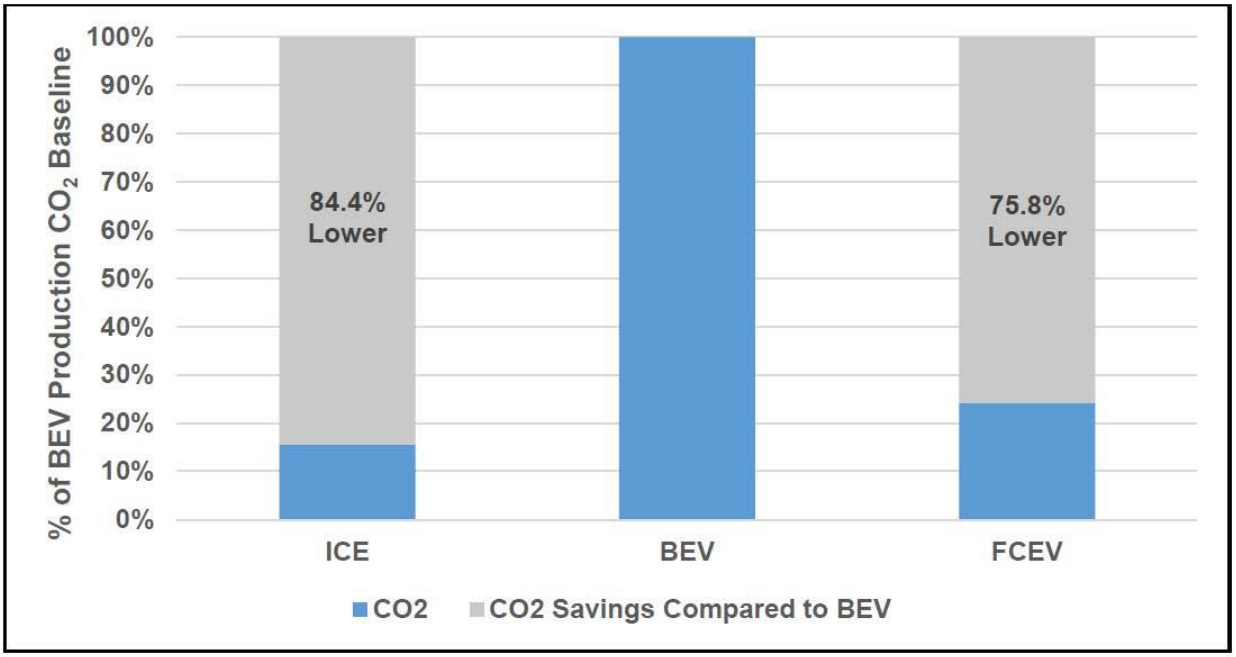
Taken together, these could be significant, particularly for battery production impacts associated with battery electric vehicles and fuel cell electric vehicles as compared to ICEVs.

Assessing the upstream fuel cycle GHG emissions is necessary when considering zero emission vehicles due to the nature of GHG emissions as global pollutants. GHG emissions are global pollutants that enter the atmospheric carbon stock and cause global consequences, no matter the point of origin. While GHG emissions may not be present at the tailpipe for a (so-called) ZEV technology, these emissions still are emitted elsewhere and therefore must be accounted for in the benefit-cost and emissions reductions analyses. Not including the upstream emissions is misleading and overstates the potential emission reductions.

Additionally, CARB is inconsistent in citing the emissions they have considered. In both Appendix C: Standardized Regulatory Impact Assessment and the ISOR it is specifically noted the assessment "is focused on tank-to-wheel (TTW) emissions, and does not include upstream emissions."[18,19] But the Draft EA claims that "upstream emissions associated with the generation of electricity used for ZEVs… are considered in the reduction benefits of the Proposed Project."[20] CARB must update their analyses to include the upstream emissions for all fuels including electricity in the SRIA, ISOR, and the Draft EA.

Additionally, the GHG emissions associated with vehicle production should be accounted for in the analysis. This is especially important for ZEV technologies, which have components (i.e., batteries) that generate significant additional emissions during vehicle production. A recently published study by ATRI analyzed the life-cycle emissions of a Class 8 Sleeper Cab vehicle and found that the vehicle production emissions for BEVs to be ~6 times higher than the corresponding ICEV counterpart (**Figure 1**).[21] CARB has claimed in the Advanced Clean Cars II (ACC II) Response to Comments (RTC) that "the emission benefits from the use of these materials (e.g. battery and vehicle materials) in BEVs would ultimately offset the emissions from combustion of gasoline, diesel, and other fossil fuels from the development and use of these battery materials resources."[22] However this argument is unfounded. Accounting for the vehicle cycle emissions could potentially change the conclusions of CARB's analysis and therefore must be assessed in order to understand the full environmental impacts of each technology.

Figure 1. Vehicle Cycle Emissions from Class 8 Sleeper Cabs[23]



While the ISOR estimated the reductions in tailpipe GHG emissions from the proposed ACF regulation, it fails to fully quantify the changes in upstream (well-to-tank) GHG emissions or the potential increases in vehicle cycle emissions that would occur with the implementation of this proposal. CARB must fully assess the GHG emissions impact that this regulation could have on the global carbon stock. Any assessment that does not recognize the full life-cycle GHG impacts misrepresents the actual environmental effects of the proposed regulation and would lead to factually incorrect conclusions that undermine any rationale for adoption of the proposed rule. Inclusion of the life-cycle emissions would allow for a better pathway to achieve the emission reduction objectives.

17 HSC §§ 38560, 39602.5, and 43013 require CARB to assess the cost-effectiveness of a regulation.

18 CARB. 2022. Appendix C: Original Standard Regulatory Impact Assessment Submitted to Department of Finance. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appc.pdf. Accessed: October 2022.

19 CARB. 2022. Staff Report: Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.

20 CARB. 2022. Appendix D: Draft Environmental Analysis for the Advanced Clean Fleets Rule. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appd.pdf. Accessed: October 2022.

[21] ATRI. 2022. Understanding the CO2 Impacts of Zero-Emission Trucks. May 3. Available here: https://truckingresearch.org/2022/05/03/understanding-the-co2-impacts-of-zero-emission-trucks/. Accessed: October 2022.

[22] CARB. 2022. Response to Comments on the Draft Environmental Analysis for the Advanced Clean Cars II Program. August 24. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/acciirtc1.pdf.

[23] Ibid. ATRI. 2022. Understanding the CO2 Impacts of Zero-Emission Trucks. May 3. Available here: https://truckingresearch.org/2022/05/03/understanding-the-co2-impacts-of-zero-emission-trucks/. Accessed: October 2022."

Response: In addition to qualitatively analyzing the upstream impacts, staff performed a quantitative upstream emissions analysis for GHGs that reaffirms the results of the qualitative analysis and that the conclusions remain the same. The table below displays the tank-to-wheel (TTW), well-to-tank (WTT), and well-to-wheel (WTW) GHG emissions of the Proposed Project when compared to the Legal Baseline. The conclusions are unchanged because the WTT benefits are generally an order of magnitude smaller than the TTW benefits. The total WTW GHG benefits show a net benefit in all years of the Proposed Project. The methodology for the WTT emission analysis is the same as described in the 2020 Mobile Source Strategy and the Advanced Clean Cars II rulemakings[25,26]. Please refer to Master Response 4 for more information on upstream emissions and lifecycle impacts of the Proposed Project.

Table 2-2: Total Well-to-Wheel Greenhouse Gas Emissions

Calendar Year	TTW Benefits	WTT Benefits	Total WTW Benefits
2024	0.3	0	0.3
2025	0.5	0	0.5
2026	0.8	0	0.8
2027	1.3	0	1.3
2028	1.7	0	1.7
2029	2.4	0	2.4
2030	3.4	-0.1	3.4
2031	4.4	-0.1	4.4
2032	5.4	-0.1	5.4
2033	6.2	0	6.2
2034	7.4	0	7.4
2035	8.7	0	8.7
2036	10.1	0.1	10.1

[25] California Air Resources Board, Appendix D: Emissions Inventory Methods and Results for the Proposed Amendments, 2022 (web link: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/appd.pdf, last accessed February 2023).

[26] California Air Resources Board, 2020 Mobile Source Strategy, 2021 (web link: https://ww2.arb.ca.gov/sites/default/files/2021-12/2020_Mobile_Source_Strategy.pdf, last accessed February 2023).

Calendar Year	TTW Benefits	WTT Benefits	Total WTW Benefits
2037	11.6	0.2	11.7
2038	13.1	0.2	13.4
2039	14.8	0.4	15.1
2040	16.2	0.5	16.6
2041	17.7	0.6	18.3
2042	19.4	0.8	20.2
2043	20.1	1	21.1
2044	20.9	1.1	22
2045	21.6	1.3	22.9
2046	22.3	1.3	23.7
2047	23.1	1.4	24.5
2048	23.8	1.4	25.2
2049	24.5	1.4	26
2050	25.2	1.5	26.7

Note: Emissions are million metric tons of CO_2 per year.

270-5: The commenter states "**A.4 CARB should include low-CI, low-NOX combustion technologies in its evaluation of alternatives since that pathway can meet the objectives of the regulation, as listed below.**

The purpose of the California Environmental Quality Act (CEQA) is to identify project alternatives that can achieve the Proposed Project's objectives in the least environmentally impactful way. Low-NOX trucks and renewable, low-CI fuels are commercially available in large scale today. As discussed in previous comment letters and Ramboll's "Multi-Technology Scenarios: Heavy-Heavy Duty Truck Sector," deploying low-NOX vehicles coupled with low-CI fuels could deliver earlier and more cost-effective NOX and GHG emission reduction benefits than the ZEV-centric approach the draft ACF regulation has taken.[24] The study compared the well-to-wheel emissions of different vehicle types, taking into consideration the emissions associated with fuel production and tailpipe emissions, and found that the environmental goals of the program could be met sooner and with greater certainty given that these technologies are commercially available. The growing potential for renewable fuels with negative carbon intensities provide further opportunities to achieve greater GHG emission reductions.

Further, many of these renewable fuels do not require the extensive infrastructure build-out that would be required to implement the ZEV-centric approach in the ACF proposal, allowing for an immediate delivery of emissions benefits and minimizing the costs of and risk for delays in the proposed regulation. Hence, CARB must consider and evaluate these technology/fuel pathways as alternatives to the proposed ACF regulation rather than dismissing them as "not meeting the objectives."[25]

The objectives of the ACF as listed in the ISOR,[26] do not preclude the consideration of these technology/fuel pathways as described below:

- Objective 1 is to "accelerate the deployment of ZEVs that achieve the maximum emission reductions possible."[27] This does not preclude the deployment of other technology options, such as low-CI, low-NOx combustion engines. For example, the Ramboll HHDT Case Study,[28] which CARB has had access to for over a year, showed that a ZEVs-only strategy does not achieve the maximum emission reductions possible. A fleet mix that deployed a wider range of technologies, including ZEVs, FCEVs, and low-CI, low-NOx combustion engines, out-performed the ZEV-only deployment strategy in the near-term and achieved equitable emission reductions in the long-term.

- Objectives 2 and 3 are to "reduce the State's dependence on petroleum as an energy resource and support the use of diversified fuels in the state's transportation fleet" and "decrease GHG emissions in support of statewide GHG reduction goals."[29] There are many renewable liquid and gaseous options that already serve as alternatives to petroleum fuels. Recent data from CARB's LCFS website shows that 800,000 gallons per day of biodiesel, 2.5 million gallons per day of renewable diesel and over 170 million diesel gallon equivalents of renewable natural gas were supplied to the California fuels market in 2021.[30] The renewable diesel and biodiesel together supplied 34% of total California diesel demand.[31] In a multi-technology/multi-fuel alternative, renewable fuels can already serve today and can continue to serve in the future as low-CI fuel options to reduce statewide GHG emissions.

- Objective 6 is to "lead the transition of California's medium- and heavy-duty transportation sector from internal combustion to all electric powertrains."[32] However, CARB's mission under the Clean Air Act is to "promote and protect public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy,"[33] not to mandate a specific vehicle technology and this listed objective may not legally be included in the regulatory framework.

While the Draft EA included alternatives that considered low-NOX trucks and renewable, low-CI fuels, these alternatives were crafted in a way that they could be easily rejected and in some cases the reasoning for rejecting the alternatives was flawed. See additional discussion on Alternatives 3 and 8 below:

- Alternative 3: the Best Available Control Technology (BACT) concept would allow for the purchase of a ZEV, if available, then near zero emission vehicle (NZEV), and then the cleanest certified engine for compliance. CARB rejected this alternative because the emissions benefits of additional cleaner engines in the fleet would already be accounted for in the Heavy-Duty Omnibus regulation, California's Low Carbon Fuel Standard program, and the federal Renewable Fuel Standard (RFS). This reasoning is flawed for the following reasons: (a) the ACF regulation is a fleet rule; Alternative 3 would require faster turnover of the vehicles to the cleanest certified engine, thereby providing additional near-term NOX emissions while ZEV fueling infrastructure develops, and (b) the fuels used to power ZEVs (hydrogen and electricity) are also covered under the LCFS program.

- Alternative 8 would allow fleets to use natural gas trucks as well as ZEVs to meet the ZEV requirements of the proposed ACF until 2040, when the 100% ZEV sales requirements begin. CARB rejected this alternative by stating that the shift of combustion engine purchases from diesel and gasoline to natural gas would not achieve emission reductions when compared to the baseline because the Heavy-Duty Omnibus regulation allows engine manufacturers to average their engine emissions to meet the standard. There is no rational basis for excluding natural gas trucks that meet the optional low-NOx standards as the alternative to ZEVs given that CARB's 2016 Mobile Source State Implementation Plan (SIP)[34] demonstrated NOX reductions could be achieved by low-NOX trucks and CARB has certified numerous low-NOx truck engines.[35] Another reason that CARB offers for rejecting this natural gas truck alternative is that "ICEV purchases ... would not reduce GHG emissions."[36] Instead CARB could have imposed an additional requirement that the natural gas vehicles that qualify as alternatives to ZEVs use renewable low-CI natural gas. Such an approach would help achieve GHG reductions that could be similar to or even greater than those provided by the ZEVs.

[24] Ramboll "Multi-Technology Scenarios: Heavy-Heavy Duty Truck Sector". 2021. Available here: https://www.arb.ca.gov/lists/com-attach/78-sp22-kickoff-ws-B2oFdgBtUnUAbwAt.pdf. Accessed: October 2022

[25] HSC §57005 requires CARB to consider any less costly but equally effective regulatory alternatives.

[26] CARB. 2022. Staff Report: Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.

[27] Ibid.

[28] Ramboll "Multi-Technology Scenarios: Heavy-Heavy Duty Truck Sector". 2021. Available here: https://www.arb.ca.gov/lists/com-attach/78-sp22-kickoff-ws-B2oFdgBtUnUAbwAt.pdf. Accessed: October 2022.

[29] CARB. 2022. Staff Report: Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.

[30] CARB. 2022. Low Carbon Fuel Standard Quarterly Data Spreadsheet. July 31. Available here: https://ww2.arb.ca.gov/sites/default/files/2022-08/quarterlysummary_073122_0.xlsx. Accessed: October 2022.

[31] CARB. 2022. EMFAC Emissions Inventory. Available here: https://arb.ca.gov/emfac/emissions-inventory/d1a08e88bd07b3f76564d6d3b1fa544ec97e6400. Accessed: October 2022.

[32] CARB. 2022. Staff Report: Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.

[33] CARB. Available here: https://ww2.arb.ca.gov/about. Accessed: October 2022.

[34] Available: https://ww2.arb.ca.gov/resources/documents/2016-state-strategy-state-implementation-plan-federal-ozone-and-pm25-standards and https://ww3.arb.ca.gov/planning/sip/2016sip/rev2016statesip.pdf. Accessed: October 2022.

[35] Available: https://ww2.arb.ca.gov/new-vehicle-and-engine-certification-executive-orders and https://www.epa.gov/sites/default/files/2021-01/documents/420f21002.pdf. Accessed: October 2022.

[36] CARB. 2022. Appendix D: Draft Environmental Analysis for the Advanced Clean Fleets Rule. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appd.pdf. Accessed: October 2022."

Response: Please refer to Master Response 3 regarding the reasonable range of alternatives, and Master Response 5 regarding the failure to allow cleanest combustion vehicle to count as NZEV. No edits to the Draft EA are required in response to this comment. No further response is required.

270-6: The commenter states "**A.5 The cumulative impacts analysis for the proposed ACF regulation is inadequate.**

The Draft EA references the environmental analyses of the 2030 Target Scoping Plan Update of 2017 and the Community Air Protection Blueprint of 2018. But neither plan evaluates the impacts of the increased electrical generation, transmission, and distribution infrastructure that would result from a regulation such as the proposed ACF. Furthermore, both of these documents are in the process of being updated, as required under statute, with significant changes that are reasonably foreseen and must be acknowledged and included along with ACF in this cumulative impact analysis.

As discussed later in Comment A.9 through Comment A.12, an assessment of the impacts of the proposed ACF on the State's electric grid has to be analyzed in the Draft EA. Besides this, the cumulative impacts of the proposed ACF and the recently adopted Advanced Clean Cars II regulation on the State's electrical generation, transmission, and distribution infrastructure should be evaluated and disclosed in the Draft EA."

Response: The cumulative analysis presented in the Draft EA is based on the currently adopted regulatory framework at the time the Draft EA was prepared. The Community Air Protection Blueprint was approved in 2018 and includes important strategies that are analogous to the Proposed Project to further reduce fleet vehicle emissions. The 2022 Scoping Plan Update was adopted in December 2022, following public review of the Draft EA for the Proposed Project. Within the cumulative context for the Proposed Project, the

2022 Scoping Plan Update was reviewed, and no changes to the cumulative analysis provided in the Draft EA are considered necessary in response to approval of the 2022 Scoping Plan Update. Further, the comment does not identify how the cumulative condition evaluated in the EA is inappropriate or identify ways in which the cumulative condition should change other than to note that the plans upon which the cumulative condition is evaluated are being updated. No further response regarding the Draft EA's cumulative analysis is necessary. With respect to impacts related to the State's electrical grid, please refer to Master Response 1.

270-7: The commenter states "**A.6 The Draft EA analysis of the impacts of the proposed ACF regulation on mineral resources is inadequate as it fails to quantify the amount of metals that would have to be mined for battery production.**

While the Draft EA lists the estimated reserves of lithium, platinum, and other elements in Tables 5 through 10, it fails to estimate the quantity of these elements that would have to be mined to produce the ZEVs required by the proposed ACF regulation.[37] CARB must quantitatively assess the impact the regulation will have on the state/worldwide demand of lithium and other rare earth metals, and the emissions that will be produced as a result of mining and shipping these materials.

The Draft EA should consider environmental impacts from mining of semi-precious metals and potential mitigations. The document does not address the potential hazards, construction, noise, or other impacts and potential mitigations for these impacts. There is mining of lithium that is likely to occur within the state (e.g., Lithium Valley) and CARB must, at the very least, assess the additional mining of rare earth metals that would be driven by the additional ZEVs required by this regulation and analyze the potential impacts associated with additional lithium mining in the State. Additionally, as noted above in Comment A.3, CARB must assess the GHG impacts of lithium mining and processing to analyze the full lifecycle GHG impacts of this regulation.

[37] Ibid."

Response: Please refer to Master Response 2. No edits to the Draft EA are required in response to this comment. No further response is required.

270-8: The commenter states "**A.7 The Draft EA fails to evaluate the impacts of the large quantities of water that would be needed for renewable hydrogen production on the State's water supply**.

CARB has not analyzed the impacts on hydrology and water quality that increased hydrogen production would necessarily require. CARB must quantify and assess the impact that increasing hydrogen production will have on the State's water supply. This is important because the State is already facing moderate to extreme drought conditions[38] and increasing water demand would put additional strain on an already extended supply system. The Hydrogen Decarbonization Pathways Report by the Hydrogen Council projects that gross water demand for hydrogen in 2030 could range from 9.9 kilogram (kg) water per kg of H_2

(lower heating value [LHV]) to 7,427.6 kg water per kg of H_2 (LHV) depending on the feedstock used.[39]

[38] State of California: California Drought Action. Current Drought Conditions. Available here: https://drought.ca.gov/current-drought-conditions/. Accessed: October 2022.

[39] Hydrogen Council. 2021 Hydrogen Decarbonization Pathways. January. Available here: https://hydrogencouncil.com/wp-content/uploads/2021/01/Hydrogen-Council-Report_Decarbonization-Pathways_Part-1-Lifecycle-Assessment.pdf. Accessed: October 2022."

