

Response To Comments
on the
Draft Environmental Impact Analysis

Prepared for the
Zero Emission Forklift Regulation

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

**Released June 26, 2024
to be considered at the
June 27, 2024 Board Hearing**

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Acronyms and Abbreviations

AB	Assembly Bill
BACT	Best Available Control Technology
CARB or Board	California Air Resources Board
CAISO	California Independent System Operator
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CEC	California Energy Commission
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission
Draft EIA	Draft Environmental Impact Analysis
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
EV	electric vehicle
GHG	greenhouse gas
ICEV	internal combustion engine vehicle
IEPR	Integrated Energy Policy Report
IRP	Integrated Resource Plan
ISOR	Initial Statement of Reasons
kWh	kilowatt hour
LCFS	Low Carbon Fuel Standard
MY	Model year
NO _x	nitrogen oxide

PG&E	Pacific Gas & Electric
PM	particulate matter
PM _{2.5}	particulate matter less than or equal to 2.5 micrometers
PRC	Public Resources Code
PGM	platinum-group metal
RFS	Renewable Fuel Standard
ROG	reactive organic gases
RPS	Renewables Portfolio Standard
SB	Senate Bill
SCE	Southern California Edison
SMUD	Sacramento Metropolitan Utility District
SO _x	oxides of sulfur
TOU	time-of-use
US	United States
ZEV	zero-emission vehicle

1.0 Introduction

The California Air Resources Board (CARB) released a Draft Environmental Impact Analysis (Draft EIA) for the Zero Emission Forklift (ZEF) Regulation, herein referred to as the Proposed Regulation (i.e., the proposed project under the California Environmental Quality Act [CEQA]) on November 10, 2023, for a 45-day public review and comment period that closed on December 26, 2023. Staff released 15-day changes to the Proposed Regulation on May 21, 2024, and the comment period on the proposed 15-day changes closed on June 5, 2024. CARB staff will be returning to the Board on June 27, 2024, for a final vote on the Proposed Regulation. Written comment letters received are provided on CARB's website at https://www.arb.ca.gov/lispub/comm/iframe_bccommlog.php?listname=zeforklifts&ga=2.191468266.1395078058.1704826103-1236589262.1618870280.

CARB staff carefully reviewed all comment letters received into the rulemaking record to determine which ones raised significant environmental issues related to the analysis in the Draft EIA. 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 Regulation, as amended through public input.

Although this document includes written responses only to those comments related to the Draft EIA, all other comments received will be responded to in the Final Statement of Reasons for the Proposed Regulation. The public hearing notice and related rulemaking materials (i.e., the Initial Statement of Reasons, other rulemaking documents, and EIA) for the Proposed Regulation are provided on CARB's website at <https://ww2.arb.ca.gov/rulemaking/2023/zeforkliftsregulation>.

A. Requirements for Responses to Comments

These written responses to public comments on the Draft EIA 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 EIA, 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.

Section 15088 of Title 14¹ of the California Code of Regulations (CCR) also includes useful information and guidance for preparing a thorough and meaningful response to comments. It states, in relevant part, that specific comments and suggestions about the environmental analysis that are at variance from the lead agency's position must be addressed in detail with reasons why specific comments and suggestions were not accepted. Responses must reflect a good faith, reasoned analysis of the comments.

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

(a) The lead agency shall evaluate comments on environmental issues received from persons who reviewed the draft EIR and shall prepare a written response. The Lead Agency shall respond to comments received during the noticed comment period and any extensions and may respond to late comments.

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

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

B. Comments Requiring Substantive Responses

In compliance with CEQA, CARB has prepared written responses to those comments that raise "significant environmental issues" associated with the proposed action, as outlined in Title 17 CCR Section 60004.2(b)(3)(E). A total of 335 comment letters were submitted electronically on or before December 26, 2023, to the comment docket set up for the Proposed Regulation and its appendices, including the Draft EIA. An

¹ The Title 14 regulations relating to CEQA are also known as the "CEQA Guidelines".

additional 16 comments were submitted on or before June 5, 2024, during the 15-day subsequent comment period. Lastly, one late comment was submitted via email after the close of the 15-day subsequent comment period. Out of the 354 total comments received, 317 comment letters were determined to include comments raising significant environmental issues related to the Draft EIA 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 EIA but did raise an issue related to potential adverse impacts related to the Proposed Regulation.

This document provides responses to the comments that CARB staff determined to raise significant environmental issues related to the Draft EIA. All other comments received will be responded to in the Final Statement of Reasons for the Proposed Regulation and all comments were taken into consideration when CARB staff returned to the Board for their final consideration at the June 27, 2024, 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=zeforklifts&g_a=2.191468266.1395078058.1704826103-1236589262.1618870280.

CARB acknowledges that a majority of the comments received were related to the economic impact the Proposed Regulation would have on forklift operators and other supply chain entities. The Draft EIA is not meant to address purely economic, social, or financial issues associated with the Proposed Regulation. Rather, the purpose of CEQA and the Draft EIA is to fully analyze and mitigate the Proposed Regulation's potentially significant physical impacts on the environment. As such, comments related only to economic or financial concerns are outside of the scope of the Draft EIA 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 Regulation. 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=zeforklifts&_ga=2.191468266.1395078058.1704826103-1236589262.1618870280. Table 2-1 provides the list of comment letters that contain substantive environmental comments received during the 45-day comment period. This document provides responses to the comments that CARB staff determined raise significant environmental issues related to the Draft EIA and require a response under CARB’s certified regulatory program and CEQA. As previously explained, CARB staff was conservative and inclusive in determining which comments warranted a written response and even included comments that did not mention the analysis included in the Draft EIA but did raise an issue related to potential adverse impacts related to the Proposed Regulation. Verbatim excerpts of the comments and responses to these comments are provided below.

In addition to the environmental comments addressed in this document, CARB staff will be responding to all other comments received to date, including those received at the Board Hearing, in the Final Statement of Reasons. All comments received during the 45-day comment period are part of the rulemaking record and were provided to Board members for their full consideration before acting on the Proposed Regulation, which will be considered during the June 27, 2024, Board Hearing.

Table 2-1: List of Comment Letters Containing Substantive Environmental Comments

Comment Number	Date	Name	Affiliation
1	12/18/23	Ray Galan	Ferrell Gas
2	12/18/23	Ted Olsen	Ferrell Gas
3	12/18/23	Todd Peachey	Ferrell Gas
4	12/18/23	Jeff Sticlaru	Ferrell Gas
5	12/18/23	Drew Hensler	Ferrell Gas
6	12/18/23	Reginald Caldwell	Ferrell Gas
7	12/18/23	Rober Lagge	Ferrell Gas
8	12/18/23	Julie Johnson	Ted Johnson Propane
9	12/18/23	Lora Brazil	Ferrell Gas
10	12/18/23	Bryan Heath	Ferrell Gas
13	12/18/23	Tom Boerum	Mutual Liquid Gas & Equipment Co. Inc
14	12/18/23	Geoff Moore	Mutual Liquid Gas & Equipment Co. Inc
15	12/18/23	Jennifer Bush	Ferrell Gas
17	12/18/23	Jordan Horn	Ferrell Gas
18	12/18/23	Christopher Kentzell	Ferrell Gas
19	12/19/23	Jose Rodriguez	No affiliation

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Comment Number	Date	Name	Affiliation
20	12/19/23	Steve Maldonado	No affiliation
21	12/19/23	Salvador Pena	No affiliation
22	12/19/23	Chris Hall	No affiliation
23	12/19/23	Cassie Cesena	No affiliation
24	12/19/23	Skyler Castro	No affiliation
25	12/19/23	Bryce Wheatley	No affiliation
26	12/19/23	Eddie Chen	No affiliation
27	12/19/23	Zuzel Vasquez	No affiliation
28	12/19/23	Sandro Solorzano	No affiliation
29	12/19/23	Scott Carr	No affiliation
30	12/19/23	Ramon Diaz	No affiliation
31	12/19/23	Laura Sample	No affiliation
33	12/20/23	Jose Cardiel	No affiliation
34	12/20/23	Michael Biavezvech	No affiliation
35	12/20/23	Kaz Tsujimoto	No affiliation
36	12/20/23	Carolina Chavez	No affiliation
37	12/20/23	Juan Del Real	No affiliation
38	12/20/23	Javier Alfaro	No affiliation
39	12/20/23	Brian Harms	No affiliation
40	12/20/23	Authur Distin	No affiliation
41	12/20/23	Robert Stevens	No affiliation
42	12/20/23	Lisa Harris	No affiliation
43	12/20/23	Gregg Krekeler	No affiliation
44	12/20/23	Richard Rice	No affiliation
45	12/20/23	Dan Guerrero	No affiliation
46	12/20/23	Donald Harms	No affiliation
47	12/20/23	James Probst	No affiliation
48	12/20/23	Mark Miedema	No affiliation
49	12/20/23	Heidi Strand	No affiliation
50	12/20/23	Edward Dart	No affiliation
51	12/20/23	Jim Smaaladen	No affiliation
52	12/20/23	Johson Xu	No affiliation
53	12/20/23	Robert Mazawey	No affiliation
54	12/20/23	Phillip Hernandez	No affiliation
55	12/20/23	Sissy Funk	No affiliation
56	12/20/23	Melissa Lomenzo	No affiliation
57	12/20/23	Louis Smith	No affiliation
58	12/20/23	David Hwang	No affiliation
59	12/20/23	Bill Borden	No affiliation
60	12/20/23	Stephen Coonen	No affiliation
61	12/20/23	Eddie Wilson	No affiliation
62	12/20/23	Lydia Rutherford	No affiliation
63	12/20/23	Rene Tsang	No affiliation

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Comment Number	Date	Name	Affiliation
64	12/20/23	Lisa Van Den Berg	No affiliation
65	12/20/23	Todd Greco	No affiliation
66	12/20/23	Vinod Nanda	No affiliation
67	12/20/23	Manuel Gamboa	No affiliation
68	12/20/23	John Simpson	No affiliation
69	12/20/23	Dan Chilson	No affiliation
70	12/20/23	Ian Price	No affiliation
71	12/20/23	Jack Rudolf	No affiliation
72	12/20/23	Clayton Manha	No affiliation
73	12/20/23	Yvonne Rudolf	No affiliation
74	12/20/23	Austin Davidson	No affiliation
75	12/20/23	Nancy Coop	No affiliation
76	12/20/23	William Platz	No affiliation
77	12/20/23	Alexandria Wahaus	No affiliation
78	12/20/23	Armando Alfonso	No affiliation
79	12/20/23	Cynthia Belmont	No affiliation
80	12/20/23	Tim Gately	No affiliation
82	12/21/23	Ashley Hong	California Manufacturers & Technology Association
85	12/22/23	Paul Rozenberg	Suburban Propane
89	12/21/23	Roger Miksad	Battery Council International
91	12/22/23	Jacquelyne Torreyson	No affiliation
92	12/22/23	Shannon McWhorter	No affiliation
93	12/22/23	Brendan Gately	No affiliation
94	12/22/23	Alejandro Rodriguez	No affiliation
95	12/22/23	Allen Earhart	No affiliation
96	12/22/23	Brilynn Johnson	No affiliation
97	12/22/23	Christine Wolfe	California Council for Environmental and Economic Balance
98	12/22/23	Gary Analian	No affiliation
99	12/22/23	Mark Wolfe	No affiliation
100	12/22/23	Greg Billington	No affiliation
101	12/22/23	Mark Price	No affiliation
102	12/22/23	Todd Spicer	No affiliation
103	12/22/23	James Angulo	No affiliation
104	12/22/23	Danny Martinez	No affiliation
105	12/22/23	Merle Edington	No affiliation
106	12/22/23	Marty Huerta	No affiliation
107	12/22/23	Sean O'Hara	No affiliation
108	12/22/23	Chris Everett	No affiliation
109	12/22/23	Dennis Runnels	No affiliation
110	12/22/23	Michael Hart	No affiliation
111	12/22/23	Porterville Citrus, Inc.	No affiliation
112	12/22/23	Jay Stephens	No affiliation

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Comment Number	Date	Name	Affiliation
113	12/22/23	Dennis Johnson	No affiliation
114	12/22/23	Bailey McQueary	No affiliation
115	12/22/23	Ashley Carucci	No affiliation
116	12/22/23	Ramon Mejia	No affiliation
117	12/22/23	Joh Ward	No affiliation
118	12/22/23	Jose Cardenas	No affiliation
119	12/22/23	Jerry Behlen	No affiliation
120	12/22/23	Rocky Arguijo	No affiliation
121	12/22/23	William Bryan	No affiliation
122	12/22/23	Travis Myers	No affiliation
123	12/22/23	Jordan Terlouw	No affiliation
124	12/22/23	Michael Glasky	No affiliation
125	12/22/23	Ben De Boer	No affiliation
126	12/22/23	Andy Fellman	No affiliation
127	12/22/23	Jesus Esparza	No affiliation
128	12/22/23	Danny Justice	No affiliation
129	12/22/23	Michael Bauer	No affiliation
130	12/22/23	Pat Temples	No affiliation
131	12/22/23	Mike MacLaren	No affiliation
132	12/22/23	Jordan Leib	No affiliation
133	12/22/23	Todd Wright	No affiliation
134	12/22/23	Fred Ayala	No affiliation
135	12/22/23	Adina Chapman	No affiliation
136	12/22/23	Wendy Britto	No affiliation
137	12/22/23	Peifang Chang	No affiliation
138	12/22/23	James Yundt	No affiliation
139	12/22/23	Paula Laney	No affiliation
140	12/22/23	Scott Graham	No affiliation
141	12/22/23	Travis Dunham	No affiliation
142	12/22/23	Laura Hawkinson	No affiliation
143	12/22/23	David Stroupe	No affiliation
144	12/22/23	Daniel Dixon	No affiliation
145	12/22/23	Gena Vasbinder	No affiliation
146	12/22/23	Brenda Griffe	No affiliation
147	12/22/23	Cathy Adams	No affiliation
148	12/22/23	Chris Daly	No affiliation
149	12/22/23	Grant Culpan	No affiliation
150	12/22/23	Boyd McGathey	No affiliation
151	12/22/23	Tom Knauff	No affiliation
152	12/22/23	Enrique Silva	No affiliation
153	12/22/23	Jorge Rivas	No affiliation
154	12/22/23	Veronica Silva	No affiliation
155	12/22/23	Fernando Gallegos	No affiliation

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Comment Number	Date	Name	Affiliation
156	12/22/23	Michael Yates	No affiliation
157	12/22/23	Restaurant Van, Inc.	No affiliation
158	12/22/23	Steve Glovsky	No affiliation
159	12/22/23	Ryan Van Duyn	No affiliation
160	12/22/23	Pierluigi Giannini	No affiliation
161	12/22/23	Kammui Ng	No affiliation
162	12/22/23	Cassandra Bae	No affiliation
163	12/22/23	David Vance	No affiliation
164	12/22/23	Christina Glasgow	No affiliation
165	12/22/23	Michelle Mossman	No affiliation
166	12/22/23	Rebecca Hernandez	No affiliation
167	12/22/23	David Jones	No affiliation
168	12/22/23	William Wilt	No affiliation
169	12/22/23	Aaron Nelson	No affiliation
170	12/22/23	John Nadolski	No affiliation
171	12/22/23	Dalila Parra	No affiliation
172	12/22/23	Nicolas Rivera	No affiliation
173	12/22/23	Koury Ensley	No affiliation
174	12/22/23	Alex Wu	No affiliation
175	12/22/23	Daniel Budd	No affiliation
176	12/22/23	Thomas Daniels	No affiliation
178	12/22/23	John Casper	No affiliation
179	12/22/23	Kathy Johnson	No affiliation
180	12/22/23	Jim Rushing	No affiliation
181	12/22/23	Russ Head	No affiliation
182	12/22/23	Josh Perceful	No affiliation
183	12/22/23	Teri Larson	No affiliation
184	12/22/23	Casandra Russo	No affiliation
185	12/22/23	Jim Jones	No affiliation
186	12/22/23	Mike Senoski	No affiliation
187	12/22/23	Eric McNeily	No affiliation
188	12/22/23	Chase Frederck	No affiliation
189	12/22/23	Kris Osika	No affiliation
190	12/22/23	Alan Copenhaver	No affiliation
191	12/22/23	Don Wilk	No affiliation
192	12/22/23	Fahad Telchi	No affiliation
193	12/22/23	Kenya Alexander	No affiliation
194	12/22/23	Tanvir Siddiqui	No affiliation
195	12/22/23	Josh Gibson	No affiliation
196	12/22/23	Brenda Hernandez	No affiliation
197	12/22/23	Lynn Curto	No affiliation
198	12/22/23	Jennifer Rivas	No affiliation
199	12/22/23	Gail Lambert	No affiliation

