California Air Resources Board

# Public Hearing to Consider Proposed Zero-Emission Forklift Regulation and Associated Amendments

# Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Response

Public Hearing Date: June 27, 2024 Agenda Item No.: [24-3-2]

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### List of Acronyms and Abbreviations

AB 32 – Nunez, Statutes of 2006, Chapter 488 AB 197 - Garcia, Statutes of 2016, Chapter 250 AB 841 – Ting, Statutes of 2020, Chapter 372 **ACF** -Advanced Clean Fleets **APA - Administrative Procedures Act** CAA - Clean Air Act CAISO - California Independent System Operator CARB - California Air Resources Board CCR - California Code of Regulations CEC – California Energy Commission CEQA - California Environmental Quality Act CI – carbon intensity CO2 - carbon dioxide **CORE - Clean Off-Road Equipment Vouchers** CPUC – California Public Utilities Commission DOORS - CARB's reporting tool for Off-Road Regulations EA - Environmental Analysis EIA - U.S. Energy Information Administration **EIN - Equipment Identification Number** EPA - U.S. Environmental Protection Agency EO - Executive Order **EV - Electric Vehicle** FARMER - The Funding Agricultural Replacement Measures for Emission Reductions FSOR - Final Statement of Reason GO-Biz – Governor's Office of Business and Economic Development GHG - greenhouse gases GWh - gigawatt hours

- ICE internal combustion engine
- ITA Industrial Truck Association

IOU - investor-owned utility

#### ISOR or Staff Report - Initial Statement of Reasons

kW - kilowatt

- kWh kilowatt-hour
- LCFS Low Carbon Fuel Standard
- LSI Large Spark-Ignition
- MMT million metric tons
- MY model year
- NAAQS National Ambient Air Quality Standards
- NOx oxides of nitrogen
- OSHA Occupational Safety and Health Administration
- PG&E Pacific Gas and Electric
- PM particulate matter
- PM2.5 particulate matter less than or equal to 2.5 micrometers
- REMI Regional Economic Model, Inc.
- ROG reactive organic gases
- RPS renewable portfolio standard
- SIP State Implementation Plan
- SCE Southern California Edison
- SRIA Standardized Regulatory Impact Assessment
- TRU transport refrigeration unit
- US United States
- WTT Well-to-Tank
- WTW Well- to-Wheel
- ZE zero-emission
- ZEF zero-emission forklift

ZEF 15-Day Notice or 15-Day Changes – Notice of Public Availability of Modified Text and Availability of Additional Documents and Information, Proposed Zero-Emission Forklift Regulation

### I. General

The Staff Report: Initial Statement of Reasons (ISOR) for Rulemaking (Staff Report), entitled "Public Hearing to Consider the Proposed Zero-Emission Forklift Regulation" (Public Hearing Notice), released November 7, 2023, is incorporated by reference herein. The staff report contained a description of the rationale for the proposed amendments. On November 7, 2023, all references relied upon and identified in the staff report were made available to the public. The Staff Report contains a detailed description of the problem the Proposed Regulation is intended to address; a snapshot of the existing California forklift fleet, zero-emission forklift (ZEF) options currently available, emissions analysis, health exposure and benefits analysis, cost and cost benefits analysis, environmental analysis (EA), fiscal analysis, alternatives assessment, and the purpose and rationale for the Proposed Regulation.

As described in the Staff Report, the Proposed Regulation is critical to meeting California's State and federal air quality standards, protecting public health, and achieving the State's climate goals. The Proposed Regulation aims to further curb criteria, toxic, and greenhouse gas (GHG) emissions from Large Spark-Ignition (LSI) engine powered forklifts. Given the state of ZEF technology, phased-out LSI forklifts are likely to be replaced with zero-emission technology (i.e., battery-electric, fuel cell-electric, or other zero-emission technology as the only source of power for propulsion and work). Certain types of forklifts, such as rough-terrain forklifts and diesel forklifts, would not be addressed by the Proposed Regulation. About half of the forklift population in California already uses zero-emission technology largely due to advantages that zero-emission technology can provide, such as reduced indoor air pollution and lower operating costs. The Proposed Regulation would target most existing LSI forklifts for use of zero-emission technology.

The Proposed Regulation is the result of an extensive public process. The ZEF measure was identified first in the 2016 Mobile Source Strategy. The Proposed Regulation has been identified in the 2022 State Strategy for the State Implementation Plan (SIP), the 2020 Mobile Source Strategy, and the Sustainable Freight Action Plan as one of several measures necessary for California to achieve its established air-guality and climate goals. In October 2023, California Air Resources Board (CARB) staff began informing the public of the initial concept of the Proposed Regulation and development process. Over the past almost 4 years of regulation development, staff hosted 5 public workgroups and workshops. CARB staff reached out directly to affected stakeholders and conducted numerous meetings with many groups and individuals. CARB staff also sent more than 470,000 mailers and numerous emails to over 70,000 recipients from email distribution lists. CARB staff offered engagement opportunities to receive feedback and solicited alternatives from a variety of groups and stakeholders, including manufacturers, dealers, rental companies, large fleet owners, operators, environmental advocacy organizations and the public. Through this public process, staff considered all stakeholder feedback and integrated many stakeholder's concepts into the Regulation.

On November 10, 2023, CARB opened a 45-day public comment period in the Public Hearing Notice. The public comment period ended on December 26, 2023. CARB received 337 written comments during the 45-day comment period. In response to the comments received, CARB made changes to the Proposed Regulation. Staff's proposed changes and supporting documents, including 98 additional references, were made available for a 15-day comment period through a "Notice of Public Availability of Modified Text and Availability of Additional Documents and Information" (15-Day Notice). The 15-Day Notice and modified regulatory language were posted on May 21, 2024, for public review and comment through June 5, 2024.

During the comment period, the Board received 16 additional written comments. Staff received and responded to the comments and determined that no further changes to the Regulatory Order were necessary.

On June 27, 2024, CARB or Board conducted a public hearing to consider the Proposed Regulation. The Board received 41 written comments during the hearing and heard oral testimony from 3 stakeholders at the hearing. At the conclusion of the hearing, the Board unanimously approved Resolution 24-8 for adoption of the Proposed Regulation with an addition to the Resolution. This addition is as follows: "Be it further resolved that the Board directs the Executive Officer to evaluate the effectiveness of implementation of the rule and report back to the Board by 2028, either in writing or with a presentation at a Board meeting and propose any adjustments in the compliance schedule as necessary."

This Final Statement of Reasons (FSOR) updates the Staff Report by identifying and providing the rationale for the modifications made to the originally proposed regulatory text, including non-substantive modifications, and regulatory text circulated for public comment during the 15-day comment period. The FSOR also contains a summary of the comments received by CARB on the Proposed Amendments during the formal rulemaking process and CARB's responses to those comments.

### A. Mandates and Fiscal Impacts to Local Governments and School Districts

The Board has determined that this regulatory action will result in a mandate to local agencies and school districts. However, the Board finds that that these costs are not reimbursable pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code, because this action neither compels local agencies to provide new governmental functions (i.e., it does not require such agencies to provide additional services to the public), nor imposes requirements that apply only to local agencies or school districts. Instead, this regulatory action establishes requirements that apply to all individuals and entities that own or operate regulated vehicles and facilities. This action does not compel local agencies to increase the actual level or quality of services that they already provide to the public. For the foregoing reasons, any costs incurred by local agencies to comply with this regulatory action are not reimbursable.

### **B.** Consideration of Alternatives

Government Code section 11346.2, subdivision (b)(4) requires CARB to consider and evaluate reasonable alternatives to the proposed regulatory action and provide reasons for rejecting those alternatives. During the development process of the Regulation, CARB solicited public input regarding alternatives to achieving the Regulation's goals. CARB requested input on alternatives in multiple public workshops since October 2020. Staff evaluated several alternatives to the proposal, including suggestions from both public and industry stakeholders. CARB identified and evaluated several alternatives based on stakeholder comments, which are described in further detail in the Staff Report, along with two alternatives selected for formal evaluation.

The two alternatives selected for formal evaluation include: (1) Accelerated zero-emission technology (Alternative 1); and (2) Reduced Lift-Capacity Threshold (Alternative 2). The Board

did not identify any reasonable alternatives that would lessen any adverse impact on small business.

For the reasons set forth in the Staff Report, in staff's comments and responses at the hearing, and in this FSOR, the Board determined that no alternative considered by the agency would be more effective in carrying out the purpose for which the regulatory action was proposed, or would be as effective and less burdensome to affected private persons, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law than the action taken by the Board.

### 1. Small Business Alternative

The Board has not identified any reasonable alternatives that would lessen any adverse impact on small business. However, the Regulation includes special less stringent requirements for small fleets. For example, it provides an alternative slower phase-out schedule to accommodate the needs of small fleets (which are assumed likely to be owned by smaller businesses). It also allows microbusinesses to keep one low-use forklift indefinitely (for all other fleets the low-use exemption would be sunset on December 3, 2030).

### 2. Alternative 1: Accelerated Phase-out – More Stringent Alternative

Alternative 1 would accelerate the phase-out of both Targeted Class IV Forklifts and Targeted Class V Forklifts. This alternative would adjust the model year (MY) phase-out schedules so that both Targeted Class IV and Class V Forklifts would be phased out between 2028 and 2032. Like the Regulation, Targeted Class IV Forklifts with a lift capacity greater than 12,000 pounds would be phased out on the final compliance deadline of the applicable phase out schedule, which under this alternative would be January 1, 2032. All other requirements for Alternative 1 would remain the same as the current Proposed Regulation, including recordkeeping, reporting, labeling, and exemptions.

As described in the Staff Report, Alternative 1 would achieve greater emission benefits and greater cumulative net savings due to the accelerated turnover of Targeted Class IV and Class V Forklifts to ZEFs. However, CARB rejected this alternative for the following reasons:

- The turnover rate of Targeted Forklifts under Alternative 1 would create a significantly greater cost burden for fleets during the first five years of the regulation. While using ZEF is expected to result in cost savings over time, the upfront cost of Alternative 1 could be too challenging to overcome for fleets that are more constrained with respect to available capital.
- The turnover rate of Alternative 1 could also pose a challenge for manufacturers to build enough ZEF products in the proposed timeframe.
- Currently manufacturer supply chain delays are responsible for forklift delivery delays of an additional one to one-and-a-half years, relative to pre-pandemic delivery timelines. The anticipated growth in demand for certain components used in ZEFs could exacerbate delays in manufacturing and supply chain disruptions, which could further impact delivery dates of ZEFs.
- Alternative 1 could result in higher prices and price spiking of ZEFs due to higher demand in a compressed period and need for manufacturers to follow nontraditional and more-costly production methods to meet demand.
- Alternative 1 puts more pressure on the infrastructure build-out needed to support the rapid conversion to electric vehicles (EV), both on- and off-road, and leaves little margin

for error for electricity generation and distribution planning and development. Alternative 1 could significantly increase the upfront cost of infrastructure improvements due to increased demand for electrical contractors, infrastructure components, and other related services. Coupled with the anticipated higher cost of the ZEFs, themselves, the financial burden that Alternative 1 could impose on California businesses, and small businesses could substantially impair their profitability and competitiveness.

# 3. Alternative 2: Reduced Lift-Capacity Threshold – Less Stringent Alternative

Alternative 2 (less stringent) would only apply to Targeted Class IV and Class V Forklifts with a lift capacity of 8,000 pounds or less, therefore would not require the phase-out of Targeted Class IV and Class V Forklifts with a lift capacity greater than 8,000 pounds. The phase-out schedules for Alternative 2 would be the same as those in the Proposed Regulation for both forklift classes. All other requirements and provisions in the Regulation, including reporting, recordkeeping, labeling, and exemptions, would apply. The more limited scope of Alternative 2 would reduce the number of Class IV and Class V forklifts that would need to be phased out and replaced with ZEFs over the regulatory timeframe.

As described in the Staff Report, Alternative 2 would result in lower upfront costs, however it would also result in lower emission reductions and health benefits than the Regulation. Alternative 2 was rejected because it would not be as effective as the Regulation at improving air quality and protecting public health, combating climate change, and accelerating the adoption of ZE technology, specifically:

- Alternative 2 would result in less emission reductions of oxides of nitrogen (NOx), particulate matter 2.5 (PM2.5), reactive organic gases (ROG), and carbon dioxide (CO2). Although CARB's 2016 SIP commitment for ROG reductions of 0.2 tons per day (tpd) by 2031 would be met through Alternative 2, the commitment for NOx reductions of 2 tpd by 2031 would not be met. Alternative 2 would obtain only 0.81 tpd NOx by 2031.
- Alternative 2 would deploy fewer ZEFs. The deployment of ZE vehicles and equipment is a key component of California's long-term strategy to meet its aggressive air quality, climate, and ZE goals.

### **II. Modifications Made to the Original Proposal**

### A. Modifications Approved at the Board Hearing and Provided for in the 15-Day Comment Period

The following section provides a high-level summary of the most significant modifications made to the original proposal in response to stakeholder concerns. The summary of changes does not include any definitions, edits made for clarity or those used to restructure. For more detailed information on each change and their purpose and rationale, see the Regulation 15-Day Notice on CARB's website: *https://ww2.arb.ca.gov/rulemaking/2023/zeforkliftsregulation* 

Changes to the Regulation include

• A change of title from "Zero-Emission Forklift Fleet Requirements Regulation" to "Zero-Emission Forklift Regulation" for the title of the Proposed Regulation to be consistent with the other rulemaking documents included in the rulemaking package and to reflect that the regulation includes requirements not just for fleets but also for dealers, rental agencies, and manufacturers.

- Removal of the zero-emission (ZE) standard that had been added to Section 2433, Emission Standards and Test Procedures – Off-Road Large Spark Ignition Engines. Inclusion of a ZE standard would have inadvertently triggered certification requirements for ZEFs, which were not intended. ZEFs have been used successfully for decades and certification would not provide significant tangible benefits to the forklift consumer at this time.
- Exclusions to the requirement that starting January 1, 2026, LSI forklift manufacturers cannot produce for sale or offer for sale a Class IV LSI forklift in California, and starting January 1, 2029, cannot produce for sale or offer for sale a Class V LSI forklift with a rated capacity of 12,000 pounds or less. The exclusions are addressed in section 3005(c) and include forklifts operated: as Dedicated Emergency forklifts; solely on San Nicolas and San Clemente Islands; as In-Field Forklifts; or as replacements to forklifts covered by Operational Extensions or Infrastructure Site Electrification Delay Extensions.
- Changes and additions to definitions in section 3001 to improve specificity and clarity and to incorporate an exemption of In-Field Forklifts which is set forth in section 3007(a)(6).
- Addition of "sell-through" provisions, requested by several stakeholders, allowing Dealers to sell 2025 MY LSI Forklifts until the end of 2026 so that such Dealers would be able to clear inventory remaining at the end of 2025.
- Addition of a new section 3002(a)(6) to exclude the acquisition of LSI Forklifts from the restriction set forth in section 3002(a) if the Fleet Operator has qualified for an Operational Extension or an Infrastructure Site Electrification Delay Extension and is replacing an existing LSI forklift covered by such extension. Also note that throughout the Proposed Regulation, the term, "Operational Extension" is replacing the term "Technical Infeasibility Extension," as it more accurately characterizes the extension.
- Addition of a new section 3006(e) and its subordinate sections to establish phase-out percentage caps intended to help ease the compliance burden for older fleets. This would address concerns from numerous commenters that such fleets could be required to phase out nearly all their forklifts by their first compliance date.
- Deletion of Section 3007(a)(1)(B) to address stakeholder comment that fleets should not be required to acquire a forklift of a specific MY only to operate it as a low-use forklift. This change is being made because the intent of the Proposed Regulation is to allow fleets to use forklifts they phase out as low-use forklifts, not acquire additional forklifts for that purpose.
- Removal from section 3007(a)(3)(B), of the text, "work attachments, such as the forks," from the phased-out forklift tagout requirements, reducing the tagout burden in response to stakeholder comments.
- Addition of new sections 3007(a)(6)(B), 3007(a)(6)(B)1., 3007(a)(6)(B)2., 3007(a)(6)(B)3., and 3007(a)(6)(B)4. to set forth the requirements for monitoring hours of use of an In-Field Forklift. These requirements are necessary so that it would be possible to verify that forklifts designated as In-Field Forklifts operated as In-Field Forklifts pursuant to the Proposed Regulation. The monitoring requirements are analogous to the monitoring requirements set forth for Dedicated Emergency Forklifts.
- Modification throughout the Proposed Regulation of the term "Phase-Out Extension" to the more general term "Extension," because the term "Phase-Out" no longer accurately identifies all extensions.