Response: The quantity of water that may be necessary to increase hydrogen production (and other reasonably foreseeable compliance responses under the Proposed Project) are presented as part of Impact 19-1, beginning on page 105 of the Draft EA. As noted on page 105, the ultimate magnitude and location of demand for utilities such as water and wastewater cannot be known or identified within a specific area with any certainty. The availability of water supplies for hydrogen production (and other reasonably foreseeable compliance responses) would depend on the average, single-dry, and multiple-dry year conditions for a particular water purveyor as a hydrogen production facility is proposed and considered. As noted on pages 106-107, Mitigation Measure 19-1 requires the project-specific evaluation of such projects in accordance with CEQA requirements.

270-9: The commenter states "**A8 The Draft Environmental Assessment fails to evaluate the operational impacts of the proposed ACF regulation on the State's energy demand and necessary transmission/distribution infrastructure.**

While the Draft EA states that the Proposed Project "may also impact peak and based load period demand for electricity and other forms of energy," it fails to quantify the changes in energy demand.[40] In CARB's ACC II Response to Comments document, CARB asserted that "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."[41] One of the studies[42] cited for this claim that researched the grid's future capacity based on historical generation clearly stated that:

> "…this historical comparison overlooks factors that have changed energy generation over the years, such as market decoupling of energy supply from vertically integrated utilities. These periods of high growth in generation correspond to times in which the installation of large baseload generation (fossil and nuclear) were common. This may not be the case in the future, and other factors such as how ready utilities are to install new capacity, sufficient utility labor, capital, land use, environmental regulations, reliability requirements, and the policy environment should all be considered."

As noted in the quote above, the readiness of utilities to install new capacity must be assessed before asserting that the grid is able to handle the capacity EVs (especially heavy-duty EVs) will require.[43] The Capacity Analysis from California Energy Commission's (CEC) EDGE Model (**Figure 2** below, obtained from Page 49 in the Final ACC II EA[44]) shows the grid has no additional capacity to add electrical load for charging EVs in most circuits. You

can see this in numerical terms in **Figure 3** (obtained from Virtual Medium and Heavy-duty Infrastructure Workgroup Meeting - Electricity and the Grid on January 12, 2022), which details the capacity of circuits to integrate additional load. This figure illustrates that 30% to 76% of circuit segments have no capacity to integrate additional load. Thus, no appreciable charging capacity can be added to most of these circuits without the expenditure and time for additional construction of needed transmission and distribution infrastructure.

Figure 2. Capacity Analysis from CEC's EDGE Model[45] (dark red indicates no available additional capacity)

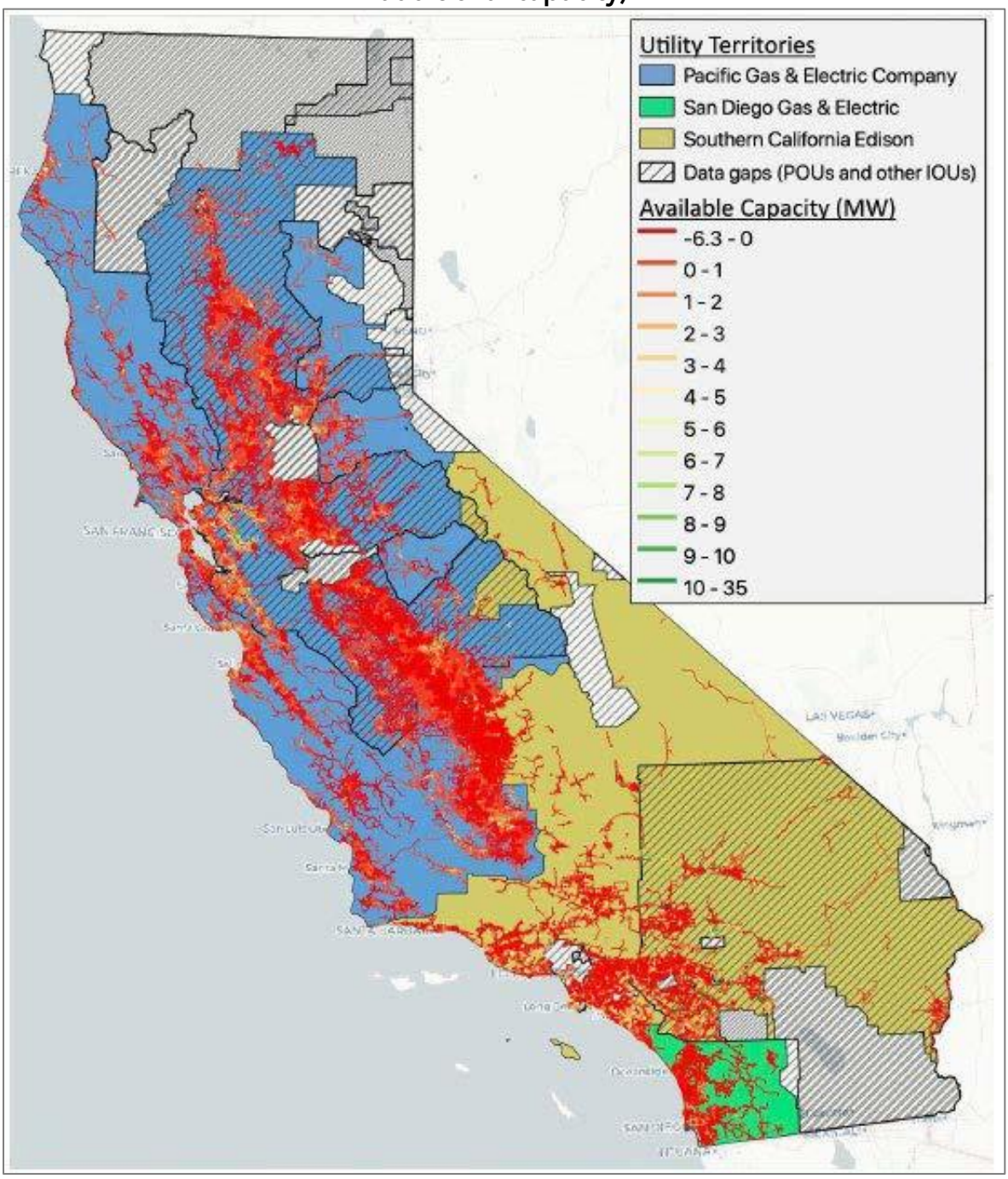
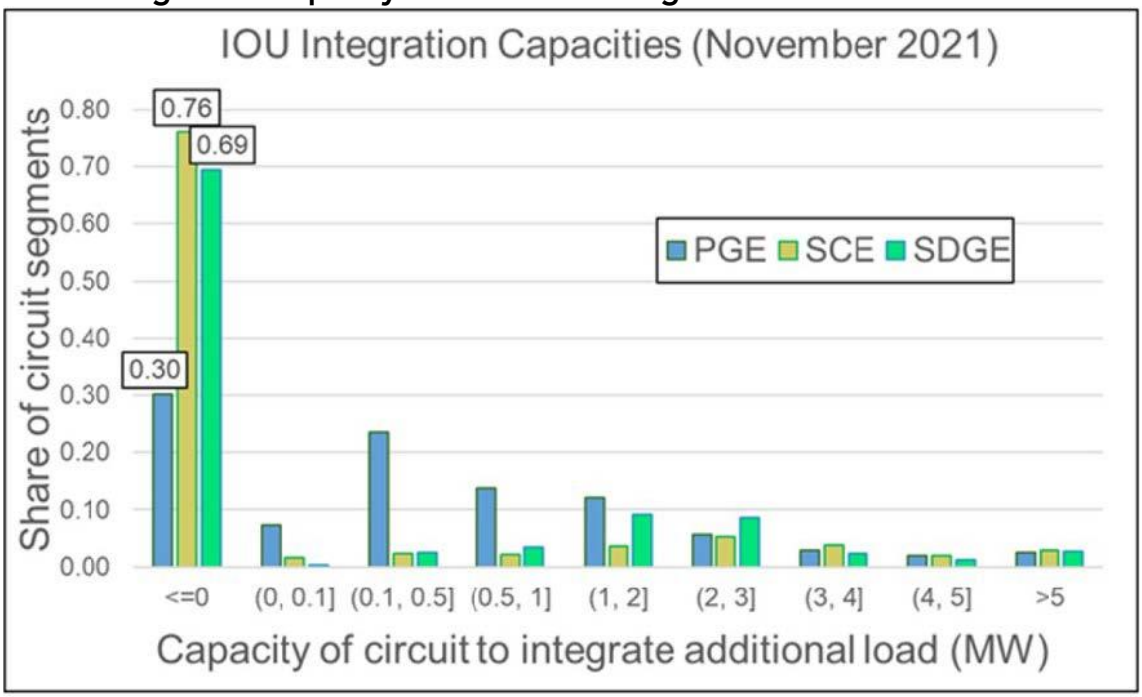


Figure 3. Capacity of circuits to integrate additional loads[46]



The replacement of ICEVs with ZEVs under this program would result in a significant shift in the type of energy used to fuel the transportation sector that would generate significant decreases in liquid fuel use and significant increases in electricity and hydrogen use. The Draft EA cannot reasonably claim to assess the impact on the State's energy demand without quantifying these changes in energy use for various fuel types.

CARB has not provided any analysis of the feasibility of the proposed regulation given the significant increase of charging infrastructure, electrical generation and transmission and distribution infrastructure that would be required to support a ZEV fleet.

CARB has cited growth in the electric utilities sector and noted that new infrastructure will be needed to support this transition, however, CARB has failed to account for the costs of the infrastructure needed for this regulation in the SRIA, and have instead ascribed benefits to the electric utilities sector for job growth. CARB's analysis is incomplete and misleading. CARB must evaluate the full economic impact to electric utilities because of this regulation rather than just claim the benefits while ignoring the associated costs.

[40] CARB. 2022. Appendix D: Draft Environmental Analysis for the Advanced Clean Fleets Rule. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appd.pdf. Accessed: October 2022.

[41] CARB. 2022. Response to Comments on the Draft Environmental Analysis for the Advanced Clean Cars II Program. August 24. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/acciirtc1.pdf. Accessed: October 2022.

42. US Drive. 2019. Summary Report on EVs at Scale and the U.S. Electric Power System. November. Available here: https://www.energy.gov/sites/prod/files/2019/12/f69/GITT%20ISATT%20EVs%20at%20Scale%20Grid%20Summary%20Report%20FINAL%20Nov2019.pdf. Accessed: October 2022.

43 HSC §§ 38560, 38562, 39602.5, 43013, and 43018 require CARB to assess technological feasibility for its ACF Proposal.

44 CARB. 2022. Final Environmental Analysis for the Advanced Clean Cars II Program. August 24. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/acciifinalea.docx. Accessed: October 2022.

45 CARB. 2022. Final Environmental Analysis for the Advanced Clean Cars II Program. August 24. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/acciifinalea.docx. Accessed: October 2022.

46 Presented during the January 12, 2022 CARB Virtual Medium and Heavy-Duty Infrastructure Workgroup Meeting - Electricity and the Grid (Part 1). Workgroup meeting recording available here: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/advanced-clean-fleets-meetings-events. Accessed: October 2022."

Response: Please refer to Master Response 1 and response to comment 223-1 with respect to grid energy and infrastructure. With respect to economic impacts of the Proposed Project, please refer to Response to Comment 259-5. No edits to the Draft EA are required in response to this comment. No further response is required.

270-10: The commenter states "**A.9 The Draft EA must analyze the operational peak and base electricity demand associated with the Proposed Project and evaluate the feasibility and costs of upgrading the grid to meet the demand within the timeframe of the Proposed Project.**

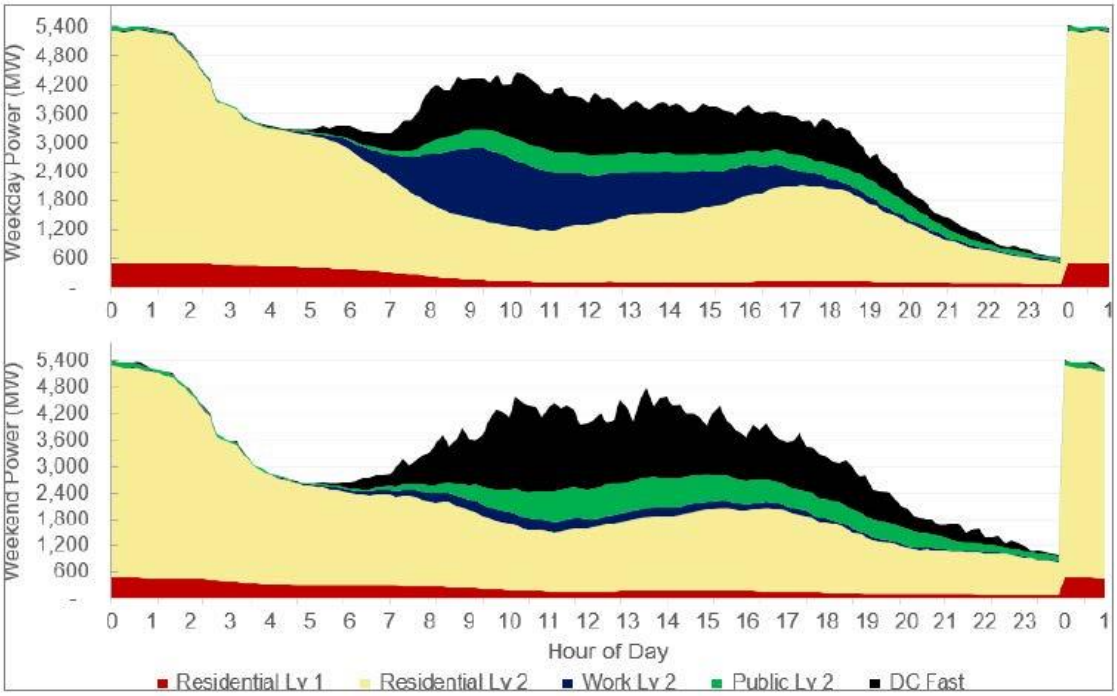
CARB must quantitatively assess the energy resource inadequacy to meet proposed ACF regulatory requirement issues raised by stakeholders. In addition, for the CEQA analysis in the Final EA, CARB would have to either provide substantive information that the effect of inadequate energy/infrastructure resources are less than significant and/or assess mitigations for the likely significant impacts.[47] The cumulative impact assessment must also look at the cumulative effect of the ACF and the approved ACC II regulation.[48]

In the Final ACC II EA, CARB recognized that "electrification of California's transportation sector, particularly when combined with increased electrification of the state's building stock, will pose a significant new challenge to grid planning and require investments in transmission and local distribution systems".[49] Using the EVI-Pro 2 model, CARB projected the electricity demand for light-duty vehicle (LDV) charging in 2030 over a 24-hour period, reaching around 5,400 megawatts at peak charging times, increasing electricity demand by up to 25% (**Figure 4**). It is equally if not more important for CARB to conduct a similar analysis on the impacts to the electricity grid due to the ACF regulation because of the significantly greater power

required for heavy-duty vehicle (HDV) chargers, 150 kilowatts (kW) or greater for Class 7-8 tractors versus 19 kW or less required for LDV Level 2 chargers. The heavy localization of future HDV charging infrastructure will compound this issue, straining local electricity infrastructure, given that CARB expects most electric vehicle supply equipment (EVSE) to be installed in central depots or yards where trucks are parked overnight.[50]

CARB must assess the level of infrastructure upgrades that would be required to support the peak load under these scenarios and whether it is feasible to upgrade the grid infrastructure to meet the demand within the timeframe of the Proposed Project. A representative from an energy utility commented during the March 10, 2022 public workshop that their 10-year planning window may need to be expanded to 15 years. Long lead items such as high-scale transmission can take upwards of 7-10 years to build, while distribution infrastructure for individual HDV projects require a minimum of 4 months of utility construction and can take 18-24 months to complete overall.[51] Given that 1.5 million Class 2b-8 ZEVs would need to be deployed statewide by 2048 and the phased-in fleet transition begins in 2024, there seems to be too little time to complete these necessary upgrades.[52]

Figure 4. ACC II EA Projected 2030 Statewide Plug-in EV Charging Load for Intraregional Travel of 8 Million LD ZEVs in EVI-Pro2[53]



CARB claims in the ACF Draft EA that "increased deployment of ZEVs could result in a relatively small increase [in] production of electricity and hydrogen fuel"[54] and would have a less than significant cumulative impact to the energy sector without citing any data, modeling, or sources for this claim. Given the accelerated Senate Bill 100 (2018) and Senate Bill 1020 (2022) renewable energy targets for California's energy generation and the cumulative energy impacts of electrification under ACC II, ACF, and measures for building electrification, the state will become ever more reliant on its electric infrastructure in the

coming decades. Although CARB states that the long-term operational-related utilities and service systems impacts are "beyond the authority of CARB and not within its purview," CARB has a responsibility as the CEQA lead agency to ensure that the energy impacts of regulations it puts forward are assessed and consistent with the proposed regulatory requirements and are technologically feasible within the timeframes it proposed.

[47] CEQA requires that the Draft EA and Final EA contain "[a] discussion and consideration of environmental impacts, adverse or beneficial, and feasible mitigation measures which could minimize significant adverse impacts identified." Cal. Code Regs. tit.17, § 60004.2(a).

[48] See id.

[49] CARB. 2022. Final Environmental Analysis for the Advanced Clean Cars II Program. August 24. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/acciifinalea.docx. Accessed: October 2022.

[50] CARB. 2022. Appendix C: Original Standard Regulatory Impact Assessment Submitted to Department of Finance. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appc.pdf. Accessed: October 2022.

[51] CARB Workshop Recording of ACF Virtual Medium and Heavy-Duty Infrastructure Workgroup Meetings - Electricity and the Grid (Part 2). March 2022. CARB Workshop web page (https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/advanced-clean-fleets-meetings-events) includes link to recording at: https://youtu.be/uLYrDh-pKQI. Accessed: October 2022.

[52] CARB. 2022. Staff Report: Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.

[53] CARB. 2022. Staff Report: Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.

[54] CARB. 2022. Appendix D: Draft Environmental Analysis for the Advanced Clean Fleets Rule. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appd.pdf. Accessed: October 2022."

Response: New electricity load from ZEVs is accounted for in the California Energy Commission's (CEC) electricity demand forecast. Utilities are planning to meet load increases from all expected new loads. Because the majority of ZEV charging occurs during off-peak hours, the increased load can largely be accommodated with planned growth of grid infrastructure. However, local distribution peaks will need to be managed. Regulations such as ACF and ACT are in fact essential to carry out accurate grid planning. While this new load is material, it is not impossible to plan for and integrate. State agencies, including the CEC, California Public Utilities Commission (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 (IEPR) that is the basis of planning for the distribution grid, transmission grid, and generation infrastructure needed to meet regulatory requirements. Robust analysis and reporting by the agencies occur in a number of ways, such as through Assembly Bill (AB) 2127[27], the IEPR Energy Demand Forecast, and soon the inaugural SB 643[28] report. The following table shows IEPR energy demand forecasted for the medium- and heavy-duty transportation sector that excludes rail. The IEPR Additional Achievable Transportation Electrification Scenario 3 includes the demand from this Proposed Project; the difference between that scenario and the baseline that captures demand from Advanced Clean Trucks, Innovative Clean Transit, state incentives, and the latest Inflation Reduction Act incentives is shown in the Table below as the demand for the Proposed Project. These are the adopted numbers (Additional Transportation Electrification Scenario 2021 - Hourly Projections – CAISO) used for investor owned utility planning throughout the CAISO region, adopted by the Energy Commission in January 2023. These numbers include the projected medium- and heavy-duty vehicle numbers from the proposed regulation. The percentage forecasted electricity demand caused by the Proposed Project is quantified in the following table.

Table 2-3: Forecasted Grid Demand from the Proposed Project

Year	ACF Impact (GWh)	Statewide 2022 IEPR Forecast* (GWh)	Percentage of Statewide Forecasted Demand by ACF
2023	49	244,831	0.0%
2024	90	249,311	0.0%
2025	621	253,712	0.2%
2026	1,026	258,382	0.4%
2027	1,553	263,721	0.6%
2028	2,185	269,426	0.8%
2029	2,864	275,647	1.0%
2030	3,585	282,226	1.3%
2031	4,486	289,647	1.6%
2032	5,402	297,158	1.8%
2033	6,860	305,460	2.3%
2034	8,189	313,649	2.6%
2035	9,557	321,865	3.0%

*There is a significant amount of self-generation, including solar and other behind-the-meter generation which is accounted for in the forecast.

[27] AB 2127 (Ting, (Ting, Stats. 2018 ch. 365).

[28] SB 643 (Archuleta, Stats. 2021 ch. 646).