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Comment Responses

Comment Number	Date	Name	Affiliation
200	12/22/23	Mary Brown	No affiliation
201	12/22/23	Mary Seklecki	No affiliation
202	12/22/23	Desiree Aranda	No affiliation
203	12/22/23	Marisa Robertson	No affiliation
204	12/22/23	Atearia Caldwell	No affiliation
205	12/22/23	Dennis Cayaba	No affiliation
206	12/22/23	Anthony Jaggars	No affiliation
207	12/22/23	Andrew Fahrenbach	No affiliation
208	12/22/23	Jeremy Bidwell	No affiliation
209	12/22/23	Diana Dominguez	No affiliation
210	12/22/23	Dario Dominguez	No affiliation
211	12/22/23	Rajiv Jain	No affiliation
212	12/22/23	Stephen Evans	No affiliation
213	12/22/23	Jeff Silversmith	No affiliation
214	12/22/23	Kevin Ahern	No affiliation
215	12/22/23	Eric McAlister	No affiliation
216	12/22/23	David Spinney	No affiliation
217	12/22/23	Paul Dinsdale	No affiliation
218	12/22/23	Melissa Newland	No affiliation
219	12/22/23	Anthony Pedotto	No affiliation
220	12/22/23	Michael Woodside	No affiliation
221	12/22/23	Flavio Arce	No affiliation
222	12/22/23	Larissa Crittenden	No affiliation
223	12/22/23	Patrick Harvey	No affiliation
224	12/22/23	Cody Krakowski	No affiliation
225	12/22/23	Steve Moore	No affiliation
226	12/22/23	Justin Tran	No affiliation
227	12/22/23	Dr. Wong	No affiliation
228	12/22/23	Mark Leitman	No affiliation
229	12/22/23	David Murphy	No affiliation
230	12/22/23	Felipe Gutierrez	No affiliation
231	12/22/23	Yamel Monjaraz	No affiliation
232	12/22/23	Armando Silva	No affiliation
233	12/22/23	Alex Loyola	No affiliation
234	12/22/23	William Hayes	No affiliation
235	12/22/23	Sabrina Garcia	No affiliation
236	12/22/23	Samuel Wagya	No affiliation
237	12/22/23	Eric Van Der Heyden	No affiliation
238	12/22/23	Maria Vargas	No affiliation
239	12/22/23	Chris Roy	No affiliation
240	12/22/23	Steve Wright	No affiliation
241	12/22/23	Yvette Garcia	No affiliation
242	12/22/23	Teri Lucero	No affiliation

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Comment Number	Date	Name	Affiliation
243	12/22/23	Gregory Leighton	No affiliation
244	12/22/23	Rober Whitley	No affiliation
245	12/22/23	Eric Li	No affiliation
246	12/22/23	Jeri Fisher	No affiliation
247	12/22/23	Thomas Li	No affiliation
248	12/22/23	Oliver Fleck	No affiliation
249	12/22/23	Roberto Robaina	No affiliation
250	12/22/23	Richard Qin	No affiliation
251	12/22/23	Christopher Park	No affiliation
255	12/26/23	David Cox	No affiliation
256	12/26/23	Shane Guenther	No affiliation
260	12/26/23	Dennis Runnels	Windmill Propane
261	12/26/23	Patrick Temples	Campora Propane
262	12/26/23	Andy Fellman	Campora Propane
263	12/26/23	Enrique Silva	Expo Propane
265	12/26/23	Veronica Silva	Expo Propane
266	12/26/23	Jorge Rivas	Expo Propane
267	12/26/23	Marty Huerta	Expo Propane
268	12/26/23	Sean O'Hara	Expo Propane
269	12/26/23	Danny Martinez	Expo Propane
270	12/26/23	Merle Edington	Expo Propane
271	12/26/23	Jim Rushing	Expo Propane
272	12/26/23	Jose Cardenas	Expo Propane
273	12/26/23	Chris Daly	Expo Propane
274	12/26/23	Boyd McGathey	Expo Propane
276	12/26/23	Kathy Johnson	Expo Propane
277	12/26/23	John Casper	Expo Propane
278	12/26/23	David Stroupe	Expo Propane
279	12/26/23	Travis Myers	Ebbetts Pass Gas Service
280	12/26/23	Jerry Behlen	Van Unen Miersma Propane
281	12/26/23	Cathy Adams	Van Unen Miersma Propane
282	12/26/23	Dennis Runnels	Sierra Propane
283	12/26/23	Chris Everett	Fallbrook Propane
284	12/26/23	Todd Wright	Campora Propane
285	12/26/23	Mark Price	Campora Propane
287	12/26/23	Travis Myers	Campora Propane
288	12/26/23	Jordan Terlouw	Campora Propane
289	12/26/23	Ben De Boer	Campora Propane
290	12/26/23	Denny Justice	Campora Propane
291	12/26/23	Mike MacLaren	Campora Propane
292	12/26/23	Brenda Griffe	Campora Propane
294	12/26/23	Krysta Wanner	Western Propane Gas Association
295	12/26/23	Walter Chang	No affiliation

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Comment Number	Date	Name	Affiliation
296	12/26/23	Antono Montelongo	No affiliation
297	12/26/23	Salvador Hernandez	No affiliation
298	12/26/23	Ryan Donovan	No affiliation
299	12/26/23	Eric Monson	No affiliation
300	12/26/23	Eileen Conrique	No affiliation
301	12/26/23	Jesse Sevilla	No affiliation
302	12/26/23	Michelle Miller	No affiliation
303	12/26/23	Nicole Koerner	No affiliation
304	12/26/23	Angelina Martinez	No affiliation
305	12/26/23	Maytee Cortes	No affiliation
306	12/26/23	Edgardo Mendoza	No affiliation
307	12/26/23	Briana Radilla	No affiliation
308	12/26/23	Brian Prado	No affiliation
309	12/26/23	John Conrique	No affiliation
310	12/26/23	Edmund Domingo	No affiliation
311	12/26/23	Michelle King	No affiliation
312	12/26/23	Arline Ramos	No affiliation
313	12/26/23	Jaime Michel	No affiliation
314	12/26/23	Efren Lira	No affiliation
315	12/26/23	Jose Soto	No affiliation
316	12/26/23	Daniel Pla	No affiliation
317	12/26/23	Nicolas Sendis	No affiliation
318	12/26/23	Aron Gregoire	No affiliation
319	12/26/23	Javier Sotelo	No affiliation
320	12/26/23	John Welch	No affiliation
321	12/26/23	Jerico Jones	No affiliation
322	12/26/23	Gabriel Rodriguez	No affiliation
323	12/26/23	Kevin Monson	No affiliation
324	12/26/23	Helder Faria	No affiliation
325	12/26/23	Bryan Rogers	No affiliation
326	12/26/23	Michael Graham	No affiliation
327	12/26/23	Julian Gomez	No affiliation
328	12/26/23	Victor Zendejas	No affiliation
329	12/26/23	Rocco Biafore	No affiliation
330	12/26/23	Kirk Hellofs	No affiliation
331	12/26/23	Steven Valverde	No affiliation
332	12/26/23	Mariah Arredondo	No affiliation
333	12/26/23	Veronica Gomez	No affiliation
337	12/21/23	Yuying Ma	Office of Aviation Planning – Caltrans
15-6	6/5/24	Robert Spiegel	California Manufacturers & Technology Association
15-16	5/30/24	Colin Sueyres	Western Propane Gas Association
LATE	6/7/24	Colin Sueyres	Western Propane Gas Association

A. Recurring Comment Responses

Comment Letters: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 91, 92, 93, 94, 95, 96, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 255, 256, 260, 261, 262, 263, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 287, 288, 289, 290, 291, 292, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333

Multiple Dates See Table 2-1 for details on commenters who submitted the following recurring comments.

Comment-1: The commenter states, “Actual impacted forklifts far exceed CARB estimate: CARB has modelled the total affected forklifts of approximately 95,000, though this inventory count is less than a third of the values produced from the 2017 CARB/SSRC Study. CARB assumes that the internal combustion engine (ICE) forklift population remains stagnant though time has shown an increase in forklifts in the state due to an increase in goods movement. After evaluating forklift fleet owners and operators, CARB’s proposal will actually impact over 390,000 ICE forklifts – over three out of every four forklifts in the state.”

Response-1: In 2016, California State University (CSU) Fullerton¹ conducted a survey focusing on businesses that use large spark-ignited (LSI) forklifts. This survey, funded by CARB, was based on phone calls with approximately 1,200 companies that owned approximately 8,800 forklifts. While this portion of the survey collected useful information on forklift activity, including on fleets that have 3 or fewer forklifts, the survey went further to try to extrapolate the statewide population. The extrapolation in CSU Fullerton’s report (referenced by the commenter as the SSRC Study) overstated the actual California population significantly because as outlined by the process used in the survey, it was conducted on businesses that were likely to have forklifts, but then extrapolated out to a larger list of businesses that were

¹ California State University, Fullerton, Survey of Large Spark Ignited (LSI) Engines Operating within California, 2017 (web link: https://ww2.arb.ca.gov/sites/default/files/2020-08/ssrc_2017.pdf)

not likely to have forklifts (such as nail salons, personal tax accountants, mobile phone repair stores, etc.).² This considerably overrepresented the population of forklifts in the state.

The 2023 LSI Emission Inventory Model³ bases the overall population on data showing the historical sales of new forklifts provided by the Industrial Truck Association⁴ (ITA) and in-use forklift data from the DOORS online reporting system⁵. This methodology was discussed in multiple public workshops and meetings directly with industry groups. Approximately 8,000 new LSI forklifts are sold in California annually, and LSI forklifts have an average lifespan of about 12 years (this is the age when *half* of the population has been retired). These two values demonstrate the average working population of forklifts should be close to 96,000 per year (8,000 forklifts sold per year, working for 12 years on average, would be 96,000 active forklifts at any one time). This estimate is very close to CARB's emission inventory used to estimate the benefits of the Proposed ZEF Regulation, which has an estimated population of approximately 94,725 LSI forklifts statewide. (It does not match 96,000 exactly because the retirement pattern of forklifts is not perfectly linear.)

For there to be 390,000 active forklifts in California, one of several things would have to be true. Either (1) forklifts would have to have a useful life of about 50 years (50 years multiplied by 8,000 units sold per year would be 400,000 active forklifts at any given time), with little to no retirement of forklifts purchased between 1975 and 2024, which does not match any of the reported data on forklift current age distribution or retirement patterns, or (2) there would have to be a constant mass migration of used forklifts into California in the hundreds of thousands, far exceeding new purchases, which has not been reported by LSI businesses or demonstrated in any of the reporting or sales data. The commenters have not provided any data substantiating either of these two implausible scenarios.

Regarding growth, CARB staff used the historical national sales as reported by ITA from 1995 through 2020, shown in Figure 1 below. These historical national sales of new LSI forklifts show stagnant LSI forklift sales over the last 25 years, with sales in the 2010s similar to sales in the 1990s and 2000s, and a decrease in new LSI forklift sales between 2018 and 2020. The

² See page ix ("The values obtained through the survey were then extrapolated to the full population of businesses within the state in order to obtain an equipment population estimate").

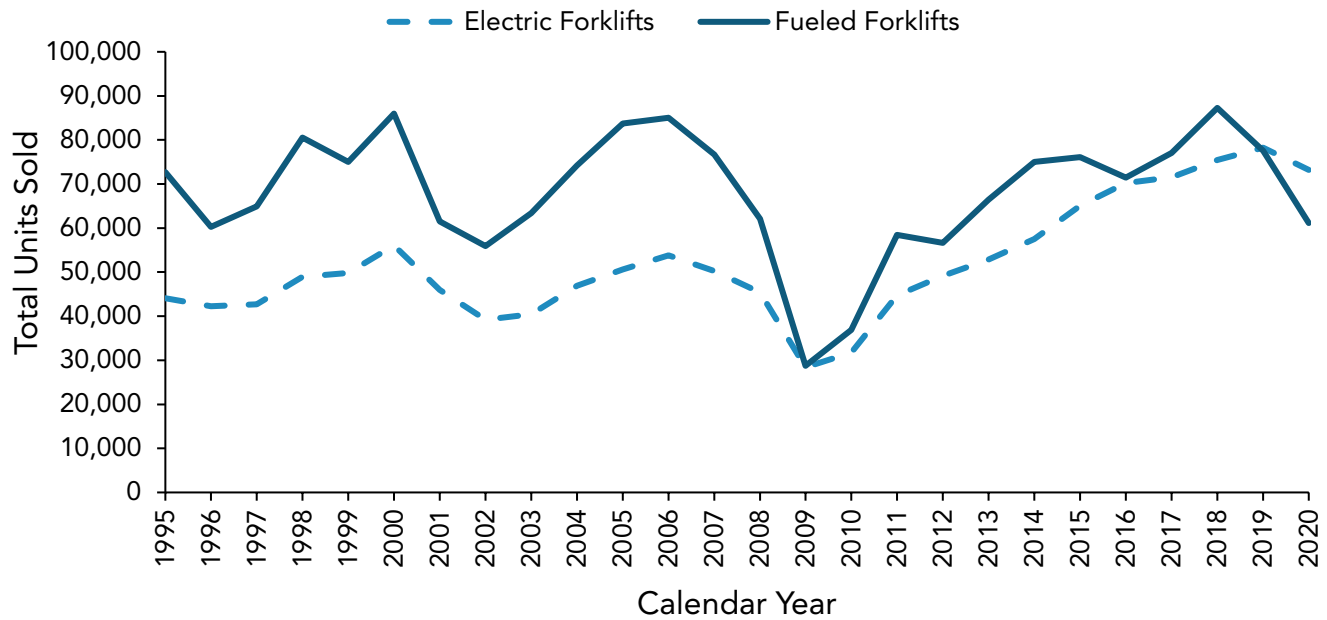
³ California Air Resources Board, Public Hearing to Consider the Proposed Zero-Emission Forklift Regulation, Staff Report: Initial Statement of Reasons, Appendix D: Large Spark Ignition Forklift Emission Inventory, November 7, 2023 (web link: <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/zeforklifts/appd.pdf>).

⁴ Industrial Truck Association, United States Factory Shipments, 1997-2022, September 29, 2023 (web link: <https://www.indtrk.org/wp-content/uploads/2023/04/Factory-Shipments-Table-2023-Directory.pdf>).

⁵ CARB's Diesel Off-Road Online Reporting System (DOORS) is the online reporting system used by entities subject to the In-Use Off-Road Diesel-Fueled Fleets Regulation (Title 13, California Code of Regulations, Sections 2449, 2449.1, 2449.2, and 2449.3) and the Large Spark-Ignition Engine Fleets Regulation (Title 13, California Code of Regulations, Sections 2775, 2775.1 and 2775.2) to report required company and fleet information.

data show that electric forklift sales are increasing over time. Taken together, the data show that overall demand for forklifts is growing but the increase in demand is being met by an increase in sales of electric forklifts, not LSI forklifts. Based on this analysis, CARB’s emission inventory does not reflect an overall growth in the LSI population in the future.

Figure 1. Historical national forklift sales reported by ITA from 1995 through 2020



Comment-2: The commenter states, “Renewable propane drastically reduces GHG emissions without significant financial investment: The propane industry has made extraordinary strides to expand production of low carbon renewable fuels for the transportation sector within California. These strides have been made in part thanks to the work of CARB in its implementation of the Low Carbon Fuel Standard. Renewable propane carbon intensities range from half- to one-quarter of the carbon intensity of California’s current electric grid. With current blending and transitions to all-renewable fuels, propane has outpaced carbon emissions for California’s electric sector in transportation – particularly off-road forklifts.”

Response-2: In the Initial Statement of Reasons (ISOR) CARB staff acknowledged that renewable propane has a lower average carbon intensity (CI) than electricity generation based on the current Low Carbon Fuel Standard (LCFS) fuel pathways and when only well-to-tank (WTT) emissions are considered.⁶ An energy source with a lower CI rating emits lower GHG emissions during the production of the energy source when viewed only on a per-unit-of-energy-produced basis. However, in addition to WTT emissions, the way that energy is

⁶ California Air Resources Board, Public Hearing to Consider the Proposed Zero-Emission Forklift Regulation, Staff Report: Initial Statement of Reasons, November 7, 2023 (Weblink: <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/zeforklifts/isor.pdf>, last accessed January 2024)

converted into work must also be considered in determining the Proposed Regulation's real-world emissions implications. When this energy conversion is also accounted for, the GHG emissions for an electric forklift are lower than a forklift powered by renewable propane, as discussed in Chapter I, Section H, of the ISOR.⁷ Further, as California implements the Renewables Portfolio Standard, which requires utilities to procure an increasing amount of renewable electricity generation, the average electricity CI for California will continue to decrease, resulting in even lower GHG emissions for zero-emission equipment – and thus an even larger emissions reduction advantage compared to renewable propane.