- Addition to Section 3007(b)(3)(A)1.a. of the four additional scenarios under which a Fleet Operator could qualify for an Infrastructure Construction Delay Extension.
- The first scenario is when the delivery of necessary building materials has been delayed, and the delays are beyond the Fleet Operator's control.
- The second scenario is when a Fleet Operator faces\_delays in construction of ZEF-related storage or shelter other than a delay in the delivery of necessary building materials, and the delays are beyond the Fleet Operator's control.
- The third scenario is when a Fleet Operator faces delays in obtaining a permit, and the delays are beyond the Fleet Operator's control.
- The fourth scenario is when a Fleet Operator is a tenant and is experiencing issues with obtaining landlord approval for the installation of the infrastructure upgrades necessary to charge or fuel ZEFs.
- Addition in section 3007(b)(4), of text to allow an Operational Extension to be used to allow the replacement of a qualifying LSI forklift with another LSI forklift, even if the replacement is years in advance of the upcoming compliance date. A 2026 MY or newer replacement LSI forklift would be allowed even though the regulation generally prohibits possession, sale, and use of LSI forklifts of MY 2026 and newer. It is necessary to allow fleets to obtain replacement LSI forklifts in such situations, because, if an Operational Extension applies, there is no commercially available ZEF model that can meet the needs of an operation. This change is needed due to the broadening of the Operational Extension to allow replacement LSI forklifts years in advance of the applicable compliance date.
- Clarification in section 3007(b)(4)(E) that if an Operational Extension expires or is denied, the fleet has 180 days to get into compliance and would be allowed to apply for an Infrastructure Construction Delay Extension, Infrastructure Site Electrification Delay Extension, or ZEF Delivery Delay Extension, if needed.
- Addition of section 3007(b)(5) and subordinate sections to allow for the sale of LSI forklifts to Fleet Operators that are replacing existing LSI forklifts included in an Operational Extension or an Infrastructure Site Electrification Delay Extension. This change is necessary to allow Fleet Operators to continue operations should an LSI Forklift included in an Operational or Infrastructure Site Electrification Delay Extension become inoperable or impractical to operate.
- Modification of section 3011(a) to reflect removal of the prohibition on acquisition of a Diesel Forklift as a replacement for a Class IV LSI Forklift or a Class V Forklift of a Rated Capacity up to 12,000 pounds. The prohibition was removed since Diesel Forklifts are already regulated under the In-Use Off-Road Diesel-Fueled Fleets Regulation, and bifurcating the provisions for Diesel Forklifts between two regulations could cause confusion. Instead, text has been added to require that when a Diesel Forklift is acquired on or after January 1, 2026, the Fleet Operator or Rental Agency needs to report whether the Forklift is doing work previously performed by a Class IV LSI Forklift of any Rated Capacity or a Class V LSI Forklift of a Rated Capacity of 12,000 pounds or less that has been phased out of the Fleet.

### **B. Non-substantial Modifications**

Subsequent to the 15-day public comment period mentioned above, staff identified the following additional non-substantive changes to the regulation:

### 1. Modifications to Initial Statement of Reasons

#### a) Executive Summary, B. What will the benefits of the Proposed Regulation be?

Replaced "2038" with "2043". This change was made to correct a typographic error.

### 2. Modifications to Zero-Emission Forklift Regulation

### a) Section 3006(g)

Replaced references to sections 3005(f)(1) and 3005(f)(3) with correct references to sections 3006(g)(1) and 3006(g)(3), respectively. These changes were made to correct typographic errors.

### b) Section 3006(g)(4)(A)

Replaced references to sections 3006(f)(3) and 3006(f)(1) with correct references to sections 3006(g)(3) and 3006(g)(1), respectively. These changes were made to correct typographic errors.

#### c) Section 3007(a)(1)(D)5.c

Replaced the reference to section 3007(a)(1)(C) with the correct reference to section 3007(a)(1)(B). This change was made to correct a typographic error.

### d) Section 3007(b)(3)(A)4.c

Added a "d" to "provide" such that the sentence is corrected to, "Documentation showing the delay is a result of any of the circumstances provided in Section 3007(b)(3)(A)1.a." This change was made to correct a grammatical error.

### e) Section 3007(b)(3)(B)1.a

Replaced the reference to section 3006(b)(3)(B)1.a.iii with the correct reference to section 3007(b)(3)(B)1.a.iii. This change was made to correct a typographic error.

The above-described modifications constitute non-substantial changes to the regulatory text because they more accurately reflect the numbering of a section and correct spelling and grammatical and section reference errors, but do not materially alter the requirements or conditions of the proposed rulemaking action.

### **III. Documents Incorporated by Reference**

The Regulation adopted by the Board incorporates by reference the following documents:

American National Standard Institute, "Safety Standard for Rough Terrain Forklift Trucks", 2021, ANSI B56.6-2021, incorporated by reference in California Code of Regulations (CCR), title 13, section 3000.

American National Standard Institute, "Safety Standard for Vehicle Mounted Forklifts", 2020, ANSI B56.14-2020, incorporated by refence in CCR, title 13, section 3000.

Title 29, Code of Federal Regulations, Part 1910.147(b), last amended on July 25, 2011, incorporated by reference in CCR title 13, section 3000.

These documents were incorporated by reference because it would be cumbersome, unduly expensive, and otherwise impractical to publish them in the CCR. In addition, some of the documents are copyrighted, and cannot be reprinted or distributed without violating the licensing agreements. The documents are lengthy and highly technical test methods and engineering documents that would add unnecessary additional volume to the regulation. Distribution to all recipients of the CCR is not needed because the interested audience for these documents is limited to the technical staff at a portion of reporting facilities, most of whom are already familiar with these methods and documents. Also, the incorporated documents were made available by CARB upon request during the rulemaking action and will continue to be available in the future. The documents are also available from college and public libraries or may be purchased directly from the publishers.

### **IV. Summary of Comments and Agency Response**

Written comments were received during the 45-day comment period from November 10, 2023, through December 26, 2023, in response to the public hearing notice. Written comments were received during the 15-day comment period from May 21, 2024, through June 5, 2024, in response to the 15-day notice. Written and oral comments were presented at the June 27, 2024, Board Hearing. Written comments submitted during comment periods can be viewed at this webpage,

*https://www.arb.ca.gov/lispub/comm/iframe\_bccommlog.php?listname=zeforklifts*. Oral comments can be found at the Board Hearing webcast archive available in English and Spanish at this webpage, *https://cal-span.org/*.

Table IV-1 shows the comment period code for each of the comment periods along with a description.

Comment Period Code	Comment Period Description
45d	Original (45-day) Proposal
15d	Written comments submitted during the 15-day comment period
ОТ	Oral Testimony Comments at the Board Hearing
WT	Written comments submitted at the Board Hearing

Table IV-1	. Comment	Period	Code	and	<b>Description.</b>
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The Comment Code comprises of a sequential number and a Comment Period Code. The sequential number refers to the order by which CARB received them during the comment period. The Comment Period Code refers to when the comment was submitted during the regulatory process. Comment Codes are shown below comments and comment summaries and above agency responses in Chapter IV.

The following tables can be used as a key to relate comment codes to the organizations and individuals who submitted them as well as any abbreviations used to refer to an organization.

Comment Code	Commenter's Name	Affiliation	Date Submitted
001-45d	Ray Galan	Ferrell Gas	12/18/2023
002-45d	Ted Olsen	Ferrell Gas	12/18/2023
003-45d	Todd Peachey	Ferrell Gas	12/18/2023
004-45d	Jeff Sticlaru	Ferrell Gas	12/18/2023
005-45d	Drew Hensler	Ferrell Gas	12/18/2023
006-45d	Reginald Caldwell	Ferrell Gas	12/18/2023
007-45d	Robert Lagge	Ferrell Gas	12/18/2023
008-45d	Julie Johnson	Ted Johnson Propane	12/18/2023
009-45d	Lora Brazil	Ferrell Gas	12/18/2023
010-45d	Bryan Heath	Ferrell Gas	12/18/2023
012-45d	Bob Shepherd	California Caterpillar Dealers	12/18/2023
013-45d	Tom Boerum	Mutual Liquid and Gas and Equipment	12/18/2023
014-45d	Geoff Moore	Mutual Liquid and Gas and Equipment	12/18/2023
015-45d	Jennifer Bush	Ferrell Gas	12/18/2023
016-45d	Michael Huber	Department of Defense (DOD)	12/18/2023
017-45d	Jordan Horn	Ferrell Gas	12/19/2023
018-45d	Chirstopher Kenzell	Ferrell Gas	12/19/2023
019-45d	Jose Rodriguez	Individual	12/19/2023
020-45d	Steve Malonado	Individual	12/19/2023
021-45d	Pena Salvador	Individual	12/19/2023
022-45d	Chris Hall	Individual	12/19/2023
023-45d	Cassie Cesena	Individual	12/19/2023
024-45d	Skyler Castro	Individual	12/19/2023
025-45d	Bryce Wheatley	Individual	12/19/2023
026-45d	Eddie Chen	Individual	12/19/2023
027-45d	Zuzel Vasquez	Individual	12/19/2023
028-45d	Sandro Solorzano	Individual	12/19/2023
029-45d	Scott Carr	Individual	12/19/2023

### Table IV-2. Written Comments Received During the 45-Day Comment Period

Comment Code	Commenter's Name	Affiliation	Date Submitted
030-45d	Ramon Diaz	Individual	12/19/2023
031-45d	Laura Sample	Individual	12/19/2023
032-45d	David Pedersen	Individual	12/20/2023
033-45d	Jose Cardiel	Individual	12/20/2023
034-45d	Michael Biazevich	Individual	12/20/2023
035-45d	Kaz Tsujimotol	Individual	12/20/2023
036-45d	Carolina Chavez	Individual	12/20/2023
037-45d	Juan Del Real	Individual	12/20/2023
038-45d	Javier Alfaro	Individual	12/20/2023
039-45d	Brian Harms	Individual	12/20/2023
040-45d	Arthur Dustin	Individual	12/20/2023
041-45d	Robert Stevens	Individual	12/20/2023
042-45d	Lisa Harris	Individual	12/20/2023
043-45d	Gregg Krekeler	Individual	12/20/2023
044-45d	Richard Rice	Individual	12/20/2023
045-45d	Dan Guerrero	Individual	12/20/2023
046-45d	Donald Harms	Individual	12/20/2023
047-45d	James Probst	Individual	12/20/2023
048-45d	Mark Miedema	Individual	12/20/2023
049-45d	Heidi Strand	Individual	12/20/2023
050-45d	Edward Dart	Individual	12/20/2023
051-45d	Jim Smaaladen	Individual	12/20/2023
052-45d	Johnson Xu	Individual	12/20/2023
053-45d	Robert Mazawey	Individual	12/20/2023
054-45d	Phillip Hernandez	Individual	12/20/2023
055-45d	Sissy Funk	Individual	12/20/2023
056-45d	Melissa Lomenzo	Individual	12/20/2023
057-45d	Louis Smith	Individual	12/20/2023
058-45d	David Hwang	Individual	12/20/2023
059-45d	Bill Borden	Individual	12/20/2023

Comment Code	Commenter's Name	Affiliation	Date Submitted
060-45d	Stephen Coonen	Individual	12/20/2023
061-45d	Eddie Wilson	Individual	12/20/2023
062-45d	Lydia Rutherford	Individual	12/20/2023
063-45d	Rene Tsang	Individual	12/20/2023
064-45d	Den Van	Individual	12/20/2023
065-45d	Todd Greco	Individual	12/20/2023
066-45d	Vinode Nanda	Individual	12/20/2023
067-45d	Manuel Gamboa	Individual	12/20/2023
068-45d	John Simpson	Individual	12/20/2023
069-45d	Dan Chilson	Individual	12/20/2023
070-45d	Ian Price	Individual	12/20/2023
071-45d	Jack Rudolf	Individual	12/20/2023
072-45d	Clayton Manha	Individual	12/20/2023
073-45d	Yvonne Rudolf	Individual	12/20/2023
074-45d	Austin Davidson	Individual	12/20/2023
075-45d	Nancy Coop	Individual	12/20/2023
076-45d	William Platz	Individual	12/20/2023
077-45d	Alexandria Wahaus	Individual	12/20/2023
078-45d	Armando Armando	Individual	12/20/2023
079-45d	Cynthia Belmont	Individual	12/20/2023
080-45d	Tim Gately	Individual	12/20/2023
081-45d	Mariela Ruacho	American Lung Association (ALA)	12/21/2023
082-45d	Robert Spiegel	California Manufacturers & Technology Association (CMTA)	12/21/2023
083-45d	Michael Lewis	Construction Industry Air Quality Coalition (CIAQC)	12/21/2023
084-45d	Kristel Rietesel	Bay Area Clean Air Coalition (BACA)	12/21/2023
085-45d	Paul Rozenberg	Suburban Propane	12/22/2023
086-45d	Michael Quigley	California Alliance for Jobs (CAJ)	12/22/2023

Comment Code	Commenter's Name	Affiliation	Date Submitted
087-45d	Robert Spiegel	California Manufacturers & Technology Association (CMTA)	12/22/2023
088-45d	Gary Cross	Industrial Truck Association (ITA)	12/22/2023
089-45d	Roger Miksad	Battery Council International (BCI)	12/22/2023
090-45d	Tommy Goodwin	Exhibitions & Conferences Alliance (ECA)	12/22/2023
091-45d	Jacquelyne Torreyson	Individual	12/22/2023
092-45d	Shannon McWhorter	Individual	12/22/2023
093-45d	Brendan Gately	Individual	12/22/2023
094-45d	Alejandro Rodriguez	Individual	12/22/2023
095-45d	Allen Earhart	Individual	12/22/2023
096-45d	Brilynn Brilynn	Individual	12/22/2023
097-45d	Christine Wolfe	California Council for Environmental and Economic Balance (CCEEB)	12/21/2023
098-45d	Gary Analian	Individual	12/22/2023
099-45d	Mark Wolfe	Individual	12/22/2023
100-45d	Greg Billington	Individual	12/22/2023
101-45d	Mark Price	Individual	12/22/2023
102-45d	Todd Spicer	Individual	12/22/2023
103-45d	James Angulo	Individual	12/22/2023
104-45d	Danny Martinez	Individual	12/22/2023
105-45d	Merle Edington	Individual	12/22/2023
106-45d	Marty Huerta	Individual	12/22/2023
107-45d	Sean O'Hara	Individual	12/22/2023
108-45d	Chris Everett	Individual	12/22/2023
109-45d	Dennis Runnels	Individual	12/22/2023
110-45d	Michael Hart	Individual	12/22/2023
111-45d	Citrus Porterville	Individual	12/22/2023
112-45d	Jay Stephens	Individual	12/22/2023
113-45d	Dennis Johnston	Individual	12/22/2023

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114-45d	Bailey McQueary	Individual	12/22/2023
115-45d	Ashley Carucci	Individual	12/22/2023
116-45d	Ramon Mejia	Individual	12/22/2023
117-45d	John Ward	Individual	12/22/2023
118-45d	Jose Cardenas	Individual	12/22/2023
119-45d	Jerry Behlen	Individual	12/22/2023
120-45d	Rocky Arguijo	Individual	12/22/2023
121-45d	William Bryan	Individual	12/22/2023
122-45d	Travis Myers	Individual	12/22/2023
123-45d	Jordan Terlouw	Individual	12/22/2023
124-45d	Michael Glasky	Individual	12/22/2023
125-45d	Ben De Boer	Individual	12/22/2023
126-45d	Andy Fellman	Individual	12/22/2023
127-45d	Jesus Esparza	Individual	12/22/2023
128-45d	Danny Justice	Individual	12/22/2023
129-45d	Michael Bauer	Individual	12/22/2023
130-45d	Pat Temples	Individual	12/22/2023
131-45d	Mike MacLaren	Individual	12/22/2023
132-45d	Jordan Leib	Individual	12/22/2023
133-45d	Todd Wright	Individual	12/22/2023
134-45d	Fred Ayala	Individual	12/22/2023
135-45d	Adina Chapman	Individual	12/22/2023
136-45d	Wendy Britto	Individual	12/22/2023
137-45d	Peifang Chang	Individual	12/22/2023
138-45d	James Yundt	Individual	12/22/2023
139-45d	Paula Laney	Individual	12/22/2023
140-45d	Scott Graham	Individual	12/22/2023
141-45d	Travis Dunham	Individual	12/22/2023
142-45d	Laura Hawkinson	Individual	12/22/2023
143-45d	David Stroupe	Individual	12/22/2023

Comment Code	Commenter's Name	Affiliation	Date Submitted
144-45d	Daniel Dixon	Individual	12/22/2023
145-45d	Gena Vasbinder	Individual	12/22/2023
146-45d	Brenda Griffe	Individual	12/22/2023
147-45d	Cathy Adams	Individual	12/22/2023
148-45d	Chris Daly	Individual	12/22/2023
149-45d	Grant Culpan	Individual	12/22/2023
150-45d	Boyd McGathey	Individual	12/22/2023
151-45d	Tom Knauff	Individual	12/22/2023
152-45d	Enrique Silva	Individual	12/22/2023
153-45d	Jorge Rivas	Individual	12/22/2023
154-45d	Veronica Silva	Individual	12/22/2023
155-45d	Fernando Gallegos	Individual	12/22/2023
156-45d	Michael Yates	Individual	12/22/2023
157-45d	Name not provided	Restaurant Van Inc	12/22/2023
158-45d	Steve Glovsky	Individual	12/22/2023
159-45d	Ryan Van Duyn	Individual	12/22/2023
160-45d	Pierluigi Giannini	Individual	12/22/2023
161-45d	Kammui Ng	Individual	12/22/2023
162-45d	Cassandra Bae	Individual	12/22/2023
163-45d	David Vance	Individual	12/22/2023
164-45d	Christina Glasgow	Individual	12/22/2023
165-45d	Michelle Mossman	Individual	12/22/2023
166-45d	Rebecca Hernandez	Individual	12/22/2023
167-45d	David Jones	Individual	12/22/2023
168-45d	William Wilt	Individual	12/22/2023
169-45d	Aaron Nelson	Individual	12/22/2023
170-45d	John Nadolski	Individual	12/22/2023
171-45d	Dalila Parra	Individual	12/22/2023
172-45d	Nicolas Rivera	Individual	12/22/2023
173-45d	Koury Ensley	Individual	12/22/2023