While the proposed regulation will increase the number of medium- and heavy-duty trucks on the road in 2035, the CEC forecast using CARB ACF numbers expects their annual charging needs to represent about 3.0 percent of the system's annual load. Further, CEC staff models hourly impacts. While medium- and heavy-duty trucks will need 3.0 percent of the State's electricity demand in 2035 on average over the year, they will only contribute about 1.4 percent to peak hour demand of 5:00 PM to 8:00 PM.[29] Supported by the CEC to inform actions to accelerate the decarbonization of medium and heavy-duty BEV in California, LBNL developed the HEVI-LOAD modeling tool to project the state-wide charging infrastructure needed to accommodate the growing number of medium and heavy-duty electric vehicles. HEVI-LOAD projects the number, type, and location of chargers, and the related electric grid supply requirements to support the new charging stations. CEC modeling indicates that the necessary make-ready infrastructure to support EVSEs requires special attention and investment. To support the needed infrastructure for BEVs in California, investment in transformers, meters, breakers, wires, conduit, and associated civil engineering work will be necessary. State agencies and electric utilities have already begun proactively planning for these electrical infrastructure updates through statewide energy system planning processes, such as the CEC's IEPR forecasting, CAISO transmission planning, and CPUC integrated resource planning as discussed in Master Response 1.

[29] 2022 IEPR California Energy Demand Forecast "Planning Scenario" 8760 Hourly Files: CED 2022 Hourly Forecast - CAISO - Planning Scenario, (web link: https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2022-integrated-energy-policy-report-update-2)

Comment Letter 280

10/17/2022 Jeffrey Clarke
Natural Gas Vehicles for America

280-1: The commenter states "The California Environmental Quality Act ("CEQA"), Public Resources Code § 21000 et seq., and California Administrative Procedure Act ("APA"), Government Code §11340 et seq., impose substantive and procedural requirements that CARB must follow when developing regulations or other programs to attain air quality standards. CEQA requires state and local government agencies to evaluate and disclose significant environmental impacts of proposed actions and to adopt all feasible alternatives or mitigation measures to mitigate those impacts. The APA requires state agencies to evaluate and disclose the economic impacts of proposed regulations and adopt the most cost-effective regulatory measures to achieve goals.

The proposed regulation does not comply with the CEQA because it does not adequately address the negative environmental impacts related to the rule's implementation. The environmental assessment prepared by CARB acknowledges the significant secondary impacts related to mandating zero emission vehicles but does not propose steps to ameliorate these impacts. The EA considers but dismisses the availability of other alternative approaches such as a Best Available Control Technology (BACT) pathway that includes low-NOx natural gas vehicles that use RNG; this approach is ultimately dismissed despite the evidence that it would deliver significant emission reductions and ameliorate the negative impacts of the regulatory action.

The proposed rule therefore fails to comply with CEQA and APA requirements because it does not take adequate steps to ameliorate negative environmental consequences and it ignores available alternative regulatory options that would address these shortcomings.

Response: The comment states that the Draft EA does not evaluate potential secondary impacts of rule implementation nor a reasonable range of alternatives. No specific examples are provided of where the EA's analysis is deficient in this regard. However, the EA presents a reasonably conservative analysis of the potential physical environmental impacts of the Proposed Project, supported by evidence per CEQA's mandate, but also in compliance with CEQA, does not 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. The EA acknowledges the discretion of lead agency and potential developers of facilities that would support implementation of the Proposed Project, and includes mitigation measures related to how project-specific analyses should occur, consistent with CEQA requirements. As a result, the EA complies with CEQA with respect to its evaluation of the potential physical environmental impacts of implementation of the Proposed Project. With respect to alternative approaches (e.g., BACT) to the Proposed Project, the Draft EA does include an evaluation of a BACT Alternative (see Alternative 3, beginning on page 151) to the Proposed Project. This was one of three alternatives evaluated in detail and nine alternatives that were considered during development of the Proposed Project and the Draft EA. Of note, alternatives (under CEQA) are required to 1) reduce the significant environmental

impacts of a project and 2) achieve most of the basic project objectives. With respect to Alternative 3, the BACT Concept Alternative was rejected because it would be less effective at meeting 11 of the 12 project objectives, although it would satisfy the first criteria listed above to some degree and as described on pages 153 and 154 of the Draft EA. As a result, the EA is considered to be consistent with the requirements identified in this comment.

Comment Letter 286

10/17/2022 Rick Marshall
Brady SoCal

286-1: The commenter states "We request CARB to engage with the PUC and other relevant agencies to develop a report that exams the feasibility of whether or not the energy grid can be upgraded and how the grid will need to be upgraded to meet these new demands including the overall costs, ratepayer increase and a feasible timeline to accomplish this herculean feat, before deciding on enacting the proposed ACF.

We need to know the plans for addressing DC charging stations along the highways and for remote locations."

Response: Please refer to Response to Comment 60-1.

286-2: The commenter states "A single big rig truck will need up to 15,000 pounds in batteries that will ultimately become hazardous waste. We request that CARB work with DTSC and EPA on developing a report that outlines how this massive new amount of hazardous waste will be managed, before deciding on enacting the proposed ACF."

Response: Please refer to Response to Comment 60-2.

286-3: The commenter states "We request that CARB prepare an environmental impact report required under CEQA for the estimated 500,000 new high voltage charging stations that must be in place to make this new proposed mandate feasible."

Response: Please refer to Response to Comment 60-3.

Comment Letter 290

10/17/2022 John Kinsey
WANGER JONES HELSLEY PC ATTORNEYS

290-1: The commenter states "CARB's environmental analysis in support of the ACF Regulation is also fundamentally flawed. For instance, the Environmental Analysis ("EA") quantifies the alleged emissions benefits of the ACF Regulation in detail. At the same time, the EA includes only a qualitative assessment of the potential air quality and greenhouse gas impacts of the ACF regulation, preventing an apples-to-apples comparison between benefits and negative impacts. Moreover, for those significant and unavoidable impacts, the EA fails to identify or adopt adequate mitigation under CEQA, instead speculating on what other agencies may or may not do to avoid potentially significant impacts."

Response: As noted in the Draft EA, the potential air quality and greenhouse gas impacts associated with the Proposed Project would depend on the size, type, and location of facilities to be constructed and operated. For instance, the thresholds for determining a significant air quality impact differ between the Bay Area Air Quality Management District (BAAQMD) and the South Coast Air Quality Management District (SCAQMD). A project that may exceed a threshold within SCAQMD jurisdiction may not exceed the applicable threshold within BAAQMD jurisdiction and vice versa, which is due (in part) to the different levels of attainment for criteria air pollutants between the two air districts. For that reason, a quantitative analysis that attempts to project emissions within one area of the state or another, or even to spread evenly across various air districts and air basin would be inaccurate and misleading. As stated in the Draft EA, a program-level EIR focuses on the broader impacts expected to follow the implementation of the plan and need not be as detailed as an EIR or other CEQA document for a specific construction project that will follow. (State CEQA Guidelines Section 15146). "The level of specificity … is determined by the nature of the project and the 'rule of reason'" (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 407). "[W]here an [environmental document] covers several possible projects that are diverse and geographically dispersed, the agency has discretion to evaluate the potential environmental impacts of the individual projects in general terms" (*California Oak Foundation v. Regents of University of California* (2010) 188 Cal.App.4th 227, 271, citing *In re Bay-Delta* (2008) 43 Cal.4th 1143, 1170–1171). In addition, 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. The Draft EA acknowledges the discretion of lead agency and potential developers of facilities that would support implementation of the Proposed Project, and includes mitigation measures related to how project-specific analyses should occur, consistent with CEQA requirements.

290-2: The commenter states "The EA's assessment of specific resources is also incomplete. The EA contains no assessment of lifecycle emissions for electricity, declines to assess the increase in vehicle miles traveled, and fails to assess impacts to the reliability of California's electric grid. As with the economic impact analysis in the Initial Statement of Reasons ("ISOR"), that EA's alternatives analysis is fundamentally flawed because the project

objectives are drafted to narrowly, essentially foreclosing the adoption of any alternative that does not include the deployment of EVs."

Response: With respect to the appropriate level of specificity provided in the Draft EA, please refer to Response to Comment 290-1. With respect to lifecycle emissions analysis, please refer to Master Response 2, with respect to impacts to reliability of California's electrical grid, please refer to Master Response 1, and with respect to the Draft EA's evaluation of alternatives, please refer to Master Response 3. No edits to the Draft EA are required in response to this comment. No further response is required.

290-3: The commenter states "**IV. CARB's ENVIRONMENTAL REVIEW OBLIGATIONS UNDER CEQA**

A Overview of CARB's Obligations Under CEQA

State agencies such as CARB must "refrain from approving projects with significant environmental effects if there are feasible alternatives or mitigation measures that can substantially lessen or avoid those effects." (*City of Arcadia v. State Water Resources Control Bd.* (2006) 135 Cal.App.4th 1392, 1421 [citing *Mountain Lion Found. v. Fish & Game Comm.* (1997) 16 Cal.4th 105, 134].) To perform this evaluation, CARB must "first . . . identify the environmental effects" of a proposed regulation, "and then . . . mitigate [any] adverse effects through the imposition of feasible mitigation measures or through the selection of feasible alternatives." (*Sierra Club v. State Bd. of Forestry* (1994) 7 Cal.4th 1215, 1233.) "The CEQA process is intended to be a careful examination, fully open to the public, of the environmental consequences of a given project, covering the entire project, from start to finish. This examination is intended to provide the fullest information reasonably available upon which the decision makers and the public they serve can rely in determining whether or not to start the project at all, not merely to decide whether to finish it." (*NRDC v. City of Los Angeles* (2002) 103 Cal.App.4th 268, 271.)

State regulatory programs "that meet certain environmental standards and are certified by the Secretary of the California Resources Agency are exempt from CEQA's requirements for preparation of EIRs, negative declarations, and initial studies." (*City of Arcadia*, *supra*, 135 Cal.App.4th at 1421.) The scope of this exemption, however, is narrow, and only excuses ARB from complying with the requirements found in Chapters 3 and 4 of CEQA (*i.e.*, Pub. Res. Code, §§ 21100-21154) in addition to Public Resources Code § 21167. (Pub. Resources Code, § 21080.5(c).) However, "[w]hen conducting its environmental review and preparing its documentation, a certified regulatory program is subject to the broad policy goals and substantive standards of CEQA." (Kostka & Zischke, Practice Under Cal. Env. Quality Act (2016 update) § 21.10] ["Kostka & Zischke"] [citing *City of Arcadia*, *supra*, 135 Cal.App.4th at 1422; *Sierra Club*, *supra*, 7 Cal.4th 1215; *Californians for Native Salmon & Steelhead Ass'n v. Dept. of Forestry* (1990) 221 Cal.App.3d 1419; *Envt'l Protection Info. Ctr. v. Johnson* (1985) 170 Cal.App.3d 604, 616].) The broad policy goals of CEQA include: (1) providing public agencies and the public with detailed information about the effect that a Proposed Project is likely to have on the environment, (2) identifying the ways in which the significant effects of a Proposed Project might be minimized, and (3) identifying alternatives

to the Proposed Project. (See Pub. Resources Code, §§ 21002, 21002.1(a), 21061; CEQA Guidelines, § 15362.) Thus, the CEQA Guidelines expressly provide that "[i]n a certified program, an environmental document used as a substitute for an EIR must include '[a]lternatives to the activity and mitigation measures to avoid or reduce any significant or potentially significant effects that the project might have on the environment.'" (*City of Arcadia*, *supra*, 135 Cal.App.4th at 1422 [quoting CEQA Guidelines, § 15252(a)(2)(A)].)

CARB must respond to the issues raised by the public by providing a "good faith, reasoned analysis in response, and at a level of detail that matches the level of detail in the comment." (CEQA Guidelines, § 15088(c); *Pfeiffer v. City of Sunnyvale* (2011) 200 Cal.App.4th 1552, 1568.) If CARB disagrees with the "recommendations and objections raised in the comments," the "recommendations and objections" "must be addressed in detail," with the agency "giving reasons why specific comments and suggestions were not accepted." (CEQA Guidelines, § 15088(d).) "Conclusory statements unsupported by factual information will not suffice." (*Id.*)"

Response: The comment provides an overview of an agency's obligations to prepare analyses consistent with both CEQA Statute and Guidelines and cites to recent case law decisions and the Guidelines. Consistent with these requirements, the Draft EA presents an objective analysis of the potential physical environmental impacts and reasonably foreseeable outcomes associated with implementation of the Proposed Project. As noted in Response 261-1, environmental analyses should not speculate but should present reasoned analysis based on evidence to support its conclusions, which is what the Draft EA provides in compliance with CEQA requirements.

290-4: The commenter states "**1.By Assessing the Alleged Benefits of the ACF Regulation in a Quantitative Manner and the Potential Impacts in a Qualitative Manner, CARB Has Failed to Provide Data Allowing the Public and CARB's Decisionmakers to Adequately Assess the Potential Impacts of the ACF Regulation**

In support of the ACF Regulation, CARB staff performed a detailed quantitative analysis of alleged emissions benefits associated with the adoption of the ACF Regulation. This assessment includes supposed air quality benefits from mobile source emissions in both the South Coast and San Joaquin Valley air basins, as well as statewide. (See Appendix F, Tables 8-10.) These figures are stated in precise units of tons per day or tons per year, depending on the pollutant at issue. (*Id.*)

The EA, however, recognizes the ACF Regulation would result in the installation of an extensive amount of infrastructure needed to accommodate ZEVs, the construction of a large number of new and modified facilities built to increase the supply of ZEVs, an increase in the number of facilities required to produce electricity and hydrogen fuel, and the increased extraction of raw materials "such as lithium, platinum, or other elements." (EA at 19-21.) With respect to air quality and several other resources, the EA finds the impacts of these new facilities to be potentially significant and unavoidable. (See, e.g., *id.* at 40.) With respect to climate change and GHG emissions, the EA finds the impacts to be less than significant. (*Id.* at 64.)

Although the EA specifies "suggested" mitigation to offset these significant environmental effects, the EA does not identify any mitigation measures that would provide enforceable mechanisms to lessen the significant impacts of the proposed regulation. Instead, for each of the resources, the EA finds the impact would continue to be significant and unavoidable because CARB does not possess land use authority over new those new facilities. (See, e.g., *id.* at 39-40.) Nowhere, however, does CARB attempt to quantify the potential impacts associated with the installation of these new facilities.

In other words, the ISOR touts the alleged mobile source benefits of the ACF Regulation in a high level of detail, providing the public and CARB's decisionmakers the misleading picture that adoption of the ACF Regulation would result in those air quality benefits. This is simply not true, as the ACF Regulation would result in the installation of facilities that would themselves generate criteria pollutant and greenhouse gas emissions. CARB, however, has not even attempted to estimate those emissions, leaving the public and CARB decisionmakers with only half of the analysis. (*Cf. Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 311 ["CEQA places the burden of environmental investigation on government rather than the public," and a lead agency "should not be allowed to hide behind its own failure to gather data."].)

CARB staff may argue it is speculative to assess the potential emissions associated with the installation of new facilities. Any such argument would be entirely inaccurate. For example, as explained by Ramboll, it is entirely feasible for CARB "to make a high-level determination of the number of EV chargers and substation installations that would be necessary to fuel" the new vehicle populations created by the ACF Regulation, "and then estimate the emissions impacts of the construction of this infrastructure." (Exhibit "A" at 2.) After this assessment is completed, it is entirely possible that the alleged emissions benefits of the ACF Regulation will be lowered substantially, if not eliminated.

By declining to perform an apples-to-apples assessment of these potential emissions, CARB staff has shielded from the public and CARB decision makers from evaluating the true consequences of the ACF Regulation. As a result, the ISOR and the EA should be overhauled substantially to include a quantitative assessment of ***both*** the benefits and negative effects of the ACF Regulation."

Response: Please refer to Response 290-1 regarding the level of specificity and need for a quantitative assessment. No edits to the Draft EA are required in response to this comment. No further response is required.

290-5: The commenter states "**2.CARB's Findings that the ACF Regulation's Impacts to Resources Is Significant and Unavoidable, Without Actually Performing an Quantitative Assessment of those Impacts, Violated CEQA**

An environmental document cannot simply label an impact "significant and unavoidable" without first providing adequate discussion and analysis, as this would "allow[] the agency to travel the legally impermissible easy road to CEQA compliance." (*Berkeley Keep Jets Over the Bay Comm. v. Bd. of Port Comm'rs* (2001) 91 Cal.App.4th 1344, 1370.)

Accordingly, the eventual adoption of a statement of overriding considerations does not excuse the lead agency from properly conducting environmental review in the first instance. (*Id.*) Rather, the lead agency must adequately quantify the impact, and consider feasible mitigation based on that analysis, prior to concluding that an impact is "significant and unavoidable." (See, e.g., *Sundstrom*, *supra*, 202 Cal.App.3d at 311.) As such, "sole reliance" on another agency's regulatory authority "is inadequate to address environmental concerns under CEQA." (*Californians for Alternatives to Toxics v. Department of Food and Agriculture* (2005) 136 Cal.App.4th 1, 16.)

The EA claims there is "some inherent uncertainty in the degree of mitigation that would ultimately need to be implemented" because "decisions by the regulated entities regarding compliance options are unknown. (EA at 10-11.) Consequently, CARB states the EA's significance conclusions supposedly "tend[] to overstate the risk that feasible mitigation may not be implemented by the agency with authority to do so, or may not be sufficient to mitigate an impact to less than significant." (*Id.* at 11.) Nevertheless, the EA claims, "[i]t is also possible that the amount of mitigation necessary to reduce environmental impacts to below a significant level may be far less than disclosed in th[e] Draft EA" because "[i]t is expected that potentially significant impacts of many individual development projects would be avoidable or mitigable to a less than significant." (*Id.*) There are several problems with this approach.

First, "identification of the precise details of project-specific mitigation" is not necessary to determine "the degree of mitigation that would ultimately need to be implemented" in all cases, as the EA claims. (*Id.* at 26.) As explained by Ramboll, it is entirely feasible to generally estimate the potential consequences of the increased need for EV chargers and substation installations, as well as the potential effects of such new infrastructure. (See generally Exhibit "A" at 2.)

Second, by expressly claiming to overstate the risk that feasible mitigation may be insufficient while, at the same time, asserting that impacts could be reduced to less-than-significant levels by local lead agencies, the EA obscures the significance of its identified impacts. However, an environmental document that does not include sufficient information to "enable[] the reader to evaluate the significance of [] impacts" is inadequate under CEQA. (*Lotus v. Dept. of Trans.* (2014) 223 Cal.App.4th 645, 654.) CARB's approach "precludes both identification of potential environmental consequences arising from the project and also thoughtful analysis of the sufficiency of measures to mitigate those consequences." (*Id.* at 658.) The fact that the Proposed Project's significant environmental impacts could potentially be mitigated by local lead agencies does not relieve CARB from its duty to consider and to quantify the project's environmental impacts.

Third, by relying solely on local lead agencies to enforce mitigation measures, the EA sidesteps analysis of important environmental impacts. Here, as in *Californians for Alternatives to Toxics*, CARB has "repeatedly deferred" to local and federal "regulatory scheme[s] instead of analyzing environmental consequences." (*Californians for Alternatives to Toxics*, *supra*, 136 Cal.App.4th at 16.) As such, CARB has failed to discharge its duty under CEQA to "meaningfully consider the issues raised by the Proposed Project." (*Id.*) In

Californians for Alternatives to Toxics, the lead agency relied on another agency's regulatory scheme to support a finding of no significant impact. (*Id.* at 17.) Here, in contrast, CARB finds a significant impact, but then immediately asserts that the impact may not actually be significant in light of state and federal regulatory schemes. In both cases, however, the result is the same: the lead agency sidesteps CEQA's informational purpose and fails to "meaningfully consider the issues raised by the Proposed Project." (*Id.* at 16.)"

Response: Please refer to Response to Comment 261-1. No edits to the Draft EA are required in response to this comment. No further response is required.

290-6: The commenter states "**3.The EA Does Not Propose Adequate Mitigation for New/Modified Facilities**

CEQA requires mitigation measures to be enforceable through means that are legally binding. (Pub. Resources Code, § 21081.6, subd. (b); CEQA Guidelines, § 15126.4.) This requirement is designed to ensure that mitigation measures will actually be implemented. (*Fed. of Hillside & Cyn. Ass'ns v. City of Los Angeles* (2004) 83 Cal.App.4th 1252, 1261; *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173, 1186.)