Regarding the comment's mention of financial investment, although there would be initial costs associated with no longer using LSI forklifts, CARB staff estimates that operating a zero-emission forklift would result in cost savings over time in most cases, compared to current operational cost of an LSI forklift. As stated in Chapter I of the ISOR, the estimated Statewide cost savings by 2043 are expected to be \$7.5 billion in health benefit savings, \$0.25 to \$1 billion in social cost of greenhouse gas (SC-GHG) savings, and \$2.7 billion in net fleet cost savings.⁸

The comment does not raise issues related to the adequacy of the environmental analysis and no edits to the Draft EIA are required in response to this comment. No further response is required.

⁷ Ibid.

⁸ Ibid.

B. Individual Responses to 45-Day Comments

Comment Letter: 82

12/21/2023

Ashley Hong

California Manufacturers & Technology Association

82-1: The commenter states, "CMTA agrees with the California Energy Commission's (CEC) assessment that electric vehicles are only a fraction of the state's energy demands. However, for California to achieve its greenhouse gas reduction goals, there is nothing gradual about the state needing to accomplish a "record-breaking" deployment rate to triple its current electricity grid capacity. As has been stated by the CEC:

California will need to sustain its expansion of clean electricity generation capacity at a record-breaking rate for the next 25 years. On average, the state may need to build up to 6 gigawatts (GW) of new renewable and storage resources annually. By comparison over the last decade, the state has built on average 1 GW of utility solar and 300 megawatts (MW) of wind per year. Over the next three years, electricity providers regulated by the CPUC will add another 8 GW of clean energy resources.

It is critical to accurately characterize the studies referenced in this section of ISOR, and equally appropriate to highlight all relevant findings. The Pacific Northwest National Laboratory analysis from 2020 is a case in point. While the projections for 2028 resource adequacy appear to be sufficient for 24 million Evs under normal system, weather, and water conditions, each of these variables has contributed to reliability challenges in California. The reality of climate change is one of warming temperatures, more frequent and severe droughts, and an increase in the risk of wildfire. There is a new normal which is characterized by extreme weather shifts and events that will continue to challenge grid operations."

Response: CEQA Guidelines Section 15126.2(b) states that the evaluation of energy impacts under CEQA "is subject to the rule of reason and shall focus on energy use that is caused by the project." It is foreseeable that implementation of the Proposed Regulation, among other regulatory mechanisms such as the Renewables Portfolio Standard overseen by the California Energy Commission (CEC), the California Public Utilities Commissions (CPUC), and utilities throughout the state; the necessary actions to meet the targets of Senate Bill (SB) 32, Assembly Bill (AB) 1279, and the State Implementation Plan; and guidance developed by local air districts that recommend decarbonizing new development and use of electric vehicle (EV) chargers, may increase electricity and hydrogen demand, while dramatically reducing fossil fuel usage, and change the composition of the electrical grid as the state continues to pursue its long-term GHG reduction goals of carbon neutrality by 2045 (AB 1279).

As noted in the Draft EIA, the Proposed Regulation would increase the demand for electric charging infrastructure needed to support the use of ZE forklifts. Additional installations of

electric charging infrastructure would support the use of ZE forklifts, as well as other advanced technology equipment and vehicles.

The increased use of electric charging infrastructure will also increase the demand for electricity supplied by utility providers and help the state's investor-owned utilities meet the goals of SB 350. SB 350 requires the state's investor-owned utilities to develop programs to accelerate widespread transportation electrification with goals to reduce dependence on petroleum, increase the uptake of ZE technologies, help meet air quality standards, and reduce GHGs. The three large investor-owned utilities in the state, Pacific Gas & Electric, San Diego Gas & Electric, and Southern California Edison, have either proposed or have been approved to establish new business electricity rate options that make charging more affordable during certain times of the day. Although not required by SB 350, several publicly owned utilities have taken similar action. For example, the Los Angeles Department of Water and Power and Sacramento Municipal Utility District have made ready charging infrastructure programs and new commercial rates for charging. The Proposed Regulation supports the utilities' programs and the goals of SB 350 by increasing the number of ZE forklifts operating in the state to make use of these utility investments and rates, where feasible. As described in Appendix D to the ISOR, the expected increase in grid energy demand from electric forklifts after full implementation of the Proposed Regulation is roughly 0.4 percent of the statewide gridded energy demand.⁹

Historically, the state's electric grid has expanded and evolved as consumer demand for electricity services has grown, including with the emergence of EVs. Several studies have shown no major technical challenges or risks have been identified that would prevent a growing EV fleet at the generation or transmission level, especially in the near term.^{10, 11} Additionally, based on historical growth rates, sufficient energy generation and generation capacity is expected to be available to support a growing EV and equipment fleet.¹² The California Independent System Operator (CAISO) is working to enhance how energy is

⁹ See Appendix D, 2023 Large Spark Ignition Forklift Emission Inventory, at page 28. Note that the reference to "1,065 MWh" on that page included a typo; the correct quantity is 1,065 GWh. However, the underlying analysis, as well as the 0.4 percent figure, is and remains correct.

¹⁰ US DRIVE 2019, Summary Report on EVs at Scale and the U.S. Electric Power System. U.S. Driving Research and Innovation for Vehicle Efficiency and Energy Sustainability (DRIVE), 2019 (weblink: <https://www.energy.gov/sites/prod/files/2019/12/f69/GITT%20ISATT%20EVs%20at%20Scale%20Grid%20Summary%20Report%20FINAL%20Nov2019.pdf>, last accessed August 2022).

¹¹ Muratori et al 2021. Matteo Muratori et al, "The rise of electric vehicles—2020 status and future expectations," 2021 (weblink: <https://iopscience.iop.org/article/10.1088/2516-1083/abe0ad/pdf>, last accessed August 2022).

¹² California Air Resources Board 2022 (August). Public Hearing to Consider the Proposed Advanced Clean Fleets Regulation, Staff Report: Initial Statement of Reasons. (weblink: <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf>, last accessed January 2024).

managed across the region and was recently approved to launch a Western day-ahead electricity market.¹³

State agencies and electric utilities have begun proactively planning for electrical distribution upgrades and new load for EVs and equipment, including those that would be part of the Proposed Regulation via statewide energy system planning processes, including CEC's Integrated Energy Policy Report (IEPR) forecasting, CAISO transmission planning, and CPUC's Integrated Resource Plan (IRP) proceeding for 10-year grid enhancement strategies. CPUC has already approved utility investments for upgrading the electrical grid along with electricity rate changes to fund those investments. CPUC opened a new proceeding to modernize and prepare the grid in anticipation of multiple distributed energy sources. With this new proceeding, CPUC aims to evolve grid capabilities to integrate distributed energy resources including EV and equipment charging. Additionally, recent policy changes allow investor-owned utilities in California to establish rules and tariffs under general rate case proceedings for electrical distribution infrastructure on the utility side of the meter to optimize the use of existing transmission and resources in the West, which will provide economic and reliability benefits.¹⁴

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

Regarding the availability of ZE charging infrastructure, CEC and CARB are supporting strategic regional planning efforts (i.e., Regional Transportation Plans/Sustainable Communities Strategies) to support adoption of ZE technologies. CEC is the primary state

¹³ California Independent System Operator, FERC accepts ISO tariff changes for a Western day-ahead electricity market, December 2023 (weblink:<https://www.westerneim.com/Documents/ferc-accepts-iso-tariff-changes-for-a-western-day-ahead-electricity-market.pdf>)

¹⁴ Ibid.

agency leading this effort and is building a corridor of conveniently located direct-current fast chargers to allow drivers of EVs with the freedom to travel throughout the state. Pursuant to Assembly Bill (AB) 2127 (2018), CEC is required to publish a biennial report on the charging needs to support Executive Order N-79-20 which requires the State to operate 100 percent zero-emission off-road vehicles and equipment by 2035, where feasible.

The comment does not raise issues related to the adequacy of the environmental analysis and no edits to the Draft EIA are required in response to this comment. No further response is required.

82-2: The commenter states, “Another significant finding in this report is:

[...]additional generation for charging Evs is likely to be provided by natural gas combined cycle plants and combustion turbines predominantly throughout the WECC (85%–89% of all new generation).

EV proliferation is only one element in California’s cumulative emission reduction strategy, which does not present reliability problems by itself. However, collectively with other electrification policies, the Proposed Regulation further adds demands on an electricity grid that has already demonstrated insufficiencies. The broader western grid’s ability to accommodate additional demands will come from using fossil fuels, which also conflicts with California’s climate policies. While California has and will continue to demonstrate leadership in addressing climate change, the analyses must provide a comprehensive assessment that also considers the underlying challenges and potential policy conflicts.”

Response: Please refer to Response 82-1 above and 85-1 below. CARB disagrees with the commenter’s contention that 85-89% of all new generation will come from natural gas-fired power plants. The law and evidence indicate that both the proportion of fossil fueled electricity generation, and the overall electricity generation emissions intensity, will continue to decrease. California only imports about 30% of its electric power.¹⁵ For in-state generation, the state’s Renewables Portfolio Standard requires the share of renewable power generation to sharply increase over time, which will lead to decreases in fossil-fueled generation (see Response 85-1 below). Historical data bears this trend out as well, revealing overall decreases over the years in fossil-fueled generation, including natural gas.¹⁶ In terms of imported electricity (comprising approximately 30% of the electricity used in state), the Western Electricity Coordinating Council (WECC) State of the Interconnect, 2023 System Performance Data Portal indicates that over the past 10 years, both renewable and natural

¹⁵ California Energy Commission, 2022 Total System Electric Generation, available at <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2022-total-system-electric-generation>. This resource shows 83,962 GWh of total electricity imports, and a total California energy mix of 287,220 GWh.

¹⁶ See California Energy Commission spreadsheet, Total System Electric Generation 2009-2022, available at <https://www.energy.ca.gov/media/7311>.

gas generation have both increased.¹⁷ However, the percent of generation from renewable resources has grown faster than natural gas generation and this trend is expected to continue.

The comment does not raise issues related to the adequacy of the environmental analysis and no edits to the Draft EIA are required in response to this comment. No further response is required.

¹⁷ Western Electricity Coordinating Council (WECC) State of the Interconnect, 2023 System Performance Data Portal (webpage: <https://www.wecc.org/epubs/StateOfTheInterconnection/Pages/Net-Generation0706-7913.aspx>, last accessed March 2024)

Comment Letter: 85

12/22/2023

Paul Rozenberg
Suburban Propane

85-1: The commenter states, “The Proposed Regulation clearly prioritizes electricity over all other low-carbon fuels as the only vehicles that conform with the ZEV definition are electric or fuel cell. This was drafted under the assumption that electricity has a lower carbon intensity than traditional or renewable propane when considering each fuel’s Energy Economy Ratio (“EER”), as shown in Table 4 of the Initial Statement of Reasons (“ISOR”).

However, this assumption is incorrect. The carbon intensity (“CI”) score of California’s electric grid, which is currently 81, reflects the average emissions generated during electricity generation. Using the average for emissions is misleading and does not accurately inform the public of the emissions generated during peak hours. During those times, peaker power plants are switched on and begin emitting carbon while generating electricity. Oftentimes, these plants are less efficient than those running at non-peak times and emit more carbon to generate the same number of electrons. California’s marginal emissions rate, which captures carbon emitted during peak hours, shows that, depending on the time of day, the electric grid’s CI score increases significantly by a factor of two to three times. (See <https://www.spglobal.com/commodityinsights/en/ci/research-analysis/estimating-marginal-emissions-rates.html>.) Mandating the electrification of forklifts and other sectors of the economy would put additional strain on the grid and cause the grid’s CI score to climb even higher.”

Response: The November 2, 2022 Low Carbon Fuel Standard Annual Updates to Lookup Table Pathways report, 2023 Carbon Intensity Values for California Average Grid Electricity Used as a Transportation Fuel in California, and Electricity Supplied Under the Smart Charging or Smart Electrolysis Provision utilized the CEC’s California power mix for 2020 and 2021 data years along with other data to determine the 2023 reporting year CI, which was an upward adjustment from the 76.73 gCO₂e/MJ certified for reporting year 2022.¹⁸ Forklift Fleet Operators will likely try to structure their charge strategy such that their forklifts are charged at times least costly to them (e.g., charge during non-peak times to avoid higher rates and demand charges). For example, a fleet that operates a single shift could use smart charging to charge forklifts when electricity rates are lowest during periods of non-operation. Other peak shaving options that Fleet Operators could employ are behind-the-meter battery storage and/or solar panels.

¹⁸ California Air Resources Board, Low Carbon Fuel Standard Annual Updates to Lookup Table Pathways, 2023 Carbon Intensity Values for California Average Grid Electricity Used as a Transportation Fuel in California and Electricity Supplied Under the Smart Charging or Smart Electrolysis Provision (weblink: https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/comments/tier2/2023_elec_update.pdf)

Additionally, as California implements the Renewables Portfolio Standard (RPS) which requires an increasing amount of renewable electricity generation be procured by utilities, the average electricity CI for California will continue to decrease resulting in an even lower CI for charging zero-emission equipment.^{19, 20, 21} The RPS along with an increase in battery storage will reduce the need for simple cycle peaking plants in the future.

While it is true that operating a simple-cycle peaker power plant, also called a peaking plant, is less efficient than a combined-cycle power plant, that also means peaking plants are activated infrequently. The U.S. Department of Energy uses this description for peaking plants: "These plants are often combustion turbines with low capital cost and high or very high fuel costs. They are therefore used sparingly, often only a handful of times a year during extreme peak periods of demand."²² A peaking plant will be activated when other lower-cost electricity generation sources are at maximum capacity or unexpected power interruptions occur. This can be seen by the number of gigawatt-hours (GWh) peaking plants produce in California on an annual basis. According to the Thermal Efficiency of Natural Gas-Fired Generation in California 2019 Update paper that the California Energy Commission has written and discusses electricity generation for 2018, California peaking plants generated 4,140 GWh of electricity.²³ The total amount of electricity generated in California in 2018 was 194,842 GWh.²⁴ Therefore, in 2018, peaking plants in California contributed to only a little over two percent of the total electricity generation in California. Further, the average CI includes the CI from all power-generating facilities that generated electricity for the electrical grid, including the CI from peaking plants. In contrast, renewable generation such as hydroelectric, solar, wind, and geothermal contributed to approximately 40 percent of the electricity generated in California for 2018. California has also been adding energy storage

¹⁹ California Public Utilities Commission, Renewables Portfolio Standard (RPS) Program (weblink: <https://www.cpuc.ca.gov/rps/>, last accessed March 2024)

²⁰ Berkeley Law, University of California, California Climate Policy Fact Sheet: Renewables Portfolio Standard (weblink: <https://www.law.berkeley.edu/wp-content/uploads/2019/12/Fact-Sheet-RPS.pdf>, last accessed March 2024)

²¹ California Independent System Operator, Historical CO2 trend (weblink: <http://www.caiso.com/TodaysOutlook/Pages/emissions.aspx#section-historical-co2-trend>, last accessed March 2024)

²² US Department of Energy, Energy Efficiency and Renewable Energy, Solar Energies Technology Program, Electric Market and Utility Operation Terminology, May 2011 (weblink: <https://www.nrel.gov/docs/fy11osti/50169.pdf>)

²³ California Energy Commission, Thermal Efficiency of Natural Gas-Fired Generation in California: 2019 Update, June 2020 (weblink: <https://www.energy.ca.gov/publications/2020/thermal-efficiency-natural-gas-fired-generation-california-2019-update-staff>)

²⁴ California Energy Commission, 2022 Total System Electric Generation (weblink: <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2022-total-system-electric-generation>, Last accessed March 2024)

systems to reduce the need for using peaking power plants and over the past four years, the battery storage in California has increased by 757 percent.²⁵

The commenter also assumes that the marginal power plant is a peaking plant. This assumption is incorrect since almost any power-generating source, except for a nuclear power plant, can be a marginal electricity generator, including renewable generation. The U.S. Department of Energy uses this description to describe a marginal power generator:

Power system operators dispatch generators based on cost and physical capabilities. Generators are dispatched sequentially from lowest to highest cost. The last generator to be dispatched at any point in time is referred to as the “marginal generator,” and typically sets the market price for that market period.²⁶

In general, the opposite is true when electricity demand is decreasing: The highest-cost generator is the first to be taken offline and the next highest-cost generator becomes the “marginal generator.” Further, renewable power-generating resources are typically dispatched first since they are the lowest-cost power generators. As increasing amounts of renewable electricity generation have been added to the California electricity grid, the chance that renewable generation will be the marginal generator has increased. Currently, renewable generation is being curtailed the most out of all power-generating sources in California. The CAISO describes curtailment as:

Currently, the ISO’s most effective tool for managing oversupply is to “curtail” renewable resources. That means plant generation is scaled back when there is insufficient demand to consume production. Curtailment is the reduction of output of a renewable resource below what it could have otherwise produced.²⁷

The CAISO curtailment report indicates that renewable generation was curtailed each month in 2023 with over 700,000 MWh being curtailed in April.²⁸ Therefore, when curtailment occurs, renewable generation could be considered the marginal generator. Then, to return to the commenter’s observation regarding CI values for the marginal generator, the CI for generating electricity at that time would be zero. Additionally, it is difficult to predict the exact CI for charging all the forklifts in the state since it is difficult to predict when forklifts will be charged. As noted above, operators have the flexibility to charge at the times most

²⁵ California Energy Commission, California Sees Unprecedented Growth in Energy Storage, A Key Component in the State’s Clean Energy Transition, October 2023 (weblink: <https://www.energy.ca.gov/news/2023-10/california-sees-unprecedented-growth-energy-storage-key-component-states-clean>)

²⁶ US Department of Energy, Energy Efficiency and Renewable Energy, Solar Energies Technology Program, Electric Market and Utility Operation Terminology, May 2011 (weblink: <https://www.nrel.gov/docs/fy11osti/50169.pdf>)

²⁷ California Independent System Operator, Fast Facts, Impacts of renewable energy on grid operations (weblink: <http://www.caiso.com/Documents/CurtailmentFastFacts.pdf>, last accessed March 2024)

²⁸ California Independent System Operator, Managing oversupply (weblink: <http://www.caiso.com/informed/Pages/ManagingOversupply.aspx>, last accessed March 2024)

cost-effective to them, although some operators may be limited by their specific desired duty cycle, available batteries (if using swappable batteries), or available charging infrastructure. Therefore, the average electricity grid CI is currently the best and most accurate metric to use when calculating the CI for charging zero-emission forklifts.