Comment Code	Commenter's Name	Affiliation	Date Submitted
174-45d	Alex Wu	Individual	12/22/2023
175-45d	Daniel Budd	Individual	12/22/2023
176-45d	Thomas Daniels	Individual	12/22/2023
177-45d	Alison Hahm	Trade, Health, and Environment (THE) Impact Project	12/22/2023
178-45d	John Casper	Individual	12/22/2023
179-45d	Kathy Johnson	Individual	12/22/2023
180-45d	Jim Rushing	Individual	12/22/2023
181-45d	Russ Head	Individual	12/22/2023
182-45d	Josh Perceful	Individual	12/22/2023
183-45d	Teri Larson	Individual	12/22/2023
184-45d	Casandra Russo	Individual	12/22/2023
185-45d	Jim Jones	Individual	12/22/2023
186-45d	Mike Senoski	Individual	12/22/2023
187-45d	Eric McNeily	Individual	12/22/2023
188-45d	Chase Frederick	Individual	12/22/2023
189-45d	Kris Osika	Individual	12/22/2023
190-45d	Alan Copenhaver	Individual	12/22/2023
191-45d	Don Wilk	Individual	12/22/2023
192-45d	Fahad Telchi	Individual	12/22/2023
193-45d	Kenya Alexander	Individual	12/22/2023
194-45d	Tanvir Siddiqui	Individual	12/22/2023
195-45d	Josh Gibson	Individual	12/22/2023
196-45d	Brenda Hernandez	Individual	12/22/2023
197-45d	Lynn Curto	Individual	12/22/2023
198-45d	Jennifer Rivas	Individual	12/22/2023
199-45d	Gail Lambert	Individual	12/22/2023
200-45d	Mary Brown	Individual	12/22/2023
201-45d	Mary Seklecki	Individual	12/22/2023
202-45d	Desiree Aranda	Individual	12/22/2023

Comment Code	Commenter's Name	Affiliation	Date Submitted
203-45d	Jarisa Robertson	Individual	12/22/2023
204-45d	Atearia Caldwell	Individual	12/22/2023
205-45d	Dennis Cabayal	Individual	12/22/2023
206-45d	Anthony Jaggers	Individual	12/22/2023
207-45d	Anderw Fahrenbach	Individual	12/22/2023
208-45d	Jeremy Bidwell	Individual	12/22/2023
209-45d	Diana Dominguez	Individual	12/22/2023
210-45d	Dario Dominguez	Individual	12/22/2023
211-45d	Rajiv Jain	Individual	12/22/2023
212-45d	Stephen Evans	Individual	12/22/2023
213-45d	Jeff Silversmith	Individual	12/22/2023
214-45d	Kevin Ahern	Individual	12/22/2023
215-45d	Eric McAlister	Individual	12/22/2023
216-45d	David Spinney	Individual	12/22/2023
217-45d	Paul Dinsdale	Individual	12/22/2023
218-45d	Melissa Newland	Individual	12/22/2023
219-45d	Anthony Pedotto	Individual	12/22/2023
220-45d	Michael Woodside	Individual	12/22/2023
221-45d	Flavio Arce	Individual	12/22/2023
222-45d	Larisa Crittenden	Individual	12/22/2023
223-45d	Patrick Harvey	Individual	12/22/2023
224-45d	Cody Krakowski	Individual	12/22/2023
225-45d	Steve Moore	Individual	12/22/2023
226-45d	Justin Tran	Individual	12/22/2023
227-45d	Dr Wong	Individual	12/22/2023
228-45d	Mark Leitman	Individual	12/22/2023
229-45d	David Murphy	Individual	12/22/2023
230-45d	Felipe Gutierrez	Individual	12/22/2023
231-45d	Yamel Monjaraz	Individual	12/22/2023
232-45d	Armando Silva	Individual	12/22/2023

Comment Code	Commenter's Name	Affiliation	Date Submitted
233-45d	Alex Loyola	Individual	12/22/2023
234-45d	William Hayes	Individual	12/22/2023
235-45d	Sabrina Garcia	Individual	12/22/2023
236-45d	Samuel Wagya	Individual	12/22/2023
237-45d	Eric Van Der Heyden	Individual	12/22/2023
238-45d	Muria Vargas	Individual	12/22/2023
239-45d	Chris Roy	Individual	12/22/2023
240-45d	Steve Wright	Individual	12/22/2023
241-45d	Yvette Garcia	Individual	12/22/2023
242-45d	Teri Lucero	Individual	12/22/2023
243-45d	Gregory Leighton	Individual	12/22/2023
244-45d	Robert Whitley	Individual	12/22/2023
245-45d	Eric Li	Individual	12/22/2023
246-45d	Jeri Fisher	Individual	12/22/2023
247-45d	Thomas Li	Individual	12/22/2023
248-45d	Oliver Fleck	Individual	12/22/2023
249-45d	Roberto Robaina	Individual	12/22/2023
250-45d	Richard Qin	Individual	12/22/2023
251-45d	Christopher Park	Individual	12/22/2023
252-45d	Michael Caprio	Republic Services	12/25/2023
253-45d	Mathew Moravek	McClone Construction	12/25/2023
254-45d	Spencer Adams	Hyster-Yale Group	12/26/2023
255-45d	David Cox	Individual	12/26/2023
256-45d	Shane Guenther	Individual	12/26/2023
257-45d	Gary Cross	Industrial Truck Association (ITA	12/26/2023
258-45d	Roxana Ramirez	Metropolitan Water District of Southern California (MWDSC)	12/26/2023
259-45d	Priscilla Rodriguez	Western Agricultural Processors Association (WAPA)	12/26/2023
260-45d	Dennis Runnels	Windmill Propane	12/26/2023

Comment Code	Commenter's Name	Affiliation	Date Submitted
261-45d	Patrick Temples	Campora Propane	12/26/2023
262-45d	Andy Fellman	Campora Propane	12/26/2023
263-45d	Enrique Silva	Expo Propane and Energy Distribution Partners	12/26/2023
264-45d	Daniel Fisher	Associated Equipment Distributors	12/26/2023
265-45d	Veronica Silva	Expo Propane	12/26/2023
266-45d	Jorge Rivas	Expo Propane	12/26/2023
267-45d	Mary Huerta	Expo Propane	12/26/2023
268-45d	Sean OHara	Expo Propane	12/26/2023
269-45d	Danny Martinez	Expo Propane and Energy Distribution Partners	12/26/2023
270-45d	Merle Edington	Expo Propane and Energy Distribution Partners	12/26/2023
271-45d	Jim Rushing	Expo Propane and Energy Distribution Partners	12/26/2023
272-45d	Jose Cardenas	Expo Propane and Energy Distribution Partners	12/26/2023
273-45d	Chris Daly	Expo Propane and Energy Distribution Partners	12/26/2023
274-45d	Boyd McGathey	Expo Propane and Energy Distribution Partners	12/26/2023
276-45d	Kathy Johnson	Expo Propane and Energy Distribution Partners	12/26/2023
277-45d	John Casper	Expo Propane and Energy Distribution Partners	12/26/2023
278-45d	David Stroupe	Expo Propane and Energy Distribution Partners	12/26/2023
279-45d	Travis Myers	Ebbetts Pass Gas Service	12/26/2023
280-45d	Jerry Behlen	Van Unen Miersma Propane	12/26/2023
281-45d	Cathy Adams	Van Unen Miersma Propane	12/26/2023
282-45d	Dennis Runnels	Sierra Propane	12/26/2023
283-45d	Chris Everett	Fallbrook Propane	12/26/2023
284-45d	Todd Wright	Campora Propane	12/26/2023
285-45d	Mark Price	Campora Propane	12/26/2023
287-45d	Travis Myers	Campora Propane	12/26/2023
288-45d	Jordan Terlouw	Campora Propane	12/26/2023
289-45d	Ben deBoer	Campora Propane	12/26/2026

Comment Code	Commenter's Name	Affiliation	Date Submitted
290-45d	Denny Justice	Campora Propane	12/26/2023
291-45d	Mike Maclaren	Campora Propane	12/26/2023
292-45d	Brenda Griffie	Campora Propane	12/26/2023
293-45d	Jon Switalski	Rebuild SoCal Partnership	12/26/2023
294-45d	Krysta Wanner	Western Propane Gas Association (WPGA)	12/26/2023
295-45d	Walter Chang	Individual	12/26/2023
296-45d	Antonio Montelongo	Individual	12/26/2023
297-45d	Salvador Hernandez	Individual	12/26/2023
298-45d	Donovan Ryan	Individual	12/26/2023
299-45d	Monson Eric	Individual	12/26/2023
300-45d	Eileen Conrique	Individual	12/26/2023
301-45d	Jesse Sevilla	Individual	12/26/2023
302-45d	Michelle Miller	Individual	12/26/2023
303-45d	Nicole Koerner	Individual	12/26/2023
304-45d	Angelina Martinez	Individual	12/26/2023
305-45d	Maytee Cortes	Individual	12/26/2023
306-45d	Edgardo Mendoza	Individual	12/26/2023
307-45d	Brianna Radilla	Individual	12/26/2023
308-45d	Brian Prado	Individual	12/26/2023
309-45d	John Conrique	Individual	12/26/2023
310-45d	Edmund Domingo	Individual	12/26/2023
311-45d	Michelle King	Individual	12/26/2023
312-45d	Arline Ramos	Individual	12/26/2023
313-45d	Jaime Michel	Individual	12/26/2023
314-45d	Efren Lira	Individual	12/26/2023
315-45d	Jose Soto	Individual	12/26/2023
316-45d	Daniel Pla	Individual	12/26/2023
317-45d	Nicolas Sendis	Individual	12/26/2023
318-45d	Aron Gregoire	Individual	12/26/2023

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319-45d	Javier Sotelo	Individual	12/26/2023
320-45d	John Welch	Individual	12/26/2023
321-45d	Jerico Jones	Individual	12/26/2023
322-45d	Gabriel Rodriguez	Individual	12/26/2023
323-45d	Kevin Monson	Individual	12/26/2023
324-45d	Helder Faria	Individual	12/26/2023
325-45d	Bryan Rogers	Individual	12/26/2023
326-45d	Michael Graham	Individual	12/26/2023
327-45d	Julian Gomez	Individual	12/26/2023
328-45d	Victor Zendejas	Individual	12/26/2023
329-45d	Rocco Biafore	Individual	12/26/2023
330-45d	Kirk Hellofs	Individual	12/26/2023
331-45d	Steven Valverde	Individual	12/26/2023
332-45d	Mariah Arredondo	Individual	12/26/2023
333-45d	Veronica Gomez	Individual	12/26/2023
334-45d	Daniel Fisher	Associated Equipment Distributors (AED)	12/26/2023
335-45d	Priscilla Rodriguez	Agricultural Coalition	12/26/2023
336-45d	Christine Zimmerman	Western State Petroleum Association (WSPA)	12/26/2023
337-45d	Yuying Ma	Office of Aviation Planning	12/21/2023

Comment code pairs, 82-45d and 87-45d, and 88-45d and 257-45d, are duplicate submissions. In this chapter, responses to these will be directed towards 87-45d and 257-45d, respectively.

Comment code 335-45d is an updated version of 259-45d. Responses will be directed to 335-45d.

Comment codes 001-45d, 002-45d, 003-45d, 004-45d, 005-45d, 006-45d, 007-45d, 008-45d, 009-45d, 010-45d, 013-45d, 014-45d, 015-45d, 017-45d, 018-45d, 019-45d, 020-45d, 021-45d, 022-45d, 023-45d, 024-45d, 025-45d, 026-45d, 027-45d, 028-45d, 029-45d, 030-45d, 031-45d, 033-45d, 034-45d, 035-45d, 036-45d, 037-45d, 038-45d, 039-45d, 040-45d, 041-45d, 042-45d, 043-45d, 044-45d, 045-45d, 047-45d, 048-45d, 049-45d, 050-45d, 051-45d, 052-45d, 053-45d, 054-45d, 055-45d, 057-45d, 058-45d, 059-45d, 060-45d, 061-45d, 062-45d, 063-45d, 064-45d, 065-45d, 067-45d, 068-45d, 069-45d, 070-45d, 071-45d, 072-45d, 073-45d, 074-45d, 075-45d, 077-45d, 078-45d, 079-45d, 080-45d, 085-45d, 091-45d, 092-45d, 093-45d, 094-45d, 095-45d, 096-45d, 098-45d, 099-45d, 100-45d, 101-45d, 102-45d, 103-45d, 104-45d, 105-45d, 107-45d, 107-45d, 108-45d, 109-45d, 111-45d, 112-45d, 108-45d, 109-45d, 109-45d, 109-45d, 111-45d, 112-45d, 108-45d, 109-45d, 109-45d, 111-45d, 112-45d, 108-45d, 109-45d, 109-45d, 111-45d, 112-45d, 108-45d, 109-45d, 109-45d, 109-45d, 111-45d, 112-45d, 108-45d, 109-45d, 109-45d, 111-45d, 112-45d, 108-45d, 109-45d, 109-45d, 111-45d, 112-45d, 108-45d, 109-45d, 109-45d, 104-45d, 111-45d, 112-45d, 108-45d, 109-45d, 109-45d, 104-45d, 111-45d, 112-45d, 108-45d, 109-45d, 109-45d, 108-45d, 109-45d, 108-45d, 109-45d, 108-45d, 109-45d, 111-45d, 112-45d, 108-45d, 108-45d, 109-45d, 108-45d, 109-45d, 111-45d, 112-45d, 108-45d, 108-45d, 109-45d, 108-45d, 108-45d

113-45d, 114-45d, 115-45d, 116-45d, 117-45d, 118-45d, 119-45d, 120-45d, 121-45d, 122-45d, 123-45d, 124-45d, 125-45d, 126-45d, 127-45d, 128-45d, 129-45d, 130-45d, 131-45d, 132-45d, 133-45d, 134-45d, 135-45d, 136-45d, 137-45d, 138-45d, 139-45d, 140-45d, 141-45d, 142-45d, 143-45d, 144-45d, 145-45d, 146-45d, 147-45d, 148-45d, 149-45d, 150-45d, 151-45d, 152-45d, 153-45d, 154-45d, 155-45d, 156-45d, 157-45d, 158-45d, 159-45d, 160-45d, 161-45d, 162-45d, 163-45d, 164-45d, 165-45d, 166-45d, 167-45d, 168-45d, 169-45d, 170-45d, 171-45d, 172-45d, 173-45d, 174-45d, 175-45d, 176-45d, 178-45d, 179-45d, 180-45d, 181-45d, 182-45d, 183-45d, 184-45d, 185-45d, 186-45d, 187-45d, 188-45d, 189-45d, 190-45d, 191-45d, 192-45d, 193-45d, 194-45d, 195-45d, 196-45d, 197-45d, 198-45d, 199-45d, 200-45d, 201-45d, 202-45d, 203-45d, 204-45d, 205-45d, 206-45d, 207-45d, 208-45d, 209-45d, 210-45d, 211-45d, 212-45d, 213-45d, 214-45d, 215-45d, 216-45d, 217-45d, 218-45d, 219-45d, 220-45d, 221-45d, 222-45d, 223-45d, 224-45d, 225-45d, 226-45d, 227-45d, 228-45d, 229-45d, 230-45d, 231-45d, 232-45d, 233-45d, 234-45d, 235-45d, 236-45d, 237-45d, 238-45d, 239-45d, 240-45d, 241-45d, 242-45d, 243-45d, 244-45d, 245-45d, 246-45d, 247-45d, 248-45d, 249-45d, 250-45d, 251-45d, 255-45d, 256-45d, 260-45d, 261-45d, 262-45d, 263-45d, 264-45d, 265-45d, 266-45d, 267-45d, 268-45d, 269-45d, 270-45d, 271-45d, 272-45d, 273-45d, 274-45d, 276-45d, 277-45d, 278-45d, 279-45d, 280-45d, 281-45d, 282-45d, 283-45d, 284-45d, 285-45d, 287-45d, 288-45d, 289-45d, 290-45d, 291-45d, 292-45d, 295-45d, 296-45d, 297-45d, 298-45d, 299-45d, 300-45d, 301-45d, 302-45d, 303-45d, 304-45d, 305-45d, 306-45d, 307-45d, 308-45d, 309-45d, 310-45d, 311-45d, 312-45d, 313-45d, 314-45d, 315-45d, 316-45d, 317-45d, 318-45d, 319-45d, 320-45d, 321-45d, 322-45d, 323-45d, 324-45d, 325-45d, 326-45d, 327-45d, 328-45d, 329-45d, 330-45d, 331-45d, 332-45d, and 333-45d, all contain identical language in their comment letters. Responses to these comments will be aggregated and addressed as [propane-45d].