None of the mitigation measures identified in the EA are enforceable through legally binding means. Instead, the EA merely identifies "[r]ecognized practices routinely required to avoid and/or minimize impacts to" the relevant resource category. (See, e.g., EA at 28, 32, 34, 39, 103.) There is nothing in the proposed ACF Regulation, however, that ensures those "recognized practices" will actually be implemented. Although CARB defends this approach on the ground that it "does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions," (see EA at 28, 32, 34, 39, 50, 53, 61, 68, 74, 90, 93, 98, 101, 103, 106), that is insufficient to discharge CARB's obligations under CEQA. The EA contains no discussion or analysis regarding CARB's consideration of feasible mitigation measures, other than to state in conclusory fashion that none exist. CARB must use whatever authority it has at its disposal to ensure that the mitigation measures identified in the EA are enforceable through legally-binding means. Thus, at the very least, CARB must analyze a range of potential mitigation measures and determine, based on the results of that analysis, whether such measures are feasible or not.

That being said, CARB is empowered by CEQA to adopt mitigation measures that another agency should implement, where their enforcement is not within CARB's jurisdiction. (*Tiburon Open Space Committee v. County of Marin* (2022) 78 Cal.App.5th 700, 745 ["CEQA is not blind to the possibility of multiple jurisdictions or agencies having some degree of involvement or responsibility for a project. Mitigation may be within the jurisdiction of another entity, and a project may be approved with a finding that a mitigation measure 'should be[ ] adopted' by another entity that has exclusive jurisdiction."] [quoting Pub. Resources Code, § 21081, subd. (a)(2).)]; see also *City of Marina v. Board of Trustees of California State University* (2006) 39 Cal.4th 341, 366 ["CEQA . . . . does not require a public agency to undertake identified mitigation measures, even if those measures are necessary to address the project's significant environmental effects, if the agency finds that the measures" are not within its jurisdiction to enforce.]; and see CEQA Guidelines §15091 [specifically

noting that a valid finding regarding significant impacts includes that changes to a project to reduce impacts are within jurisdiction of another agency and should be adopted by that agency].) CARB's failure to do so here violates CEQA."

Response: Throughout Chapter 4.0 of the Draft EA, potential project mitigation measures are identified and recommended for each respective resource area where impacts are found to be potentially significant. As emphasized in the Draft EA throughout Chapter 4.0 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. Further, the determination of feasibility is often determined by a local lead agency and an applicant, and CARB cannot speculate as to the various factors that would make one mitigation measure feasible and another not (please refer to Response to Comment 290-1 regarding speculation within the context of CEQA). The Draft EA makes a good 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 Project, 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. Nevertheless, these potential adverse impacts are identified and disclosed in the Draft EA.

290-7: The commenter states "**1.The EA Fails to Evaluate Lifecycle Emissions for the GHG Reductions Contemplated Under the ACF Regulation**

For numerous other rulemakings, including the Low Carbon Fuel Standard, CARB has used the CA-GREET3.0 Model to assess lifecycle GHG emissions associated with various fuels. In the ISOR, however, CARB declines to perform a similar lifecycle analysis for the ZEVs that will displace combustion engines. Had CARB used the CA-GREET3.0 model and attempted to perform a lifecycle analysis, the alleged emissions benefits would likely be reduced. Indeed, as explained by Ramboll, the American Transportation Research Institute (ATRI) has demonstrated the lifecycle emissions of BEVs is far higher than internal combustion engine vehicles and fuel cell electric vehicles. (Exhibit "A" at 4.) By declining to perform this analysis, CARB continues to obscure the impacts of the ACF Regulation on GHG emissions."

Response: Please refer to Master Response 4.

The commenter cites a study comparing GREET outputs for the manufacturing of a battery electric class 8 Sleeper Cab Tractor to an equivalent ICE vehicle, claiming that the BEV with a theoretical battery size capable of operating 568 to 710 miles per charge would result in 6

times more production emissions than the equivalent ICE vehicle. Their analysis does not provide an adequate basis for comparison between an ICE vehicle and BEV as the in-use emissions are omitted and the battery size is theoretical. This study also does not corroborate with the numerous other studies that find manufacturing emissions between BEV and ICE vehicle to be similar except for additional emissions associated with battery assembly and mining.

290-8: The commenter states "**2.The EA Fails to Analyze Emissions Associated with the Operation of EVs**

The EA's discussion of air quality impacts is also incomplete because it does not assess criteria pollutant emissions particular to EVs. For example, the EA does not analyze or include an assessment of the impacts on "ZEV weight on PM emissions from tire wear and entrained road dust." (Exhibit "A" at 3.) As explained by Ramboll, it is "reasonably foreseeable that ZEVs will be heavier than the internal combustion engine vehicles (ICEVs) currently on the road." (*Id.*) Because the weight increase is likely to outpace "the 2,000 lbs allowance under [AB] 2061 for alternative fueled vehicles, either more vehicles will be required to transport goods or the weight threshold for the vehicles will need to be further increased." (*Id.*) Under either circumstance, the ACF Regulation will result in PM_{10} emissions that are not addressed in the EA. As explained by Ramboll:

> If the former occurs, the increase in vehicle miles traveled (VMT) will result in an increase in PM emissions from tire wear and entrained road dust. If the latter occurs, the increased average vehicle weight will similarly result in an increase in PM emissions. . . . Given that nonexhaust emissions account for over 90% of PM_{10} and 85% of $PM_{2.5}$ emissions from traffic, *the effects of increased vehicle weight may be significant*.

(*Id.* [emphasis added].)"

Response: Please refer to Response to Comment 270-3. No edits to the Draft EA are required in response to this comment. No further response is required.

290-9: The commenter states "**D. CARB's Energy Assessment Fails to Meet CEQA's Requirements**

CEQA requires that lead agencies evaluate the potential impacts of projects to energy consumption. Specifically, agencies are requires[sic] to assess whether a project "may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources," and if so recommend mitigation. (CEQA Guidelines, § 15126.2(b).) "This analysis should include the project's energy use for all project phases and components, including transportation-related energy . . . ." (*Id.*; see also CEQA Guidelines, Appendix F.)

1 The EA Does Not Discuss Baseline Conditions With Respect to Energy Consumption

As an initial matter, the EA is legally deficient under CEQA because it makes no effort to discuss baseline conditions—i.e., current energy consumption. This is highly problematic in the context of energy consumption, as there is nothing against which to compare the impacts of the ACF Regulation to determine whether impacts to energy consumption are potentially significant. (See CEQA Guidelines, § 15125.) By declining to include baseline conditions with respect to energy consumption, there is no way to evaluate whether the ACF Regulation will result in the "wasteful, inefficient, or unnecessary consumption of energy," and as such the EA violates CEQA."

Response: CARB disagrees with the comment. Page 23 of the Draft EA identifies baseline conditions used for the environmental analysis of the Proposed Project. More specifically, the Draft EA states:

> For this Environmental Analysis (EA), CARB is using a 2021 baseline, as that is the year in which CARB filed the notice of preparation (the Notice of Preparation was posted on February 16, 2021). The 2021 CEQA baseline includes existing vehicle and related fuel emissions programs, policies, and regulations. This baseline reflects the implementation of all existing State and federal laws and regulations on the vehicles which would potentially affected by the proposed regulation. This CEQA baseline therefore includes the Existing Regulation, as it applied in 2021.[30]

The analysis presented in Impacts 6-1 and 6-2 of the Draft EA carries forward the potential changes in energy consumption/use as a result of implementation of the Proposed Project when compared to 2021 conditions (baseline), contrary to the statements made in this comment. As such, the Draft EA's analysis is considered appropriate and valid within the context of CEQA.

290-10: The commenter states "**2 The EA Does Not Adequately Analyze Whether the Project Will Result in the Wasteful, Inefficient, or Unnecessary Consumption of Energy**

The EA recognizes that the "electrification of the various sectors affected by the [ACF Regulation] could increase local and regional energy use and impact supplies and requirements for additional capacity," and that the ACF Regulation may also "impact peak and base load period demands for electricity and other forms of energy. (EA at 57.) The EA, however, ultimately finds that these potential impacts could potentially be avoided in two ways:

[30] Separate from the CEQA baseline discussed in this paragraph and used throughout this EA, a second baseline analysis was also evaluated by CARB to determine differences in the analysis and results if the Heavy-Duty Inspection and Maintenance (HD I/M) regulation is approved. This analysis is in the Modified Baseline Analysis Appendix of the ACF ISOR, Appendix I and presents a scenario that anticipates the HD I/M regulation being finalized prior to implementation of the proposed regulation. Only NOx and PM exhaust emissions are incrementally affected under the Modified Baseline because HD I/M is expected to have minimal impact on PM brake wear and GHG emissions. As such, the analysis presented within this EA is considered reasonably conservative and appropriate for the purposes of evaluating the potential physical environmental impacts of the Proposed Project. The HD I/M regulation is considered as part of the cumulative impact analysis provided in Section K of this EA.

(1) Through "asset management, system design practices, and managed charging to shift a significant amount of the load away from system peaks. Charging management strategies beyond time-of-use rates, including those that reflect wholesale prices and carbon intensity, will be needed to align electric vehicle loads with daytime solar generation. And charging technologies should be coordinated with distribution systems to lessen the impact of charging timed to begin at off peak periods when appropriate." (EA at 57.)

(2) Through other preexisting long-term planning initiatives, including SB 32, triennial updates to Title 24 Building Standards Code, federal Infrastructure Investment and Jobs Act, updates to California Energy Code, SB 100, SB 1505. (See EA at 58-59.)

Ultimately, the EA finds impacts to energy would be less than significant and beneficial. (EA at 56, 60.)

This method of analysis violates CEQA. First, the practices referenced above are not part of the "project" under CEQA. The ACF Regulation, of course, does not contemplate or otherwise compel "asset management, system design practices, and managed charging." Nor are any of the preexisting long-term planning initiatives themselves part of the "project." Rather, these measures are best described as "mitigation" that would allegedly avoid the ACF Regulation's potentially significant impacts. (Cf. CEQA Guidelines, § 15370 [defining mitigation as a measure that would avoid or minimize the potential impacts of a project].)

These avoidance measures fail as mitigation. They are not binding or otherwise enforceable against any person. (CEQA Guidelines, § 15126.4(a)(2).) For instance, if utilities and others were not engaged in optimal "asset management, system design practices, and managed charging" sufficient to reduce energy consumption, CARB would have no enforceable mechanism to change that behavior. More fundamentally, the EA provides no explanation of exactly how these measures would supposedly avoid the potential energy effects of the ACF Regulation, much less any attempt to quantify the potential impacts of the regulation.

There is likewise no discussion in the EA about grid reliability and the potential for the ACF Regulation to impact the ability of the state's electricity grid to deliver electricity reliably with projected load demand. This is particularly important given that summer-time threats of rolling blackouts have become the norm in California. Moreover, because much of the state's grid is powered by solar energy, which decreases toward the end of the day, much of the stress on the grid is felt most acutely in the late afternoon/early evening, prompting calls for consumers to conserve energy when they return home from work. This coincides with the end of work shifts and the return of trucks to the yard for charging. Despite this, the EA contains no discussion regarding grid reliability and California's ability to meet new energy demands associated with the ACF Regulation."

Response: With respect to grid reliability and electrical infrastructure needs, please refer to Master Response 1. As noted within Impact 6-2 of the Draft EA, the State's electrical energy capacity is expected to increase as a result of a menu of GHG reducing regulations and

policies while there is a reduction in combustion engine fuel use resulting in lower total energy used. To meet the statewide targets of 40 percent below 1990 levels of GHG emissions by 2030 (i.e., SB 32)[31], reductions will need to be made from several sectors including the energy and mobile source sectors through statewide regulations such as Proposed Project. Further, the efficiency of vehicles under the Proposed Project would be greater than current conditions (as acknowledged on page 58 of the Draft EA), which means that overall energy demands would decrease, thereby reducing the need for production and delivery of energy. The comment also appears to imply that only electricity is considered energy versus the current consumption of fossil fuels. However, the continued consumption of fossil fuels, as a finite energy resource, could be considered wasteful versus a renewable resource such as electricity energy use, which would expand under the Proposed Project and is evaluated in the Draft EA.

The Draft EA, consistent with CEQA requirements, appropriately does not propose or otherwise identify mitigation unless a significant impact is identified. As noted in the comment, a net beneficial (i.e., not a less-than-significant adverse) impact is identified with respect to long-term operational-related energy demand. An EA should not include or propose mitigation unless a significant impact is identified, which was not the case for Impact 6-2. Moreover, CARB acknowledges the limitations of its purview but appropriately identified standard utility practice and current regulatory framework, as it pertains to the impact analysis. In terms of the treatment of utility management and operation activities, the Draft EA acknowledges the manner in which utility providers may design and manage their systems so as to avoid system stresses. This is part of their daily operations and can be assumed to continue based on current practices. Further, regulatory compliance (e.g., California Energy Code and Title 24 Building Standards Code) should not be considered mitigation under CEQA but can be relied upon as part of a project's analysis.

290-11: The commenter states "As previously explained in WSTA's April 8, 2021, correspondence, "[c]urrent ZEVs are not a 'one to one' replacement and vehicles operating at their maximum legal weight face a significant weight penalty despite the 2,000 lbs weight allowance of AB 2061." In other words, fleet sizes will need to expand to accommodate the existing demand. This will require fleets to purchase additional trucks, which, in return, will result in additional vehicle miles traveled ("VMT") by those trucks. (Exhibit "A" at 3.) Despite this, there is no mention of this potential impact in the EA."

Response: CARB staff disagrees with the comment that ACF will result in a greater than a one-to-one ZEV replacement due to weight and thereby increase VMT. First, the regulation applies to vehicles ranging from Class 2b to Class 8. Weight limits are unlikely to present any issues for Class 7 and below vehicles. Also, as described in the ISOR, Assembly Bill 2061[32] allows for an additional 2,000 lbs. for alternative fueled vehicles which addresses some of the weight concerns of ZEV technology potentially associated with subset of Class 8 vehicles, i.e., tractors. ZEV technology is also rapidly evolving, and CARB expects that as technology advances, weight concerns will continue to diminish for the few trucks that are weight

[31] SB 32 (Pavley, Stats. 2016, ch. 249).

[32] AB 2061 (Frazier, Stats. 2018 ch. 580)

limited. The commenter also fails to recognize that the proposed ACF regulation is structured in a way that provides flexibility for fleet owners to meet the ZEV phase-in requirements based on a fleet's mix of vehicle types and extends the compliance timeframe for high mileage vehicles where the first requirements for 10 percent of the sleeper cab tractors in a fleet to be ZEV starting in 2030. The benefit of the proposed ACF regulation is that the ZEV phase-in schedule allows fleet owners/operators to be able to identify the trucks that are best suited for the technology available at that time.

In addition, fleet owners that travel longer distances will likely balance operational needs with battery size and upfront costs along with opportunity charging especially in weight sensitive applications. All of these factors minimize any possibility a fleet owner would need to increase their fleet size. In future years we expect battery size along with freight transport will be optimized. Please see response to comment 270-3 for more information on weight differences between comparable ZEVs and ICE vehicles.

290-12: The commenter states "**F. CARB's Analysis of Alternatives Violates CEQA**

1 CARB's Obligation to Assess Project Alternatives

The requirement that environmental documents identify and discuss alternatives to the project stems from the fundamental statutory policy that public agencies should require the implementation of feasible alternatives or mitigation measures to reduce the project's significant impacts. (See, e.g., Pub. Resources Code, § 21002.) The lead agency must "focus on alternatives to the project . . . which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives. . . ." (CEQA Guidelines, § 15126.6(b).) Additionally, the range of alternatives "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." (*Id.* at subd. (c).) The CEQA Guidelines specifically recognize that comments raised by members of the public on an environmental document are particularly helpful if they suggest "additional specific alternatives . . . that would provide better ways to avoid or mitigate the significant environmental effects." (CEQA Guidelines, § 15204.)"

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.

290-13: The commenter states "**2. The EA Defines the Project Objectives Too Narrowly**

"A lead agency may not give a project's purpose an artificially narrow definition." (*In re Bay-Delta* (2008) 43 Cal.4th 1143, 1162.) It is improper for a lead agency to "artificially narrow" the description of the project objectives to such an extent that the alternatives analysis "would be a foregone conclusion." (*We Advocate Through Environmental Review v. County of Siskiyou* (2022) 78 Cal.App.4th 683, 692.) Such an approach would turn the alternatives section of the environmental document "into an empty formality," (*id.* [citing *Bay-Delta*, *supra*, 43 Cal.4th at 1162]), which constitutes prejudicial error because it prevents

informed decision making and public participation. (*Id.* [citing Pub Resources Code, § 21005, subd. (a); *North Coast Rivers Alliance* (2015) 243 Cal.App.4th 647, 668].)

While some of the project objectives here focus on the ultimate end of reducing criteria pollutant and greenhouse gas emissions, the majority of the project objectives articulated in the ISOR and the EA focus myopically on ZEVs as the specific means to achieve that end. For instance, Project Objective No. 1 seeks to facilitate "the attainment of NAAQS for criteria air pollutants" by "[a]ccelerat[ing] the deployment of ZEVs . . . ." (EA at 146.) Project Objective No. 3 seeks to "[d]ecrease GHG emissions . . . by adopting strategies to deploy medium- and heavy-duty ZEV in California . . . ." (*Id.* [emphasis added].) Project Objective No. 6 seeks "the transition of California's medium- and heavy-duty transportation sector from internal combustion to all electric powertrains," and "to support ZEV sales . . . ." (*Id.*) Project Objective No. 10 seeks to promote acceleration of the development of "environmentally superior medium- and heavy-duty vehicles" by fostering "market certainty for zero-emission technologies . . . ." (*Id.* at 147.) Project Objective Nos. 8 and 12 focus solely on the means, seeking to, respectively, "[i]ncentivize and support "emerging zero-emission technology," and "[s]pur economic activity of zero-emission technologies in the medium- and heavy-duty vehicle sectors." (*Id.*) By focusing on CARB's preferred means—electric vehicles and other ZEVs—as opposed to the actual objectives of the regulation, the EA essentially prohibits CARB from considering other alternatives that also achieve emissions reductions and avoid the serious environmental consequences of the ACF Regulation. This is demonstrated in CARB's assessment of the alternatives proffered by CTA, WSTA, and EMA, all of which were rejected primarily on the grounds that they would result in the deployment of fewer ZEVs and thus would be less effective in achieving the above objectives than the ACF Regulation. (See EA at 155, 157, 158.)"

Response: Please refer to Master Response 3. We disagree because the comment fails to recognize that the HD Omnibus Regulation and the LCFS regulations are in effect and are reflected in the baseline. Repeating the same requirement of these regulations such as purchasing lowering emitting engines or using renewable fuels would not result in any emissions reductions that are not already reflected in the baseline. The actions that are already required cannot be double counted. As noted on page 2 of the Draft EA, the Proposed Project is intended to complement the recently adopted Advanced Clean Truck regulation, which requires the increased sale of ZEVs within the state, by requiring certain fleets to purchase ZEVs. As a result, the objectives for the Proposed Project appropriately focus on the need/requirement for the increased purchase of ZEVs. The objectives are not considered "artificially narrow" nor do they limit the consideration of a reasonable range of alternatives, as stated in more detail as part of Master Response 3. Further, three alternatives were evaluated in detail as part of the Draft EA and are considered to present a reasonable range, in compliance with CEQA requirements. This assessment included consideration of the 12 project objectives and whether each alternative could meet most of the basic project objectives in fulfillment of CEQA's mandate. It is acknowledged that additional alternatives did not meet this requirement but that is not an indication of impermissibly narrow objectives, especially when there were several alternatives deemed to be feasible.

290-14: The commenter states "**3. Because the Alternatives Proposed by EMA, CTA, and WSTA Would Avoid the Significant and Unavoidable Impacts of the ACF Regulation, CARB's Rejection of those Alternatives Violates CEQA**

The EA also impermissibly rejects the alternatives proposed by EMA, CTA, and WSTA. Each of these alternatives would rely more heavily than the ACF regulation on existing technologies and infrastructure. As a result, the three alternatives would not induce or require the construction of new facilities or the development of new infrastructure to the same extent as the ACF Regulation. Because virtually all of the impacts in the EA that were found to be significant and unavoidable were created by the need for new facilities or the development of new infrastructure, the three alternatives would either significantly reduce or avoid all of the significant and unavoidable impact identified in the EA. Because CARB must "focus on alternatives to the project . . . which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives," (CEQA Guidelines, § 15126.6(b)), CARB may not simply reject the proposed alternatives."

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.

290-15: The commenter states "**G CARB's Certified Regulatory Program Violates CEQA Because it Contemplates Post Hoc Environmental Review and Delegation of CEQA Authority to the Executive Officer**

The EA states that, following its public meeting on October 27, 2022, to approve the ADF Regulation, the CARB Board may direct the Executive Office to make further changes to the ACF Regulation and finalize the environmental review process without bringing those changes back to the CARB Board. (EA at 12-13.) If CARB proceeds in this fashion, it would violate CEQA's prohibitions on post hoc environmental review and delegation of environmental review authority to a person who did not initially approve the project.