The comment does not raise issues related to the adequacy of the environmental analysis and no edits to the Draft EIA are required in response to this comment. No further response is required.

85-2: The commenter states, "In addition, the EERs for electric and propane forklifts also rely on faulty assumptions and are not borne out by the data. CARB assigned electric forklifts an EER of 3.8 and propane forklifts and EER of 0.9, which suggests that electric forklifts are 4.2 times more efficient than propane forklifts. However, propane engines have an average efficiency of 25 percent. Even assuming that electric forklifts are 90 percent efficient, this would make electric forklifts 3.6 times more efficient, at most. Keeping propane forklifts at an EER of 0.9, this means the EER for electric forklifts should be no more than 3.2."

Response: CARB's Low Carbon Fuel Standard (LCFS) regulation specifies an Energy Economy Ratio (EER) value of 0.9 for heavy-duty and off-road applications using propane (relative to diesel).²⁹ The EER value for propane forklifts was first included in the 2018 LCFS amendments and was based on test data from the Altoona Bus Research and Testing Center.³⁰

The commenter contends that the EER is too high for the efficiency of an electric forklift. CARB staff disagrees. CARB staff's analysis of EER values is presented at pages 56-63 and 91-94 of the Draft EIA. The EER value of 3.8 is discussed in the rulemaking record for the 2015 LCFS amendments.³¹ Prior to adopting the forklift EER of 3.8 and other amendments,

²⁹ California Air Resources Board, Low Carbon Fuel Standard, July 2020, See 17 CCR § 95486.1(a), Table 5, "EER Values for Fuels Used in Light- and Medium-Duty, and Heavy-Duty Applications" (weblink: https://ww2.arb.ca.gov/sites/default/files/2020-07/2020_lcfs_fro_oal-approved_unofficial_06302020.pdf)

³⁰ California Air Resources Board, Amendments to the Low Carbon Fuel Standard Regulation and the Regulation on Commercialization of Alternative Diesel Fuels, Initial Statement of Reasons (ISOR) at page III-57 (weblink: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2018/lcfs18/isor.pdf?_ga=2.185082863.734098528.1710780772-1462308397.1701471817) and ISOR Appendix H, March 2018 (weblink: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2018/lcfs18/isor.pdf?_ga=2.84792031.795678771.1710881936-184637983.1600705717)

³¹ See CARB Staff Report: Initial Statement of Reasons for Proposed Re-Adoption of the Low Carbon Fuel Standard (December 2014) at III-10; see also EPRI, Energy Efficiency and Performance Testing of Non-Road Electric Vehicles: Forklift Truck Evaluation - Status Report, December 31, 2003 (weblink: <https://www.epri.com/research/products/1002230>).

staff went through an extensive public process to engage stakeholder participation including conducting 20 public workshops and two advisory panel meetings.³²

However, purely for discussion purposes, even using the commenter's claimed EER of 3.2 for an electric forklift (rather than the EER of 3.8 that staff used in its analysis), an electric forklift would still have a lower EER-adjusted CI than renewable propane. CARB staff recalculated the estimated EER-adjusted CI for renewable propane using the latest LCFS pathway CI for renewable propane of 32.9 gCO₂e/MJ (which is lower than the CI of 33.26 gCO₂e/MJ used in the ISOR since the pathways were updated on February 22, 2024). Staff also calculated the EER-adjusted CI for electricity generation using the commenter's suggested EER for an electric forklift of 3.2 and the same CI for California electricity that was used in the ISOR of 81 gCO₂e/MJ. These hypothetical calculations using the commenter's claimed values resulted in an EER-adjusted CI for renewable propane of approximately 36.6 and an EER-adjusted CI for an electric forklift of approximately 25.3 gCO₂e/MJ. The results still indicate that an electric forklift has a lower EER-adjusted CI than renewable propane.

The comment does not raise issues related to the adequacy of the environmental analysis and no edits to the Draft EIA are required in response to this comment. No further response is required.

85-3: The commenter states, "Taking into consideration the marginal emissions rate of California's electric grid and EERs described above, there are times of the day when the electric grid could have an EER-adjusted CI score of at least 50.63 or even higher. While that is lower than the EER-adjusted CI score for propane, it is higher than the average EER-adjusted CI score for renewable propane, which is 33.26 based on the ISOR. Further, Suburban Propane is committed to bringing more lower carbon-intense propane blends. This includes blends of traditional and renewable propane, traditional propane and renewable dimethyl ether ("rDME"), and renewable propane and rDME. While not verified yet, all three blends will most likely have CI scores below the electric grids, and we have already begun selling traditional propane blends and rDME in California."

Response: CARB staff agrees that there are times of the day and year when the CI for power generation in California can be higher than the average CI for power generation in California and higher than the CI for propane. However, there are also times of the day and year when the CI for California power generation can be at or near zero, as shown in the LCFS Annual Updates to Lookup Table Pathways.³³ As stated in the response to comment 85-1, forklift

³² See Transcript for February 19, 2015 CARB Board Meeting at page 77, lines 5-12 (weblink: https://ww2.arb.ca.gov/sites/default/files/barcu/board/mt/2015/mt021915.pdf?_ga=2.209773139.734098528.1710780772-1462308397.1701471817) .

³³ California Air Resources Board, Low Carbon Fuel Standard Annual Updates to Lookup Table Pathways, 2023 Carbon Intensity Values for California Average Grid Electricity Used as a Transportation Fuel in California and Electricity Supplied Under the Smart Charging or Smart Electrolysis Provision,

fleet operators will likely try to avoid charging their electric forklifts at peak electricity demand times due to the higher cost of electricity that is set by the marginal electricity generator³⁴ during that market period. This will help shift consumption away from “peak” electric demand times, and away from peak emissions intensity times. As also discussed above, it is difficult to predict the exact CI for charging all the forklifts in the state since it is difficult to predict exactly when forklifts will be charged. Therefore, the average electricity grid CI is currently the best and most accurate metric to use when calculating the CI for charging zero-emission forklifts.

CARB appreciates Suburban Propane’s commitment to bring “more lower carbon intense propane blends” to market.

The comment does not raise issues related to the adequacy of the environmental analysis and no edits to the Draft EIA are required in response to this comment. No further response is required.

https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/comments/tier2/2023_elec_update.pdf?_ga=2.151734078.620778680.1684166454-1990257940.1569343285

³⁴ As discussed above, a marginal electricity generator is the most expensive and usually the least efficient generator supplying power during the market period and sets the electricity price for the market period.

Comment Letter: 89

12/21/2023

Roger Miksad
Battery Council International

89-1: The commenter states, “CARB’s Environmental Analysis identifies the potential for an incremental increase in “mining and imports of lithium, lead, and other minerals from countries with raw mineral supplies,” but it fails to account for the significant differences in raw material sourcing between lithium and lead batteries noted above. These differences are predominantly a function of a very mature lead battery recycling infrastructure that achieves a nearly 100 percent recycling rate compared to a nascent lithium battery recycling infrastructure that is capable of recycling less than 5% of end-of-life batteries. While it is reasonable to expect lithium battery recycling infrastructure to expand over time, the broad range and lack of uniformity of lithium battery chemistries create infrastructure compatibility challenges that will limit the economies of scale necessary to attract investment in lithium battery recycling and prevent lithium battery recycling from achieving current lead battery recycling rates.”

Response: CARB thanks the commenter for their perspective regarding the lithium battery recycling market. Based on CARB’s research and analysis, CARB disagrees that the lithium battery recycling market will not see sufficient investment to ultimately achieve current lead battery recycling rates. Evidence suggests that the lithium-ion recycling market is rapidly increasing consistent with the demand for and production of Evs. Implementation of the Proposed Regulation sets zero-emission standards for operators of spark-ignited forklifts while ramping up sale and operation of forklifts over time. Staff assume that many operators will choose to purchase lithium-ion battery-powered forklifts. If maintained well, a lithium-ion forklift battery will last between 2,000 and 3,000 cycles or about 7 to 10 years.³⁵ Thus, the demand for recycling of new lithium-ion batteries specifically from forklifts will be deferred for a decade or longer.

Meanwhile, the market for other EV battery recycling is steadily advancing due to the increasing demand from EV manufacturers and government bodies to recycle the waste generated by the automotive industry. Governments around the world are implementing new policies to promote recycling and reduce overall carbon emissions caused by EVs. Regulatory bodies in many countries have been implementing regulations mandating that a certain portion of the manufactured battery is derived from recyclable material. This is expected to boost the market growth, as companies start to invest in battery recycling infrastructure.³⁶

³⁵ Conger, Lithium Forklift Batteries: The Complete Guide [Pros, Cons, Costs], January 2024, (weblink: <https://www.conger.com/lithium-forklift-battery/>, last accessed January 18, 2024).

³⁶ Grand View Research. 2023. Electric Vehicle (EV) Battery Recycling Market Size, Share & Trends Analysis Report. Available: <https://www.grandviewresearch.com/industry-analysis/ev-battery-recycling-market-report>. Accessed January 18, 2024.

Numerous levers are fueling growth in the battery-recycling industry, including technological progress enabling higher recovery rates, lowering greenhouse-gas footprints, and improving economics; growing supply of used batteries as a larger number of batteries begin to approach the end of their useful lives; supply-chain stability prioritization by various automotive manufacturers and cell producers who are looking to secure local (recycled) raw material volumes at stable prices; increased preference for recycled battery materials over newly mined battery materials due to decarbonization and ethical supply-chain targets set by automotive manufacturers; increased regulatory incentives that create conducive conditions for local recycling; and increased regulatory pressure to encourage organizations to recycle.³⁷

The market has observed stable growth and is expected to continue with the same trend over the next decade. Rising investments in the development of EVs and subsidies to encourage battery recycling are expected to drive the growth of the market in the upcoming years. The development of advanced battery technologies and minimal maintenance requirements for lithium-ion batteries are factors contributing to the growth of EVs; hence it is anticipated that the market for lithium-ion battery recycling would continue to expand as a result of the growing use of lithium-ion batteries.³⁸

The global lithium-ion battery recycling market size was estimated at 6.4 billion U.S. dollars in 2022 and is projected to grow to around 66.36 billion by 2032, and is poised to grow at a compound annual growth rate (CAGR) of 26.4 percent from 2023 to 2032.³⁹ The global EV battery recycling market size was valued at USD 0.23 billion in 2022 and is expected to grow a revenue-based CAGR of 61.7 percent from 2023 to 2030.⁴⁰

The U.S. has emerged as a growing market for the recycling of EV lithium-ion batteries, owing to the presence of large lithium-ion recycling facilities in the country. The increase in the establishment of battery recycling facilities in the country and the surge in the number of joint ventures among EV and battery manufacturers in the U.S. are expected to fuel the demand for battery recycling activities in the country in the coming years.⁴¹

³⁷ McKinsey & Company. 2023 (March). Battery Recycling Takes the Driver's Seat. Available: <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/battery-recycling-takes-the-drivers-seat>. Accessed: January 18, 2024.

³⁸ Markets and Markets. 2024. Lithium-ion Battery Recycling Market. Available: <https://www.marketsandmarkets.com/Market-Reports/lithium-ion-battery-recycling-market-153488928.html>. Accessed on January 17, 2024.

³⁹ Precedence Research. 2023 (December). Lithium-ion Battery Recycling Market Size, Report, 2023 to 2032. Available: <https://www.precedenceresearch.com/lithium-ion-battery-recycling-market>. Accessed January 18, 2024.

⁴⁰ Grand View Research. 2023. Electric Vehicle (EV) Battery Recycling Market Size, Share & Trends Analysis Report. Available: <https://www.grandviewresearch.com/industry-analysis/ev-battery-recycling-market-report>. Accessed January 18, 2024.

⁴¹ Ibid.

The comment does not raise further issues related to the adequacy of the environmental analysis and no edits to the Draft EIA are required in response to this comment. No further response is required.

89-2: The commenter states, “Infrastructure limitations will also drive higher rates of lithium battery disposal at end of life. CARB acknowledges the potential for increased rates of disposal of lithium-ion batteries, but downplays the associated environmental impacts by citing statutory prohibitions against landfill disposal and asserting that used lithium-ion forklift batteries are likely to be repurposed for a second life. CARB states elsewhere in the ISOR that “the cost for lithium-ion battery recycling at the end of battery life is not included ... because this cost is expected to be offset by the residual value of the battery” and that “light-duty vehicle lithium-ion batteries are already being repurposed for second life applications including stationary storage.” Yet CARB does not cite any evidence to support the conclusion that these factors will sufficiently mitigate the potential environmental impacts of lithium battery disposal.”

Response: See Response 89-1 above regarding current and projected state of the battery recycling market and expected increase in battery recycling over time. Increased battery recycling has been identified as a reasonably foreseeable compliance response to the Proposed Regulation, and to meet increased demand for refurbishing, reusing, or recycling batteries, it is reasonably foreseeable that new facilities or modifications to existing facilities would be required to accommodate an increase of such activities (Draft EIA, pages 26-27). The potential environmental impacts of battery production and recycling have been evaluated and disclosed throughout the Draft EIA. CARB also notes that regardless of the power source, any forklift will eventually reach the end of its useful life, and therefore recycling and scrappage-related impacts are present for conventional forklifts under existing conditions as well.

The comment does not raise further issues related to the adequacy of the environmental analysis and no edits to the Draft EIA are required in response to this comment. No further response is required.

Comment Letter: 97

12/22/2023

Christine Wolfe

California Council for Environmental and Economic Balance

97-1: The commenter states, “CCEEB appreciates that CARB has included a robust discussion of the Proposed ZEF Regulation’s impact on “total well-to-wheel emissions.” When based on commonly understood and replicable inputs and assumptions, well-to-tank emissions—in this case, emissions from instate California electricity generation and production of California liquid propane gas—should play just as important of a role in understanding the criteria pollutant and greenhouse gas emissions impacts of CARB regulations as tank-to-wheel, or tailpipe, emissions.

Given this is one of the first instances in which CARB has provided a well-to-tank analysis for criteria pollutants at this level of detail in a regulatory analysis, and that the GREET model is typically used in other, GHG-focused regulatory contexts, it would be helpful for staff to provide more detail on the assumptions, inputs, and modeling that supported this assessment, including where and how GREET, CEPAM, or other models and sources of data used to arrive at the emissions presented in this section. In doing so, it would also be helpful for staff to explain why the air quality and greenhouse gas analyses supporting the Proposed ZEF Regulation only include one portion of the total well-to-wheel emissions: tank-to-wheel, or tailpipe emissions.”