Comment Code	Commenter's Name	Affiliation	Date Submitted
001-15d	Mathew Moravek	McClone Construction	5/31/2024
002-15d	Michael Caprio	Republic Services	5/31/2024
003-15d	Bob Shepherd	The California Caterpillar Dealers	6/3/2024
004-15d	Rosalie Barcinas	SoCal Edison (SCE)	6/5/2024
005-15d	Luke Webber	Individual	6/5/2024
006-15d	Robert Spiegel	California Manufacturers & Technology Association (CMTA)	6/5/2024
007-15d	Tommy Goodwin	Exhibitions & Conferences Alliance (ECA)	6/5/2024
008-15d	Alison Hahm	T.H.E. Impact Project & Coalition Allies	6/5/2024
009-15d	James Simonelli	California Metals Coalition (CMC)	6/5/2024
010-15d	Allegra Curiel	California Council for Environmental and Economic Balance (CCEEB)	6/5/2024

011-15d	Priscilla Rodriguez	Agricultural Coalition	6/5/2024
012-15d	Karen Mann	TRC	6/5/2024
013-15d	Jacob Asare	Associated Equipment Distributors (AED)	6/5/2024
014-15d	Michael Lewis	Construction Industry Air Quality Coalition (CIAQC)	6/5/2024
015-15d	Bridget McLeavy	Eastern Municipal Water District	6/11/2024
016-15d	Michael Villanueva	Western Propane Gas Association (WPGA)	6/14/2024

### Table IV-4. Oral Comments Presented During the June 27, 2024, Board Hearing

Comment Code	Commenter's Name	Affiliation
001-OT	Krysta Wanner	Western Propane Gas Association (WPGA)
002-OT	Julie Johnson	Ted Johnson Propane
003-OT	Jim Rushing	Energy Distribution Partners (EDP)
004-OT	Roger Isom	California Cotton Ginner
005-OT	Priscilla Rodriguez	Western Agricultural Processors Association (WAPA)
006-OT	Regina Hsu	Earth Justice
007-OT	Omar Cobian	Westen States Carpenters
008-OT	Dori Chandler	Coalition for Clean Air
009-OT	Ruhama Terada	Nor Cal Carpenters Union
010-OT	Mike Mcarthy	Riverside Neighbors Opposing Warehouses
011-OT	Jennifer Ibold	AmeriGas Propane
012-OT	Marven Norman	Center for Community Action and Environmental Justice (CCAEJ)
013-OT	Phil Comstock	Delta Liquid Energy
014-OT	Manny Leon	California Alliance for Jobs
015-OT	Sam Wilson	Union of Concerned Scientists
016-OT	Laura Renger	California Electric Transportation Coalition
017-OT	Jacob DeFant	Agricultural Council of California
018-OT	Mariela Ruacho	American Lung Association
019-OT	Alessandra Magnasco	California Fuels and Convenience Alliance
020-OT	Dean Talley	California Manufacturing and Technology Association (CMTA)

Comment Code	Commenter's Name	Affiliation
021-OT	Trevor Newquist	Construction Employers Association
022-OT	Jeff Price	JS West Propane
023-OT	Marci Stanage	Rebuild SoCal Partnership
024-OT	Sean Cocca	TRC
025-OT	Michael Lewis	Construction Industry Air Quality Coalition (CIAQC)
026-OT	Alex Gallard	Blue Star Gas
027-OT	Bob Shepard	California Caterpillar Dealers
028-OT	Peter Okurowski	California Council for Environmental and Economic Balance (CCEEB)
029-OT	Bill LaMarr	California Alliance of Small Business Association
030-OT	Whitney Amaya	East Yard Communities for Environmental Justice
031-OT	Alison Hahm	Natural Resources Defense Council
032-OT	Manuel Cunha	Nisei Farmers League
033-OT	Yassi Kavezade	Sierra Club
034-OT	Casandra Russo	AmeriGas Propane
035-OT	Adam Borchard	California Fresh Fruit Association
036-OT	Cory Sherlock	Hunt and Sons Company
037-OT	Sylvia Betancourt	Long Beach Alliance for Children with Asthma
038-OT	Katie Little	California Food Producers
039-OT	Matthew Moravek	McClone Construction
040-OT	Steven Fenaroli	California Farm Bureau
041-OT	David P	Individual

### Table IV-5. Written Comments Received During the June 27, 2024, Board Hearing

Comment Code	Commenter's Name	Affiliation
001-WT	Larry Shroeder	Individual
002-WT	Andrea Wood	JB Dewar
003-WT	Kris Flaig	Individual

### A. California Environmental Quality Act and Environmental Analysis Issues

Comment Codes: [082-45d, 085-45d, 089-45d, 097-45d, 294-45d, 337-45d]

All comments related to the ZEF Regulation EA or comments raising California Environmental Quality Act (CEQA) concerns are addressed in the ZEF Regulation Final EA (https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/zeforklifts/finalea.pdf) and associated RTC (https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/zeforklifts/rtc.pdf) documents.

### B. 45-Day Comment Period Public Comments with Agency Responses

### 1. Emissions-related Issues

### a) Well to Tank Emissions Estimates

<u>Comment:</u> BCI supports accelerating reductions of criteria and GHG "tank to wheel" emissions, which CARB estimates in Table 13 of the ISOR. However, the lack of upstream "well to tank" (WTT) emissions estimates masks important differences in life cycle emissions between ZE technologies and is a potential source of bias in CARB's projections regarding the forklift fleet technology mix over time. For example, the vast majority of raw materials for lithium-based battery technologies are extracted from virgin ore, whereas approximately 80% of the raw materials used in the manufacture of lead batteries are derived from recycled batteries. Greater reliance on secondary materials in lead battery manufacturing reduces emissions associated with raw material extraction and processing, such that a lifecycle "well to wheel" (WTW) estimate is likely to show an emissions reduction advantage for lead batterypowered forklifts.

### Commenter: [089-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff disagrees that further consideration of upstream emissions estimates would substantially affect CARB's projected forklift fleet technology mix. This is because CARB staff disagrees that WTW emissions for lead-acid batteries will have significant emission reductions when compared to a lithium-ion battery. Even with virgin lithium being used in batteries, the comment does not consider that lithium batteries can have twice the number of charging cycles relative to a flooded lead-acid battery. With twice the number of cycles, a lithium battery can last twice as long as a flooded lead-acid battery, thereby requiring less recycling of battery material. Further, the round-trip efficiency (i.e., system efficiency through a charge/discharge cycle) for a lithium battery is about 10% higher than a lead-acid battery. The higher the round-trip efficiency, the less energy is lost in the energy storage process. This efficiency difference results in approximately 150 complete lithium-ion battery charges lost over the 1500 recharging cycles of a lead-acid battery assuming the two batteries being compared have the same energy storage capacity.

In the ISOR, staff discusses both lithium-ion and lead-acid batteries. Staff state that "staff believes lead-acid technology will continue to be the dominant ZE technology in battery-electric forklifts in the near term because of its capital-cost advantage and existing support systems." Each battery technology has advantages and disadvantages, and the forklift

purchasers will be the ones to determine the type of battery that best fits their operational needs.

Additionally, increased battery recycling has been identified as a reasonably foreseeable compliance response to the Regulation.

### b) Low-use LSI Forklift Exemption – MY Restriction Emissions Benefits

<u>Comment:</u> CCEEB is unclear what the emissions benefits would be from limiting the low-use exemption to 2013 through 2025 MY LSI Forklifts... Fleet Operators have spent significant funds to retrofit existing LSI forklifts to meet the existing LSI Engine Fleet Requirements Regulation's (existing LSI Regulation) Fleet Average Emissions Level (FAEL), some of which have been transitioned to low-use. Units that have been retrofitted to 1.0 to 2.0 g/bhp-hr should be allowed access to the low-use provision in the Proposed ZEF Regulation.

CARB points to the existing LSI Regulation to support phase-out of LSI Forklifts 2012 MY and older from being able to be classified as low-use, but the existing LSI Regulation is a fleet average rule; the latest certification was for 2010 or newer engines, and the rule permitted retrofits for previous MYs to reach a fleet average, the FAEL, which since 2013 has been 1.1 g/bhp-hr for Large Fleets and 1.4 g/bhp-hr for Small Fleets.

While the 2023 Inventory does not explicitly describe the emissions benefits expected from the Proposed ZEF Regulation's restrictions on low-use provisions, it does provide relevant information on typical LSI Forklift activity. Where the 2023 Inventory does not have real-world data on annual hours of operation for a fleet, it relies on average hours of operation by fleet size. According to those averages, LSI Forklifts in both Small Fleets and Large Fleets operated on average anywhere from twice to 10 times as many hours as a low-use LSI Forklift...

Given the exhaust emission factors used in the 2023 Inventory are based on both activity hours and accumulated hours, it seems likely that low-use LSI Forklifts would result in meaningfully lower emissions than non-low-use LSI Forklifts. Furthermore, as previously mentioned, many of the 2012 MY and older LSI Forklifts have been retrofitted to 1.0 to 2.0 g/bhp-hr. Given these parameters, please clarify what the expected emissions benefits would be from prohibiting 2012 MY and older that have been retrofitted with emissions controls to meet the existing LSI Regulation's standards from being classified as low use under the Proposed ZEF Regulation.

#### Commenter: [097-45d]

<u>Agency Response:</u> Changes were made in response to this comment. The commenter requested that forklifts that have been retrofitted to 1.0 to 2.0 g/bhp-hr should be allowed access to the low-use provision in the Proposed ZEF Regulation. As part of the 15-Day Changes, staff allowed that request and in fact went further and completely removed the MY restriction for low-use forklifts. This change is being made so that fleets can use forklifts they already own as low-use forklifts, not have to acquire additional forklifts solely for the purpose of using them as low-use forklifts. The Regulation will now allow a low-use forklift that is any MY for all Fleet Operators until the end of 2030. Then, starting in 2031, only Microbusinesses that follow the Regulation requirements can operate low-use LSI forklifts.

With regard to the commenter's request for what emission benefits would be from prohibiting 2012 MY and older that have been retrofitted with emissions controls and that meet the existing LSI Regulation's standards from being classified as low use under the Proposed ZEF

Regulation, this scenario was not modeled as part of the alternatives in the ISOR. The emissions associated with this scenario would depend on several factors including how many fleets used the provision, which MY their low-use forklifts were, and how much they used their low-use forklifts up to the 200 hours annually, etc. Given that the low use MY restriction has been completely removed, CARB Staff did not analyze the emission benefits for the requested scenario.

#### c) Low-use LSI Forklift Exemption – Sunset Date Emissions Benefits

<u>Comment:</u> CCEEB is unclear what the emissions benefits would be from... sunsetting the lowuse exemption on December 31, 2030.

[L]ow-use provisions are important—and will continue to be important past 2030—to those Fleet Operators who require only occasional usage of LSI Forklifts preclude employees from using more labor-intensive, riskier, manual approaches to move heavy items.

While renting may be an option for work planned in advance, planning for movement of material days in advance is not typical for businesses that may need to move an item due to access restrictions or as part of shipping or receiving. Please clarify what the expected emissions benefits would be from sunsetting the low-use exemption.

#### Commenter: [097-45d]

<u>Agency Response:</u> No change was made in response to this comment. The Regulation's lowuse provisions strike a balance between allowing flexibility and convenience for fleets to continue using an LSI forklift from time to time and ensuring the emission reductions that will come from phasing out LSI forklifts in favor of lower-emitting alternatives. The Regulation allows the smallest businesses, Microbusinesses, to continue using one Low-use LSI forklift indefinitely. CARB staff is proposing this for several reasons (desire to avoid adverse impacts on small business, desire to avoid employees lifting items manually, etc.). CARB staff do not believe it is warranted to extend this ability to use a low-use LSI forklift past 2030 to all fleets to ensure emission reductions, in part due to enforceability concerns (i.e., because it is difficult to ensure that each low-use forklift really is used only for 200 hours per year).

With regard to the commenter's request for what emission benefits would be if the low-use provisions were structured differently (if they were not sunset in 2030, if low-use forklifts were limited to only the cleanest, newest forklifts), these scenarios were not modeled as part of the alternatives, and the total emission benefits for those scenarios would depend on the number of businesses using the provision, which MY they chose, and how much they used their forklift up to the 200 hours annually.

It is important to note, however, that low-use forklifts used less than 200 hours per year can still produce significant emissions particularly if they are older. Forklift emissions are discussed in further detail in Appendix D to the Staff Report. Scaled up by potentially thousands of businesses, the emissions from low-use forklifts could become significant, especially if some portion of fleets operate forklifts reported as low-use more than 200 hours per year.

### 2. Cost Comments

### a) Cost Analysis – Infrastructure Costs Comment 1

<u>Comment:</u> CARB's Proposed Regulation does not take into account the logistical and financial considerations associated with installing charging stations for all-electric forklift fleets, building

power supply upgrades, or infrastructure upgrades for the generation, transmission, and delivery of electricity.

#### Commenter: [090-45d]

Agency Response: No changes were made in response to this comment. Contrary to this commenter's claim, CARB staff did conduct a thorough cost and economic analysis to estimate the impacts of the Regulation, including the cost to install charging stations and upgrade power supply. With respect to infrastructure costs, as discussed in Section VIII B.8.b of the ISOR, individual fleets may be subject to infrastructure costs that are higher or lower than the estimated statewide average infrastructure costs. A Level 2 electric car charger has a typical power output ranging from 6.2 kilowatt (kW) to 19.2 kW. Based on forklift specifications available online and discussions with ZEF manufacturers, staff expects that chargers similar to a Level 2 battery-electric car charger could support a battery-electric forklift in most operations. Because Level 2 car charger costs were more readily available than costs for off-road ZEF chargers, staff assumed that the cost to install a Level 2 electric car charger at a worksite would be a reasonable approximation of the cost to install a charger for a battery-electric forklift. Infrastructure installation costs were assessed in a report by the International Council on Clean Transportation (ICCT), "Estimating Electric Vehicle Charging Infrastructure Costs Across Major U.S. Metropolitan Areas." In this report, ICCT reviewed data obtained by the Electric Power Research Institute which studied 637 sites with 1,294 Level 2 charging units. The analysis included costs for labor, materials, permits, and taxes, and in some cases includes utility upgrades for installing Level 2 electric chargers at various working place charging sites inside and outside of California. Staff used costs that are specific to California. The study found that installation costs per charger decrease as more chargers are installed per site. The ICCT report provided average costs from one charger per site to six or more chargers per site. Although staff estimates that about 7% of installations would be one charger per site, staff conservatively assumed that more than half of charger installations would be the most expensive option, one charger per site.

Staff also assumed costs for one charger per forklift, although staggered charging times could reduce the need to install one charger for every ZE forklift. Consequently, facilities may opt to install one charger for multiple ZE forklifts. Although staff's cost estimates for electrical infrastructure installation include some utility-side upgrade costs, staff anticipates that nearly all utility-side upgrade costs would be rolled into the utility pay rates of the facility, or the customer base at large per AB 841, to be recovered over time.

A sensitivity analysis was included in Section VIII.F.3 of the ISOR with the hypothetical scenario in which infrastructure costs for a typical fleet are twice the levels assumed in the cost analysis. If higher infrastructure costs are included in the cost analysis, the estimated savings of the Regulation for a typical fleet would be approximately \$5.6 million instead of \$6.0 million by 2043.

With respect to infrastructure upgrades for the generation, transmission, and delivery of electricity, the Regulation includes a logistical provision that addresses potential delays in obtaining sufficient utility-side power. A Fleet Operator may request an Infrastructure Site Electrification Delay Extension if sufficient electrical power will not be provided by the utility by the applicable compliance date. If an extension is granted, LSI forklifts covered under the extension could be operated for the duration of the extension. As part of the 15-Day Changes, the scope of the Infrastructure Site Electrification Delay Extension was broadened. With the proposed changes, LSI forklifts covered under an extension could also be replaced with 2026

MY or newer LSI forklifts, as needed during the effective period of Infrastructure Site Electrification Delay Extensions.

### b) Cost Analysis – Infrastructure Costs Comment 2

<u>Comment:</u> The Standardized Regulatory Impact Assessment (SRIA) relies on data that inadequately reflects the realities of our businesses. The report's analysis of forklift charging infrastructure costs is found lacking due to several critical issues. CARB relies solely on a 2018 report about electric car chargers, assuming its relevance for projecting costs for forklift chargers. However, this approach overlooks key factors: the significant increase in construction costs between 2018 and 2023, the facility space requirements for charging forklifts indoors, the omission of crucial elements like battery rooms and changeout equipment, and the oversight of potential panel and service upgrades in older or rural facilities. The study's focus on metropolitan locations for electric car chargers further disregards the distinct needs of agricultural forklift users, who operate on a round-the-clock basis during harvest seasons. Consequently, the estimated costs for electric forklift charging infrastructure are likely understated by 3 to 5 times. CARB's cost analysis must undergo a more comprehensive evaluation, especially concerning agricultural forklift fleets, to be deemed accurate and meaningful...

....The cost analysis of forklift charging infrastructure is inadequate in this report. CARB cites a report on electric car chargers as the singular resource used for these cost estimates. The assumption is made that these dated (2018) costs for installing "Level 2 electric car chargers" is adequate for projecting infrastructure costs for forklift chargers. Here are the issues with this:

1. Construction costs have increased dramatically between 2018 and 2023. In some cases, costs can be double or worse. This is well documented and not considered by CARB.

2. Electric car chargers do not require allocation of additional indoor space for charging parked forklifts and batteries and the fire and life safety equipment required to do this inside a warehouse.

3. Battery rooms and battery changeout equipment were not included as stated on page 129. Agricultural forklift users who have a "harvest" season will need round-the-clock use of forklifts during these periods so this infrastructure is absolutely required and should be included in the analysis for agricultural fleets.

4. The study is based on metropolitan locations for electric car chargers. There is no consideration for panel and service upgrades in older facilities and rural areas that will likely be required for many agricultural forklift users.

The actual cost for electric forklift charging for agricultural users will likely be 3 to 5 times what CARB is estimating. CARB should try to evaluate these costs in a more meaningful way if their cost analysis should be considered accurate, particularly for agricultural forklift fleets.

#### Commenter: [335-45d]

<u>Agency Response:</u> No changes were made in response to this comment. Please see the Agency Response to B.2.a) Cost Analysis – Infrastructure Costs Comment 1, for a discussion on assumptions used to estimate infrastructure installation costs. In response to item No. 1, staff accounted for inflation of infrastructure installation costs by adjusting costs to 2021 dollars by using the California Consumer Price Index. Similarly, results are presented in 2021 dollars

for all years, including future years. Adjusting to 2021 dollars accounts for inflation. CARB does not expect installation costs to escalate beyond the rate of inflation.