1 CARB's Certified Regulatory Program Authorizes Post Hoc Environmental Review, in Violation of CEQA

As the Supreme Court explained in *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376 "[a] fundamental purpose of an EIR is to provide decision makers with information they can use in deciding whether to approve a Proposed Project, not to inform them of the environmental effects of projects that they have already approved. If post-approval environmental review were allowed, EIR's would likely become nothing more than post hoc rationalizations to support action already taken." (*Id.* at 394; see *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 79; CEQA Guidelines, § 15004, subd. (a) ["Before granting any approval of a project subject to CEQA, every lead agency . . . shall consider a final EIR . . . ."] [emphasis added].) Moreover, the timing requirement set forth in § 15004 of the CEQA Guidelines "applies to the environmental review documents prepared by [C]ARB . . . in lieu of an EIR." (*POET*, *supra*, 218 Cal.App.4th at 716.)

By authorizing the Executive Officer to perform "further environmental review" associated with changes to the regulatory language pursuant to Government Code § 11346.8(c) "after [the state board] approves of the project," the EO would engage in post hoc environmental review in violation of CEQA. As explained above, both the initial regulatory proposal and any subsequent 15-day modifications are part of the same "project" under CEQA. The two actions would be "integral parts" of each other and the 15-day modifications are a "reasonably foreseeable consequence" of the original proposed regulations. (*Sierra Club*, *supra*, 128 Cal.App.4th at 698.) Therefore, authorizing the Executive Officer to perform "further environmental review" after the state board approves the project at issue would constitute impressible post hoc environmental review."

Response: As mentioned earlier, CARB is required to respond to comments on the Draft EA that raise significant environmental issues with the Proposed Project. The commenter does not raise significant environmental issues with the Proposed Project, as evaluated in the Draft EA. Therefore, CARB is not required to substantively respond to this comment.

Rather, the commenter focuses on issues not present in the current rulemaking related to delegation to the Executive Officer for modifications to the Proposed Project after a Board approval. No such Board approval or delegation has occurred in this rulemaking as of the date of publication of this RTC document. To the extent that the commenter is challenging CARB's certified regulatory program (CRP) related to delegation, the time to do that should have occurred when CARB considered the amendments to the CRP, in 2019. Nonetheless, "any power, duty, purpose, function, or jurisdiction which the state board may lawfully delegate shall be conclusively presumed to have been delegated to the executive officer unless it is shown that the state board, by affirmative vote recorded in the minutes of the state board, specifically has reserved the same for the state board's own action." (Health and Safety Code, section 39516.) Moreover, in a resolution adopted in 1978 (Resolution 78-10), the Board reserved the authority to adopt regulations related to emission reductions but explicitly stated "that nothing herein shall prevent the Board, at a public meeting, from expressly delegating to the Executive Officer any powers, etc., otherwise reserved hereby to the Board, or from reserving to itself any additional powers, etc.…." Therefore, the Board is empowered to delegate to the Executive Officer any approval or denial of additional modifications to the regulation after it approves for adoption the Proposed Amendments at its public hearing. Should the Board delegate to the Executive Officer to make additional modifications to a Board-approved regulation, the Executive Officer would consider modifications consistent with Board direction and determine if additional environmental review is appropriate under CEQA. This is consistent with CEQA when a project proponent desires to add to or change aspects of an already-approved project and the lead agency, relying on the existing environmental document for the project, determines the proper level of CEQA review for the changed aspects of the project. (Public Resources Code, section 21166; Title 14 CCR section 15162.)

290-16: The commenter states "**2. CARB's Certified Regulatory Program Violates CEQA Because it Authorizes the Delegation of CEQA Decision-making Authority to a Person Who Did Not Initially Approve the Regulation**

Delegation to the Executive Officer is improper if the Executive Officer lacks the authority to approve or disapprove the project. This observation is consistent with the decision in POET in which the court held that:

> [T]he principle that prohibits the delegation of authority to a person or entity that is not a decision-making body includes a corollary proposition that CEQA is violated when the authority to approve or disapprove the project is separated from the responsibility to complete the environmental review. [Citations.] This conclusion is based on a fundamental policy of CEQA. For an environmental review document to serve CEQA's basic purpose of informing governmental decision makers about environmental issues, that document must be reviewed and considered by the same person or group of persons who make the decision to approve or disapprove the project at issue. In other words, the separation of the approval function from the review and consideration of the environmental assessment is inconsistent with the purpose served by an environmental assessment as it insulates the person or group approving the project "from public awareness and the possible reaction to the individual members' environmental and economic values."

(*POET*, *supra*, 218 Cal.App.4th at 731 [quoting *Kleist v. City of Glendale* (1976) 56 Cal.App.3d770, 779] [emphasis added].)

The term "'[p]roject' means 'the whole of the action'" that otherwise qualifies as a "project" under CEQA. (*Concerned McCloud Citizens v. McCloud Community Servs. Dist.* (2007) 147 Cal.App.4th 181, 192 [quoting CEQA Guidelines, § 15378(a)]; see also Pub. Resources Code, § 21002.1(d) ["The lead agency shall be responsible for considering the effects . . . of all activities involved in a project."] [emphasis added].) It "'does not mean each separate governmental approval.'" (*Id.* [quoting CEQA Guidelines, § 15378(c)].) Rather, the term "project" "is broadly construed and applied in order to maximize protection of the environment." (*Nelson v. County of Kern* (2010) 190 Cal.App.4th 252, 271 [emphasis added].) Consequently, "[c]ourts have considered separate activities as one CEQA project and required them to be reviewed together where, for example, the second activity is a reasonably foreseeable consequence of the first activity … or both activities are integral parts of the same project." (*Sierra Club*, *supra*, 128 Cal.App.4th at 698.) Moreover, CEQA requires the lead agency to perform its environmental review "at the earliest possible stage." (*Calif. Oak Found. v. Regents of the Univ. of Calif.* (2010) 188 Cal.App.4th 227, 271.)

CARB's certified regulatory program purports to delegate to the Executive Officer authority to approve or disapprove the 15-day modifications to the Proposed Project, but they do not—and cannot—delegate to the Executive Officer authority to approve or disapprove the project, since that decision will have already been made by CARB. Consequently, "the authority to approve or disapprove the project [would be] separated from the responsibility to complete the environmental review." (*POET*, *supra*, 218 Cal.App.4th at 731 [emphasis added].) As the court in *POET* explained, "[f]or an environmental review document to serve CEQA's basic purpose of informing governmental

decision makers about environmental issues, that document must be reviewed and considered by the same person or group of persons who make the decision to approve or disapprove the project at issue." (*Id.* [emphasis added].) CARB's potential course of action does just the opposite. It suggests CARB's governing board may approve the ACF Regulation, but then delegate authority to a different person, the Executive Officer, to approve the 15-day modifications and any associated environmental review. This improperly "insulates the person or group approving the project"—i.e., CARB—"'from public awareness and the possible reaction" regarding the 15-day modifications and their environmental impacts, since those issues are reviewed and approved by the Executive Officer. (*Id.* [quoting *Kleist*, *supra*, 56 Cal.App.3d at 779].)

As such, in the event CARB makes any changes to the proposed ACF Regulation after the October 27, 2022, hearing, the Executive Officer may not act on those modifications, and must instead bring the changes back to CARB's governing board."

Response: As mentioned earlier, CARB is required to respond to comments on the Draft EA that raise significant environmental issues with the Proposed Project. The commenter does not raise significant environmental issues with the Proposed Project, as evaluated in the Draft EA. Therefore, CARB is not required to substantively respond to this comment.

The commenter focuses on issues not present in the current rulemaking related to delegation to the Executive Officer for modifications to the Proposed Project after a Board approval. No such Board approval or delegation has occurred in this rulemaking as of the date of publication of this RTC document. To the extent that the commenter is challenging CARB's CRP related to delegation, the time to do that should have occurred when CARB considered the amendments to the CRP, in 2019. Nonetheless, "any power, duty, purpose, function, or jurisdiction which the state board may lawfully delegate shall be conclusively presumed to have been delegated to the executive officer unless it is shown that the state board, by affirmative vote recorded in the minutes of the state board, specifically has reserved the same for the state board's own action." (Health and Safety Code, section 39516.) Moreover, in a resolution adopted in 1978 (Resolution 78-10), the Board reserved the authority to adopt regulations related to emission reductions but explicitly stated "that nothing herein shall prevent the Board, at a public meeting, from expressly delegating to the Executive Officer any powers, etc., otherwise reserved hereby to the Board, or from reserving to itself any additional powers, etc…." Therefore, the Board is empowered to delegate to the Executive Officer any approval or denial of additional modifications to the regulation after it approves for adoption the Proposed Amendments at its public hearing. Should the Board delegate to the Executive Officer to make additional modifications to a Board-approved regulation, the Executive Officer would consider modifications consistent with Board direction and determine if additional environmental review is appropriate under CEQA. This is consistent with CEQA when a project proponent desires to add to or change aspects of an already-approved project and the lead agency, relying on the existing environmental document for the project, determines the proper level of CEQA review for the changed aspects of the project. (Public Resources Code, section 21166; Title 14 CCR section 15162.)

Comment Letter 319

10/17/2022 Todd Campbell
Clean Energy

319-1: The commenter states "In its rush to embrace zero emission technologies, similar to its actions in the Advanced Clean Truck (ACT) proceedings, CARB has ignored substantive and procedural limits on its powers. The California Environmental Quality Act ("CEQA"), Public Resources Code § 21000 et seq., and California Administrative Procedure Act ("APA"), Government Code §11340 et seq., impose substantive and procedural guardrails that CARB must follow when developing regulations or other programs to attain air quality standards. CEQA is designed to protect the environment by requiring state and local government agencies, like CARB, to evaluate and disclose the significant environmental impacts of Proposed Projects and to adopt all feasible alternatives or mitigation measures to mitigate those impacts. The APA aims to reduce economic burdens on individuals and businesses in the state, by requiring agencies to evaluate and disclose the economic impacts of proposed regulations and adopt the most cost-effective set of regulatory measures to achieve their goals. As discussed below, CARB's draft regulation fails to satisfy these legal requirements. To address those deficiencies, Clean Energy proposes that CARB consider adopting (1) the Best Available Control Technology Alternative, a modification to the Proposed Project that the draft EA improperly rejects, and (2) an additional requirement related to the proposed "ZEV Unavailability" exemption, which as drafted allows fleet owners to purchase a new internal combustion ("ICE") vehicle if no ZEV or near-zero-emissions vehicle ("NZEV") is commercially available, provided that certain requirements are met. Rather than giving fleet owners unfettered discretion to purchase any ICE vehicle—including diesel vehicles—Clean Energy proposes that CARB require or incentivize fleet owners to purchase cleaner low-NOx renewable natural gas powered vehicles instead."

Response: In response to this comment, the draft regulation was modified to require fleet owners to purchase California certified engines when new ICE purchases are made, these modifications were also incorporated into the Final EA. All diesel and natural gas engines will be part of the same compliance pool for engines certified under the HD Omnibus requirements so there is no reason to limit the requirement to engines of a particular fuel type. Requiring the use of renewable fuels simply duplicates the requirements of the LCFS regulation and cannot be double counted. Please refer to Master Responses 3 and 5 for more details.

319-2: The commenter states "**i. CEQA Requires CARB to Adhere to Important Procedural Requirements**

CEQA sets forth procedures requiring state and local government agencies to disclose and evaluate the significant environmental impacts of Proposed Projects and adopt all feasible alternatives or mitigation measures to mitigate those impacts. Pub. Res. Code § 21000 et seq.; *see also* CEQA Guidelines, Cal. Code Regs., title 14 (hereinafter "Guidelines") § 15002.

CEQA requires public agencies to "refrain from approving projects for which there are feasible alternatives or mitigation measures" that can substantially lessen or avoid any of its significant environmental effects. *Mountain Lion Found. v. Fish & Game Com.*, 16 Cal. 4th 105, 134 (1997); Pub. Res. Code §§ § 21002, 21002.1, 21081; Guidelines §§ 15021, 15091-15093. Accordingly, before approving a project, an agency must find either that: (i) the project's significant environmental effects have been avoided or mitigated, or (ii) there is no feasible way to mitigate the project's significant effects and its unmitigated effects are outweighed by its benefits. *Id.* §§ 21002, 21002.1, 21081; Guidelines §§ 15043.

CEQA requires agencies like CARB to prepare an environmental impact report (or its equivalent—here, an environmental assessment). Pub. Res. Code § 21100; Guidelines § 15002(f)(1). The report must include "detailed information about the effect a Proposed Project is likely to have on the environment; [] ways in which the significant effects of such project might be minimized; and [] alternatives to such a project." *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 47 Cal. 3d 376, 391 (1988) (citations omitted).)

Thus, when CARB determines that a proposed regulation may have a significant effect on the environment, it must prepare an environmental assessment, discussing the environmental impacts of the proposed regulation and potentially feasible mitigation measures and alternatives "which could feasibly attain most of the project objectives but could avoid or substantially lessen any of the identified significant impacts, consistent with [Guidelines] section 15126.6." 17 Cal. Code Regs. § 60004.(b). CARB cannot approve a project unless the project will not have a significant effect on the environment, or "CARB has eliminated or substantially lessened all significant effects on the environment where feasible . . . and determined that no feasible alternatives or mitigation measures are available that would substantially lessen any remaining significant adverse effect that the activity may have on the environment." *Id.* § 60004.2(c)(2)(B)."

Response: The Draft EA, consistent with CEQA requirements, presents a programmatic analysis of the potential physical environmental impacts of the project and evaluates feasible mitigation measures and alternatives that would reduce/lessen the physical environmental impacts of implementation of the Proposed Project.

319-3: The commenter states "**ii. The Draft Environmental Assessment for the Proposed ACF Regulation Fails to Comply with CEQA**

On August 30, 2022, CARB released a draft Environmental Assessment ("EA") for the proposed ACF Regulation. The EA appears to violate CEQA's requirement that public agencies evaluate and adopt all feasible mitigation measures, in a number of respects. Clean Energy highlights two of these deficiencies:

First, the EA acknowledges (in "Impact 3-1: Short-Term Construction-Related Effects to Air Quality") that the Regulation could result in an increase in manufacturing and associated facilities to increase the supply of ZEVs, along with the construction of new hydrogen fueling stations and electric vehicle charging stations to support ZEV operations. CARB estimates that 157,000 chargers will be necessary by 2030 and 258,000 chargers by

2037 to support medium- and heavy-duty vehicle electrification. The EA states that this massive undertaking could result in the release of hundreds of pounds of daily NO_x and PM, which may exceed applicable significance thresholds depending on the exact location of generation: "Thus, implementation of the Proposed Project could generate levels that conflict with applicable air quality plans, violate or contribute substantially to an existing or projected violation, result in a cumulatively considerable net increase in non-attainment areas, or expose sensitive receptors to substantial pollutant concentrations." Draft EA at 39. The EA acknowledges that these "short-term construction-related air quality impacts" could be "potentially significant." *Id.*

Despite this finding, CARB does not propose any enforceable mitigation measures in the draft EA. Instead, CARB concludes that it "does not have the authority to require implementation of mitigation related to new or modified [manufacturing, fueling and charging] facilities" and that "[t]he ability to require such measures is within the purview of jurisdictions with local or state land use approval and/or permitting authority." Draft EA at 39. This is an unsupported abdication of CARB's power and obligations under CEQA: CARB undeniably has broad authority to regulate air pollution caused by motor vehicles. *See, e.g.*, Health & Safety Code § 39003. And CARB's focus on only "project"-level mitigation measures is misplaced. The CEQA Guidelines explicitly provide that "[i]n the case of the adoption of a . . . regulation[,] mitigation measures can include measures incorporated into the . . . regulation[,]" as well as offsetting measures that compensate for the adverse impact created by the Proposed Project. Guidelines §§ 15126.4, 15370(e). That is, CARB is fully empowered to consider program-level changes to the proposed Regulation to offset any identified environmental impacts.

Second, the EA rejects, in its alternative analysis, Clean Energy's proposal that the ACF Regulation include a provision for renewable fuel-powered low-NOx heavy-duty vehicles that meet a 0.02g/bhp-hr NOx certification standard or better. This proposal is described in the draft EA as the "Best Available Control Technology ('BACT') Concept." Draft EA at 151. As CARB acknowledges, this proposal "could increase the number of cleaner combustion engines if ZEVs and NZEV are not available[,] assuming engines certified to the" 0.02g/bhp-hr NOx certification standard become available. CARB also acknowledges that this alternative would reduce ZEV sales, and therefore would reduce the "environmental impacts related to ZEV manufacturing," including the negative impacts on short-term air quality described above. Draft EA at 153.

Nevertheless, CARB rejected this alternative because it would "not achieve new NO_x reductions overall." Draft EA at 152. That is, CARB states that "[n]o NO_x reductions would occur beyond what is already expected from the" Heavy-Duty Low NO_x Omnibus ("Omnibus") Regulation, which will establish a new low-NO_x certification standard for combustion engines beginning in 2024. Further, CARB states that it is rejecting the alternative because it would be "less effective . . . at meeting ZEV-related project objectives" and would result in "fewer ZEVs" and "less ZEV innovation." Draft EA at 154. Finally, CARB claims that the alternative is an "administrative burden" because reductions in emissions are "already accounted for" in the Omnibus Regulation.

But this analysis is deficient for several reasons. For one thing, CARB does not explain how it estimates the potential emissions reductions of the BACT Concept as opposed to the proposed ACF Regulation, or provide calculations to support its conclusion. Conclusory comments in support of environmental conclusions "are generally inappropriate." *Laurel Heights*, 47 Cal. 3d at 404. For another, CARB appears to be arriving at its conclusions regarding the environmental impacts of the BACT Concept by crediting any NOx reductions to the Omnibus Regulation. Draft EA at 153 ("No NOx reductions would occur beyond what is already expected from the HD Omnibus Regulation."). CARB also appears to credit any GHG reductions to the state's Low Carbon Fuel Standard ("LCFS") program. *Id.* ("[A]ny GHG benefits achieved . . . would be attributed to LCFS[.]") CARB's failure to make clear how it is accounting for reductions in NOx and GHG emissions is itself a violation of CEQA's requirement that CARB fully describe the basis of its analysis and conclusions. *Laurel Heights*, 47 Cal. 3d at 404 ("[T]here must be a disclosure of the 'analytic route the . . . agency traveled from evidence to action.'"). For the same reason, CARB's conclusion about "administrative burden" is misplaced—any administrative burden derives purely from CARB's internal methods for accounting and tracking NOx and GHG reductions, and is therefore self-created. Finally, CARB's conclusions regarding the BACT Concept's environmental impacts, and its ability to mitigate the acknowledged short-term air-quality impacts from the proposed Regulation, is contrary to the evidence CARB received. In fact, numerous stakeholders in this proceeding have pointed out that CARB is relying on outdated and questionable studies to support its position. Further, stakeholders have presented CARB evidence concerning how BACT trucks would substantially reduce emissions of criteria pollutants and Greenhouse Gases, particularly when compared to diesel trucks."

Response: With respect to the Draft EA's consideration of alternatives, please refer to Master Response 3. 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-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 Project, 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.

319-4: The commenter states "**iii. Incorporating Low-NOx Vehicles, Through The BACT Concept And A Supplement to the "ZEV Unavailability" Exception, Will Help Reduce Short-Term Air Quality Impact While Still Achieving Most of the Proposed Regulation's Objectives**

Although we commend CARB for attempting to push the transportation sector aggressively toward a cleaner future, we are concerned that proposed Regulation's exemptions for "ZEV Unavailability" represent a missed opportunity to incorporate low-NO_x requirements to provide a safety net solution that will both reduce short-term air quality impacts and achieve the proposed Regulation's objectives of reducing the State's dependence on petroleum, diversifying the use of fuels in the transportation fleet, meeting federal and state air-quality goals, decreasing GHG and NO_x emissions, and transitioning the medium- and heavy-duty transportation sectors away from standard internal combustion vehicles. We therefore suggest that CARB modify the ACF regulation to require fleets using the "ZEV Unavailability Exemption" to evaluate and purchase vehicles certified to the 2027 0.02g NO_x Omnibus standard during the calendar years 2024-2026. This creates a "safety net" where zero-emission products aren't available or applicable, and reinforces CARB's inherent support of their Omnibus regulation, and ensures that fleets purchase the cleanest trucks available instead of new diesel trucks. Evidence presented to the Board demonstrates that engines certified to a 0.02g. and fueled with RNG dramatically reduce criteria pollutants and GHG emissions when compared to current generation diesel engines. This safety net will ensure that the State will make solid progress towards our ambient air and GHG goals in the event ZEV trucks are not readily available.