Response: CARB implements a range of programs that work together to improve air quality and reduce GHG emissions across the state. CEQA’s focus is on ensuring that potential reasonably foreseeable significant adverse impacts are adequately analyzed and disclosed. Therefore, for purposes of the Proposed Regulation, the Draft EIA includes the referenced well-to-tank discussion to characterize the possible impacts from this specific program. The Draft EIA’s analysis regarding well-to-tank emissions demonstrates that the well-to-tank component of ZE forklifts would result in clear reductions in air pollution and GHGs. Similarly, since they have no tailpipe emissions, ZE forklifts would result in clear reductions in tank-to-wheel emissions as well.

CARB staff approached its well-to-tank criteria emissions discussion as described below:

1. The CARB emission inventory⁴² showed the volume of propane used by LSI forklifts in California, based on statewide population, activity, and horsepower. This is described in detail in Appendix D to the ISOR, “2023 Large Spark Ignition Forklift Emission Inventory.”

⁴² CARB Emission Inventory for Large Spark Ignition Forklifts posted Nov. 7, 2023 (weblink: <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/zeforklifts/appd.pdf>)

2. The CA-GREET3.0 model⁴³ has values for NOx and PM emissions from the production of California liquid propane gas (LPG or propane). CA-GREET3.0 showed a value of 15.9 grams NOx per million British Thermal Unit (MMBtu) and PM emission value of 1.4 grams per MMBtu. The equivalent energy content of one gallon of propane is 91,452 Btu.⁴⁴

Multiplying those values together provides the upstream emissions from fuel production used by propane forklifts in California.

3. The CEC showed the California electrical generation annually was 194,000 gigawatt-hours.⁴⁵

4. The CARB CEPAM database⁴⁶ for 2021 showed the average emissions for in-state electricity generation was 27.1 tons per day of NOx and 6.7 tons per day of PM, including cogeneration emissions.

Those two values provide the criteria emissions per unit of energy on the California electrical grid.

5. Lastly, Table 5 of CARB's Low Carbon Fuel Standard (LCFS) regulation⁴⁷ sets the Energy Economy Ratio (EER) of electric forklifts for purposes of LCFS credit generation at 3.8. The EER reflects that electric forklifts perform the same work as internal combustion forklifts using less overall energy. This EER is multiplied against the current energy use from Step 1 to determine the projected energy demand from propane forklifts that are replaced with electric forklifts.

Steps 3 to 5 provide the upstream emissions from electric forklifts that replaced propane forklifts.

Combined, the steps provide the current propane used and resulting upstream NOx and PM, as well as the energy used by electric forklifts replacing propane forklifts and the resulting

⁴³ CA Greet Model: Version3.0 Effective Jan 4, 2019 (weblink: <https://ww2.arb.ca.gov/resources/documents/lcfs-life-cycle-analysis-models-and-documentation>)

⁴⁴ US Energy and Information Administration (EIA), Units and Calculations explained (weblink: <https://www.eia.gov/energyexplained/units-and-calculators/british-thermal-units.php>. Last accessed March 2024)

⁴⁵ California Energy Commission, 2021 Total System Electric Generation (weblink: <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2021-total-system-electric-generation#:~:text=Total%20system%20electric%20generation%20is,or%205%2C188%20GWh%2C%20from%202020>, last accessed March 2024)

⁴⁶ California Air Resources Board, CEPAM Database (weblink: <https://ww2.arb.ca.gov/applications/cepam2019v103-standard-emission-tool>, last accessed March 2024)

⁴⁷ Title 17, California Code of Regulations, section 95486.1.

upstream NO_x and PM from the grid. These results are compared in the emission inventory documentation.⁴⁸

CARB staff approached its well-to-tank GHG discussion as described below:

1. CARB's LCFS regulation identifies Carbon Intensity (CI) values for fossil fuel based propane, renewable propane and the California electrical grid.
2. CARB's LCFS regulation identifies the EER for fossil fuel based propane, renewable propane and the California electrical grid.

Factoring in the CI values and EER adjustment for each unit of energy provides the EER-adjusted CI values for each of these fuel pathways.

No additional assumptions or analysis were needed. The analysis did not include any projections of improvements in the electrical grid, including cleaner or zero-emission sources of generation. The information for this analysis is based solely on the publicly-available sources referenced in this response.

The comment does not raise issues related to the adequacy of the environmental analysis and no edits to the Draft EIA are required in response to this comment. No further response is required.

⁴⁸ California Air resources Board, Emission Inventory for Large Spark Ignition Forklifts posted Nov. 7, 2023, <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/zeforklifts/appd.pdf>

Comment Letter: 337

12/21/2023

Yuying Ma

Office of Aviation Planning – Caltrans

337-1: The commenter noted “the Draft EIA Attachment A mentioned that a building constructed with a wood frame and a stucco or wood sheathing exterior typically provides a minimum exterior-to-interior noise reduction of 25 dB with its windows closed. The California Airport Land Use Planning Handbook notes that any single or multi-family residence situated where the projected exposure to airport noise is 60-dB CNEL or greater that are wood frame buildings constructed to meet current standards for energy efficiency typically have an average NLR of approximately 20 dB with windows closed. The discrepancy between the 25 dB mentioned in the Draft EIA Attachment A and the 20 dB NLR for wood frame buildings in the Handbook will need further analysis to understand the factors influencing these differences, such as building design, insulation, and the specific standards being referenced.”

Response: The Draft EIA appendix cites a minimum exterior-to-interior reduction that represents a typical reduction used in environmental analysis and is considered an industry standard. We do realize there are a range of values cited in various documents, studies, and handbooks but a level of 25 dBA is considered conservative as many reputable sources cite higher noise reduction levels with windows closed; however, 25 dB is used to be conservative and in line with industry standards. Also, the noise sources being evaluated are not from airports (or related aircraft activity) but from construction and other facility-type sources as discussed in the Draft EIA. In addition, the value of 25 dB was not used in any calculations to support the analysis and was provided only for the purpose of background understanding; thus, this value does not affect the conclusions presented in the analysis.

C. Individual Responses to 15-Day Comments

On May 21, 2024, 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 two comment letters raising environmental issues or directed toward the Draft EIA. Additionally, after the close of the 15-day comment period CARB received one late comment letter via email directed toward to the Draft EIA. The late submitted comment does not concern modifications proposed in the 15-Day Notice. Because this comment letter is not directed at the modifications made available for comment during the 15-day Comment period and was received after the close of the 15-day comment period, the APA does not require a response. (Gov. Code, § 11347.1(d).) Further, the 45-day CEQA comment period started on November 10, 2023, and ended on December 26, 2023, so all three comments 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.

Comment Letter: 15-6

06/5/2024 Robert Spiegel
California Manufacturers & Technology Association

15-6-1: The commenter states “The magnitude of the conversion to ZEF was significantly misrepresented in the November 2023 Initial Statement of Reasons, leading to further corrections under this 15-day Modification.

As two examples,

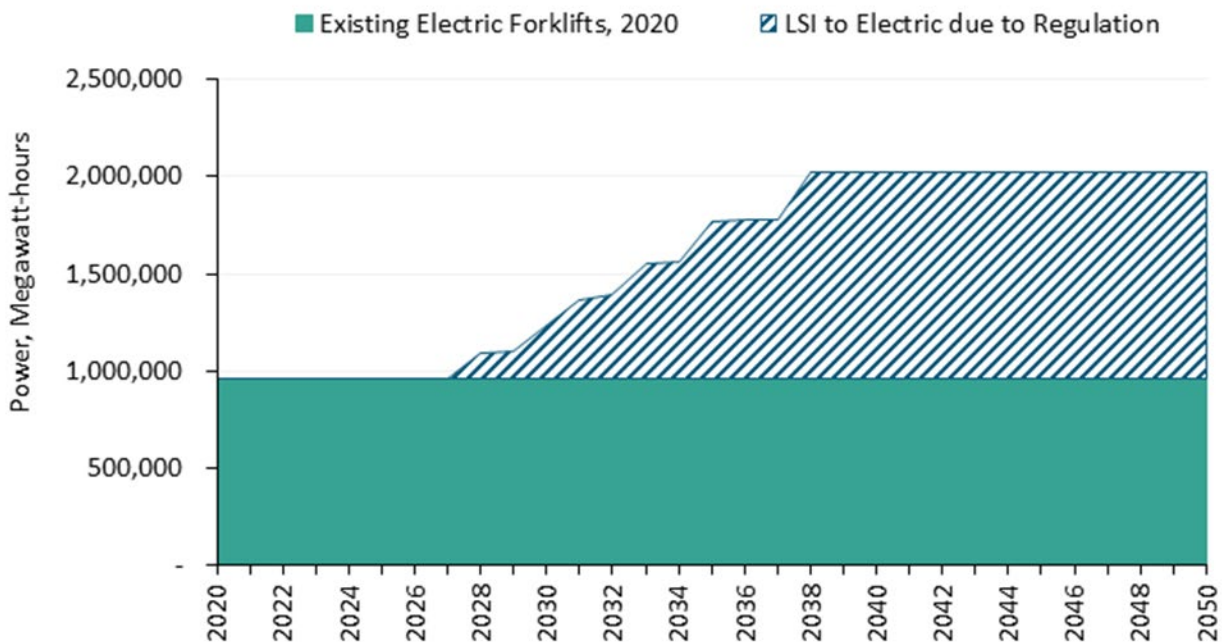
In Appendix C: Draft Environmental Impact Analysis to the Staff Report: Initial Statement of Reasons, which was released on November 7, 2023, in section “Impact 6-2: Long-Term Operation-Related Impacts on Energy,” there was a typographical error. In the statement, “The increase in electricity demand statewide due to the increased use of ZEFs will be approximately 1.1 Gigawatt hours per year in 2038,” the term “Gigawatt” is corrected to “Terawatt.”

In Appendix D: 2023 Large Spark Ignition Forklift Emission Inventory to the Staff Report: Initial Statement of Reasons, which was released on November 7, 2023, there was a typographical error in Section 6.e. In the statement, “The expected increase in gridded energy demand from electric forklifts after full implementation of the Proposed Regulation is 1,065 MWh, which is roughly 0.4 percent of the statewide gridded energy demand,” the unit “MWh” is corrected to “GWh.”

This "typographical error" represents a mistake that under-represented the magnitude of this Regulation's impact on electrical loads and the availability of electricity in California. Each unit of measurement (i.e., "megawatt," "gigawatt," and "terawatt") is about 1,000 times the size of the next smaller one. For example, one gigawatt is 1,000 times larger than a megawatt, and one terawatt is 1,000 times larger than a gigawatt. In our December 2023 comment letter, CMTA expressed our significant concern about the readiness of the energy grid to support this Regulation and other vehicle electrification policies."

Response: No changes were made in response to this comment. CARB staff acknowledges and regrets the typographical error. However, CARB staff disagrees that the typographical error "represents a mistake that under-represented the magnitude of this Regulation's impact on electrical loads and the availability of electricity in California."

The 15-Day changes made are purely typographic and did not impact staff's analysis or methodology related to or depiction of the Regulation's impact on electrical loads and the availability of electricity in California. As seen in the excerpt quoted by the commenter, despite the typographic error in the units, the expected increase is still the same roughly 0.4 percent of the statewide gridded energy demand, which was clearly and correctly stated. Additionally, although in Appendix D, there was a typo in one sentence of the text ("MWh" had to be corrected to "GWh"). Immediately adjacent to the typo was a graph showing the correct units, Figure 17 of Appendix D: 2023 Large Spark Ignition Forklift Emission Inventory.



The solid area at the bottom represents the annual electricity demand from existing electric forklifts, and the top, striped area represents the additional annual electricity demand from electric forklifts that will be required by the Proposed Regulation over the course of

implementation. The expected increase in gridded energy demand from electric forklifts after full implementation of the Proposed Regulation is about 1,065,000 Megawatt-hours or 1,065 Gigawatt-hours or 1.1 Terawatt-hours.

Therefore, despite the typo, the figure mentioned above in Appendix D showed the correct energy demand numbers, and disclosed the correct 0.4 percent increase of the statewide gridded energy demand.

Regarding CMTA's significant concern about the readiness of the energy grid to support this Regulation and other vehicle electrification policies, please see the response to comment 82-1 above.

Comment Letter: 15-16

05/30/2024 Colin Sueyres
Western Propane Gas Association

15-16-1: The commenter states, "As currently written, the rule would impact 220,000 ICE forklifts, over half of all forklifts in the state and will cost California forklift owners and operators up to \$27 billion."

Response: See Response to Comment LATE-2 regarding projected forklift quantities.

15-16-2: The commenter states, "CARB vastly underestimated the number of forklifts that will be impacted by the rule. CARB estimates 95,000 forklifts will be affected when in reality 220,000 (more than half of all forklifts in the state) will be impacted."

Response: See Response to Comment LATE-2 regarding projected forklift quantities.

15-16-3: The commenter states, "As currently written, the rule would impact 220,000 ICE forklifts, over half of all forklifts in the state."

Response: See Response to Comment LATE-2 regarding projected forklift quantities.

15-16-4: The commenter states, "The Western Propane Gas Association argued in a report today that CARB has underestimated the reach of its rule, contending that it would make 220,000 forklifts obsolete, rather than the 95,000 that agency staff estimated."

Response: See Response to Comment LATE-2 regarding projected forklift quantities.

15-16-5: The commenter states, "The Air Resources Board estimates that the number of impacted forklifts is approximately 95,000. However, an economic analysis by the Western Propane Gas Association found that the true number is closer to 220,000 ICE forklifts, more than half of all forklifts in the state."

Response: See Response to Comment LATE-2 regarding projected forklift quantities.

15-16-6: The commenter states, "As currently written, the rule would impact 220,000 ICE forklifts, over half of all forklifts in the state."

Response: See Response to Comment LATE-2 regarding projected forklift quantities.

15-16-6: The commenter states, "Some consumers will likely transition vehicles in their fleet from propane-powered forklifts to diesel-powered forklifts during the phase-out windows since the rule does not align with diesel regulations. This would be a huge setback in protecting air quality as propane has 94 percent fewer nitrogen oxide (NOx) and hydrocarbon emissions than diesel."

Response: As discussed in section II(C)(8) of the Draft EIA and Chapter I, Section G of the ISOR, CARB staff has concluded that replacement of LSI forklifts with diesel forklifts, while possible, would be rare. There are a variety of reasons supporting staff's conclusion, including: (1) ZEFs already represent roughly half of new forklift sales in the nation, demonstrating the compelling market-driven case for ZEFs; (2) diesel forklifts generally cannot be used indoors for extended periods of time due to the adverse health effects of emissions being circulated within enclosed areas and noise; (3) due to the lower cost of ownership of ZEFs, fleets that use ZEFs are expected to realize savings over the long term; (4) diesel forklifts are more expensive than LSI forklifts and could require the installation of on-site fuel storage; (5) current ZEF technology addresses most of the duty cycle challenges posed by prior-generation ZEF technology; (6) in the rare instances where a fleet may not be able to identify a suitable zero-emission option, the Proposed Regulation includes extension provisions for feasibility issues that would allow the fleet to delay the phase-out of applicable LSI forklifts; and (7) the Proposed Regulation includes provisions that would limit the ability of fleets to add diesel forklifts to specific situations where the fleet is able to demonstrate that the diesel forklift is not being acquired to replace an LSI forklift.

Though as explained above the potential for transitioning to diesel powered forklifts is unlikely to occur, in an abundance of caution, it was included as a potential compliance response in the Draft EIA. CARB included a sensitivity analysis in section IV(B)(3) of the Draft EIA to estimate the potential emissions impact of some fleet operators choosing to replace LSI forklifts with diesel forklifts, recognizing that this compliance response is unlikely to be prevalent for a variety of reasons discussed above. As explained in the Draft EIA, for the purposes of this sensitivity analysis, CARB staff conservatively assumed that 20 percent of total LSI forklifts between 8,000 and 12,000 pound lift capacity being replaced (a population of 1,598 forklifts) would instead be replaced with equivalent diesel forklifts. This analysis was based on data and factors from ISOR Appendix D, including information from the DOORS online reporting system for forklifts that reported both lift capacity and horsepower (described on page 26 of Appendix D).⁴⁹ For estimating activity, CARB staff used the average LSI forklift activity of 1,848 hours per year.⁵⁰ Staff also used the emission factor for new diesel engines, which would be Tier 4 Final diesel engines.⁵¹ Staff used the same horsepower of the LSI forklift being replaced, generally between 75 and 105 horsepower. Staff also used the load factor specified in Appendix D for LSI forklifts of 0.3.⁵² Note that this is higher than the

⁴⁹ CARB, *ISOR Appendix D: 2023 Large Spark Ignition Forklift Emission Inventory*. (Web Link: <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/zeforklifts/appd.pdf>)

⁵⁰ CARB, *ISOR Appendix D: 2023 Large Spark Ignition Forklift Emission Inventory*, at page 12. (Web Link: <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/zeforklifts/appd.pdf>)

⁵¹ The emission factors vary by horsepower bin and are described in detail in the *California Air Resources Board: 2017 Off-Road Diesel Emission Factor Update for NOx and PM* (available at https://ww2.arb.ca.gov/sites/default/files/classic/msei/ordiesel/ordas_ef_fcf_2017.pdf).