With respect to Item No. 2, costs for additional charging space were not assessed because the best available battery chargers today are small and light enough to be pedestal mounted and/or wall mounted taking up little to no floor space and are scalable to allow multiple forklifts to park near each other for recharging events. With respect to the cost of fire and life safety equipment, staff are not aware of additional fire or life safety requirements that pertain to lithium-ion battery charging. If lead-acid battery technology is selected, additional fire and life safety equipment may be needed. The best technology choice for a fleet will depend on many factors and will vary by fleet. If costs associated with fire and life safety equipment for lead-acid ZEFs would be costly for a particular fleet, it is assumed that the fleet will select another zeroemission option, such as ZEFs with lithium-ion batteries. Staff is assuming that the proportion of lead-acid to lithium ZEFs deployed over time reflects this decision-making process. Staff made some conservative assumptions for charger installation costs that are expected to offset these factors. Staff assumed Level 2 charging installation costs for all battery-electric ZEFs. including ZEFs that use lead-acid batteries, which may not require Level 2 charging. Additionally, to be conservative (i.e., err on the side of overestimating costs) staff assumed the charger and installation costs of one charger for every ZEF, even though many fleets are expected to install fewer chargers than ZEFs at a site.

With respect to Item No. 3 concerning battery charging rooms and battery changeout equipment for round-the-clock use of forklifts, the use of lithium-ion or fuel cell ZEFs offers some advantages over lead-acid battery ZEFs, especially for multiple shift operations. Battery charging rooms and changeout equipment are not needed with either of these options. Additionally, these ZEF options enable faster recharging/refueling times and can be opportunity charged or fueled, which is especially advantageous for round-the-clock forklift operation.

For a discussion on Item No. 4 concerning the study of metropolitan locations for electric car chargers and for the following paragraph concerning costs, please see the Agency Response to B.2.a) Cost Analysis – Infrastructure Costs Comment 1. With respect to addressing concerns of agricultural fleets, provisions were included in the Regulation to provide fleets, including crop preparation services fleets, with more time and flexibility to comply with the Regulation. Examples are provided in the Agency Responses to B.2.k), I), and m) Cost Analysis - Cost of Electricity Comments 1, 2, and 3, respectively.

#### c) Cost Analysis – Inflation

<u>Comment:</u> For this analysis, the CARB staff operated under the assumption of today's complete incremental cost of ZEFs throughout the entire regulatory transition. Given the current historical inflation rates, how can one undertake a financial forecast without factoring in an inflationary component? Contrary to the statement in the opening paragraph on page 125, Section 8 (a), indicating a decline in prices, there has been no such decrease. Since the commencement of the ISOR draft, dealers have witnessed a minimum of three price increases, estimating an overall surge of 28%.

The interest rate, which stood at 5% at the draft's inception, has now averaged 8%. We anticipate this figure to rise further, particularly given the challenging remarketing of used EV (with deteriorated batteries). We have significant reservations about CARB's calculations, finding them to be underestimated for smaller lifts and overstated for larger machines. This is a

critical issue due to the disproportionately higher number of small lifts compared to larger units. Additionally, it seems that the total count of affected lifts is considerably underestimated.

#### Commenter: [335-45d]

Agency Response: No changes were made in response to this comment. In Section VIII B.8.b. of the ISOR, CARB estimates that as the market expands, declining battery and component costs, along with economies of scale, will reduce the incremental costs of ZEFs over time. Nevertheless, the staff has been conservative (i.e., high) in estimating future costs by assuming today's full incremental cost of ZEFs remains in place for the entirety of the analysis (i.e., through 2043). It's also worth noting that conservatively, no residual value of replaced forklifts was assessed and subtracted from replacement costs (in other words, we did not assume fleets make back any money by selling used forklifts that are phased out to meet rule requirements). Forklift costs to fleets were amortized at 5% interest over five years from the year of purchase to reflect the financing of these purchases. This interest rate is consistent with that used in the analysis of other CARB regulations, such as the Advanced Clean Fleets Regulation, Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation, and Amendments to the Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate. Given historical data, staff believes that 5% is a better prediction for interest rates now to 2043 than 8%.

Capital costs were adjusted to 2021 dollars by using the California Consumer Price Index. Similarly, results are presented in 2021 dollars. Adjusting to 2021 dollars accounts for inflation, so the commenter's statement regarding undertaking "a financial forecast without factoring in an inflationary component" is unfounded. In addition, based on information gathered through direct conversations with a California-based forklift dealer at the height of the pandemic, an inflation and supply chain factor of 76% was applied to forklift costs. Although LSI forklift costs in 2021 dollars were estimated to remain fixed over time, the cost of ZE forklifts was assumed to increase over time due to the assumption that a greater proportion of battery-electric forklifts purchased over time would be equipped with lithium-ion batteries, which are more costly than lead-acid batteries. Fuel prices were scaled up over time using California Energy Commission (CEC) fuel price forecasts. The commenter did not provide a basis or evidence for the statement that staff underestimated ZEF costs. Staff believes that the estimates are valid based on available information. For consistency, forklift costs for LSI and battery-electric forklifts were obtained from the same sources. If costs were underestimated for smaller forklifts, as the commenter stipulates, these costs would likely be underestimated for both LSI and battery-electric forklifts. The cost analysis assesses incremental forklift costs by subtracting the costs for natural turnover of LSI forklifts under the baseline scenario from replacement ZE forklift costs under the Regulation.

Regarding the commenter's assertion "that the total count of affected lifts is considerably underestimated," staff disagrees; please see the Agency Response to B.4.a) Forklift Population - Estimated Impact, for a discussion on staff's estimated forklift population.

#### d) Cost Analysis – LCFS Credits

<u>Comment:</u> It is currently unclear that any future benefit of LCFS credits will be available to forklift operators. This section is very speculative and adds about 18% to the "net benefit" being claimed for forklift operators.

Commenter: [335-45d]

<u>Agency Response:</u> No changes were made in response to this comment. Due to anticipated adjustments to the LCFS program and future crediting for ZE forklift operations, the ISOR provides a sensitivity analysis of the direct costs and macroeconomic impacts of the Regulation both with and without LCFS credits (Chapter VIII, Section F.1). Without LCFS credits, direct costs of the Regulation are estimated to result in net cumulative statewide savings by 2043 of \$2.2 billion. For a typical fleet, the net savings without LCFS credits is estimated to be \$5.1 million. For a small fleet, there is an estimated net cost of \$8,840 without LCFS credits. All values are in 2021 dollars.

#### e) Cost Analysis – Additional Costs and Replacement Ratio

<u>Comment:</u> Through various internal evaluations, our membership has conveyed that an all-electric conversion will drive additional costs not fully accounted for in the Regulation. A lack of space for ZEF charging stations has created a need to purchase additional ZEFs to offset the limited charging capacity. Further analyses have indicated that replacement batteries are incredibly heavy, and to avoid safety concerns, the batteries would need to be charged in the forklifts rather than removed. Given the required 8-16 hours of downtime and the inability to remove the batteries from the forklifts, companies are considering increasing their fleet size to maintain regular operations. Some facilities would need two charging stations for every three forklifts to take advantage of intermittent daily charging and satisfy the full- charge needs. The Regulation assumes a 1:1 replacement ratio of

LSI forklifts to an electric model. However, California manufacturers and those representatives planning to comply with the Regulation have indicated significant replacement challenges for their operations.

#### Commenter: [082-45d]

Agency Response: No changes were made in response to this comment. CARB staff disagrees that a lack of physical space for charging stations will necessitate fleets to purchase ZEFs more than the one-to-one replacement ratio assumed in the ISOR. The best available battery chargers today are small and light enough to be pedestal mounted and/or wall mounted taking up little to no floor space and are scalable to allow multiple forklifts to park near each other for recharging events. Additionally, these best available chargers can operate over multiple voltage ranges and different battery chemistries, allowing one charger to service multiple types of battery-electric forklifts and material handling equipment within the same facility with the same battery charger.<sup>1</sup> CARB staff disagrees with the comment that removable batteries present a significant safety hazard. Many battery-electric forklifts come equipped with the ability to readily remove a traditional flooded lead-acid battery with a manual pallet jack operated by a single person. Staff also disagree with the commenter that forklifts with nonremovable batteries will necessitate that fleets purchase additional ZEFs to comply with the regulation and increase their fleet size to maintain regular operations. Forklifts that utilize batteries that are capable of opportunity charging at shift breaks and changes, such as lithiumion batteries, are designed to be charged in the piece of equipment, without removal, and do not have the associated downtime indicated by the commenter. These advanced batteries

<sup>&</sup>lt;sup>1</sup> Green Cubes, Forklift Action: Best Practices for Opportunity Charging Lithium-Ion Batteries, February 2021 (web link: *https://greencubes.com/in-the-news/best-practices-for-opportunity-charging-lithium-ion-batteries/*, last accessed May 2024)
charge rapidly, do not need to be fully charged, and do not need to cool before being able to be utilized.<sup>2</sup>

In regard to the comment that fleets would need to install two chargers for every three battery electric forklifts, CARB Staff have already assumed in Chapter VII, Section B.8.a of the ISOR for the Regulation that one battery charger would be needed for each battery electric forklift, which is more conservative than what the commenter indicated may be needed by fleet operators to transition their fleet to ZEFs.

Further, if facility space constraints and/or available power infrastructure constraints do not permit either a one-to-one or a two-to-three ratio of installed chargers to forklifts in a fleet, operational adjustments can be done, such as staggering shift breaks and lunches, to allow operators to have uninterrupted access to chargers with their equipment.

### f) Cost Analysis – Additional Costs and Job Losses

<u>Comment:</u> Many forklift fleets will also suffer serious financial burdens under this mandate. Electric forklifts are more expensive than propane forklifts, and given the typical battery life of 8 hours, fleets will have to purchase multiple electric forklifts and batteries just to do the job of one propane forklift, which can run 24 hours with very little downtime for refueling. This will impose significant costs on fleet operators, which will result in business closings and job losses. CARB's own analysis shows a loss of thousands of jobs at least through 2032, as shown in the ISOR.

### Commenter: [085-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB Staff acknowledged in the ISOR that there is an upfront cost premium for new ZEFs versus new LSI powered forklifts and has incorporated this into the cost analysis for this Regulation. As shown in Table 23 and Figure 13 of the ISOR, fleets could have cost increases due to the capital needed to purchase ZEFs and install infrastructure. However, these costs over time are offset by reduced operating costs. The Regulation is projected to result in overall net savings for fleets operating within the state. Additionally, the Regulation is a critical measure needed to achieve further emissions reduction to achieve California's clean air and climate goals, including commitments made in the 2016 State SIP Strategy. From 2026 through 2038, the Regulation is expected to reduce statewide emissions from forklifts by approximately 18,700 tons of NOx, 2,100 tons of PM2.5, 5,000 tons of ROG, and 9.4 million metric tons (MMT) or CO2.

Staff disagrees that fleets that operate forklifts in high utilization multishift operations will need to purchase multiple ZEFs to do the job of one LSI powered forklift. ZEFs that utilize advanced chemistry batteries, such as lithium-ion, that are capable of being opportunity fast charged at scheduled times, such as shift changes, breaks, and lunches, can enable operations with high equipment utilization to maintain the same forklift equipment fleet size, without the need to

<sup>&</sup>lt;sup>2</sup> Flux Power, What is Opportunity Charging? Best Practices for Electric Forklifts, April 2021 (web link: *https://www.fluxpower.com/blog/what-is-opportunity-charging-best-practices-for-electric-forklifts*, last accessed May 2024)

have multiple batteries per piece of equipment or increase their forklift fleet due to this Regulation.<sup>3</sup>

However, staff recognizes the vast range of forklift performance and operational variations and acknowledges that, in very limited situations with specific performance or operational needs, there may not be a one-for-one ZEF replacement commercially available. Please see the Agency Response to B.9.d) Exemption for 24-Hour On-site Operations for more details on potential compliance flexibility options.

Regarding potential job losses, the potential job creation and elimination analysis included in the ISOR in Chapter VII, Section D.3., represents the net change in employment across the economy, which is composed of positive impacts for some industries and negative impacts for others. In 2043, the Regulation is estimated to result in job gains of 8,047, primarily in construction, retail and wholesale, and services, and zero jobs foregone.

# g) Cost Analysis – Upfront Business Costs and Cost Savings

Comment: Significant Cost Impacts: the released documents clearly identify upfront costs for businesses subject to this rule. Upon review of CARB's Statement of Reason and SRIA, the upfront costs identified to these businesses in California will be significant. CARB reports that there are several programs to assist businesses with the cost associated with the purchase of ZEV forklifts and that businesses will experience cost savings in the out years upon full implementation. While possibly true, these state programs possess limited financial resources and will only benefit a specific number of businesses – not all businesses subject to this rule. Additionally, while cost savings may materialize in the out years, most businesses will not have the financial / funding resources to sufficiently offset the upfront costs associated with installing ZEV infrastructure and purchasing ZEV forklifts. Ultimately, this will place businesses in a scenario of having to make difficult decisions between compliance and reducing its workforce, services, and / or other operational expenses. Lastly, it is important to note that CARB's reports identify overall costs savings for the ZEV forklift regulation, the documents fail to identify specific cost savings for each business and / or industry, which means while some businesses may be able to absorb some of the initial financial impacts, others may be forced out of business due to this mandate.

### Commenter: [086-45d]

<u>Agency Response:</u> No changes were made in response to this comment. The cost analysis in the ISOR assumed fleets would purchase new forklifts with a one-to-one ratio of chargers to comply with turnover requirements to ZEFs, and, to be conservative, did not include less costly alternatives, such as the option for fleets to potentially purchase used ZEFs or the ability to need fewer chargers to meet operational demands that is discussed in Chapter VII, Section B.12. of the ISOR. As discussed in Chapter VIII Section B.1. of the ISOR, CARB staff have included additional provisions in the Regulation, that were not included in the SRIA, which provide fleets additional flexibility regarding the phase-out schedule, expanded low-use allowance provisions, and the ability for fleets to purchase used LSI forklifts. Additionally,

<sup>&</sup>lt;sup>3</sup> Green Cubes, Forklift Action: Best Practices for Opportunity Charging Lithium-Ion Batteries, February 2021 (web link: *https://greencubes.com/in-the-news/best-practices-for-opportunity-charging-lithium-ion-batteries/*, last accessed May 2024)

extensions for infrastructure delays and Operational Extensions for forklift fleet operators to have more time to transition their fleets away from LSI forklifts and to spread out costs over multiple years have been included in the Regulation. Lastly, in the 15-day changes for the Regulation, CARB included additional provisions, such as phase-out percentage caps to lessen the impact on fleets.

As indicated in Chapter VII, Section A of the ISOR, CARB staff acknowledge financial incentive programs exist for ZEFs and assisted infrastructure procurement in the State, but due to the uncertainty of their availability, these financial assistance programs were excluded from the cost analysis.

CARB is not required to identify costs and savings for every single individual fleet, as doing so would be impractical. CARB analyzed costs for a typical fleet, as well as a small fleet in the SRIA. The macroeconomic analysis in the ISOR did look at changes in output for several sectors of the economy. While CARB is not able to completely offset the upfront capital costs to ZEFs or infrastructure installation in the first years, the Regulation was designed to help mitigate those costs through the phase-out schedule and the phase-out caps, as well as the delayed requirements for small fleets. Regarding the commenter's saying the Regulation will force businesses to choose between compliance and workforce reductions, CARB staff's macroeconomic impact analysis in the ISOR estimated job creation or losses within the State. In the early years of the Regulation, some job losses are projected, for example, maximum job losses in 2032 of 3,400 jobs lost. However, after 2032, annual job losses decrease, and the Regulation is projected to begin to lead to workforce increases. In 2043, rather than workforce reductions, for example, the Regulation is estimated to result in job gains of 8,047, primarily in construction, retail and wholesale, and services, and zero jobs foregone.

### h) Cost Analysis – Class V Replacements and Added Compliance Costs

<u>Comment:</u> One size does not fit all. It is inappropriate to require all Class 5 forklifts as potential EV replacement. True for some Class 4 applications. CARB should be considering how to incentivize replacement and not create an undue strain on businesses in California. Afterall, our industry over a very short period converted our already clean burning propane units from 16 grams per brake horsepower to point 6 (.6). By original calculations provided by CARB this was going to eliminate enough emissions. Our industry has been negatively impacted by the added costs to comply.

#### Commenter: [335-45d]

#### Agency Response:

Changes were not made in response to this comment. With respect to Class V forklifts, those with a Rated Capacity greater than 12,000 pounds are not subject to the Regulation. For those Class V forklifts subject to the Regulation, a delayed and extended phase-out schedule is being proposed, relative to Class IV forklifts. Phase-out for Class V forklifts begin in 2030, two years later than it applies to Class IV forklifts in a large fleet. Additionally, for Class V forklifts, the phase-out schedule extends three years longer than it does for Class IV forklifts in a large fleet, to 2038 instead of 2035.

CARB analysis identified that there are numerous ZEFs available now for fleets to purchase. Staff performed an online search and manufacturer survey of ZEF offerings and identified almost 400 models, as discussed in Chapter I, Section E.2 of the ISOR. In the event a fleet is unable to find a ZEF that meets its operational needs, an Operational Extension may be available. Fleet Operators may request an Operational Extension if there is no commercially available ZEF model that can safely meet the needs of an operation currently served by an LSI Forklift required to be phased out by the upcoming compliance date. Duty cycle and operational characteristics may be considered.