As drafted, the proposed Regulation contains exemptions for fleet owners to "purchase a new ICE vehicle and exclude it from the ZEV addition requirements" if no ZEV or NZEV is "commercially available" and certain other conditions are met. *See, e.g.*,, Appendix A-1 (State and Local Government Agency Fleet Requirements) at 13; Appendix A-2 (High Priority and Federal Fleet Requirements) at 26. But as drafted, the "ZEV Unavailability" exemption permits qualifying fleets to purchase alternatives with no other limitation. As a result, with zero emission trucks unlikely to be widely available on a widespread scale in the near future, the obvious choice for trucking fleets who qualify for the "ZEV Unavailability Exemption" will be cheaper, dirtier diesel trucks. Put another way, absent a provision requiring fleets to purchase commercially available low-NO_x vehicles powered by renewable natural gas—if ZEVs are unavailable—the "ZEV Unavailability" exemption will blow a gaping hole through the ACF Regulation that undermines the proposed Regulation's very objectives. At a minimum, fleet owners will have no reason not to purchase traditional ICE vehicles—the very vehicles that the ACF Regulation seeks to eventually remove from California's roads.

By contrast, directing fleet owners seeking the "ZEV Unavailability exemption" to purchase BACT low-NO_x trucks , would obviously further the draft Regulation's objectives while, at the same time, also mitigating the short-term air quality impacts identified in the EA Low-NO_x vehicles certified to a 0.02 g/bhp-hr NO_x standard provide significant emissions reductions from current engine and emission control technology—as CARB has already recognized in the 2016 State Implementation Plan. As CARB's staff has previously acknowledged, current trucking fleets need to be replaced by clean trucks that meet zero or

near-zero tailpipe vehicle performance levels as soon as possible. Requiring manufacturers invoking "ZEV Unavailability" to first turn to low-NO_x vehicles is a meaningful way for regulators to encourage the cleanest vehicle purchases for fleets retiring their older vehicles.

By including low-NOx, near-zero tailpipe vehicles in the proposed Regulation, CARB will send a strong market signal that will encourage cleaner near-zero vehicles that can meet tighter standards, improve overall air quality throughout the state almost immediately, and make it more likely that our most polluted California air sheds can reach clean air attainment."

Response: In response to this comment, the draft regulation was modified to require fleet owners to purchase California certified engines when new ICE purchases are made; these modifications were also incorporated into the Final EA. All diesel and natural gas engines will be part of the same compliance pool for engines certified under the HD Omnibus requirements so there is no reason to limit the requirement to engines of a particular fuel type. Requiring the use of renewable fuels simply duplicates the requirements of the LCFS regulation and cannot be double counted. Please refer to Master Responses 3 and 5 for more details.

319-5: The commenter states "Finally, we would point out that the EA fails to adequately assess the total emissions of battery electric and fuel cell vehicles. A significant new study sponsored by the Argonne National Laboratory, the Joint Research Center and the European Commission, concluded that battery electric and hydrogen (other than electricity or hydrogen made from renewable natural gas), have the worst greenhouse gas emissions while RNG has the lowest with negative carbon intensity values. This conclusion was made after the study performed a well-to-wheels (WTW) analysis for all transportation fuels applying both U.S. and European Union forms of well-to-wheel measurement."

Response: CARB disagrees with the premise of the comment as the LCFS regulation already requires the use of renewable fuels in California and the emission benefits of using renewable fuels like renewable natural gas or renewable diesel in transportation cannot be double counted. The analysis presented in the Draft EA, including CARB's modeling results, was based on scientific analysis and evidence in support of the potential GHG reductions possible through the expansion of ZEVs within the State of California. The study referred to by the commenter is not provided or referred to by name as part of the comment, and no further response is possible. However, to the extent that the comment asserts that the lifecycle emissions ZEV vehicles are higher than the lifecycle emissions from ICE vehicles fueled from lower carbon-intensity fuels such as RNG, please also refer to Master Response 4.

Comment Letter 334

10/17/2022 Lee Brown
Western States Trucking Association

334-1: The commenter states "***CARB's Analysis of our Alternative 8 is Incorrect and Misleading***
WSTA proposed an alternative that is discussed in the Environmental Assessment (EA) as Alternative 8. CARB is obligated to prepare an analysis of alternatives. CARB is aware that natural gas vehicles have been deployed in the construction, utility, and waste collection industries. In the analysis in the EA for this regulation, CARB makes the shocking announcement that natural gas vehicles are more polluting than diesel. WSTA is providing the attached Alternative 8 Technical Comments prepared by Ramboll, which disputes the "more polluting" conclusion as "incorrect and misleading" as well as shows where the CARB staff environmental analysis of Alternative 8 falls short. Ramboll concludes that, "CARB must formulate a revised Alternative 8, as originally suggested by stakeholders, and conduct a full CEQA comparison analysis that reflects the emission reduction potential of including low NO_X NG trucks and the GHG emissions reduction potential of RNG-fueled NG trucks.""

Response: The commenter is essentially requesting CARB to double-count NOx emissions benefits from Alternative 8. Starting in 2024, emissions from new ICE vehicles (diesel and CNG) will need to meet the HD 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. Please refer to Master Responses 3, 4, and 5 for more detailed information.

334-2: The commenter states "***Traffic Impacts of ZEV's***

CARB staff has ignored the significant complications of ZEV's from both a highway safety and environmental perspective. While California law under AB 2061 permits a 2,000-pound allowance for any ZEV or near zero emissions vehicle, federal law does not.

Federal law only permits a 2,000-pound allowance for natural gas vehicles above the federal gross weight limitation of 80,000 pounds. Efforts are underway in Washington D.C. to legislatively force the Federal Highway Administration into permitting as much as an 8,000-pound allowance for electric trucks. However, this attempt is being fiercely opposed by certain stakeholders, especially highway safety advocates.

As the law stands right now, there is no legal ability for battery-electric trucks to operate on the federal highway network (including within California) above the federal maximum weight allowance. California's weight allowance will only be useable on state and local highways.

Class 7 - 8 electric trucks as currently designed weigh significantly more than their diesel counterparts, as much as 8,000-pounds. Without a federal increase (Federal Highway is constrained legislatively from being able to approve wholesale weight increases on the federal highway network) significantly more trucks will be required to haul the same tonnage as trucks carry today.

While not all trucks operate all the time at maximum allowable weight, a sufficient number do, especially in construction trucking where there is no such thing as a light load of rock, sand, or gravel.

There is a direct correlation between the number of trucks on-highway and car-truck crashes and/or fatalities. Increasing the number of required trucks as a direct result of this rule will increase the overall vehicle miles travelled thus increasing crashes, injuries, and highway related fatalities. This is measurable statistically but ignored by staff. More trucks on-highway as a result of this mandate dramatically changes estimates related to the emissions lifecycle of ZEV's."

Response: With respect to transportation safety, the Draft EA (within Impact 17-2) evaluates potential increases in vehicle traffic, including ZEVs, which could affect transportation safety and increase potential conflicts between trucks and other vehicles (including other trucks), contrary to statements made in this comment. However, the overall vehicle population (i.e., total number of vehicles on roadways) of vehicles is not projected to increase as a result of implementation of the Proposed Project. While the statewide vehicle population forecast of scenarios that was published as part of the Proposed Project's Standardized Regulatory Impact Assessment (SRIA) projects an increase in the Class 2b-8 vehicle population and vehicle miles travelled, this would occur in both the baseline and in the scenarios evaluated. In other words, with and without the Proposed Project, the projected increase in Class 2b-8 vehicle population would occur. This projection was included in the evaluation of potential physical environmental impacts with respect to potential transportation safety. Also refer to Response 290-11 with respect to weight allowance. It is important to note that congestion, in and of itself, is no longer considered an impact under CEQA. Please refer to pages 99 through 101 of the Draft EA for further clarification. Regarding the need to present lifecycle emissions estimates, please refer to Master Response 4.

334-3: The commenter states "Finally, WSTA is entitled to a complete response and CEQA analysis of our Alternative 8 especially in light of CARB's own modeling that shows that the proposed ACF delivers very little emissions reductions in the South Coast and San Joaquin Valley where hundreds of our members live, work and strive to provide the public with the goods and services it needs."

Response: Staff disagrees with the commenter's statement that "ACF delivers very little emissions reductions in the South Coast and San Juaquin Valley". The South Coast and San Joaquin Valley realize the most emission reductions therefore the most health benefits from the Proposed Project with 1,528 and 399 avoided incidents of cardiopulmonary mortality; 262 and 50 less hospitalizations for cardiovascular illness; 313 and 60 less hospitalizations for respiratory illness; and 767 and 141 less emergency room visits.[33] As stated in the Staff Report Chapter IX.B.8 and discussed in Master Response 3, requiring "optional low NOx"

[33] CARB Supplemental 15 day Notice to the Proposed Advanced Clean Fleets Regulation, 03/23/2023. Appendix B: Updated Costs and Benefits Analysis, Table 1: Regional and Statewide Avoided Mortality and Morbidity Incidents from 2024 to 2050 (web link: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/acf15db.pdf, last accessed April 2023).

engines would not achieve any emission reductions than those already accounted for in the Adjusted Legal Baseline.

Staff also disagrees with this claim because the commenter fails to recognize that the same combustion-based strategies included in the Ramboll study to reduce NOx from ICE vehicles have already been approved by the board and are part of the baseline emissions analysis. These board-approved measures include CARB's HD Omnibus Regulation and HD I/M Regulation, and accordingly, the reductions associated with the commenter's proposed alternative do not generate emissions benefits beyond the legal baseline. Please refer to Master Response 5 for more detailed response. Furthermore, the 2022 State Implementation Strategy air quality modeling indicates NOx emissions will need to decline by approximately 126 tpd from 2037 levels to provide for attainment in the remaining portions of the south coast region that do not yet meet the 70 ppb ozone standard.[34] Measures including the Proposed Project and other policies such as the proposed Zero-Emission Trucks measure will provide an estimated 73 tpd of NOx emission reductions in 2037 for the South Coast. ICE vehicles combusting RNG emits NOx, whereas ZEV do not.

334-4: The commenter states "**ALTERNATIVE 8 TECHNICAL COMMENTS**

The Draft Environmental Assessment (Draft EA) for the Advanced Clean Fleets (ACF) regulation includes a number of alternatives that were considered by the California Air Resources Board (CARB) for the ACF regulation but were ultimately rejected. One of these alternatives, Alternative 8, would allow for natural gas (NG) vehicles to count the same as zero emission vehicles (ZEV) until the final fleet compliance date or 2040 when the proposed 100% ZEV sales requirement becomes effective. CARB's definition of this alternative attempted to address comments by Western States Trucking Association (WSTA) and CleanFleets.net members, but falls short for several reasons, including, but not limited to, failure to consider the optional low-NO_X emission standard, failure to analyze the potential for near-term criteria air pollutant and greenhouse gas emissions reductions associated with natural gas vehicles, and disregarding the maturity of existing natural gas infrastructure and its potential for fueling a fleet of NG trucks.

Potential For Near-Term Reductions with the Optional Low-NO_X Engine Standard

CARB's Alternative 8 analysis did not consider the optional low-NO_X engine standard, but instead assumed that these NG vehicles would meet the exhaust emissions standards in the Heavy-Duty Omnibus regulation. This approach does not consider the potential near-term emissions benefits of allowing NG trucks that already meet the current optional low-NO_X standard of 0.02 gram per brake horsepower hour (g/bhp-hr) and can potentially meet the lower optional low-NO_X standard of 0.01 g/bhp-hr in the future. CARB has overlooked an opportunity to analyze an alternative that is more closely aligned with the project objectives, e.g., would result in greater near-term emissions in the California medium- and heavy-duty vehicle (M/HDV) fleet and allow for more flexibility in how fleets meet their obligations under

[34]California Air Resources Board, 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy), 2022 (web link: https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf, last accessed January 2023).

the ACF regulation. As noted in the Ramboll 2021 heavy-heavy duty truck (HHDT) study titled "Multi-Technology Pathways to Achieve California's Air Quality and Greenhouse Gas Goals: Heavy-Heavy-Duty Truck Case Study", natural gas vehicles that meet the optional low-NO_X standards have the potential for achieving emissions reductions on par with the ACF regulation.[1] Scenario 2 in Ramboll's 2021 HHDT Study represents a transition of the California HHDT fleet to low-NO_X NG trucks and is similar to Alternative 8 but reflects the inclusion of commercially available and CARB-certified optional low-NO_X emission standard (0.02 g/bhp-hr) trucks,2 and thus, provides greater emissions reductions than CARB's Alternative 8. Scenario 1 in the same study presents the CARB long-term fleet mix, based on the 2020 MSS, which is closely aligned with the proposed ACF regulation. As seen in Figure 5-1 of the Ramboll 2021 HHDT Study, Scenario 2 and Scenario 1 have nearly identical NO_X tailpipe emissions from 2020 to 2037. After 2037, both scenarios still follow a similar path that leads to significant emissions reductions from the baseline by 2050, contrary to what CARB stated in the alternative analysis.

Allowing for NG trucks that meet the optional low-NO_X standard as well as ZEVs in this regulation could potentially reduce the number of exemptions required in earlier years of the ACF regulation. This technology is more mature, is commercially available today, relies upon existing fueling infrastructure, and is able to accommodate a number of duty cycles that BEVs still struggle to meet. CARB is sacrificing near-term NO_X emissions reductions by not allowing for low-NO_X NG trucks as well as ZEVs in the regulation milestones, and therefore sacrifices near-term reductions and progress in meeting federal air quality goals. In this respect, a revised Alternative 8 that allows a greater number of low-NO_X trucks could be environmentally superior to the Proposed Project.

Inclusion of low-NO_X natural gas vehicles (such as those commercially available and certified to a NO_X emission standard of 0.02 g/bhp-hr) in the ACF regulation has the potential for similar or greater emission reductions benefits compared to the currently written ACF regulation, and therefore a modified Alternative 8 should be considered that includes the optional low-NO_X emission standard of 0.02 g/bhp-hr or lower.

[1] Ramboll. 2021. "Multi-Technology Pathways to Achieve California's Air Quality and Greenhouse Gas Goals: Heavy- Heavy-Duty Truck Case Study" February. Available here: https://www.wspa.org/wp-content/uploads/Multitechnology-Truck-Emission-Reduction-Scenarios-White-Paper-FINAL.pdf. Accessed: October 2022."

Response: Staff modified the draft regulation to require any new ICE vehicles purchased by regulated fleets to be certified to the California Heavy-duty Omnibus certification requirements, these modifications were also incorporated into the Final EA. This means regulated fleets would not be able to purchase higher emitting federally certified engines to operate in their California fleet. For more information on why staff is not requiring optional low NOx engines for new ICE vehicle purchases, please refer to Master Response 5.

334-5: The commenter states "**NO_X, Particulate Matter, and Greenhouse Gas Emissions Reduction Potential of Natural Gas Trucks**

Within the Draft EA Alternative 8 discussion, CARB claimed that NG trucks are more polluting than diesel trucks and do not result in NO_X, particulate matter (PM), and greenhouse gas reductions (GHG) reductions, but this is incorrect and misleading. As noted in the previous paragraph, NO_X emission reductions are possible with NG vehicles equipped with a low-NO_X engine. CARB has certified numerous low-NO_X trucks, including 0.02 g/bhp-hr trucks.[2] These CARB-certified low-NO_X trucks are commercially available and should have been included in Alternative 8 since they can achieve near-term NO_X reductions.[3]

Additionally, particulate matter emissions reductions are possible with NG trucks compared to battery-electric trucks (BETs). Diesel particulate matter emissions would be zero for NG trucks, reducing the amount of these highly toxic tailpipe emissions to the same extent as zero emission trucks. Assembly Bill (AB) 2061 (Frazier) allows for an extra weight allowance of 2,000 lbs for a near-zero-emission or zero-emission vehicles and natural gas vehicles. However, battery-electric trucks (BETs) are typically much higher in weight than their internal combustion engine truck (ICETs) counterparts, exceeding this 2,000 lbs allowance by up to 6 times. The Argonne National Laboratory's vehicle inventory for the GREET model includes the weights of Class 6 and Class 8 vehicles; the weight of BETs for these vehicle classes are 2,193 lbs to 13,801 lbs greater than their ICET counterparts.[4] This is higher than the weight allowance allowed by AB 2061; thus, BETs would have to carry less cargo weight and/or a new weight allowance for BEVs would be necessary to haul the same weight of cargo. A 2016 study titled "Non-Exhaust PM Emissions from Electric Vehicles" found that increased vehicle weight led to increased tire wear and entrained road dust emissions.[5] This is consistent with CARB's methodology[6] for calculating entrained road dust emissions as a function of vehicle miles traveled and the average weight of vehicles traveling on the road. The additional weight (and/or increased trips if total weight is restricted) that BETs would introduce onto the road would increase entrained road dust and potentially tire wear as well and would lead to higher PM emissions compared to natural gas vehicles and conventional diesel vehicles. A CEQA analysis should compare total, not merely tailpipe emissions, so this must be considered in CARB's analysis, and it is misleading of CARB to claim that natural gas trucks could not achieve particulate matter emissions reductions compared to battery-electric trucks, given the large disparity in the weight of BETs compared to ICETs.

Lastly, CARB has claimed that NG trucks do not allow for the same GHG emission reductions as ZEVs, but this is false. In 2021 97.7% of all natural gas consumed by California's transportation sector was renewable natural gas (RNG), according to the Low Carbon Fuel Standard program data summary.[7] The average carbon intensity of this NG in California in 2021 was -33.4 g CO2e/MJ.[8] The carbon intensity of natural gas has decreased over time due to carbon negative renewable feedstocks for RNG (e.g., dairy digestor biomethane[9]). This carbon intensity outperforms the current California electric grid carbon intensity of 453.1 lbs CO2e/MWh (57.09 g CO2e/MJ) in 2020.[10] The near-term GHG emissions reduction potential of RNG-fueled trucks must be considered by CARB in their Alternative 8 analysis. Additionally, a recent study[11] published in June 2022 showed that the use of RNG with a carbon intensity (CI) of -150-g CO2e/km to -200 g CO2e/km in ICEVs has the greatest

potential for fuel lifecycle (well-to-wheel) GHG emissions reduction benefits; RNG with these CI values can be produced using municipal solid waste, sludge, and/or manure as a feedstock. CARB's argument that RNG does not lead to GHG emissions reductions is unfounded and a reasonable alternative consistent with the project's purpose and need should include low-NO_X trucks in fleets that are fueled by renewable natural gas or other lower carbon intensity fuels.

[2] CARB. "New Vehicle and Engine Certification: Executive Orders". Available here: https://ww2.arb.ca.gov/newvehicle-and-engine-certification-executive-orders. Accessed: October 2022.

[3] Ibid.

[4] Argonne National Laboratory. 2021. "Vehicle-Cycle Inventory for Medium- and Heavy-Duty Vehicles". November 1. Available here: https://greet.es.anl.gov/publication-mhdv_vc. Accessed: October 2022.

[5] Victor R.J.H. Timmers, Peter A.J. Achten. 2016. "Non-exhaust PM emissions from electric vehicles". Atmospheric Environment. June. Available here: http://www.soliftec.com/NonExhaust%20PMs.pdf. Accessed: October 2022.

[6] CARB Entrained Road Travel, Paved Road Dust. March 2021. Available here: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf. Accessed: October 2022.

[7] CARB. 2022. Low Carbon Fuel Standard Quarterly Summary Data Spreadsheet. July 31. Available here: https://ww2.arb.ca.gov/sites/default/files/2022-08/quarterlysummary_073122_0.xlsx. Accessed: October 2022.

[8] Ibid.

[9] CARB. 2022. Low Carbon Fuel Standard Current Fuel Pathways. September 29. Available here: https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/current-pathways_all.xlsx. Accessed: October 2022.

[10] EPA. 2022. eGRID Summary Tables 2020. January 27. Available here: https://www.epa.gov/system/files/documents/2022-01/egrid2020_summary_tables.pdf. Accessed: October 2022.

[11] Cai, Hao et. al. 2022. Decarbonization potential of on-road fuels and powertrains in the European Union and the United States: a well-to-wheels assessment. September 1. Available here: https://pubs.rsc.org/en/content/articlelanding/2022/se/d2se00411a. Accessed: October 2022."

Response: Please refer to Master Response 4 for response to emissions reductions from low-carbon fuels, Master Response 5 for a discussion on the use of low NOx engines in comparison to ZEV and response to comments 48-3 and 270-1 for discussion on tire wear and road dust emissions. No edits to the Draft EA are required in response to this comment. No further response is required.