⁵² CARB, *ISOR Appendix D: 2023 Large Spark Ignition Forklift Emission Inventory*, at page 14. (Web Link: <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/zeforklifts/appd.pdf>)

usual inventory load factor for diesel forklifts of 0.2,⁵³ but is based on the assumption that the diesel forklift would be completing the same work as the LSI forklift it replaces, and thus would have similar duties and load factor. Using these numbers, staff calculated the emission difference as less than 0.1 tpd (NOx) and 0.01 tpd (PM) higher than projected under the Proposed Regulation scenario.

As explained in EIA section IV(B)(3), under this sensitivity analysis scenario, the NOx and PM emissions would still be well below the CEQA existing conditions baseline. The difference in emissions benefits between the Proposed Regulation scenario and the diesel forklift sensitivity analysis scenario would also decline over time such that NOx and PM emissions of the diesel forklift sensitivity analysis scenario would be at parity with the Proposed Regulation by 2038. No edits to the Draft EIA are required in response to this comment. No further response is required.

15-16-7: The commenter states, "New structures will need to be built or space within a business's existing floor plan will have to be used to store and charge battery electric forklifts."

Response: The Draft EIA analyzed potential environmental impacts associated with the construction of new structures and charging infrastructure. No edits to the Draft EIA are required in response to this comment. No further response is required.

⁵³ 2022 CARB Construction, Industrial, Mining and Oil Drilling Emissions Inventory (August 2022) at page 17 (available at <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022InUseDieselInventory.pdf>).

Comment Letter: LATE

06/7/2024

Colin Sueyres
Western Propane Gas Association

LATE -1: The commenter states, “These comments are submitted in furtherance of WPGA’s commitment to advocate on behalf of working-class Californians who earn their livelihood in the propane industry. Throughout the ZEF Regulation rulemaking process, CARB has relied on findings of fact that are demonstrably incorrect to support the proposed ZEF Regulation. As explained in this letter, CARB’s reliance on incorrect data and false assumptions undermines the strength of the ZEF Regulation rulemaking process, undermines the adequacy of CARB’s environmental analysis, and runs afoul of the Administrative Procedures Act. Additionally, CARB’s Draft Environmental Impact Analysis is also insufficient because it fails to analyze the full scope of likely environmental harms, notwithstanding the fact that the underlying data upon which it relies is incorrect.

WPGA respectfully submits these comments to ensure the ZEF Regulation rulemaking analysis reflects a robust and complete examination of the direct and reasonably foreseeable impacts as required by the California Environmental Quality Act (“CEQA”) in order to achieve the State’s climate goals.”

Response: The comment is introductory in nature and does not address specific inadequacies of the Draft EIA. No further response is required.

LATE-2: The comment states, “As numerous commenters identified during the 45-day comment period, glaring discrepancies exist between the findings set forth in CARB’s Standardized Regulatory Impact Assessment (“SRIA”) and the findings contained in the Social Science Research Center’s (“SSRC”) paper commissioned by CARB titled “Survey of Large-Spark Ignited (LSI) Engines Operated in California.” Many of these discrepancies are highlighted in the Andrew Chang & Co. report titled “Owner and Operator Cost of the California Air Resources Board Proposed Regulations to Phase Out ICE Forklifts” dated February 27, 2024.

“In particular, where CARB estimates that the proposed ZEF Regulation will result in cumulative savings of between \$13.1 and \$13.9 billion, SSRC found instead that the proposed ZEF Regulation would result in cumulative costs to forklift operators ranging from \$12 billion to \$27 billion, with a midpoint value of \$19 billion. Additionally, while CARB estimates that the ZEF Regulation would impact 95,000 forklifts, SSRC instead found, with 95% confidence, that the actual quantity of impacted forklifts in California falls between 136,551 and 308,091 forklifts. SSRC’s midpoint estimate of 222,096 forklifts reflects greater than twice as many forklifts will be impacted by the regulation than estimated by CARB in its analysis. Overall, CARB’s analysis is replete with lowball figures. Inexplicably, CARB’s estimate for total replacement costs (\$4.6 billion) fails to consider the potential salvage or scrap value of decommissioned ICE forklifts, which, if incorporated into the analysis, would

reduce even further the estimated replacement cost overall. By comparison, the Andrew Chang & Co. report estimates that replacement costs will exceed \$10 billion over the lifespan of the ZEF Regulation, even accounting for salvage and scrap value of decommissioned ICE forklifts.

“The Andrew Chang & Co. report offers multiple data points and supporting methodologies which indicate that CARB’s proposed rule fails to encapsulate the universe of costs and savings which will affect day-to-day forklift operations. This is alarming, because it suggests that CARB’s rulemaking process focuses more on imposing stringent regulations supported by incomplete data, than on achieving the State’s goal of transitioning to zero-emission vehicles and processes in a manner that would preserve the viability of California industry. Although WPGA members stand ready to comply in good faith with a ZEF Regulation that achieves its goals of reducing emissions while acknowledging the nuances of ICE forklift usage and preserving a viable pathway to compliance for regulated entities, in light of inaccurate supporting data, it is impossible for WPGA members to confidently conclude that the ZEF Regulation will preserve a viable pathway to compliance for regulated entities.”

Response: CARB staff disagrees with the commenter’s assertion that the SSRC report found that the Proposed Regulation would result in cumulative costs to forklift operators ranging from \$12 billion to \$27 billion, with a midpoint value of \$19 billion. In fact, the SSRC report was completed years before development started for the Proposed Regulation and cost estimates to forklift operators were not included in the report. Please see response to recurring Comment 1 as it relates to the 45-day comments received regarding the SSRC paper.

CARB staff disagree with the commenter's statement from the Andrew Chang & Co. report that the actual quantity of impacted forklifts in California falls between 136,551 and 308,091 forklifts with a midpoint estimate of 222,096 for the impacted forklift population. The conclusions in the Andrew Chang & Co. report are based on data obtained from a survey conducted by CSU Fullerton in 2016. This survey focused specifically on businesses that use LSI forklifts and was based on phone calls with approximately 1,200 companies that owned approximately 8,800 forklifts. While this portion of the survey collected useful information on forklift activity, and regarding fleets that have three or fewer forklifts, the survey attempted to extrapolate the statewide forklift population. The results of this method for estimating statewide forklift population were flawed in that the survey was conducted on businesses that were likely to have forklifts, but then extrapolated out to a larger list of businesses that were not likely to have forklifts (such as nail salons, personal tax accountants, mobile phone repair stores, etc.) . This overrepresented the population of forklifts in the state by a significant amount. Therefore, the conclusions in the Andrew Chang & Co. report, which rely on this overrepresented population of forklifts from the 2016 Fullerton study, are also flawed and misrepresentative of the actual forklift population in California.

CARB appropriately used the 2023 LSI Emission Inventory Model to estimate the forklift population for the Proposed Regulation. CARB's 2023 LSI Emission Inventory Model bases the overall population on the historical sales of new forklifts provided by the Industrial Truck Association and in-use forklift data from the DOORS online reporting system. This methodology was covered in multiple public workshops and meetings, including with industry groups. Approximately 8,000 new LSI forklifts are sold in California annually, and LSI forklifts have an average lifespan of about 12 years (this is the age where half of the population has retired). These two values demonstrate the average working population of forklifts should be close to 96,000 per year (8,000 forklifts sold per year, working for 12 years on average, would be 96,000 active forklifts at any one time). This estimate is very close to CARB's emission inventory, which has an estimated population of approximately 94,725 LSI forklifts statewide. (It does not match 96,000 exactly because the retirement pattern of forklifts is not perfectly linear.)

Based on CARB's model for determining population, in order for the active forklift population in California to be 222,096 as asserted by the commenter, one of several things would have to be true. Either (1) forklifts would have to have a useful life of about 27.5 years (27.5 years multiplied by 8,000 units sold per year would be 220,000 active forklifts at any given time), with little to no retirement of forklifts purchased between 1996 and 2024, which does not match any of the reported data on forklift current age distribution or retirement patterns, or (2) there would have to be a constant mass migration of used forklifts of about 10,000 used forklifts annually into California, far exceeding new purchases, which has not been reported by LSI businesses or demonstrated in any of the reporting or sales data.

The remainder of this comment relates to the economic impact that the Proposed Regulation would have on forklift operators. The Draft EIA is not meant to address economic, social, or financial issues associated with the Proposed Regulation. Rather, the purpose of CEQA and the Draft EIA is to fully analyze and mitigate the Proposed Regulation's potentially significant physical impacts on the environment. As such, comments related to economic or financial concerns are outside of the scope of the Draft EIA and no further response is required. However, these comments are acknowledged for the record and have been reviewed by CARB staff. As noted above, this Response to Comments document includes written responses only to those comments related to the Draft EIA; all other comments received will be responded to in the Final Statement of Reasons for the Proposed Regulation.

LATE-3: The comment states, "CARB's reliance on inaccurate data also undermines the agency's environmental analyses in support of the regulation. To offer one example: CARB's Initial Statement of Reasons states that

"due to fuel savings, an operator of a typical spark-ignited forklift fleet that phases in ZEFs is expected to see cost savings of approximately \$30,000 per forklift. Converting the estimated 89,000 affected LSI forklifts in the State to ZEFs is expected to generate a cumulative cost savings of approximately \$2.7 billion."

“Examining this claim, the Andrew Chang & Co. report instead finds that cumulative fuel savings would amount to a mere \$1.3 billion for forklifts that utilize propane as a primary fuel source, or \$3.7 billion for forklifts that utilize gasoline as a primary fuel source. Split across 222,096 regulated forklifts, this difference is indicative of the shortcomings of CARB’s analysis and suggests that CARB failed to adequately examine the extent to which the proposed ZEF Regulation will adversely impact WPGA members. In light of this and other analytical shortcomings, WPGA cannot endorse the proposed ZEF Regulation unless and until CARB publishes information that describes the impacts of the ZEF Regulation using accurate, real-world data.”

Response: While the commenter states that “inaccurate data also undermines the agency’s environmental analyses”, there are no environmental issues raised by the commenter and instead the focus of the remainder of the comment is on economic concerns. Therefore, this comment is outside of the scope of Response to Comments on the Draft EIA and no further response is required. CARB will respond to the economic claims in the FSOR. In regard to the commenter’s claims about forklift population, please see response to comment LATE-2 above.

LATE-4: The comment states, “In its Description of the Proposed Regulation, the DEIA notes that “[t]he Proposed Regulation would require California fleets to phase out most Class IV and Class V large-spark ignition (LSI) forklifts over time. . . The Proposed Regulation would also establish requirements for forklift manufacturers, forklift dealers, and forklift rental agencies.” It then provides a series of bullet points indicating, in CARB’s view, the scope of the ZEF Regulation. However, this description is insufficient because it does not discuss, to provide one example, how impacted entities can simply “phase out” their forklifts by selling them to non-California operators, thus nullifying or merely relocating any purported environmental benefit that the ZEF Regulation claims to provide. “A project description that omits integral components of the project may result in an EIR that fails to disclose all of the impacts of the project. *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818, 829 (project description for sand and gravel mine omitted water pipelines serving project); *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 80. The “project” is “the whole of an action” that may result in either a direct physical environmental change or a reasonably foreseeable indirect change. CEQA Guidelines § 15378; *Habitat & Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal.App.4th 1277, 1297; *Banning Ranch Conservancy v. City of Newport Beach* (2012) 211 Cal.App.4th 1209, 1220. Project descriptions have been found inadequate when they failed to include discussion of necessary expansions to accommodate the contemplated project. See *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713 (project description inadequate when it failed to discuss sewer lines and wastewater treatment expansion necessary for the contemplated housing development); *Whitman v. Board of Supervisors* (1979) 88 Cal.App.3d 397 (project description for oil well inadequate for failure to describe or analyze associated pipeline).”

Response: CARB disagrees with the commenter's assertions that the Draft EIA did not analyze the compliance response of impacted entities selling forklifts to non-California operators. Section (C)(5) of the Draft EIA's Project Description chapter, titled "Sale, Disposal, and Recycling of LSI Forklifts", discusses the compliance responses associated with phasing out LSI forklifts. As noted by the Draft EIA, these compliance responses include sales out-of-state. Chapter 4 of the Draft EIA also includes out-of-state forklift sales as a compliance response within the analysis of each resource area. As disclosed in the Draft EIA, while it may be possible that some regulated forklift operators choose to sell phased-out LSI forklifts to non-California operators, the availability of used forklifts from California is unlikely to increase the need for forklifts in other states or the operating hours of forklifts in other states. If a Nevada fleet needs 100 forklifts to conduct their business, for example, they are going to need 100 forklifts, whether used forklifts from California are for sale or not.

It is difficult to predict with any accuracy how phased-out California forklifts may affect the used forklift market in other states, and the commenter speculates that out-of-state sales could increase emissions in other states. However, CARB staff believes such an outcome is speculative and highly unlikely. It is unlikely that an out of State fleet would purchase a used LSI forklift from California that is older than the forklift it would be replacing. Under the Proposed Regulation, large fleets in California be required by January 1, 2028, to phase out MY 2018 and older forklifts. Consider for example a fleet at a hypothetical 2028 auction in Nevada where phased-out used 2018 model year LSI forklifts from California are for sale at a sufficiently lower cost. A Nevada fleet operator with forklifts predominantly MY 2020 and newer would likely not be interested in such purchasing such forklifts. Because a MY 2018 forklift would likely have more operating hours, be more damaged, be less reliable, and have fewer new features than the operators of newer forklifts are accustomed to, the lower price of the used forklift would likely not be enough to entice the operator to purchase older forklifts than those already in its fleet. Only fleets for whom the 2018 model year forklifts would represent an upgrade (for example, fleets with MY 2017 and older forklifts) would be likely to purchase these used forklifts. In this scenario the MY 2018 is likely to be less worn out and more reliable than the forklift it is replacing thus making their fleet a bit cleaner than it was before. Lastly, a it is uncommon for a car buyer who is trading in a very new car to choose a much older model, thus it would be unlikely for businesses whose strategy has been to use new, reliable forklifts to switch to old ones even if more such old ones become available due to the Proposed Regulation.

Hence, as they displace even older, dirtier forklifts, the phased out used LSI forklifts from California would be likely to reduce overall LSI forklift emissions in other states rather than increase them. Finally, staff believes the Proposed Regulation may help catalyze greater adoption of ZE technology in other off-road segments by increasing market awareness and supporting the overall growth of the ZE industry, which over time may help reduce emissions not only in California but in other states as well. Therefore, CARB staff does not anticipate an increase in emissions in neighboring jurisdictions as a result of the Proposed Regulation.

Furthermore, CARB's analysis is appropriately programmatic in nature as discussed in more detail in response to comment LATE-5 below.

LATE-5: The comment states, "In addition to exporting environmental impacts beyond California, the ZEF Regulation will require an intense buildout of electricity generation and transmission infrastructure, will require additional mining of critical minerals usable in zero-emission vehicle technology, will likely lead to an increase in short-term air quality impacts and greenhouse gas impacts (many of which will be concentrated in low-income communities and communities of color), will strain the State's electric grid until ample generation is constructed, and will lead to a plethora of other impacts that directly result from implementation of the ZEF Regulation. CARB's failure to include many impacts of the ZEF Regulation – including those it directly acknowledges in the DEIA – from the Project Description represents CARB's failure to describe "the whole of the action." Cal Code Regs tit. 14, div. 6, ch. 3 ("CEQA Guidelines") § 15378; *Habitat & Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal.App.4th 1277, 1297; *Banning Ranch Conservancy v. City of Newport Beach* (2012) 211 Cal.App.4th 1209, 1220. Because of this, CARB's DEIA fails to satisfy the demands of CEQA."

Response: The comment is introductory in nature and does not provide specific comments as to the adequacy of the environmental analysis. However, as discussed in the Draft EIA, the degree of specificity required in a CEQA document corresponds to the degree of specificity inherent in the underlying activity it evaluates. An EIA for broad programs cannot be as detailed as it can be for specific projects (Title 14 California Code of Regulations ([CCR]) Section 15146). Because this analysis addresses a broad regulatory program, a general level of detail is appropriate. The Draft EIA makes a rigorous effort to evaluate significant adverse impacts and beneficial impacts of the reasonably foreseeable compliance responses that could result from implementation of the Proposed Regulation, and it contains as much information about those impacts as is currently available, without being unduly speculative.