CARB has been incentivizing ZE forklifts as an eligible project category in the Carl Moyer Program since 2003. However, the only way to guarantee that we obtain necessary emission reductions is through regulations, because incentive programs are subject to budget appropriation and local priorities. ZEF incentive funding may be available through several CARB programs, including Clean Off-Road Equipment Vouchers (CORE), Carl Moyer, and The Funding Agricultural Replacement Measures for Emission Reductions (FARMER), as well as other funding programs. Please see Chapter 1, Section J of the ISOR for details on these programs. In addition, CARB's Low Carbon Fuel Standard (LCFS) program provides credits for the deployment of cleaner transportation alternatives, such as EV and equipment. These credits can be sold to provide a financial incentive for using clean technology by offsetting the cost of the technology. Chapter I, Section D of the ISOR provides a discussion on the LCFS program.

The commenter mentions the agriculture industry's previous costs to comply with CARB's LSI Engine Fleet Requirements Regulation. While CARB staff acknowledges that the agriculture industry did experience some compliance costs due to that regulation, full implementation of the LSI Engine Fleet Requirements Regulation was reached in 2012, more than a decade ago. Costs to comply with that regulation occurred between 2009 and 2012, and only required that a subset of forklift fleets replace their forklifts with 2010 or newer forklifts, which meet the 0.6 grams per brake horsepower-hour of hydrocarbons plus NOx standard. Additional emission reductions are necessary. While CARB has made significant progress in improving air quality throughout California, many areas still fail to attain the National Ambient Air Quality Standards (NAAQS) for ozone and fine particulate matter (i.e., PM2.5). Currently, there are 19 areas in California, including the South Coast Air Basin and San Joaquin Valley that are designated as nonattainment areas for ozone. Cumulatively, from 2026 through 2038, the Regulation is expected to reduce statewide emissions from forklifts by approximately 18,700 tons of NOx, 2,100 tons of PM2.5, 5,000 tons of ROG, and 9.4 MMT of CO2 due to the transition away from propane-and gasoline-fueled forklifts to, in most cases, battery-electric and fuel-cell electric forklifts.

The emission reductions are expected to reduce the concentration of criteria pollutants in the communities in which forklifts operate, benefiting the local residents and the operators of the equipment. CARB staff estimates the Regulation would reduce adverse health impacts as follows: 544 fewer cases of cardiopulmonary mortality; 115 fewer hospitalizations for cardiovascular disease; 148 fewer cases of cardiovascular emergency department (ED) visits; 62 fewer cases of nonfatal acute myocardial infarction; 17 fewer hospitalizations for respiratory disease; 321 fewer cases of respiratory ED visits; 42 fewer cases of lung cancer incidence; 1,295 fewer cases of asthma onset; 109,800 fewer cases of asthma symptoms; 80,635 fewer work loss days; 272 fewer hospitalizations for Alzheimer's disease; and 39 fewer hospitalizations for Parkinson's disease. These significant reductions in adverse health cases are expected to be seen across all ages in the state. More details on the benefits of the Regulation can be found in Chapter IV of the ISOR.

# i) Cost Analysis – Maintenance Costs Comment 1

<u>Comment:</u> Another consideration is the maintenance costs. While it is true that EV units are less to maintain from required maintenance, they require a much more experienced operator for proper refueling (charging). Again, many variables depending on lead-acid batteries or the more expensive Lithium product.

### Commenter: [335-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff recognizes the importance and value of trained and experienced operators as well as safe work environments and conditions. However, CARB staff has not seen data indicating that ZEFs require a "much more experienced operator for refueling" and does not believe that is factual.

With the deployment of any forklift, conventional or ZE forklift, training of operators on how to use and fuel the machine is necessary. CARB staff does not believe it is any more difficult to plug in a ZEF than it is to refuel a propane or gasoline forklift. It is relevant to consider that nearly half of forklifts in use in California today are already ZEFs and being used and charged successfully by today's operators. And in fact, spill response and clean-up related training for ZEFs may be less than or comparable for conventional forklifts. Hence, CARB staff stands by our cost analysis, which did not assume more experienced or more highly paid operators are needed to operate ZEFs.

# j) Cost Analysis – Maintenance Costs Comment 2

<u>Comment:</u> It is unclear how CARB staff used six online forklift calculators to determine this cost. It should be noted that five of the six websites are geared to promotion of electric forklifts so this may not be a good source of unbiased information. In addition, CARB doesn't state how these maintenance costs are to be escalated over the period of the regulation.

### Commenter: [335-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff disagrees that the data sources used for estimating maintenance costs are biased. The maintenance costs used in the analysis are consistent with information provided during discussions with forklift dealers. Additionally, Hyundai Forklifts, one of CARB's online sources for maintenance costs, would clearly be expected to be a neutral source of comparative maintenance cost information, given that it produces diesel, LSI, and electric forklifts. CARB's estimated average incremental maintenance cost is the same value as that provided by Hyundai Forklifts.

With respect to the commenter's question about how maintenance costs are escalated over the period of the regulation, maintenance costs are shown in inflation-adjusted (real) dollars. CARB does not expect maintenance costs to escalate beyond the rate of inflation. Details on CARB's maintenance cost methodology can be found in Chapter VIII, Section 9.b of the ISOR.

# k) Cost Analysis - Cost of Electricity Comment 1

<u>Comment:</u> The analysis presented by CARB has issues with cost assumptions that favor their conclusion that the program is a benefit to forklift fleets. The infrastructure and electricity cost and LCFS credit projections are not realistic and should be corrected. While larger metropolitan commercial facilities that can easily transition to all-electric fleets may see a per-

forklift benefit to this program, most facilities, especially those that are smaller more rural, and with seasonal forklift use are likely going to see increases in cost. That is not properly reflected in the current staff report. CARB continues to underestimate and underreport the cost of electricity. In Table 17 on page 132 of the ISOR, it is reported that the weighted average of electricity for Pacific Gas and Electric (PG&E) is 17 cents per kilowatt hour (kwH). This is grossly underestimated for the agricultural industry and is not in any way reflective of what agricultural customers will pay to comply with this regulation. We have provided actual tariff data in prior comments clearly showing that electrical rates paid by our members will be as much as two times the rates reported in the ISOR. We once again provide the tariff information as an attachment and respectfully ask CARB to revise this report to reflect actual electric rates. We believe this will support our ask for more time to comply with the proposed regulation as the economic impact on the agricultural industry will be significant.

The costs and cost escalation for electricity and propane are improperly handled in this report and need to be called into question. The entire premise of CARB staff that there is a "net fleet cost savings" to this regulation is mostly due to projected fuel cost savings over the 18 years of the regulation. Here are the issues:

1. The baseline electricity cost CARB has estimated is too low and not based on rigorous analysis by economists. The US EIA publishes information on electricity rates including average commercial rates. From this data, electricity prices are soaring in California and commercial rates currently sit at an average of 27.34 cents/kWh. For 2021, EIA estimated an average commercial rate of 19.18 cents/kWh. This data source is very easy for CARB and the public to access so we would recommend that CARB use it to amend this report. A chart of average commercial rates in California is provided below. The recent price escalation should be of concern to everyone impacted by these regulations.



# Commenter: [335-45d]

<u>Agency Response</u>: No changes to the Regulation were made in response to this comment. CARB staff acknowledges that rural fleets face special challenges including higher utility rates and the need for more infrastructure work in order to provide charging for ZEFs. CARB staff also agree that not all fleets will see savings from the Regulation. However, CARB staff believes that appropriate available data was used to estimate infrastructure costs, electricity costs, and LCFS credit projections. In addition, staff performed sensitivity analyses in which electricity rates were doubled, infrastructure installation costs were doubled, and costs were assessed in the absence of any LCFS credit revenue. Further details on these items follow. CARB is not required to identify costs and savings for every individual fleet, and it would not be possible to do so. Staff analyzed costs statewide, for a typical fleet, and for a small fleet. The macroeconomic analysis examined changes in output for several sectors of the economy. While CARB staff acknowledges there are upfront capital costs associated with purchase of ZEFs and infrastructure installation, provisions within the Regulation, including some adjusted via 15-day changes, are designed to help mitigate those impacts. As described further below, provisions have been included to provide fleets, including crop preparation services fleets, with more time and flexibility to comply with the Regulation:

- 1. The Regulation gives Crop Preparation Services Fleets a delayed and expanded phase-out schedule, regardless of fleet size. This schedule coincides with the phase-out schedule for Small Fleets and starts one year later and ends three years later than that for Large Fleets.
- 2. In the 15-day changes, staff proposed the addition of an optional phase-out percentage cap of 25% for Crop Preparation Services Fleets and Small Fleets for the first compliance dates. A phase-out percentage cap of 50% will optionally apply to Large Fleets. Because earlier MY forklifts are subject to phase-out first, this will reduce front-loading of phase-outs for the oldest fleets.
- 3. In the 15-day changes, staff proposed an exemption for In-field Forklifts.
- 4. In the 15-day changes, staff broadened the Infrastructure Site Electrification Delay Extension to allow the replacement of a qualifying LSI forklift with a 2026 MY or newer replacement LSI forklift, even though the regulation generally prohibits possession, sale, and use of 2026 MY and newer LSI forklifts. This allows fleets to obtain and operate replacement LSI forklifts during the effective period of Infrastructure Site Electrification Delay Extensions.
- 5. In the 15-day changes, staff broadened the Operational Extension (formerly called the Technical Infeasibility Extension) to allow the replacement of a qualifying LSI forklift with another LSI forklift, even if the replacement is years in advance of the upcoming compliance date. A 2026 MY or newer replacement LSI forklift would be allowed even though the regulation generally prohibits possession, sale, and use of 2026 MY and newer LSI forklifts. This allows fleets to obtain replacement LSI forklifts if there are no commercially available ZEF models that can meet the needs of an operation. These replacement LSI forklifts may be operated for the duration of the effective period of the Operational Extensions. If an Operational Extension expires or is denied, the Fleet Operator's compliance date for the subject forklifts would be extended by 180 calendar days and the Fleet Operator would be eligible to apply for other extensions, as needed. The sunset date of December 31, 2037, for Operational Extensions is being removed because Fleet Operators may still need to obtain these extensions past that date.
- 6. Elimination of the MY restriction on low-use forklifts.

CARB staff disagrees with the Commenter's claim that the costs and cost escalation for electricity are improperly handled in this report; instead, staff believes appropriate information was used for the assessment. As indicated in Chapter VIII, Section B.9.a, of the ISOR, staff used CARB's Battery Electric Truck and Bus Charging Calculator to estimate electricity costs.

Basic inputs representing typical forklift usage were used to derive electricity cost estimates for a sample fleet of five and 25 forklifts. Example rate schedules were selected with the charging calculator to estimate electricity costs (dollar per kWh) in 2019, the year in which the calculator was last updated. Energy costs, monthly fees, demand rates, charger efficiency losses and local electricity taxes are incorporated into these numbers. Electricity cost estimates were weighted by utility company based on statewide energy consumption found in CEC's online Electric Consumption by Entity tool.

CEC is California's primary energy policy and planning agency and therefore an appropriate source for forecasting. The forecasts are included in CEC's Integrated Energy Policy Report, which is developed through a formal public process with stakeholder feedback. For the forecasting, public workshops and public Demand Analysis Working Group meetings are held that includes staff from CEC, CPUC, and California Independent System Operator (CAISO), as well as other stakeholders. Staff used official CEC forecasts from CEC's 2022 Integrated Energy Policy Report.<sup>4</sup> The CEC forecast of commercial electricity rates was used to scale up estimated 2019 electricity costs for 2022 to 2035. CEC's forecast ended in 2035. Post 2035, the forecast was grown based on the Annual Energy Outlook by the US EIA, which is a source recommended by the Commenter for scaling up electricity costs.<sup>5</sup>

Propane, gasoline, and hydrogen fuel costs were scaled up using the same source, CEC's forecast through 2035 and the Annual Energy Outlook by the US Energy Information Administration post 2035. Net fuel costs/savings from 2026 to 2043 were obtained by subtracting fuel costs from the baseline scenario (without the Regulation) from fuel costs under the Regulation. Using the same sources to scale up electricity and fuel costs over time is important to minimize bias in resulting incremental fuel costs.

In Chapter VIII, Section F of the ISOR, staff presented a sensitivity analysis in which the statewide average electricity rate of \$0.18 per kWh (in 2021 dollars) identified in Chapter VIII, Section B.9a, is doubled to \$0.36 per kWh, while conservatively assuming fixed fuel costs for propane and gasoline. This hypothetical rate is significantly higher than the \$0.1918 per kWh rate recommended by the commenter for use in an amended report, and higher than the \$0.2734 per kWh mentioned by the commenter as well. With a doubled electricity rate, the estimated savings of the Regulation for a typical fleet would be approximately \$2.7 million. Electricity rates are not likely to rise without increases in propane and gasoline costs. Thus, doubling electricity costs without assuming an increase in fuel costs is an unlikely and conservative scenario.

For details on CARB's infrastructure costs, please see the Agency Responses to B.2.a) and b) Cost Analysis – Infrastructure Costs Comments 1 and 2, respectively. For information on

<sup>5</sup> US Energy Information Administration, Annual Energy Outlook 2022, Table 3. Energy Prices by Sector and Source, Case: Reference case Region: Pacific, 2022 (web link:

https://www.eia.gov/outlooks/aeo/data/browser/#/?id=3-AEO2022&region=1-9&cases=ref2022&start=2020&end=2050&f=A&linechart=ref2022-d011222a.33-3-AEO2022.1-9~ref2022d011222a.28-3-AEO2022.1-9~ref2022-d011222a.16-3-AEO2022.1-9&map=&sourcekey=0, last accessed May 2024)

<sup>&</sup>lt;sup>4</sup> CEC, Transportation Energy Demand Forecast, 2022 Integrated Energy Policy Report, December 2022, (web link: *https://efiling.energy.ca.gov/GetDocument.aspx?tn=247956*, last accessed May 2024)

CARB's LCFS analysis, please see the Agency Response to B.2.d) Cost Analysis – LCFS Credits

To help alleviate costs from the Proposed Regulation, ZEF incentive funding may be available through several CARB programs, including CORE, Carl Moyer, and FARMER, as well as other funding programs. Please see Chapter 1, Section J of the ISOR for details on these programs. In addition, CARB's LCFS program provides credits for the deployment of cleaner transportation alternatives, such as EVs and equipment. These credits can be sold to provide a financial incentive for using clean technology by offsetting the cost of the technology. Chapter I, Section D of the ISOR provides a discussion on the LCFS program.

The Regulation is needed for the following reasons:

- While CARB has made significant progress in improving air quality throughout California, many areas still fail to meet the NAAQS for ozone and fine particulate matter (i.e., PM2.5). Currently, there are 19 areas in California, including the South Coast Air Basin and San Joaquin Valley that are designated as nonattainment areas for ozone. See the response to comment [335-45d Cost Analysis - Class V Replacements and Added Compliance Costs] for details on the estimated emission reductions and health benefits of the Regulation.
- Despite California's great progress reducing air pollution, more than half (21 million out of nearly 40 million) of all Californians live in urban and rural downwind areas that exceed the most stringent NAAQS for ozone of 70 parts per billion, and California has the only two areas in the nation that are designated in extreme nonattainment of this standard, the South Coast Air Basin and San Joaquin Valley.
- The California Global Warming Solutions Act of 2006 (Assembly Bill 32, codified at Health and Safety Code, §§ 38500 et seq.) (AB 32), declares that global warming poses a serious threat to the economic well-being, public health, natural resources, and environment of California, and requires a comprehensive multi-year program to reduce California's GHG emissions to 1990 levels by 2020, and to maintain the emission levels and continue reductions;
- Zero-emission technologies reduce both greenhouse gas emissions and toxic air pollutants that disproportionately burden our disadvantaged communities.
  - Despite the significant public health improvements produced by CARB's air quality programs, California's disadvantaged communities, low-income communities, and communities of color continue to experience disproportionate impacts from air pollutants and GHGs, among other inequities that increase State residents' health vulnerabilities.
  - CARB's statewide strategy to address these goals, known as the Community Air Protection Program Blueprint 2.0, identifies propane and gasoline forklifts as a source of emissions that require additional emission reductions to reduce exposure to criteria pollution in burdened communities<sup>6</sup>;

<sup>&</sup>lt;sup>6</sup> CARB, Community Air Protection Blueprint 2.0, (web link:*https://ww2.arb.ca.gov/sites/default/files/2024-04/BP2.0\_FULL\_FINAL\_ENG\_2024\_04\_09.pdf*).

- The Legislature enacted AB 197<sup>7</sup>, which declares that continuing to reduce GHG emissions is critical for protecting all areas of the State, but especially for the State's most disadvantaged communities, as those communities are affected first and most frequently by adverse impacts of climate change, including increased frequency of extreme weather events such as drought, heat waves, and flooding.
- In September 2020, California Executive Order (EO) N-79-20 ordered the Board, to the
  extent consistent with State and federal law, to develop and propose strategies, in
  coordination with other state agencies, United States (US) Environmental Protection
  Agency (U.S. EPA), and local air districts, to achieve 100% zero-emission from off-road
  vehicles and equipment operations in the State by 2035, where feasible.
- It is important to decrease and eliminate emissions from petroleum and fossil-fuel use by forklifts by setting standards that eliminate exhaust emissions from forklifts. Emissions from petroleum use as an energy resource contribute substantially to the following public health and environmental problems, among others: air pollution and its associated health impacts, acid rain, global warming, and the degradation of California's marine environment and fisheries (PRC Section 25000.5[b], [c]); and
- It is critical to decrease GHG emissions in support of statewide GHG reduction goals by adopting strategies to deploy ZEFs in California to support the Scoping Plan, which was developed to reduce GHG emissions in California, as directed by Assembly Bill (AB) 32 (Nunez, Chapter 488, Statutes of 2006) and EO S-3-05 (Ch. 249, Stats. 2016, Pavley).