334-6: The commenter states "**Maturity of Existing Natural Gas Infrastructure**

As a part of the Advanced Clean Trucks regulation, CARB conducted a survey of large fleets that had more than $50 million in revenues in 2019 and/or owned 50 or more vehicles (CARB Large Entity Fleet Reporting Survey). This survey concluded that affected fleet owners have already constructed 532 facilities that supply natural gas to their vehicles.[12] According to the U.S. Department of Energy's Alternative Fuels Data Center, there are another 168 publicly accessible compressed and liquid natural gas fueling stations across the state.[13] Allowing for natural gas vehicles to earn credits under the ACF regulation would not result in stranded assets for fueling infrastructure; the infrastructure is already built. Rather, requiring a complete and immediate transition to ZEVs would strand the investments already made to transition heavy-duty vehicle (HDV) fleets from diesel and gasoline to cleaner natural gas.

The CARB Large Entity Fleet Reporting Survey[14] shows that 90% of home base facilities do not have electric charging infrastructure. For the remaining 10% of home base facilities that have electric charging infrastructure, the survey results do not provide the number of chargers installed at the home base facilities, the ratio of chargers available relative to the total number of trucks housed at the home base facilities, or the rated energy capacity of these charging stations. So, it is impossible to determine what mix of vehicle classes the existing charging stations serve. Additionally, as stated in the ACF ISOR,[15] CARB includes in this count Level 2 chargers (19 kW) for Class 2b through Class 5 trucks, despite the roughly 4 to 7 hours it would take to charge the 80 kWh and 135 kWh batteries estimated to be used for a Class 2b and Class 5 truck respectively.[16] These stations cannot be utilized to charge larger trucks, which require charging outputs at 150 kW or higher in order to charge the 205 kWh through 1050 kWh batteries of Class 6 through Class 8 BEVs, unlike natural gas fueling stations, whose throughput capacity can be upgraded to meet expanding fleet demands at near negligible costs by comparison.

It is unreasonable to believe that the expansions required for electric charging infrastructure to meet the needs of the Proposed ACF regulation can be accomplished in the timeframe of the regulation. It has taken over 20 years for natural gas infrastructure to reach its current state, and it is reasonable to think that ZEV infrastructure will take equally long if not longer. The facility-side infrastructure costs associated with the ACF are estimated to be $44 billion dollars,[17] on top of the $9.7 billion estimated for facility-side charging and infrastructure costs to support the ACT regulation.[18] These costs do not even consider utility-side upgrades to transmission and distribution infrastructure, which will also be significant.

The existing natural gas infrastructure provides ample fueling opportunities for existing and future natural gas vehicles, including low-NO_X trucks. A CEQA analysis of a revised low-NO_X truck Alternative 8 should note that extensive new power/fuel generation and distribution infrastructure needed for ZETs under the proposed ACF (whose environmental impacts should be analyzed) would not be needed (and thus have less than significant impacts) for a revised Alternative 8. CARB has missed an opportunity to find an alternative that can achieve the environmental goals of the project in a potentially environmentally superior fashion (including, but not limited to, significantly lower infrastructure construction impacts).

[12] CARB Large Entity Fleet Reporting. Available here: https://ww2.arb.ca.gov/sites/default/files/2022-02/Large_Entity_Reporting_Aggregated_Data_ADA.pdf. Accessed: October 2022.

[13] Alternative Fuels Data Center. 2022. Natural Gas Fueling Station Locations. Available here: https://afdc.energy.gov/fuels/natural_gas_locations.html#/analyze?fuel=CNG&fuel=LNG&region=USCA&country=US&cng_vehicle_class=MD&lng_vehicle_class=MD. Accessed: October 2022.

[14] CARB Large Entity Fleet Reporting. Available here: https://ww2.arb.ca.gov/sites/default/files/2022-02/Large_Entity_Reporting_Aggregated_Data_ADA.pdf. Accessed: October 2022.

[15] CARB. 2022. ACF Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.

[16] CARB. 2022. ACF Total Cost of Ownership Discussion Document. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appg.pdf. Accessed: October 2022.

[17] ACF Standardized Regulatory Impact Assessment. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appc.pdf. Accessed: October 2022.

[18] ACT 15-Day Notice Attachment C – Updated Costs and Benefits Estimations. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2019/act2019/30dayattc.pdf. Accessed: October 2022."

Response: Please refer to Master Response 1 for a discussion on the long ZEV phase-in established by the Proposed Project and why we can predict ZEV infrastructure build-out will increase in both pace and scale over the 10 to 20-years. The commenter states "it has taken over 20 years for natural gas infrastructure to reach its current state" but does not provide any supporting evidence to back of their assertion that CNG and ZEV will follow a similar trajectory. The commenter then claims that "the existing natural gas infrastructure provides ample fueling opportunities for existing and future natural gas vehicles". Assuming customers would choose CNG over ZEV, any significant expansion of the CNG truck population would require significant expansion of CNG infrastructure at fleet sites and at retail locations as the expected population of Class 2b-8 CNG vehicles projected for 2025 is about one percent of California's statewide heavy-duty vehicles. In addition, like ZEV infrastructure assumptions made by staff, any significant expansion of CNG truck population would reasonably include considerable expansion of the number of CNG stations installed at fleet sites as is already commonly done, as well as expansion of retail fueling locations. The station expansions on fleet sites would likely be at the same locations where fleets would otherwise install charging or hydrogen fueling stations.

Please refer to Master Response 4 for response to emissions reductions from low-carbon fuels, and Master Response 5 for a discussion on the use of low NOx engines in comparison to ZEV.

334-7: The commenter states "**CARB should assess a feasible alternative that meets the environmental goals of the project (e.g., Alternative 8 with low-NO_X NG trucks and renewable fuels), which may actually be an environmentally superior alternative that could deliver NO_X and GHG reductions faster and more broadly in impacted communities/airsheds than the proposed ZEV-centric ACF regulation.**

Although CARB cites the need for criteria pollutant and GHG emissions reductions consistent with the goals of the State Implementation Plan and Scoping Plan as the first objective of the regulation,[19] they have failed to properly consider an alternative that could allow for the same or greater emissions reductions through NG vehicles equipped with low-NO_X technology and the use of renewable fuels (which the current ACF proposal would disincentivize). As noted above, a multi-technology/fuel approach as demonstrated in Ramboll's 2021 HHDT Study can achieve similar NO_X emission reductions to CARB's ACF plan. As noted in the 2021 SCAQMD comment letter, CARB must focus on immediate federal air quality standards which could be achieved with low-NO_X technology today that is already commercially available and more cost effective than comparable zero emission vehicles.[20] ZEV technology has potential for longer term NO_X and GHG benefits, but delayed and uncertain benefits over the next 10-15 years. BEVs rely on substantial technology and infrastructure investments outside CARB's control or ability to incentivize. CARB is sacrificing near-term emissions reductions by narrowly considering a ZEV-only approach to reach long-term goals. Additionally, as noted above, the GHG emissions reductions benefits possible with NG trucks fueled by RNG are even greater than the current emissions reductions possible with zero emissions vehicles powered by California grid electricity. A RNG transition in the truck sector could also help meet hard-to-electrify applications such as specific duty cycles and/or long-haul routes; BETs have yet to reach the range requirements needed for long-distance applications. Because of existing NG infrastructure, low-NO_X RNG trucks can reduce NO_X and GHG emissions today, which is desperately needed to meet 2031 and 2037 federal air quality standards. CARB must formulate a revised Alternative 8, as originally suggested by stakeholders, and conduct a full CEQA comparison analysis that reflects the emission reduction potential of including low-NO_X NG trucks and the GHG emissions reduction potential of RNG-fueled NG trucks.

[19] CARB. 2022. ACF Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.

[20] SCAQMD. 2021. Staff Comments on Proposed Advanced Clean Fleets Regulatory Concepts. April 2. Available here: https://www.arb.ca.gov/lists/com-attach/25-acf-comments-ws-WilRNAFhU3FWPQFl.pdf. Accessed: October 2022."

Response: Please refer to Master Response 4 and 5 regarding how the comment is misplaced as the LCFS, HD Omnibus, and HD I/M regulations are already in effect and are part of the environmental baseline. Further, as noted in Master Response 3, CEQA requires

the consideration of a reasonable range of alternatives that meet most of the basic project objectives. As noted on page 158 of the Draft EA, Alternative 8 fails to achieve seven of the basic project objectives, and would be less effective than the project in meeting the remaining five objectives. For this reason, it is not considered an alternative that meets CEQA's mandate and further analysis is not required.

Comment Letter 337

10/17/2022 Sean Edgar
Clean Fleets

337-1: The commenter states "**ALTERNATIVES 5, 8 & 9 DESERVE A COMPLETE ANALYSIS**

The Environmental Assessment (EA) discusses these three Alternatives however all were rejected in the EA for reasons that appear incomplete in my view. Over the past 22 years that I have worked on CARB regulatory proposals I have not seen as incomplete an analysis as is being presented in this EA. The ZEV manufacturers, early adopter fleets and proposals to propel ZEV in "beachhead" applications should be fully vetted and that has not been completed to date. I believe the Board owes it to the public and it is in the interest of good public policy that the staff should be directed to fully analyze these Alternatives. Finally, the sanitation and waste management districts and waste haulers implementing Senate Bill 1383 deserve special recognition for their early contributions to rolling out non-fossil renewable natural gas (RNG) vehicles. The industry is asking the Board to direct staff to return to the next hearing on ACF with an allowance for the purchase of RNG vehicles until 2040."

Response: Please refer to Master Response 3 and 5. The comment provides a general concern that the reasons for rejecting alternatives 5, 8, and 9 are incomplete, however, pages 154 through 161 present reasoning and evidence regarding why each of the suggested alternatives were rejected, including consideration of other regulations proposed/adopted by CARB and CEQA's mandate regarding the need for alternatives to achieve most of the basic project objectives. As presented, the Draft EA's alternatives analysis presents a reasonable range of alternatives, consistent with CEQA's mandate, and further analysis is not required. However, in response to stakeholder comments, staff added a provision after the Proposed Regulation Order released on August 30, 2022, to consider early investments made in CNG vehicles involved in the transfer and processing of organic waste diverted from landfills as required by SB 1383.[35] Waste and wastewater fleets with existing CNG vehicles will be given a longer ZEV phase-in for vehicles involved in the transfer and processing of organic waste as long as they utilize renewable natural gas to power those vehicles. This provision was added to give the waste and wastewater sectors more time to expand RNG to other markets besides directly as a combustion fuel for on-road transportation and avoids stranded assets from installing new RNG fueling infrastructure since the CNG vehicles eligible for this extension must already be in the fleet and by extension the CNG fueling infrastructure should already be in-place. This provision temporarily delays emissions reductions as RNG use and the Heavy-duty Omnibus regulation are in effect and are part of the baseline.

[35] SB 1383 (Lara, Stats. 2016, ch. 395).

October 27, 2022 Public Hearing Comments

PH-1 – John Kinsey, Wanger Jones Helsley PC Attorneys: I submitted a comment letter a few weeks ago on behalf of the California Trucking Association and the Western States Trucking Association and I do recommend that the Board consider the issues raised in that letter before providing direction to staff. One issue that I did want to make sure that the Board is aware of relates to criteria pollutant emissions. That's central obviously to CARB's mission. CARB's analysis quantifies the potential emissions benefits associated with the proposed regulation. At the same time, the Environmental Assessment recognizes the proposed regulation would result in several potential negative environmental effects, and that includes increased criteria pollutant emissions associated with new construction and infrastructure. However, the Environmental Assessment performs no qualitative analysis of what those emissions might be or no quantitative analysis of what those emissions might be. The assessment only contains a qualitative analysis and with conclusion that those effects would be significant. Now, this is problematic, because the approach makes it impossible to understand what the true benefits and the true negative impacts of the proposed regulation would be, particularly with respect to criteria pollutants. And this approach violates CEQA and a full analysis of the effects of the regulation should be considered before adoption.

Response: Please refer to Response to Comment 290-1. No edits to the Draft EA are required in response to this comment. No further response is required.

PH-2 – Sean Edgar, Clean Fleet: I offer a couple focused comments today. Number one, you heard from Mr. Kinsey, and in the docket at document number 290 in the comment log, indicating that there are serious CEQA problems that need to be resolved prior to adoption and there is really no demonstration of readiness when it comes to infrastructure. So just borrowing from what we saw play out earlier in the Board meeting between the PUC and Energy Commission and Vice Chair Berg's questioning of readiness, there's a big discrepancy between the three to six months the PUC thinks it's going to happen and the two, to three, to seven years that PG&E told you infrastructure is going to take in their docket – their letter on the docket. In document 342 on page 7, they tell you that. So the bottom line is that the staff needs to really do the analysis that's requested in Mr. Kinsey's letter. And well before the next Board hearing, we should have a s'ries of workshops specifi' to the Issue of CEQA and infrastructure readiness.

Response: Please refer to Master Response 1. No edits to the Draft EA are required in response to this comment. No further response is required.

7. Individual Comments and Responses on the Draft Environmental Analysis from the 15-day comment period.

On March 23, 2023, CARB released a Notice of Public Availability of Modified Text and Additional Documents, pursuant to Government Code section 11347.1, proposing to modify the regulatory text as well as add additional references to the rulemaking record, and providing a comment period of at least 15 days (15-Day Notice). During this comment period, CARB received 11 comment letters that purported to raise environmental issues related to the Proposed Project. Since the 45-day CEQA comment period started on September 2, 2022, and ended on October 17, 2022, comments related to the Proposed Project's environmental impacts were submitted after the 45-day CEQA comment period and are untimely and do not require a response. (17 Cal. Code Regs., § 60004.2(b)(2).)

Nevertheless, while it is not required to do so, CARB provides the responses below for transparency. Many of the environmental comments submitted during the 15-Day comment period were previously submitted during the 45-day comment period, and CARB already provided comprehensive responses to those comments in section 2.B above. To the extent those comments have already been addressed, responses will refer to answers already provided by CARB staff.

Comment Letter 15-2

03/24/2023 Dustin Dodds
CA Business Affiliate

15-2-1: The commenter states, "Can you provide the public with the data supporting how these proposals provide a cleaner and more affordable world for the lower class? Can you also address how will help the children and women who are mining for your ZEV batteries in South America and other places. Can you also provide data on how much carbon is emitted when mining the critical elements for your ZEV batteries? And finally, how much carbon will be emitted when setting up the infrastructure to make these charging stations for all the ZEVs you are proposing, please include this estimate based on your long term target for number of total ZE''s on the road in CA by 2050."

Response: Please refer to the Air Quality, Greenhouse Gases, and Mineral Resources chapters in the Draft EA for the data requested. Furthermore, please refer to Master Response 2, and response to comment 83-1. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 15-4

03/27/2023 Gil Oceguera
RPU

15-4-1: The commenter states, "I am for low emission/electric vehicles and consider them valuable. However, no one is addressing the issue of disposing of the lithium/electric vehicle batteries. This is a major problem and concern for our future. We are not able to dispose of the SONGS radio active materials and there is no light at the end of the tunnel in the future. Where and how are we going to dispose of the spent batteries? Also, no one has discussed the issue of the production of lithium batteries and the effect that process has on our atmosphere. Because the mining and processing of the lithium cause major negative results to our atmosphere. Who will open up these discussions so as to be transparent with the public. My sense is that this fix may the opposite results to our atmosphere."

Response: Please refer to the Air Quality, Greenhouse Gases, and Mineral Resources chapters in the Draft EA. Furthermore, please refer to Master Response 2, and response to comment 83-1. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 15-103

04/07/2023 Elizabeth Bourbon
Valero

15-103-1: The commenter states, "The proposed ZEV Infrastructure Site Electrification Delay extension would allow up to five years due to delays in supplying necessary power to the site where the fleet owners will be charging ZEVs. However, the ACF rule does not operate in a vacuum, and CARB has not adequately considered whether the heavy load on the grid to power not only all fleet vehicles but also the light duty and medium duty vehicles traveling California roads each day will increase unreliability of the grid. ZEV mandates like ACF present significant risks to grid reliability and the stability of the transportation sector. Transitioning truck stops into BEV charging hubs will require massive power, on a scale that has been likened to the power required by a small town[4,5] or sports arena.[6] The accelerated buildout of Californi''s electrical grid will itself have public health consequences for local communities. California has 25,526 miles of high voltage transmission lines, and 239,557 miles of distribution lines[7]-enough to stretch from the Earth to the moon. Additional electrical infrastructure will need to be introduced into the environment as a result of increasing demand for reliable and renewable energy supplies under ACC II. The electrical buildout required will have considerable impacts on communities living in proximity because of visual intrusion (for overhead power lines), noise and a reduction of property values, along with potential health risks associated with the increased likelihood of wildfires and exposure to electromagnetic fields. Disadvantaged communities will bear the burden of living in proximity to Californi''s expanding grid, containing high-voltage transmission and power lines as well as battery storage technologies prone to thermal runaway, which can trigger releases of toxic and explosive gasses while also starting fires that impact neighboring cells."

[4] See https://www.autoblog.com/2022/11/26/electric-vehicle-charging-stations-could-use-as-much-power-as-asmall-town-by-2035-and-the-grid-isn-t-ready/.

[5] See https://www.caranddriver.com/news/a41970523/truck-stops-energy-cost-electric-vehicles/.

[6] See https://www.bloomberg.com/news/articles/2022-11-14/tesla-s-electric-semis-are-coming-and-trucks-stopsaren-t-ready.

[7] "'"Why not bury Californi''s fire-prone power lines underground? The reason is sky hig"'", Janel Wilson, - Oct. 11, 2019.

Response: Portions of this comment appear to not be related to the Proposed Project and instead are directed towards the Advanced Clean Cars II Program (ACC II). While these comments are not relevant to the Proposed Project as a curtesy and to provide complete transparency the following response is provided. Chapter 5 of the Draft EA provides a detailed cumulative impacts analysis in which the impacts of the Proposed Project are considered along with the 2030 Scoping Plan Update and the Community Air Protection Blueprint, both of which cover the wide range of zero-emissions programs under CARB. The

commenter suggests the Proposed Project would increase hazard risks associated with thermal runaway and exposure to electromagnetic fields from high voltage transmission lines. Hazards associated with the Proposed Project were determined to be potentially significant and unavoidable and are discussed on pages 67 to 74 of the Draft EA, in addition cumulative impacts on hazards were discussed on pages 132-133 of the Draft EA. The potential impacts of the Proposed Project on Aesthetics are discussed on pages 27-33 of the Draft EA, in addition cumulative impacts on aesthetics were discussed on pages 125 to 126 of the Draft EA. Impacts of the Proposed Project on grid capacity were discussed on pages 57 and 59 of the Draft EA, please also refer to Master Response 1 and response to comment 270-10.

The commenter also incorrectly assumes the Proposed Project will require transitioning truck stops into BEV charging hubs. As discussed on page 20 of the Draft EA, in 2050, staff projects 85 percent would be BEVs and 15 percent would be FCEVs. Please also refer to Master Response 1 and response to comment 60-3. To the extent necessary under CEQA for the evaluation of potential wildfire impacts associated with the Proposed Project, these are presented on pages 108 to 109 of the draft EA, in addition cumulative impacts on wildfires are discussed on page 140 of the Draft EA. Similarly, noise impacts associated with the proposed project are presented on pages 138 to 139 of the Draft EA. Please also refer to response to comment 259-2 regarding wildfire. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 15-104

04/07/2023 Tenille Otero
Otay Water District

15-104-1: The commenter states, "As part of the regulation, it is requested that CARB incorporate into the regulation guidelines for the disposal and utilization of ZEV batteries once they reach their normal life cycle to ensure proper disposal and environmental protection."

Response: Please refer to Response to Comment 83-1. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 15-105

04/07/2023 Prentiss Searles
American Petroleum Institute

Response: The commenter resubmitted the same comment letter received during the 45 day comment period (Comment Letter 241), please refer to response to comment 241-1 above. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 15-108

04/07/2023 Larry Rennacker
ArrowTek

15-108-1: The commenter states, "There are some critical issues the State of California must address before going down the ACF road as proposed. It is baffling, if not stunning, why renewable diesel was not presented as an ACF option for diesel vehicles. ARB says the primary driver for the ACF regulation is to reduce greenhouse gas emissions and, for that reason, is mandating diesel vehicles be replaced with ZEVs. ZEV means grid power and right now ~40% of the grid power comes from natural gas fired power plants, and that fraction goes way up when demand it at its highest. But renewable diesel is by definition 100% carbon neutral. If the objective is to reduced greenhouse gases as fast as possible why on earth exclude renewable diesel as an option to ZEVs?

Moreover, putting all your energy supply eggs in one basket (grid power) is a strategic folly. The grid goes down and then what? No transportation system? Allowing renewable diesel diversifies the transportation system making it more robust and less vulnerable to disruption.