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. Section I.B. on pages 9 and 10 of the Draft EIA explains why it would be too speculative to analyze the impacts of certain compliance responses and specific locations for facilities and infrastructure that may be required to implement the Proposed Regulation. The level of detail of impact analysis is necessarily and appropriately general because the Proposed Regulation is programmatic. The analysis is based on reasonably foreseeable compliance responses that are based on a set of reasonable assumptions. While the compliance responses described in the Draft EIA are not the only conceivable ones, they are the reasonably foreseeable ones; thus, they provide a credible basis for impact conclusions that are consistent with available evidence. Reasonably foreseeable compliance responses are analyzed in a programmatic manner for several reasons: (1) any individual action or activity would be carried out under the same program; (2) the reasonably foreseeable compliance response would result in generally similar environmental effects that

can be mitigated in similar ways (Cal. Code Regs., tit. 14, Section 15168 (a)(4)); and (3) while the types of foreseeable compliance responses can be reasonably predicted, the specific location, design, and setting of the potential actions are unknown at this time. Decisions by the regulated entities regarding compliance options and the precise location of the many components covered in the Proposed Regulation are unknown.

CEQA is clear that an indirect impact should be considered only if it is a reasonably foreseeable impact caused by the project. (Cal. Code Regs., tit. 14, Sections 15064(d)(3), 15358(a)(2).) An environmental impact that is speculative or unlikely to occur is not reasonably foreseeable. (Cal. Code Regs., tit. 14 Section 15064(d)(3).) Attempting to predict decisions by entities regarding the specific location and design of infrastructure undertaken throughout the state, which involves extensive decision-making processes in response to implementation of the Proposed Regulation, is speculative given the influence of other business and market considerations in those decisions. Specific actions undertaken to implement the Proposed Regulation would undergo project-level environmental review and compliance processes as required at the time they are proposed. The EIA generally does not analyze site-specific impacts when determinations regarding the location of future facilities or other infrastructure would be speculative. However, The EIA does examine statewide, regional (e.g., local air district and/or air basin), and local issues to the degree feasible where appropriate. As a result, the impact conclusions in the resource-oriented sections of Chapter 4, "Impact Analysis and Mitigation Measures," cover broad types of impacts, considering the potential effects of the full range of reasonably foreseeable actions undertaken in response to the Proposed Regulation. Additionally, "a general response may be appropriate when a comment does not contain or specifically refer to readily available information...." (CEQA Guidelines, Section 15088(c).) The commenters criticize CARB's CEQA analysis in a conclusory manner on the issue of compliance response speculation, but they do not present readily available information that would better inform the analysis of impacts associated with the Proposed Regulation. The commenter does not provide information on specific projects or actions where there is reasonable foreseeability as to the scope, siting, and design of the projects, all of which are details necessary for a proper evaluation of a project's impacts on the environment. CARB also does not have those details, without which CARB cannot conduct site-specific impact analyses. Therefore, a general response to these claims which lack readily available information to better perform the impact analysis is appropriate.

See Response to Comment LATE-10 regarding the electrical generation and transmission infrastructure and grid reliability. Section IV(B)(12) in the Draft EIA addresses impacts on mineral resources and the potential impacts related to mining. Additionally, Section IV(B)(7), Geology and Soils, addresses erosion impacts from mining activities. Also, see Response to Comments LATE-13 and LATE-16 regarding impacts from mining activities. Section IV(B)(3) in the Draft EIA addresses air quality impacts, and Section IV(B)(8) addresses greenhouse gas emissions impacts.

LATE-6: The comment states, "Additionally, the Project Description cannot possibly describe 'the whole of the action' where CARB applies inaccurate data to reach its conclusions.

Namely, CARB gravely underestimates the quantity of impacted forklifts. As described above, SSRC's midpoint estimate of 222,096 forklifts reflects that greater than twice as many forklifts will be impacted by the regulation than estimated by CARB in its analysis. This shortcoming, in addition to all of the discrepancies between CARB's analysis and the figures produced in the Andrew Chang & Co. report identified above, demonstrate that CARB's Project Description fails to encapsulate 'the whole of the action.'"

Response: See Response to Comment LATE-5 regarding the scope of analysis and the nature and rationale for programmatic analysis. See also Response to Comment LATE-2 regarding projected forklift quantities.

LATE-7: The comment states, "The purpose of CEQA is to inform the public and decisionmakers of the environmental impacts resulting from a proposed project. Under CEQA, the purpose of an EIR is to "provide public agencies and the public in general with detailed information about the effect [that] a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project. *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 511 (quoting Pub. Res. Code § 21061) ("*Friant Ranch*"). "If CEQA is scrupulously followed, the public will know the basis on which its responsible officials either approve or reject environmentally significant action, and the public, being duly informed, can respond accordingly to action with which it disagrees." *Laurel Heights Improvement Ass'n v. Regents of University of California* (1988) 47 Cal.3d 376, 392 ("*Laurel Heights*"). For environmental review to be successful, it must not only provide a comprehensive disclosure but also connect the analytical dots in order to explain to the decisionmakers and the public the effects of the agency's decision. "However, CARB's Draft Environmental Impact Analysis ("DEIA") fails to thoroughly analyze and quantify all of the direct and reasonably foreseeable indirect environmental impacts associated with the Project. CEQA specifically prohibits a lead agency from deferring the analysis of 'reasonably foreseeable significant environmental effects of the project and does not justify deferring such analysis to a later tier EIR or negative declaration.'"

Response: The comment is introductory in nature and does not provide specific comments as to the adequacy of the environmental analysis. See Response to Comment LATE-5 regarding the scope of analysis and the evaluation of speculative impacts. The Draft EIA provides an analysis of the reasonably foreseeable compliance responses related to the implementation of the Proposed Regulation. The Draft EIA contains a good-faith analysis of the significant adverse impacts and beneficial impacts of the reasonably foreseeable compliance responses that could result from the implementation of the Proposed Regulation, and the Draft EIA contains as much information about those impacts as is currently available without being unduly speculative. Where required, specific actions undertaken to implement the Proposed Regulation would undergo more specific project-level environmental review and compliance processes at the time they are proposed.

LATE-8: The comment states, “The DEIA states in conclusory fashion that “it would be infeasible to model with any degree of accuracy the exact location and magnitude of specific health impacts that could occur as a result of project-level construction-related emissions in specific air basins.” This is a wholly inadequate analysis. An analysis of air quality impacts that attempts in good-faith to inform the public and decisionmakers of the impacts of the ZEF Regulation could include, at a minimum, rough estimates of the geographical dispersion of impacted forklifts. For example, CARB could assume that forklift operation correlates with population across California and provide that analysis. Alternatively, CARB could engage with stakeholders, like WPGA members, to broadly determine where a significant portion of forklift operations occur. Instead, CARB effectively delegated the analysis of air quality impacts to local agencies that will perform separate environmental analyses during the lifespan of the ZEF Regulation. This abdication of CARB’s obligation to fully analyze and disclose the environmental impacts of its rule proposal does not advance CEQA’s policy goals. Without performing these critical analyses, it cannot be known whether construction or operation-related air quality impacts will undermine the ZEF Regulation’s stated goal of “ensur[ing], to the extent feasible, that activities taken pursuant to the measure complement, and do not interfere with, existing planning efforts to reduce . . . criteria pollutants” or “ensure that all Californians can live, work, and play in a healthful environment free from harmful exposure to air pollution.”

Response: See Response to Comment LATE-5 regarding the scope of analysis and the evaluation of speculative impacts. Regarding construction-related impacts for electric and other zero-emission fueling infrastructure, the commenter does not specify what particular impacts they believe to be significant, nor why. However CARB staff provides the following response regarding construction-related impacts. While the EIA conservatively analyzes and discloses the impacts from all reasonably foreseeable aspects of the Proposed Regulation, some key construction related aspects are expected to have relatively minor impacts, such as installation of onsite forklift chargers, which may qualify for CEQA exemptions for minor modifications to existing facilities or small construction. Other construction-related aspects are speculative to predict, as explained in the EIA, including where manufacturing and battery recycling would occur – activities which are not necessarily connected to the locations where the forklifts are operating. Furthermore, construction activities are short-term in nature, and are dramatically outweighed by the extensive emissions benefits from the life of the Proposed Regulation.

It remains unclear what adverse overall impacts the commenter is claiming may result from either the construction or operation of electric forklifts themselves. The commenter also does not explain how any such impacts related to ZE forklift operation would be greater than the baseline, which currently includes the operation of forklifts that combust propane. The Draft EIA’s air quality analysis clearly demonstrates that the Proposed Regulation would reduce emissions statewide compared to this baseline, both in terms of well-to-tank and tank-to-wheel emissions. Regarding the commenter’s concerns about emissions in individual air basins, Table 5 in ISOR Appendix D lists the percent allocation of statewide forklift emissions

across the state's local air districts. Table 13 in the ISOR lists statewide emissions benefits of the Proposed Regulation relative to the "business as usual" annual emissions projections shown in ISOR Table 12. Multiplying the emissions benefits shown in Table 13 by the percentage attributable to each air basin in Table 5 provides estimated emissions reductions by individual air basin. Note that this method understates the emissions benefits from a CEQA perspective, due to Table 13's use of a projected future "business as usual" baseline for each year (which declines over time), rather than the higher emissions for CEQA baseline year 2023.⁵⁴ Comparing the reductions for a given year against the CEQA baseline would show even larger emissions reductions across all pollutants. The key point remains: CARB's analyses clearly demonstrate no adverse operational air quality or GHG related impacts above the CEQA baseline, for any year. The commenter does not specify why they believe such impacts are reasonably foreseeable, despite this record evidence to the contrary.

See also Response to Comment 97-1.

LATE-9: The comment states, "The DEIA also notes that "[w]here on-site generation is required (for example, due to grid capacity or infrastructure delays), it can be generated in several ways, including . . . generators powered by propane, natural gas, or diesel" and "[l]astly, though very unlikely, fleets may replace LSI forklifts with diesel forklifts."1112 However, the DEIA then fails to analyze the magnitude of these impacts. The fact one can generate energy or operate forklifts with various fuels does not alone serve to inform the public or decisionmakers of the impacts of the ZEF Regulation – it is an independent fact. Additionally, without proper analysis of the potential quantity of impacted fleets which choose to generate electricity via propane, natural gas, or diesel, or without analysis of the potential quantity of fleets which might choose to operate diesel forklifts in light of the ZEF Regulation, it is entirely possible that the ZEF Regulation causes air quality impacts to increase above baseline conditions. For the DEIA to serve its purpose, it must take the next analytical step and apply those facts to the specific context of the ZEF Regulation and provide a complete evaluation and disclosure of potential impacts. If CARB engages meaningfully with stakeholders such as WPGA members, it could likely determine an accurate forecast of these impacts and inform the public accordingly. In the absence of such dialogue, CARB's environmental analysis must be declared incomplete."

Response: See Response to Comment LATE-5 regarding the scope of the programmatic analysis and the evaluation of speculative impacts. CARB acknowledges that the Proposed Regulation could potentially result in charging ZEFs with generators and/or replacement with diesel forklifts, thereby resulting in fewer benefits and potentially increased emissions. However, the exact emission impact would depend on the fuel type (e.g., propane, gasoline, diesel), model year, emission standard, and horsepower of both the original LSI forklift and the generator. Pages 51-53 of the Draft EIA describe potential emission standards and

⁵⁴ As stated in Table 3 of the EIA, the CEQA baseline emissions (2023) are: 10.37 tpd NOx; 0.64 tpd PM2.5; 1.93 tpd ROG; and 1.06 tpd CO2. This table also lists the "business as usual" projected emissions for future years, for comparison. See Draft EIA at 61.

regulatory restrictions for natural gas, propane, and diesel generators and how they may be used in certain limited conditions. These factors were accounted for in a sensitivity analysis conducted by CARB to estimate emissions of potential, but unlikely, diesel forklift-related compliance responses. Thus, CARB made a good-faith effort to quantify the emissions from the Proposed Regulation, including the reasonably foreseeable compliance responses. No further analysis or response is warranted.

LATE-10: The comment states, “The DEIA acknowledges that “[b]attery-electric ZEFs will rely on the electric grid to provide consistent, on-demand power to fuel vehicles” and notes in conclusory fashion that “[h]istorically, 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 . . . Utilities are working with the California Public Utilities Commission and the CEC to fund infrastructure expansion projects to meet this future demand.” However, the DEIA does not clarify the magnitude of increased energy demand, nor does it attempt to explain the pace at which energy infrastructure will need to be constructed to match this increased demand. Rather, the DEIA concludes, without offering substantial evidence, that “based on historical growth rates, sufficient energy generation and generation capacity is expected to be available to support a growing electric vehicle fleet.” CARB does not provide adequate support for this proposition.”

Response: See Response to Comment LATE-5 regarding the scope of the programmatic analysis and the evaluation of speculative impacts. Section IV(B)(6) of the Draft EIA addresses the long-term energy impacts.

The commenter’s view regarding CEQA’s energy resources related requirements appears to be misinformed. Contrary to the commenter’s focus, CEQA’s energy related provisions do not fixate on any new electricity use while turning a blind eye to fossil fuel use across the state. Rather, Appendix G to the CEQA Guidelines, a prominent tool for guiding an agency’s analysis regarding impacts to the various environmental resource areas under CEQA, focuses on two aspects regarding energy use. That appendix asks whether the project would (a) “Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? (2) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?”

The answer to both of these questions is no. The Proposed Regulation would not involve wasteful, inefficient, or unnecessary consumption of energy resources, whether during construction or operation. A key purpose of the Proposed Regulation is to improve the energy efficiency of the state’s forklifts. As explained in the Initial Statement of Reasons and in the EIA, ZE forklifts have a higher energy efficiency than comparable fossil-fueled forklifts. The Proposed Regulation would achieve a statewide forklift fleet and associated charging infrastructure that is more efficient than the current fleet.

The Proposed Regulation would also not conflict with or obstruct any state or local plan for renewable energy or energy efficiency. Rather, the Proposed Regulation would further the

state's air pollutant and GHG emissions reduction goals and would improve energy efficiency overall.

CEQA Guidelines Section 15126.2(b) further states that the evaluation of energy impacts under CEQA "is subject to the rule of reason and shall focus on energy use that is caused by the project." The commenter attempts to conflate the Proposed Regulation's electricity demand with overall statewide electricity demand, including other changes and factors that affect grid demand. However, CEQA does not require that level of analysis.

See also response to comment 82-1 above, which discusses how the Proposed Regulation relates to state energy policies and goals, as well as the state's various ongoing efforts to transition the state's grid toward renewables while meeting supply needs.

The comment does not raise issues related to the adequacy of the environmental analysis and no edits to the Draft EIA are required in response to this comment. No further response is required.

LATE-11: The comment states, "The conclusory nature of CARB's discussion of energy impacts is highlighted by relatively comprehensive nature of the California Energy Commission's "Second Electric Vehicle Charging Infrastructure Assessment," cited by CARB in the DEIA, which studied the effects of widespread vehicle electrification on California's energy grid and found that "electric utilities, the state, and stakeholders should ensure the grid is ready for incorporating new load through appropriate grid upgrades and load-integration strategies. As the number of chargers throughout the state grows over time, it will require coordinated planning and upgrades to the distribution and transmission systems to adapt to the additional load resulting from vehicle electrification." In that report, the CEC analyzed data illustrating the current capacity of the State's electric grid, in conjunction with the likely electric demands imposed by various CARB regulations, to clearly indicate the needed increases in electrical capacity that will enable full vehicle electrification across the state."

Response: The comment is informational in nature and does not address the adequacy of the environmental analysis. See Response to Comment 82-1 regarding the capacity of the State's electrical grid. See also Response to Comment LATE-10 regarding the required scope of CEQA's required analysis regarding impacts to energy resources.

LATE-12: The comment states, "In light of California's numerous initiatives seeking to electrify both mobile and stationary sources, and considering CARB's apparent underestimation of the scope of the ZEF Regulation (as identified by its own consultant, SSRC, and further explicated in the Andrew Chang & Co. report), it is clear that CARB's analysis of energy impacts does not provide the public with ample information to satisfy CEQA requirements. The DEIA does not quantify the extent to which the State will need to generate additional electricity to accommodate forklift charging, nor does it attempt to quantify the magnitude of additional pollution impacts that may occur in the short term as

capacity increases but before California reaches 100% clean energy. As a result, Californians may be subject to electricity blackouts in the future, increased air quality concerns near electricity generation facilities, and an overall inability to efficiently charge forklifts and other electric vehicles.”