# I) Cost Analysis - Cost of Electricity Comment 2

<u>Comment:</u> 2. The reference cited for the escalation of electricity and propane prices for the 18 years of the regulation is a slide deck from a presentation given at a CEC workshop. We question if this represents a peer-reviewed study because we have identified some issues of concern regarding the use of this data to reach balanced conclusions. Our concerns are the following:

- a. The study shows three scenarios for escalation of fuel prices: high, medium, and low transportation electricity demand cases. CARB does not specify which case they used in the cost analysis. We suspect the "high" case was used and question whether that is appropriate for reaching a balanced conclusion.
- b. The "high" electrical demand case concludes the lowest rate of cost increase for retail electricity and the highest rate of increase in propane cost. This contradicts the basic laws of supply and demand in markets and should be called into serious question. The opposite would be expected to be true. The study attributes a less than 0.5% annual escalation factor in electrical prices which is unsupported by any historical data that we have seen.
- c. The study only goes through 2035. CARB does not state how it continued to project cost escalation between 2036 and 2043. From the charts that appear later in the ISOR, it looks like CARB is showing a decline in price in these years. This would be absolutely unprecedented in California history and, therefore, we question if these conclusions are valid.

<sup>&</sup>lt;sup>7</sup> Gov. Code § Article 7.6 (commencing with section 9147.10) to Chapter 1.5 of Part 1 of Division 2 of Title 2 and to amend Health & Safety. Code §§ 39510 and 39607 and add 38506, 38531, 38562.5, and 38562.7 (E. Garcia, ch. 250, Stats. of 2016).

d. As an alternative to this study and estimates, CARB should be using US EIA data that show a very clear trend and escalation in electricity costs in California. A study by One-Energy of the California historical data (1999-2018, prior to the inflation of the pandemic) shows that commercial and industrial rates have increased by an average of 2.8% to 3.8% per year. See: California-CA.pdf (oneenergy.com). Using these escalators would be more realistic in the CARB study but still might be too low. It can be seen from the above chart that in the past three years, electricity costs have been escalating at a rate of well over 10% per year in California. The future price for electricity is essential to determining the cost of this program as this regulation would be requiring the use of this resource.

20 YEAR HISTORICAL ELECTRICITY RATE ANALYSIS: INDUSTRIAL AND COMMERCIAL BY STATE



#### Commenter: [335-45d]

<u>Agency Response:</u> Corrections to ISOR references were made in response to this comment. The CEC is California's primary energy policy and planning agency. CEC's mid-demand projections were applied to all fuel prices: electricity, propane, gasoline, and hydrogen. In the ISOR, staff incorrectly cited the date and weblink for the CEC Energy Transportation Energy Demand Forecast that was used for fuel pricing, and which was identified in footnotes 233 and 235 of the ISOR. The correct date is December 2022, rather than December 2021, and this was corrected in the 15-day changes.<sup>8</sup> The slide deck presents official CEC forecasts for

<sup>&</sup>lt;sup>8</sup> CEC, Transportation Energy Demand Forecast, 2022 Integrated Energy Policy Report, December 2022, (web link: *https://efiling.energy.ca.gov/GetDocument.aspx?tn=247956*, last accessed May 2024)

CEC's 2022 Integrated Energy Policy Report. The CEC's forecast ends in 2035. Beyond 2035, the forecast was extended using a source recommended by the commenter. Transportation electricity projections from the US Energy Information Administration's Annual Energy Outlook were applied in 2021 dollars from 2036 to 2043.<sup>9</sup> Because CARB's data is provided in 2021 dollars, the data does not reflect inflationary cost increases. The data in inflation-adjusted (real) dollars is expected to show rising electricity costs. CARB staff appreciates the commenter pointing out that the US Energy Information Administration Annual Energy Outlook had inadvertently been omitted from the ISOR references, and based on this comment, CARB staff added that reference as part of the 15-day changes.

The commenter compared historic and projected electricity costs from One Energy in real (inflation-adjusted) dollars to CARB's electricity costs in 2021 dollars. As mentioned earlier, applying inflation adjustments to CARB's data is expected to show rising electricity costs as well. CARB staff acknowledges that electricity rates have recently increased significantly, and the future price of electricity impacts the overall net costs or savings of the Regulation.

CARB performed a sensitivity analysis in which electricity rates were doubled while also conservatively assuming no corresponding increase in propane or gasoline costs. Even under this scenario, a typical fleet would still experience net cost savings. Details on the sensitivity analysis are also provided in Agency Response to B.2.k) Cost Analysis – Cost of Electricity Comment 1.

The Regulation is not required to provide an overall net savings to be considered costeffective. In fact, historically, most CARB regulations have resulted in estimated net costs to fleets while being considered cost-effective. Costs relative to emission or health benefits factor into a cost-effectiveness evaluation.

Please see Agency Response to B.2.k) Cost Analysis – Cost of Electricity Comment 1 for a discussion of changes made to the Regulation to provide greater compliance flexibility and an extended LSI forklift phase-out schedule to mitigate front-loading of upfront costs.

### m) Cost Analysis - Cost of Electricity Comment 3

<u>Comment:</u> If a more realistic escalation factor in the range of 2.8-3.8% is applied to the electricity price over the term of the regulation, the "net fleet cost savings" become a "net fleet loss" and tells a much different story about the expected economic impact of this regulation.

### Commenter: [335-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff acknowledges that electricity rates have gone up recently in California and may go up further in the future. As stated in the ISOR, CARB staff also acknowledges that some fleets may see a net cost rather than a net savings from the Regulation. Nevertheless, for the reasons outlined in Agency Response to B.2.k) Cost Analysis – Cost of Electricity Comment 1, CARB staff still

<sup>&</sup>lt;sup>9</sup> US Energy Information Administration, Annual Energy Outlook 2022, Table 3. Energy Prices by Sector and Source, Case: Reference case Region: Pacific, 2022 (web link:

https://www.eia.gov/outlooks/aeo/data/browser/#/?id=3- AEO2022&region=1-9&cases=ref2022&start=2020&end=2050&f=A&linechart=ref2022-d011222a.33- 3-AEO2022.1-9~ref2022d011222a.28-3-AEO2022.1-9~ref2022-d011222a.16-3- AEO2022.1-9, last accessed May 2024)

believes the Regulation is necessary and will result in benefits far outweighing disbenefits. For more information on where CARB staff got the projections of electricity costs used in the SRIA and ISOR, please see B.2.I) Cost Analysis – Cost of Electricity Comment 2 for more information.

# n) Cost Analysis – Benefit-Cost Ratio

<u>Comment:</u> In addition, and as discussed below, CARB staff have routinely underestimated the current and future cost of electricity in the analysis of the cost impacts of this program. Using a historically justifiable electricity cost escalator would likely add \$1.5 - \$2 billion to the program's cost. The LCFS Credit Revenue is purely speculative, particularly in the later years, and removing it from the analysis subtracts \$515 million from the program's benefits. Considering these issues, the program is estimated to have a "Net Cost" ranging from \$60 million to \$1.8 billion. The claimed \$30,000 net benefit per forklift in the Executive Summary is deemed unlikely, with most facilities expected to incur a potentially significant additional costs per forklift if the regulation is implemented.

The recommended adjustments to the total costs involve an increase by \$2.1 to \$4 billion, while simultaneously reducing cost savings by \$0.5 billion. These adjustments yield a lower Benefit- Cost Ratio ranging from 1.45 to 1.73. However, these calculations are contingent on the validity of the claimed health benefit of \$7.5 billion.

### Commenter: [335-45d]

<u>Agency Response:</u> No changes were made in response to this comment. Concerning the estimation of electricity costs, please see the Agency Responses B.2.I), m), and k) Cost Analysis – Cost of Electricity Comment 1,2, and 3, respectively. With respect to LCFS credit revenue, staff agrees that consideration of net costs without LCFS credit revenue removes \$515 million from the program's cost savings. However, based on the sensitivity analysis in Chapter VIII, Section E of the ISOR, net costs without LCFS credits reduces the estimated net cost savings from \$2.7 billion to \$2.2 billion (in 2021 dollars). The estimated \$30,000 net benefit per forklift in the Executive Summary is based on CARB's estimated net savings as averaged among ZEF forklift replacements made in response to the Regulation. There will be variability among fleets. While many fleets are expected to experience net savings, some are expected to experience net costs. CARB staff disagree with the recommendations made by the commenter to adjust the estimated costs. All in all, CARB has conducted a thorough cost and economic analysis to estimate the impacts of the Regulation and stands by the Benefit-Cost Ratio of 2.62 and the estimated health benefit of \$7.5 billion (in 2021 dollars), as discussed in Chapter VIII, Section C and Chapter IV, Section A.6 of the ISOR, respectively.

### o) Cost Analysis – State and Local Government Costs

<u>Comment:</u> Burdensome costs to forklift owners and operators: CARB's SRIA estimates that the proposed regulation will result in cumulative savings of over \$13.9 billion (though CARB provided 3 differing values for their cumulative savings). There are additional costs to the state and local governments that have not been accounted for. Utilizing the Department of General Service's fleet data, the California state government will incur direct costs exceeding \$25 million. This conservative estimate does not yet include costs to the University of California or California State University systems. Any costs of this rulemaking on local governments would also constitute an unfunded state mandate that would have to be borne by local taxpayers.

Commenter: [propane-45d, 294-45d]

<u>Agency Response:</u> No changes were made in response to this comment. The commenter stated that CARB provided three differing values for cumulative savings. A subsequent submittal<sup>10</sup> by the commenter provided additional details, stating that CARB erroneously gave the following three numbers in the SRIA for net cost savings, \$13.1B, \$13.78B, and \$13.9B. CARB staff have noted that in the SRIA, the \$13.1B is not net savings, but net benefit, and is correct (p.78 of the SRIA). The \$13.9B is correct for net cumulative statewide savings (p.76 of the SRIA). The \$13.78B is a typo on p.55 of the SRIA and was corrected in CARB's Notice of Public Availability of Modified Text and Availability of Additional Documents and Information that was released on May 21, 2024.<sup>11</sup>

Staff disagrees that there are additional costs to state and local governments that were not addressed, and the Commenter does not specify what those additional costs might be. Additionally, staff disagree that the state government will incur direct costs exceeding \$25 million. CARB staff estimates net direct savings of \$18.6 million through 2043 (upfront costs plus operational costs/benefits) for the State of California, as discussed in Chapter VIII, Section E.2 of the ISOR. The state government is assumed to incur an incremental cost from the purchase of ZEFs, while also realizing operational savings from the use of ZEFs. State and local government fleets are estimated to make up about 3% of California's affected forklift fleet. Assuming the number of forklifts owned by State and local governments is proportional to their share of government employment, it is estimated that 2.2 percent and 0.8 percent of the statewide forklift cost and operational savings resulting from the Regulation would be realized by local government fleets and State government fleets, respectively.<sup>12</sup> This methodology comprehensively addresses forklift costs and savings in state and local governments, including those for the University of California and the California State University system and the Department of General Services.

Staff disagrees with several aspects of the Commenter's analysis. First, staff believes the Commenter overestimated the affected LSI forklift population by a factor of more than two. Please see the Agency Response to B.4.b) Forklift Population - Estimated Impact, for a discussion on the staff's estimated forklift population. Second, the Commenter assumed 1.2 ZEF replacements for every one LSI forklift that is phased out. This assumes that LSI forklifts operating multiple shifts will be replaced primarily with lead-acid ZEFs. Staff disagrees with this assumption and assumes that fleets will use lithium-ion or fuel cell technology with a 1:1 replacement ratio. Please see the Agency Response to B.2.e) Cost Analysis – Additional Costs and Replacement Ratio. Also, the WPGA methodology does not account for natural turnover of LSI forklifts, thereby overstating the cost of the Regulation. WPGA includes the entire cost to replace every forklift with a ZEF. However, CARB's analysis of costs from the Regulation is the incremental cost of purchasing a ZEF versus an LSI forklift and the impact of such replacement earlier than would otherwise occur. The net costs should not include the entire cost to replace every forklift in operation now with a ZEF but should instead reflect the incremental costs calculated in CARB's analysis.

<sup>&</sup>lt;sup>10</sup> Chang, A., et al., Owner and Operator Cost of the California Air Resources Board Proposed Regulations to Phase Out ICE Forklifts, Western Propane Gas Association, February 2024.

 <sup>&</sup>lt;sup>11</sup> CARB's Notice of Public Availability of Modified Text and Availability of Additional Documents and Information noted updates to the SRIA including that the total estimated savings is \$13.9 billion, not \$13.78 billion.
 <sup>12</sup> Based on REMI Policy Insight Plus (v 3.0.0), State government's share of State and Local government employment is 23%.

With respect to costs of this rulemaking to local governments, the estimated costs were disclosed on page 13 of CARB's Notice of Public Hearing to Consider Proposed Zero-Emission Forklift Regulation.<sup>13</sup> Local government fleets are estimated to make up roughly 2.2% of California's fleet. All local government fleets are subject to the Regulation with requirements beginning for most fleets in 2026. Upfront costs would include the cost of purchasing new ZEFs as well as infrastructure costs for adding forklift battery chargers, facility improvements, and electrical upgrades. Local governments would also be expected to realize cost savings related to reduced ZEF energy cost, lower ZEF maintenance cost, and revenue from LCFS credits. In addition, local governments would be impacted by reduced gasoline and use taxes due to reduced usage of gasoline and propane, respectively, and increased sales taxes due to the sale of ZEFs and associated equipment and utility user fees.

Accounting for both total upfront costs and total operational costs results in total costs of \$157.9 million for local governments from 2026 through 2043. Over that same period, staff estimates total cost-savings of \$220.2 million due to operational savings. In terms of tax and fee revenue, the Regulation would result in increases in Utility User fees revenue and sales tax revenue totaling \$167.0 million and in decreases in gasoline tax revenue and use tax revenue totaling \$398.1 million. Accounting for all costs and savings, the total fiscal impact is estimated to be a net negative budgetary impact (i.e., a cost) of \$168.9 million from 2026 through 2043.

Regarding the commenter's claim that the Regulation is an "unfunded mandate," as stated in the Notice of Public Hearing, according to Government Code sections 11346.5, subdivision (a)(5) and 11346.5, subdivision (a)(6), this regulatory action will result in a mandate that would create costs and cost-savings to local agencies and school districts. However, these costs are not reimbursable by the State pursuant to Government Code, title 2, division 4, part 7 (commencing with section 17500), because this action neither compels local agencies to provide new governmental functions (i.e., it does not require such agencies to provide additional services to the public), nor imposes requirements that apply only on local agencies or school districts.<sup>14</sup> Instead, this regulatory action establishes requirements that would apply to all individuals and entities that own or operate regulated forklifts. This action also does not compel local agencies to increase the actual level or quality of services that they already provide the public.<sup>15</sup> For the foregoing reasons, any costs incurred by local agencies to comply with this regulatory action are not reimbursable.<sup>16</sup>

# p) Cost Analysis – Forklift Pricing and Costs

<u>Comment:</u> Regarding page 127, the specific concern centers around Column C for the following reason: The pricing of a lithium-ion battery electric lift can vary significantly depending on the model being compared, such as pneumatic electric or cushion electric. The pricing for these models differs substantially, with pneumatic electric models being much higher. Moreover, there can be a significant divergence in the cost of lithium-ion batteries themselves. For a single unit with a capacity ranging from 3000 lbs. to 12,000 lbs., suitable for a single-shift application, and one battery and one charge, the estimated acquisition cost for this lithium project falls within the range of \$50,000 to \$120,000. The end user would need to

<sup>&</sup>lt;sup>13</sup> CARB, Notice of Public Hearing to Consider Proposed Zero-Emission Forklift Regulation, November 2023.

<sup>&</sup>lt;sup>14</sup> County of Los Angeles v. State of California (1987) 43 Cal.3d 46, 56.

<sup>&</sup>lt;sup>15</sup> San Diego Unified School Dist. v. Commission on State Mandates (2004) 33 Cal.4th 859, 877.

<sup>&</sup>lt;sup>16</sup> County of Los Angeles v. State of California, 43 Cal.3d. 46, 58.

have 480-volt 3 phase input which could require a 50amp electrical breaker for every charger. CARB has made it clear that the technology exists and that would include the Lithium component. However, not every end user has this type of input power and would require an additional infrastructure upgrade. It is impossible to predict that cost as it is materially different in each county based on many differentials. Attempting to support an average cost per transaction is not possible.