I realize ARB has secondary reasons for pushing this regulation: reducing ambient PM 2.5 and ozone. This seems like a stretch. ARB is attacking these two with a slew of other regulations, including amendments to the mobile Off-Road Regulation and the recently adopted, yet to be enforced Heavy-Duty Vehicle inspection and maintenance program, to name a few.

But even assuming PM reductions are essential to this regulation (they are not) PM emissions from diesel engines are lower than PM emissions from gas fired power plants. ARB/EPA emission certification tests for diesel engines show either extremely low (0.002 grams/kWhr) or undetectable PM emissions. Compare that with emissions from natural gas fired power plants at 0.017 grams/kWhr (Argonne National Labs, ANL-20/41, August 2020)."

Response: Staff disagree with the emission factor cited by the commenter; CARB emission certification tests for diesel engines are in g/bhp*hr. As discussed in the Draft EA, the State's electrical utilities are legislatively required to procure 60 percent and 100 percent of their total energy supply from eligible renewable energy sources (i.e., solar, wind, geothermal, small-scale hydroelectric, and biomass) by 2030 and 2045, respectively. Upstream emissions impacts from the Proposed Project, are discussed in response to comment 270-4. Also, please refer to Master Response 5 for more information on renewable diesel, and Master Response 4 for more details on the LCFS. Lastly, diesel exhaust is a toxic air contaminant.

Comment Letter 15-117

04/07/2023 Tanya DeRivi
WSPA and AFPM

15-117-1: The commenter states, "4. CARB should re-consider key points raised in this letter with regards to CEQA considerations for alternative technologies, a Clean Air Act waiver, permitting challenges, infrastructure readiness, and the environmental impact of zero emission vehicles (ZEVs)."

Response: Please refer to response to comment 270-1. No further response is required.

15-117-2: "CEQA considerations related to alternative technologies: CARB should follow an objective technology-neutral policy approach and allow the use of low-carbon-intensity (low-CI), low- NOX technologies as an alternative ZEVs in the proposed ACF regulation. These technologies are commercially available now, would generate greater near-term reductions in NOX emissions, and not be subject to the fundamental issues related to technology/infrastructure readiness of ZEVs. The rate at which emission reductions can be accomplished is critical to the state's Clean Air Act obligations to attain national air quality standards. But to date, CARB has failed to appropriately consider these technology options as alternatives within the Environmental Analysis (EA) for the regulation, despite evidence of their benefits as discussed in the attached comment letters dated May 10, 2021; October 29, 2021; and October 17, 2022, and the Ramboll Heavy-Heavy Duty Truck Case Study presented to CARB staff on May 20, 2021.[6] Failure to consider such technologies would violate the agency's duty to consider "reasonable alternatives" under California Government Code Section 11346.2(b)(4)(A),[7] which is defined as including "alternatives that are proposed as less burdensome and equally effective in achieving the purposes of the regulation."[8] Such failure also violates the CEQA Guidelines, which specify that CARB must consider a reasonable range of alternatives that "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."[9] CARB is also prohibited from predetermining a particular method to narrow the alternatives it considers for achieving the agency's ultimate policy goals. When examining whether or not alternatives or particular features have been foreclosed by the agency, courts look "to the surrounding circumstances to determine whether, as a practical matter, the agency has committed itself to the project as a whole or to any particular features, so as to effectively preclude any alternatives or mitigation measures that CEQA would otherwise require to be considered."[10] By not adequately considering the use of low-CI, low-NOX technologies and relying on ZEVs, CARB has effectively predetermined the outcome of this rulemaking."

[6] Ramboll. 2021. Multi-Technology Pathways to Achieve California's Air Quality and Greenhouse Gas Goals:
Heavy-Heavy-Duty Truck Case Study. February 1. Available here: https://www.arb.ca.gov/lists/com-attach/78-sp22-kickoff-ws-B2oFdgBtUnUAbwAt.pdf. Accessed: March 2023.

[7] See also Cal. Health & Safety Code § 57005 (less costly but equally effective alternatives).

[8] California Government Code Section 11346.2(b)(4)(A) also states that when an agency proposes to "mandate the use of specific technologies or equipment or prescribe specific actions or procedures, the imposition of performance standards shall be considered as an alternative." Contrary to CARB's position, see ISOR at 269-70, WSPA also argues that the proposed rule is a technology mandate.
[9] Cal. Code Regs. tit. 14, § 15126.6(c).
[10] Save Tara v. City of W. Hollywood, 45 Cal. 4th 116, 139 (2008), as modified (Dec. 10, 2008).

Response: Please refer to Master Response 3 regarding the reasonable range of alternatives, and Master Response 5 regarding the failure to allow uses of low-CI, low-NOX technologies to count as a ZEV. No edits to the Draft EA are required in response to this comment. No further response is required.

15-117-2: The commenter states, "CARB must also consider the electricity demand that will be caused by concurrent state efforts to electrify other sectors, such as the residential and light-duty vehicle sectors. Electricity demand for medium- and heavy-duty battery electric vehicles (BEVs) cannot be considered in isolation. Rather those impacts must be considered as part of the broader energy system for supply, distribution, and system reliability. Furthermore, failure to consider how increased electricity demand may necessitate the buildout of additional gas infrastructure, thereby increasing emissions, violates CEQA."

Response: Impacts of the Proposed Project on grid capacity were discussed on page 59 of the Draft EA, as well as Master Response 1 and response to comment 270-10. The commenter suggests the Proposed Project would increase buildout of gas infrastructure. Staff disagrees, in a July 22, 2022 letter from Governor Newsom to Board Chair Liane Randolph, the administration made it clear state agencies must plan for an energy transition that avoids the need for new natural gas plants to meet our long-term energy goals.

15-117-3: The commenter states, "Life Cycle Impacts and Leakage: CARB has failed to consider life cycle greenhouse gas (GHG) impacts or leakage of emissions from vehicle and battery production and disposal that is likely to result from the ACF regulation as proposed. CARB has a statutory duty to minimize the emissions leakage potential of any regulatory activities under California Health and Safety Code Section 38562(b)(8), and the agency's failure to even consider the leakage issue raised in WSPA's multiple comment letters violates CEQA.[17] CARB has suggested that lifecycle GHG emissions impacts for the manufacture of ZEVs and batteries was conducted under the Advanced Clean Trucks (ACT) regulation,[18] however no reference to such analysis was found within the ACT regulatory documents. Ramboll, on behalf of WSPA, attempted to contact CARB staff regarding these claims on March 3, 2023, and March 21, 2023, and have yet to receive a response. Even if such an analysis was conducted separately, CARB would need to present and discuss the application of such analysis (if it exists) as part of the proposed ACF regulation. This discussion should address the applicability of the analysis to the currently proposed regulation and address any needed changes in the analysis, considering the currently proposed regulation was not developed at the time the original analysis purportedly was prepared."

[17] The agency's failure in this regard also violates CEQA, which requires that the Draft EA contain "[a] discussion and consideration of environmental impacts, adverse or beneficial, and feasible mitigation measures which could minimize significant adverse impacts identified," as well as "[a] discussion of cumulative and growth-inducing impacts." Cal. Code Regs. title17, § 60004.2(a).
[18] CARB Staff comment during ACF Workshop on February 13, 2023.

Response: Please see Master Response 4 and response to comment 270-4. No edits to the Draft EA are required in response to this comment. No further response is required.

15-117-4: The commenter states, "Critical Mineral Impacts: Under numerous California laws,[19] CARB must broadly consider a wide range of impacts to the state's economy, and the agency must also consider a regulation's cost-effectiveness and technological feasibility. Notwithstanding these statutory requirements, CARB has not evaluated the impact this regulation will have on California's demand for critical mineral resources, in combination with other adopted and planned regulations such as Advanced Clean Cars II (ACC II), and whether this rising demand can be met given existing supply chain concerns and competing global demands for these scarce resources. As discussed in the comment letter on the ACC II regulation dated May 31, 2022,[20] the U.S. is disproportionately reliant on international supplies of the critical minerals necessary for ZEV and battery production, increasing this risk. Ninety-one percent of the lithium that the U.S. imports is sourced from Chile and Argentina.[21] Relatedly, China controls an outsized portion of the production of aluminum, cobalt, graphite, molybdenum, and other minerals needed to produce electric vehicles compared to other foreign nations that produce those minerals. To the extent CARB has failed to consider the cumulative environmental impacts increased mining could have in California, the agency must also fully consider these impacts in its Environmental Assessment."[22] –

[19] See, e.g., Cal. Health & Safety Code §§ 38560, 38562, 39602.5, 43013, 43018, 43018.5, 43101; see also Cal. Gov't Code 11346.3 (significant economic impact assessment).
[20] Ramboll. 2022. Comments on ACC II Regulation Initial statement of Reasons Documents. May 31. Available here: https://www.arb.ca.gov/lists/com-attach/477-accii2022-AHcAdQBxBDZSeVc2.pdf. Accessed: March 2023.
[21] U.S. Geological Survey. 2021. Mineral Commodity Summaries 2022. January 31. Available at: https://pubs.usgs.gov/periodicals/mcs2022/mcs2022.pdf. Accessed: March 2023.
[22] See Cal. Code Regs. tit. 17, § 60004.2.

Response: Please see Master Response 2. No edits to the Draft EA are required in response to this comment. No further response is required.

15-117-5: The commenter states, "Battery Recycling: CARB has not adequately established a plan for the end-of-life treatment for the volume of batteries that will be produced under these regulations or quantified their emissions impacts. CARB must consider sustainability in the supply, processing and utilization of resources supporting ZEV and vehicle components. Sustainability must not stop at tailpipe emissions but extend into other critical elements including environmental impacts from mining and production of batteries such as water quality, biodiversity and land use changes, waste management and the protection of human

rights, and these requirements must be incorporated into the ACF rule. The agency's failure to address any of the above concerns not only violates CEQA[23]—it also contravenes CARB's duty to consider the regulation's technological feasibility and the regulation's impact on the state's economy.[24]

Response: Please see Master Response 2. No edits to the Draft EA are required in response to this comment. No further response is required.

15-117-6: The commenter states, "Tire Wear and Road Dust Emissions: In violation of CEQA,[25] CARB has failed to assess particulate matter impacts from tire wear or entrained road dust, which have the potential to be greater in electric vehicles compared to their internal combustion engine vehicle (ICEV) counterparts. As noted in previous WSPA comments and based on CARB's own emission models and inventories,[26] the tire wear and entrained road dust emissions account for >80% of the total PM emissions associated with medium- and heavy-duty vehicles. There is a high correlation between entrained road dust and tire wear emissions and vehicle weight.[27,28,29] In addition, a study by the American Transportation Research Institute (ATRI)[30] found that the weight of a BEV Class 8 Sleeper Cab tractor is nearly double that of a comparable ICEV, weighing 32,016 pounds (lbs) versus 18,216 lbs. Therefore, converting ICEVs to ZEVs under the proposed ACF regulation would significantly increase the average vehicle weight on California roadways, which in turn would increase the entrained road dust emissions. There also exists overall truck weight restrictions, which if enforced, would require a greater number of ZEVs to move the same tonnage of cargo, thus increasing vehicle miles traveled and PM emissions. If heavier ZEV trucks are allowed under the regulation, then the increase in entrained road dust due to vehicle weight must be quantitatively evaluated. Including these emissions in the analysis could potentially change the conclusions of CARB's analysis and the finding of significance in the Draft EA. Hence, CARB must evaluate these emissions."

[25] See, e.g., discussion supra page 3 (the need to analyze all significant adverse environmental impacts). 26 c.f., https://ww2.arb.ca.gov/criteria-pollutant-emission-inventory-data. Accessed March 2023.

[27] CARB. Miscellaneous Process Methodology 7.9: Entrained Road Travel, Paved Road Dust. 2021. Available here: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf. Accessed: March 2023.

[28] Woo, Sang-Hee, Jang, Hyungjoon, et al. "Comparison of total PM emissions emitted from electric and internal combustion engine vehicles: An experimental analysis". October 2022. Available here: https://www.sciencedirect.com/science/article/pii/S004896972204058X. Accessed: March 2023.

[29] Timmers, Victor and Peter Achten. "Non-exhaust PM emissions from electric vehicles". March 2016. Available here: http://www.soliftec.com/NonExhaust%20PMs.pdf. Accessed: March 2023.

[30] ATRI. Understanding the CO2 Impacts of Zero-Emission Trucks. 2022. Available here: https://truckingresearch.org/wp-content/uploads/2022/05/ATRI-Environmental-Impacts-of-Zero-Emission-Trucks-Exec-Summary-5-2022.pdf. Accessed: March 2023.

Response: Staff disagrees, the commenter incorrectly assumes the Proposed Project would significantly increase the average vehicle weight and traffic on California roadways. Please refer to response to comments 48-2 and 270-3 regarding CARB's assessment of PM for the Proposed Project. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 15-135

04/07/2023 Kerry Shapiro
CalCIMA

Response: The commenter resubmitted the same comment letter received during the 45 day comment period (Comment Letter 261), please refer to responses to comment letter 261 above. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 15-145

04/07/2023 Tim Vander Pol
Peninsula Truck Lines, Inc.

15-145-1: The commenter states, "We strongly oppose this proposal. Although we believe in the stewardly use of our resources, we don't believe that the rush to ZEV is achievable in the timelines outlined nor is it without other significant negative environmental impacts (mining, battery disposal and lack of Zero Emission Power to supply the electricity). This is too much, too fast, with little regard for feasibility or the long-term consequences of these changes."

Response: Please refer to Master Responses 1 and 2, and response to comment 83-1. Furthermore, potential environmental effects on Air Quality, Greenhouse Gases, and Mineral Resources as a result of the potential compliance responses associated with the Proposed Project are all analyzed in detail in chapter 4 of the Draft EA. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 15-158

04/07/2023 Mary Alyssa Rancier
AGC California

15-158-1: The commenter states, "There is not a clear solution of what California will do regarding the toxic waste that will be generated once the batteries from ZEVs die. ZEV batteries last 10-15 years at the most in moderate climates, therefore, it is expected that there be large amounts of EV battery waste starting in 2034. There is no electric battery recycle plant in the state of California and limited plants throughout the country. What will California do with all the battery waste that will be generated due to the requirements of this regulation? It is important that this be addressed as soon as possible to prevent dangerous disposal of hazardous waste.

AGC of California asserts that CARB should only permit ethically sourced materials within the supply chain for the construction and manufacturing of semiconductors and lithium batteries (cobalt). According to National Public Radio (NPR), "[m]ost of the cobalt mined in the world today comes from the Democratic Republic of Congo, where there are widespread child labor and other human rights problems". For instance, there are thousands of Congolese people touching and breathing toxic cobalt dust, many of which are young mothers with children strapped onto their backs. If California is moving towards going all-electric, then it is important that the resources we obtain are ethical."

Response: Please refer to Master Response 2, and response to comment 83-1. No edits to the Draft EA are required in response to this comment. No further response is required.

15-158-2: The commenter states, "Lastly, it is argued that the environmental impacts outweigh the economic costs of the regulation, however, there is some evidence that suggests environmental impacts may potentially be exaggerated. Environmental Research Letters published the article, "Environmental and economic impact of electrical vehicle adoption," where the authors conducted a comprehensive impact assessment of battery electric vehicle (BEV) adoption (Chen, Carrel, Gore, & Shei, 2021). In this article the authors state that "[a]lthough BEV adoption leads to decreases in tailpipe emissions, increased manufacturing activity as a result of productivity increases or subsidies can lead to growth in non-tailpipe emissions that cancels out some or all of the tailpipe emissions savings". Additionally, the Emissions Analytics released a newsletter in May 2022 highlighting research that demonstrates pollution from tire wear can be 1,850 times worse than car exhaust emissions in real-world settings. Since CARB does not take tire wear emissions into consideration when evaluating the cost versus the benefit of the regulation, the proposed environmental impacts may be misleading.

Emissions Analytics first released information in their 2020 press release that pollution of tire wear can be 1,000 times worse than car exhaust emissions, however, since then they have conducted more testing and analyses under a wide range of driving conditions and performed a detailed chemical analysis. Tire wear mass emissions were measured by high-precision scales to weigh all four wheels (tires and rims together without detaching) over at

least 1,000 miles on real roads along with a proprietary sampling system that collects particles at a fixed point immediately behind each tire that are drawn into a real-time detector measuring the size of distribution of particles by mass and number. Particles from 10 microns down to 6 nanometers were measured. Tailpipe particles were measured using a diffusion charger analyzer for dynamic mass concentration and condensing particle counter for number concentration, coupled with a standard Portable Emissions Measurement System (PEMS). Their results indicate that tire wear emissions are 1,850 times greater than tailpipe emissions. They discuss risks associated with battery electric vehicles (BEVs): battery weight can result in tire emissions that are almost 400 more times greater than real-world tailpipe emissions. While AGC of California supports action to decrease tailpipe emissions, it is important that benefits outweigh the costs imposed by the regulation. While it may be impractical to incorporate all possible factors into the model, it is important that as many key factors be incorporated as possible to ensure that real-world situations are taken into consideration."

Response: The commenter resubmitted the same comment from their comment letter received during the 45 day comment period (Comment Letter 48), please refer to response to comment 48-2 above. No edits to the Draft EA are required in response to this comment. No further response is required.

15-158-3: The commenter states, "There is great concern with relying solely on the electrical grid to support the charging of all the ZEVs that will be required by this regulation. As California has seen over the past several years, power outages have increased due to extreme weather events all year round. From the extreme heat in the summer to the extreme storms in the winter, Californians have experienced regular and persistent power outages across the state. According to Payless Power, California accounted for 24% of all the power outages in the United States between 2021 and 2022. Additionally, California is number 1 in the top 10 states with the most power outages over the past 20 years due to the increasing temperatures, droughts, wildfires, and a strained power grid. How will fleet operators be able to charge their vehicles in the event of a power outage? Power outages can occur for a few hours up to several weeks. Depending too heavily on the electrical grid will result in an inability to charge vehicles during such times, which will result in project delays and increased costs."

Response: Please refer to Master Response 1 and the response to comment 261-4. No edits to the Draft EA are required in response to this comment. No further response is required.

15-158-4: The commenter states, "A further demonstration that California does not have the electrical resources to meet current demand is that California is already importing approximately 30% of its power needs. Since California cannot meet the current electrical demand, how will the state meet the future demand when the ACF regulation will only increase the demand for daily charging? All in all, AGC of California urges CARB to upgrade the electrical grid *as soon as possible* so that energy can reliably get to consumers that would make this regulation obtainable. It is optimal to have electricity available *before* implementing such regulations as opposed to figuring everything out as we go."

Response: The commenter resubmitted the same comment from their comment letter received during the 45 day comment period (Comment Letter 48), please refer to response to comment 48-1 above. No edits to the Draft EA are required in response to this comment. No further response is required.

Comment Letter 15-160

04/07/2023 Lee Brown
Western States Trucking Association (WSTA)

15-160-1: The commenter states, "CARB Fails to Perform an Adequate Environmental Analysis of Life-Cycle CO2 Emissions of Renewable Natural Gas, Hydrogen and Battery-Electric Systems"

Response: Please refer to Master Response 5 regarding lifecycle emissions. No edits to the Draft EA are required in response to this comment. No further response is required.

15-160-2: The commenter states, "WSTA proposed an alternative that is discussed in the Environmental Assessment (EA) as Alternative 8. CARB is obligated to prepare an analysis of alternatives. In the analysis in the EA for this regulation, CARB makes the shocking announcement that natural gas vehicles are more polluting than diesel. WSTA provided Alternative 8 Technical Comments prepared by Ramboll, which disputes the "more polluting" conclusion as "incorrect and misleading" as well as shows where the CARB staff environmental analysis of Alternative 8 falls short. Ramboll concludes that, "CARB must formulate a revised Alternative 8, as originally suggested by stakeholders, and conduct a full CEQA comparison analysis that reflects the emission reduction potential of including low NOX NG trucks and the GHG emissions reduction potential of RNG-fueled NG trucks."

Response: The commenter resubmitted the same comment from their comment letter received during the 45 day comment period (Comment Letter 334), please refer to response to comment 334-1 above. No edits to the Draft EA are required in response to this comment. No further response is required.

15-160-3: The commenter states, "WSTA is entitled to a complete response and CEQA analysis of our Alternative 8 especially in light of CARB's own modeling that shows that the proposed ACF delivers very little emissions reductions in the South Coast and San Joaquin Valley where hundreds of our members live, work and strive to provide the public with the goods and services it needs.

Response: The commenter resubmitted the same comment from their comment letter received during the 45 day comment period (Comment Letter 334), please refer to response to comment 334-3 above. No edits to the Draft EA are required in response to this comment. No further response is required.