Response: See Response to Comment LATE-5 regarding the scope of the programmatic analysis and the evaluation of speculative impacts. See Response to Comment LATE-10 regarding the required scope of impacts to energy resources under CEQA, and Response to Comment 82-1 regarding the capacity of the State’s electrical grid. Regarding the commenter’s speculation that near-term increased generating capacity will be met by fossil fuel generation, see response to comment 82-2 above.

LATE-13: The comment states, “In its discussion of Impact 7-1 “Short-Term Construction-Related and Long-Term Operations-Related Impacts on Geology and Soils,” the DEIA states that “implementation of the Proposed Regulation could result in increased demand for lithium-ion batteries and fuel cells, which could cause a surge in lithium and platinum mining activity within the United States Mining would have adverse effects on erosion from potential loss of forests and soil disturbances.” However, where the DEIA discusses air quality impacts, it notes that “[i]ncreased use of batteries (e.g., lead acid and lithium-ion) could also increase lead, lithium, nickel, and cobalt mining and exports from countries with raw mineral supplies.” Thus, it is apparent that the DEIA’s analysis of geology and soil impacts fails to consider impacts from lead, nickel, and cobalt mining. This shortcoming is particularly noteworthy because the purchase of forklifts powered by lead acid batteries currently represents the most inexpensive pathway to compliance for regulated entities. Thus, as demand for lead acid batteries inevitably increases, it is also likely that related mining activities will increase. The DEIA’s geology and soil impacts analysis must be revised to consider mitigation measures that will adequately address the consequences of extensive lead, nickel, and cobalt mining.”

Response: The Draft EIA acknowledges and analyzes that increased use of batteries could increase lead, nickel, and cobalt mining in addition to lithium and platinum mining. While the analysis of geology and soils impacts in Impact 7-1 inadvertently omitted mention of lead, nickel, and cobalt mining, they were in fact included as a compliance response of the Proposed Regulation and inherently a part of the analysis of erosion from potential loss of forests and soil disturbance from mining activities. This oversight has been corrected in the Final EIA.

Furthermore, it is not known at this time what exact type of mining would occur, but the mining of lead, nickel, cobalt, lithium and platinum would have similar impacts related to soil erosion. Implementation of Mitigation Measure 7-1 would address these impacts, but impacts would remain significant and unavoidable. Therefore, even if mining of lead, nickel and cobalt had been excluded from the analysis in Impact 7-1, the impact conclusions would not change from what was discussed and disclosed in the Draft EIA. Therefore, no further analysis is required.

See Response to Comment LATE-5 regarding the scope of the programmatic analysis and the evaluation of speculative impacts.

LATE-14: The comment states, “Despite its contention that “[i]t is not possible to predict exactly where [forklift manufacturing]-related improvements would occur or what each project would entail,” the DEIA also states, without evidentiary support, “[c]onstruction may last up to a year at each location when considering the development, permitting, and construction phases. However, because of the small size and scope of charging infrastructure, CARB assumes actual construction activities to occur for less than 6 months at each given project site.” “These statements plainly ignore the inherently local, highly nuanced nature of property development in California. CARB is not ignorant of this reality: CARB’s environmental analysis repeatedly insists that a more-detailed environmental analysis is impossible to perform due to the unique nature of each ZEF Regulation-related development project. Without providing any citations to factual information which would indicate that substantial evidence supports CARB’s finding that electric vehicle charging infrastructure development projects will be completed within six months, CARB’s conclusion that “actual construction activities [will] occur for less than 6 months at each given project site” is purely speculative and cannot support the conclusion that construction-related greenhouse gas (GHG) emissions would be less than significant.”

Response: See Response to Comment LATE-5 regarding the scope of the programmatic analysis and the evaluation of speculative impacts. As stated in Section B of the Draft EIA, the analysis is based on reasonably foreseeable compliance responses that are based on a set of reasonable assumptions. While the compliance responses described in this Draft EIA are not the only conceivable ones, they are the reasonably foreseeable ones; thus, they provide a credible basis for impact conclusions that are consistent with available evidence. Given the magnitude of construction associated with charging facilities, it is not unreasonable to assume that charging infrastructure construction would occur over an approximately 6-month period. The commenter provides no evidence to the contrary. No further analysis or response is warranted.

LATE-15: The comment states, “Rather than minimize leakage as mandated by AB32, the ZEF Regulation encourages it by defining “Phase Out” to mean “to remove an LSI Forklift from fleet service (i.e., move the Forklift outside of California, sell the forklift to another fleet located outside of California, or scrap the Forklift), so that the Forklift is not subsequently operated by the fleet in the state of California.” By employing this definition, the ZEF Regulation’s phase-out schedules directly encourage forklift operators to export GHG-emitting forklifts. To the extent CARB believes this provision is necessary to make the ZEV Regulation cost-effective or palatable to the regulated community, that is itself a reflection of the deeply flawed regulatory approach underlying the ZEV Regulation. CARB should not rely on exporting sources of pollution from California to communities in other states to accomplish its goals. “GHGs know no political boundaries, and the emissions that result from forklifts sold or moved to other locations outside of California will still contribute to global climate change. While CARB may claim a political victory where it can report that California

GHG emissions are reduced, this is a dishonest appraisal of the results of the ZEF Regulation. Rather, the cumulative GHG emissions will increase as exported forklifts continue to emit GHGs and other pollutants and zero-emission forklifts generate their own lifecycle emissions. Thus, the DEIA must also analyze the potential impacts on global climate change from forklifts being moved outside of California.”

Response: CARB disagrees that the phase-out is inconsistent with AB 32 and encourages the export of higher-polluting forklifts. The Proposed Regulation includes a decade long phase-out schedule (See Table 1 of the Draft EIA) that ranges from four years to 14 years from today (depending upon the class, lift capacity, fleet size, and type of operation) to minimize the effects of exporting impacted forklifts outside of the State. CARB analyzed the survival of forklifts as a function of time and estimated that 40 percent of the forklifts in California are retired after ten years of use as shown in Appendix D of the ISOR, at page 10. This indicates that a significant amount of forklifts will be retired before they will have to be phased out by the shortest phase-out schedule and should reduce the number of forklifts that may be sold out of state. The retirement of forklifts would occur with or without the proposed regulation. Fleet Operators may also make the business decision to postpone purchasing a new forklift if their existing forklift is approaching the date it will need to be phased out. Doing this would cause extra wear on the forklift and the forklift would be older, which would lower the resale value of the forklift and possibly prompt the Fleet Operator to retire the forklift instead of selling it out of state.

See also Response to Comment LATE-4.

LATE-16: The comment states, “The DEIA speaks extensively to the dangers employees face in the process of lithium mining, and it also briefly discusses the risks associated with platinum mining. However, as previously noted, CARB anticipates that demand for additional elements such as lead, nickel, and cobalt, and numerous other elements will increase and potentially lead to additional mining activities in the United States. “The DEIA does not discuss the health or environmental risks associated with lead mining. Lead is a dangerous neurotoxin that causes a plethora of harms, including grave neurological disorders, and lead is especially dangerous to children who are inadvertently exposed. If CARB posits that increased demand for lead acid batteries will lead to additional lead mining activities, then the DEIA must analyze the magnitude of potential health harms miners will face as a result of the ZEF Regulation. “CARB also posits that the ZEF Regulation could result in additional mining of cobalt, nickel, manganese, chromium, zinc, and aluminum.” Cobalt, nickel, manganese, zinc, and aluminum can be toxic to humans. The DEIA does not discuss the health or environmental risks associated with mining these elements, and therefore its analysis is incomplete.”

Response: The commenter claims the Draft EIA “does not discuss the health or environmental risks associated with lead mining.” This is incorrect. The Draft EIA addresses potential impacts from lead mining throughout the resource area impact subsections; see Draft EIA sections IV(B)(1)-(20). The commenter also claims that the Draft EIA does not

discuss the health or environmental risks associated with mining cobalt, nickel, manganese, chromium, zinc and aluminum. This is also incorrect; the Draft EIA addresses other minerals throughout the EIA as part of the overall mining-related compliance responses, noting throughout the resource area discussions that the Proposed Regulation could incrementally increase mining and imports of lithium, cobalt, and other minerals.⁵⁵ CEQA does not require full life-cycle analysis here. It is well established in CEQA that the more indirect an effect is from the action being proposed by the agency, the more general that impact can be analyzed.⁵⁶ CEQA does not require an agency to conduct an exhaustive analysis of all conceivable impacts a project may have in areas outside its geographical boundaries.⁵⁷ Here, the commenter focuses on impacts that are highly indirect, and which involve the extraction and processing of materials that are global commodities, and are sourceable from many different places across the globe.⁵⁸ While the Draft EIA does not engage in speculation regarding specific impacts to specific locations from each of these minerals individually, the Draft EIA properly discloses these potential mineral mining-related impacts at a programmatic level, consistent with the document's nature as a programmatic environmental analysis for a proposed regulatory action regarding forklifts. The commenter also appears to overlook the fact that many of the minerals listed by the commenter are present in conventional vehicles generally (including forklifts), which continue to be manufactured today and are part of the environmental baseline. Section IV(B)(9) of the Draft EIA appropriately analyzes impacts related to hazards and hazardous materials as they relate to mineral mining as a compliance response of the Proposed Regulation. Implementation of Mitigation Measure 9-1 by the appropriate agency with jurisdiction to implement it would address these impacts, but impacts would remain significant and unavoidable, particularly since CARB lacks the general land use authority to ensure this measure is implemented. Furthermore, Section IV(B)(12) analyzes impacts related to mineral resources. In Impact 12-1 CARB acknowledges that an increase in demand for batteries and fuel cells could result in the mining of rare earth metals critical to battery technology, among other resources, and exports from source countries or other states. CARB recognizes that existing battery technology may contain a menu of various semi-precious metals, minerals, and other mined resources, including lithium, graphite, cobalt, nickel, copper, manganese, chromium, zinc, platinum, and aluminum, as many electric vehicle batteries and fuel cells contain these notable metals.

See Response to Comment LATE-13 regarding the timing of mining and Response to Comment LATE-5 regarding the scope of the programmatic analysis and the evaluation of speculative impacts.

⁵⁵ See Draft EIA sections IV(B)(1)-(20).

⁵⁶ *Save the Plastic Bag Coal. v. City of Manhattan Beach* (2011) 52 Cal. 4th 155, 173-174.

⁵⁷ See *Save the Plastic Bag Coal.*, *supra*, at 173.

⁵⁸ See Draft EIA Section IV(B)(12), including Tables 6 through 14, discussing the many different countries the various minerals may be sourced from.

LATE-17: The comment states, “Additionally, to the extent that the DEIA discusses risks associated with the disposal of batteries and fuel cells, it states that: “any increased rates of disposal of batteries and hydrogen fuel cells would need to comply with California law, including but not limited to California’s Hazardous Waste Control Law and implementing regulations. Compliance with the appropriate federal and State laws governing the handling of potentially hazardous materials would be sufficient to minimize the risks from batteries and fuel cells because they ensure adequate handling and disposal safeguards to address these risks.” “This conclusory statement does not satisfy CEQA’s requirement that CARB perform a comprehensive environmental analysis capable of informing the public and decisionmakers of the impacts associated with the proposed regulation. Rather, CARB should attempt to define the scope and magnitude of these impacts, based on publicly available data (as provided in the Andrew Chang & Co. Report or based on CARB’s institutional knowledge or that of other agencies and experts regarding the frequency of such accidents involving hazardous materials), to inform stakeholders of the risks imposed by the ZEF Regulation when forklift operators statewide must regularly handle and dispose of potentially harmful chemicals and minerals.”

Response: Section IV(B)(9) of the Draft EIA analyzes impacts related to hazards and hazardous materials. As stated in the Draft EIA, an increase in demand for lithium-ion batteries could result in increased recycling, refurbishment, or disposal of lithium-ion batteries. However, the level of detail of impact analysis is necessarily and appropriately general because the Proposed Regulation is programmatic. Decisions by the regulated entities regarding compliance options and the precise locations of the many components covered in the Proposed Regulation are unknown. Furthermore, predicting decisions by entities regarding the specific location and design of infrastructure made in response to the implementation of the Proposed Regulation would be speculative (if not impossible) at this early stage, given the influence of other business and market considerations in those decisions. Specific actions undertaken to implement the Proposed Regulation would undergo project-level environmental review and compliance processes as required at the time they are proposed. The Draft EIA generally does not analyze site-specific impacts when determinations regarding changes in the location of future facilities or other infrastructure would be speculative. Compliance with the appropriate federal and state laws governing the handling of potentially hazardous materials would be sufficient to minimize the risks from lithium-ion batteries because they ensure adequate handling and disposal safeguards to address these risks. Additionally, implementation of Mitigation Measure 9-1 by the appropriate agency with jurisdiction to implement it would address these impacts, but impacts would remain significant and unavoidable, particularly since CARB lacks the general land use authority to ensure this measure is implemented.

LATE-18: The comment states, “Scrapped or Salvaged Forklifts” “In a boilerplate response that is repeated throughout the DEIA, CARB states that “[d]isposal of LSI forklifts would increase sales out of state, scrapping, salvage, recycling, and disposal of hazardous materials, including components, engine oil, filters, exhaust catalysts, and other accessories.” “Despite

the fact that CARB repeats this statement in the context of nearly every environmental impact discussed in the DEIA, it makes no effort to parse these various possible outcomes or quantify or otherwise analyze the environmental impacts that will result. It is thus impossible for the public or decisionmakers to understand the full scope of environmental impacts related to the ZEF Regulation. One could certainly logically assume that the mandatory phasing out of forklifts will lead to increased quantities of scrapped or salvaged forklifts. This conclusion does not constitute the environmental analysis that CEQA demands. Rather, CARB must engage in an evidence-based inquiry into the scope and magnitude of the environmental impacts that will result. “Even if CARB’s low estimate that only 95,000 forklifts will be impacted were true – a questionable premise in itself – California law demands that CARB analyze the impacts related to scrapping, salvaging or otherwise dealing with up to 95,000 forklifts.”

Response: As stated in the Draft EIA, phasing out forklifts could lead to increased quantities of scrapped or salvaged forklifts. CARB notes that any forklift will eventually reach the end of its useful life, and therefore recycling and scrappage-related impacts are present for conventional forklifts under existing conditions as well. However, the level of detail of impact analysis is necessarily and appropriately general because the Proposed Regulation is programmatic. Decisions by the regulated entities regarding compliance options and the precise locations of the many components covered in the Proposed Regulation are unknown. Furthermore, predicting decisions by entities regarding the specific location and design of infrastructure made in response to the implementation of the Proposed Regulation would be speculative (if not impossible) at this early stage, given the influence of other business and market considerations in those decisions. Specific actions undertaken to implement the Proposed Regulation would undergo project-level environmental review and compliance processes as required at the time they are proposed. The Draft EIA generally does not analyze site-specific impacts when determinations regarding changes in the location of future facilities or other infrastructure would be speculative. Therefore, no further analysis or response is required. See also Response to Comment LATE-2 related to forklift population.

LATE-19: The comment states, “End-of-Life Emissions The DEIA discusses the environmental impacts associated with zero-emission forklift production and operation, but provides mere conclusory statements where it discusses end-of-life impacts associated with decommissioning such forklifts. For example, the DEIA states that “[d]epending on project size, the generation of construction emissions is inherently short term when compared to operational emissions, which continue to be emitted until a project or facility has been decommissioned . . . [d]espite 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.” “This statement does not address, much less constitute a comprehensive analysis of the environmental impacts associated with the forklift decommissioning process. Rather, CARB must examine the specific processes likely to be employed during the decommissioning phase of a forklift’s lifecycle and apply reputable scientific methods to produce an estimation

of the magnitude of such impacts. The decommissioning process could potentially impact air quality, GHG emissions, hazardous material exposure, geology and soils, water quality, and energy resources, to name a few potential impacts. CARB must analyze this aspect of the ZEF Regulation more closely to apprise the public and decisionmakers of the consequences of CARB's proposed regulation."

Response: The quote included in the comment is a statement that provides the framework for the GHG analysis and was taken out of context. The purpose of the statement was to document that numerous studies have shown that emissions reduction benefits of electrifying vehicles even taking into account all "life-cycle" type impacts results in real air pollution and GHG reduction benefits. In fact, the GHG analysis provides well-to-tank emissions and tank-to-wheel emissions to demonstrate the full cycle of GHG emissions reductions associated with the Proposed Regulation. The commentor does not provide specific comments as to the purported impacts from decommissioning, but rather opines on the potential impacts that could occur in a general sense while claiming more analysis is required. CEQA does not require full life-cycle analyses regarding all project phases. (See Response to Comment LATE-16, above.) Therefore, no further analysis or response is required.