### Commenter: [335-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB used the same sources to estimate costs for both LSI and battery-electric forklifts. Consequently, cost divergence between cushion and pneumatic forklifts would be impacted similarly for both LSI and battery-electric forklift cost estimates. In CARB's cost methodology, ZEF costs are evaluated relative to LSI forklift costs. Any potential underestimation of ZEF costs for pneumatic forklifts would similarly apply to LSI forklifts. Incremental forklifts costs were estimated by subtracting baseline costs (costs for natural turnover of LSI forklifts without the Regulation) from costs that would be incurred under the Regulation. Staff estimated average net fleet costs statewide, for a typical fleet, and for a small fleet and acknowledges that there will be cost variability for individual fleets. For further discussion on CARB's methodology for assessing incremental forklift costs, please see Agency Response to B.2.c) Cost Analysis – Inflation and B.2.o) Cost Analysis – State and Local Government Costs. With respect to the comment that the end user would need to have 480-volt 3 phase input, that is not necessarily the case, as there are commercially available single-phase lithium battery chargers.<sup>17,18,19</sup>

# q) Cost Analysis – Charging Facilities

<u>Comment:</u> In addition, related to on-site requirements for safety and accessibility. Most end users would have to significantly upgrade an area/building to accommodate the necessary venting needs of a charging facility. Not all batteries are sealed and have minimal gassing characteristics. Not every end user has an area to park and charge their fleets. Many would need to add or free up significant production space to accommodate the process. CARB is relying on insufficient data that all forklifts would not need to be charged at the same time.

### Commenter: [335-45d]

<u>Agency Response</u>: No changes were made in response to this comment. CARB acknowledges that some changes may need to be made to free up space and accommodate venting needs for rooms in which lead-acid batteries are charged. However sufficient ventilation is required in all areas in which LSI forklifts operate, as these forklifts produce combustion emissions which includes carbon monoxide and other air pollutants. Minimal ventilation is needed for lithium-ion and fuel cell ZEF technology and these technologies offer additional advantages over

<sup>18</sup> Green Power Batteries, Forklift Battery Chargers, n.d. (web link:

<sup>&</sup>lt;sup>17</sup> Crown, V-Force V-HFE3 Forklift Battery Chargers, n.d. (web link: *https://www.crown.com/en-us/batteries-and-chargers/v-hfe-versatile-high-frequency.html*, last accessed May 2024)

https://www.greenpowerforkliftbatteries.com/forklift-battery-chargers/, last accessed May 2024)

<sup>&</sup>lt;sup>19</sup> Forklift America, TSS-D Series Digital 80v 80A Single-Phase Battery Charger (440AH), n.d. (web link: https://www.forkliftamerica.com/product/80-volt-80-amp-battery-charger-universal-forklift-80v-tss-80-singlephase/, last accessed May 2024)

lead-acid battery technology in that neither lithium-ion nor fuel cell ZEFs require battery changing and both allow opportunity charging/fueling. With respect to the commenter's statement that not all users have an area to park and charge their fleets, the best available battery chargers today are small and light enough to be pedestal mounted and/or wall mounted taking up little to no floor space and are scalable to allow multiple forklifts to park near each other for recharging. CARB staff disagrees with the commenter's statement that CARB relied on insufficient data that forklifts would not need to be charged at the same time. CARB did not assume staggered forklift charging times, as exemplified by CARB's conservative cost assumption (which tends to overstate costs) of one charger per forklift.

### r) Cost Analysis – Workforce Development

Comment: Negative impacts on workforce and workforce development: CARB's analysis documents of the ZEV forklift rule report businesses will experience upfront costs to reach compliance w/some businesses experiencing more significant cost impacts with the purchasing of ZEV forklifts and relevant capital infrastructure. More importantly, CARB notes that smaller fleets will experience both upfront costs and cost savings, however, "the rate at which cost savings would be realized by a small fleet is expected to be slower, in general, than by typical fleets..." (Initial Statement of Reason, pg. 144). These upfront costs will negatively impact the bottom line of many small businesses throughout the State that are the backbone of California's economy. At the present time, it's unclear how small businesses are going to cover the upfront costs identified in CARB's analysis documents. Ultimately, this will result in business owners having to make difficult decisions; including cutting, freezing, and / or reducing its workforce to ensure sufficient financial resources are available to obtain compliance with the ZEV forklift rule. As California is currently facing a \$68 billion budget deficit and will further experience future deficits, personal income tax is one of the state's top three revenue generators; as a result, it's difficult to comprehend why the state would aggressively impose mandates that will jeopardize portions of its workforce and negatively impact such a vital revenue source to the State's General Fund.

### Commenter: [086-45d]

<u>Agency Response:</u> No changes were made in response to this comment. As discussed in Chapter VIII Section B.1. of the ISOR, CARB staff have included additional provisions in the Regulation, that were not included in the SRIA, which provide fleets additional flexibility regarding the phase-out schedule, expanded low-use allowance provisions, the ability for fleets to purchase used LSI forklifts, and exemptions for infrastructure delays and operational challenges for forklift fleet operators to have more time to transition their fleets away from LSI forklifts. Additionally, the cost analysis in the ISOR assumed fleets that replace their LSI forklifts with batter-electric would purchase new forklifts with a one-to-one ratio of chargers, and did not include less costly alternatives, such as fleets potentially purchasing used ZEFs or fewer chargers to meet operational demands that is discussed in Chapter VII, Section B.12. of the ISOR.

As indicated in Chapter VII, Section A of the ISOR, there are financial incentive programs that exist for ZEFs and associated infrastructure procurement in the State, but due to the uncertainty of their availability, these financial assistance programs were excluded from the cost analysis. To assess impacts of the Regulation on jobs and personal income tax revenue, staff used the Regional Economic Model, Inc. (REMI), a structural economic forecasting and policy analysis model that integrates input-output, computable general equilibrium, econometric and economic geography methodologies. The REMI model cannot directly

estimate the creation or elimination of businesses. However, changes in jobs and output for the California economy can be used to understand some potential impacts. With respect to the creation or elimination of jobs within the State of California, the Regulation is estimated to result in an initial decrease in employment growth that is less than 0.01% of baseline employment and begins to diminish towards the end of the regulatory horizon. In 2043, the Regulation is estimated to result in job gains of 8,047, primarily in construction, retail and wholesale, and services, and zero jobs foregone. The average annual change in jobs statewide from the Regulation is estimated at 0.00%.

The REMI model was also used to estimate impacts to personal income. Changes in personal income in California may change the amount of revenue the State of California collects in personal income tax. The Regulation is estimated to increase California personal income by an average of \$168 million annually and increase personal income tax by an average of \$6.7 million annually (2021 dollars). For further details, please see Chapter VIII, Section D of the ISOR.

### s) Cost Analysis – Net Costs

<u>Comment:</u> The total costs are problematic because of all the reasons stated above. While difficult to replicate the table without knowing all of CARB's assumptions, we note the following major issues:

Infrastructure cost is underestimated by a factor of 2 to 4 for the statewide cost because these costs are based on electric car chargers in metropolitan areas. We expect much higher costs especially for rural and agricultural facilities. Using more realistic costs would add \$750 million -\$2 billion to the cost of the program.

Electricity cost is completely unbelievable in this analysis. For example, the years 2038- 2043 show a declining electricity cost with constant consumption (by 2038 all forklifts should be ZEVs). There is no historical precedent in California for an annual drop in electrical costs. This analysis should be redone using a historically justifiable escalator. This would add \$1.5 - \$2 billion to the cost of the program.

LCFS Credit Revenue is purely speculative, especially in the later years of the program. This is not something a forklift operator can rely on as a revenue stream. Removing this from the analysis removes \$515 million to the benefits of the program.

Considering all the issues noted above, our conclusion is that the program is likely to have a "Net Costs" of \$60 million to \$1.8 billion. There is unlikely to be a \$30,000 net benefit per forklift as claimed in CARB's Executive Summary. Some facilities with the right conditions may see some benefit, but most will likely experience a significant cost per forklift as a result of this regulatory action by CARB.

### Commenter: [335-45d]

Agency Response: No changes were made in response to this comment.

For a discussion on infrastructure costs, please see the Agency Response to B.2.a) Cost Analysis – Infrastructure Costs Comment 1.

For details on the methodology for estimating electricity costs and for information on changes made in response to the comment, please see the Agency Responses to B.2.k), I), and m) Cost Analysis - Cost of Electricity Comments 1, 2, and 3, respectively.

For details on LCFS credit revenue, please see the Agency Response to B.2.d) Cost Analysis – LCFS Credits.

CARB staff disagree with the recommendations made by the commenter to adjust the estimated costs. CARB has conducted a thorough cost and economic analysis to estimate the impact of the Regulation. Concerning the estimated \$30,000 net benefit per forklift in the Executive Summary of the ISOR, the value is based on CARB's estimated net savings as averaged among ZEF forklift replacements made in response to the Regulation. However, there will be variability among fleets. While many fleets are expected to experience net savings, others may experience net costs.

### t) Cost Analysis – Utilities

<u>Comment:</u> CARB seems to be relying on data supplied by the utilities and not actual cost data. Even if the utilities could narrow down those values to supply the necessary power to a location adjacent to the end user's facility, they could not predict the expense to "drop" a sufficient breaker to the location specified by the end user at the site. This does not include the added expense of additional battery(s) and/or chargers in many multiple shift applications. The estimated cost could multiply dramatically.

#### Commenter: [335-45d]

Agency Response: No changes were made in response to this comment. CARB relied on a non-utility source, a report by the International Council on Clean Transportation,<sup>20</sup> for facility-side infrastructure installation cost estimates. CARB assumed infrastructure installation costs for Level 2 lithium battery charging due to its versatility and the trend towards higher percentages of lithium-ion battery forklifts purchased over time. There are several conservative assumptions (i.e., assumptions aimed at overstating costs and understating benefits) built into CARB's estimate for infrastructure installation costs. Although staff's cost estimates for electrical infrastructure installation include facility-side upgrade costs, which includes adding breakers in many cases, and some utility-side upgrade costs, staff anticipates that nearly all utility-side upgrade costs would be rolled into the utility pay rates of the facility, or the customer base at large per AB 841, to be recovered over time. Please see the Agency Response to B.2.a) and b) Cost Analysis – Infrastructure Costs Comments 1 and 2, respectively. As discussed in Section VIII B.8.b of the ISOR, individual fleets may be subject to infrastructure costs that are higher or lower than the estimated statewide average infrastructure costs. For that reason, a sensitivity analysis was included in Section VIII.F.3 of the ISOR with the hypothetical scenario in which infrastructure costs for a typical fleet are twice the levels assumed in the cost analysis. If higher infrastructure costs are included in the cost analysis, the estimated savings of the Regulation for a typical fleet would be approximately \$5.6 million instead of \$6.0 million by 2043.

The expense of additional batteries and chargers for multiple shift applications would likely be associated with the use of lead-acid battery ZEFs. For multiple shift applications, lithium-ion or fuel cell electric ZEFs offer several advantages and may be less costly over time,

<sup>&</sup>lt;sup>20</sup> Nicholas, Michael, Estimating Electric Vehicle Charging Infrastructure Costs Across Major U.S. Metropolitan Areas, The International Council on Clean Transportation, August 2019 (web link: https://theicct.org/sites/default/files/publications/ICCT\_EV\_Charging\_Cost\_20190813.pdf).

as discussed in Chapter I, Section E.1 of the ISOR. Please also see the Agency Response to B.2.e) Cost Analysis – Additional Costs and Replacement Ratio.

# u) Fuel Cost Methodology - Propane

<u>Comment:</u> Propane-powered forklifts are the more affordable fuel option: ICE forklift fuel costs decrease substantially when propane fuel costs are utilized. When propane is used as the fuel of choice for ICE forklifts, ICE forklift fuel costs go down by approximately 55%. Cumulative fuel savings when using propane add up to \$1.87 billion, while cumulative fuel savings when using gasoline amount to \$5.25 billion. Utilizing propane as the main source of fuel for ICE forklifts provides a more accurate depiction of ICE forklift fuel costs as the majority of forklifts are propane powered. Considering that the fuel savings generated by CARB make up approximately 47% (\$8.2 billion) of CARB's cumulative regulation benefits, transparency on their fuel cost methodology is essential.

#### Commenter: [propane-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff agrees with the commenter that transparency on the cost methodology is essential. That is why CARB staff carefully documented the cost methodology in the ISOR and SRIA and met with this commenter to discuss our cost methodology. In the ISOR and SRIA, staff's analysis of sparkignited forklifts is based primarily on propane-fueled forklifts as they represent many sparkignited forklifts in California. Both in the ISOR and the SRIA, staff assumed that 92.3% of LSI forklifts operate on propane and only 7.7% operate on gasoline. In other words, the baseline assumptions in CARB staff's cost analysis in the ISOR and SRIA are consistent with the commenter's suggestion to assume propane is currently "the main source of fuel for ICE forklifts" and that "the majority of forklifts are propane powered." This proportion is identified for the estimated statewide forklift population in Chapter VIII, Section B.5 of the ISOR and Chapter 3.1.1 of the SRIA. Staff's assumption of propane costs was derived via a survey of propane fuel suppliers in California as discussed in the fuel cost methodology outlined in detail in Section VIII Section B.9.a of the ISOR and Section 3.1.5 of the SRIA. Staff's analysis shows significant savings for ZEFs versus propane forklifts.

### v) Fuel Cost Methodology – Propane and LCFS

<u>Comment:</u> CARB obscured fuel cost methodology in their calculation: ICE forklift fuel costs decrease substantially when propane fuel costs are utilized. When propane is used as the fuel of choice for ICE forklifts, ICE forklift fuel costs are reduced by approximately 55%. Cumulative fuel savings when using propane add up to \$1.87 billion. Utilizing propane as the main source of fuel for ICE forklifts provides a more accurate depiction of ICE forklift fuel costs, as most forklifts in use are propane powered. Considering that the fuel savings generated by CARB make up approximately 47% (\$8.2 billion) of CARB's cumulative regulation benefits, transparency on their fuel cost methodology is essential—critical, since savings rely partially on LCFS funding, which cannot be guaranteed for the duration of the phase-out period.

### Commenter: [propane-45d] and [294-45d]

<u>Agency Response:</u> No changes were made in response to this comment. Please see Agency Response to B.2.u) Fuel Cost Methodology – Propane, for information on CARB's fuel cost methodology and a discussion on the statement that ICE forklift fuel costs are reduced substantially when propane is used as the fuel of choice for ICE forklifts.

With respect to LCFS credits, staff understands that LCFS credits are not guaranteed, and therefore, included a sensitivity analysis of the direct costs and macroeconomic impacts of the Regulation both with and without LCFS credits (Chapter VIII, Section F.1 of the ISOR). Without LCFS credits, direct costs of the Regulation are estimated to result in net cumulative statewide savings by 2043 of \$2.2 billion. For a typical fleet, the net savings without LCFS credits is estimated to be \$5.1 million. For a small fleet, there is an estimated net cost of \$8,840 without LCFS credits. All values are in 2021 dollars.

Please see Agency Response to B.2.d) Cost Analysis – LCFS Credits, for more details.

# 3. Definition Issues

### a) Definition of Emergency Operations

<u>Comment:</u> CCEEB appreciates that staff has provided a provision specific to Dedicated Emergency Forklifts. However, the definition of emergency operation are overly restrictive in that it limits emergency operations to those declared by a government body, Governor, or President pursuant to California Government Code Section 8558. The ZEF Regulation, like the In-Use Off-Road Diesel-Fueled Fleets Regulation, should recognize the need for emergency operations to support activities necessary to prevent public health risks, as supported by appropriate recordkeeping and reporting for CARB's verification. Similarly, there should be such an allowance for all fleet operators, not only government agencies and entities operating under the authority of a governmental agency.

We suggest the ZEF Regulation use the following definition for emergency operations, from the In-Use Off-Road Diesel-Fueled Fleets Rule as amended in 2022, and that it apply to all Fleet Operators:

(A) Any activity conducted during emergency, life threatening situations, where a sudden, unexpected occurrence that poses a clear and imminent danger, requiring immediate action to prevent or mitigate the loss or impairment of life, health, property, or an essential public service; or in conjunction with any officially declared disaster or state of emergency, as declared by an authorized health officer, agricultural commissioner, fire protection officer, or other authorized health officer;

(B) Any activity conducted by essential public and private service utilities to provide electricity, natural gas, broadband and telephone, water, or sewer during periods of service outages and emergency; or

(C) Operations including repairing or preventing damage to roads, buildings, terrain, and infrastructure as a result of an earthquake, flood, storm, fire, other infrequent act of nature, or terrorism. Routine maintenance or construction to prevent public health risks does not constitute emergency operations.

### Commenter: [097-45d]

<u>Agency Response:</u> No changes were made in response to these comments. The current definition of "Emergency Operation" means an operation that helps alleviate an immediate threat to public health or safety in response to a Declared Emergency Event. Examples of emergency operation include repairing or preventing damage to roads, buildings, terrain, and infrastructure because of an earthquake, flood, storm, fire, other infrequent acts of nature, or terrorism. Routine operations, maintenance, or construction to prevent public health risks does not constitute emergency operation and are not included because they are planned daily

operations that are part of normal business practices or services and should not be exempt due to foreseeable occurrences.

Like other CARB regulations, the exemption would limit a dedicated emergency forklift to one owned and operated by a governmental agency or other entity operating under the authority of a governmental agency. This additional ownership requirement serves as an added safeguard to ensure that the exemption is used during extraordinary circumstances and not during times that lack the gravity of declared emergency events.

Feasible options that fleets could employ during emergency operations include the use of rental LSI or diesel forklifts. Section 3004 of the regulation allows rental agencies to offer for rent 2025 or previous MY LSI Forklifts that have not yet been phased out according to the applicable Phase-Out Schedules, and, until January 1, 2038, 2026 through 2028 MY Class V Forklifts as well.

### b) Definition of In-Field Forklift

<u>Comment:</u> We fully support the exclusion of rough terrain forklifts, as rough terrain forklifts operate in rugged, uneven, and sometimes wet environments where the existing technology for electric forklifts does not exist. Excluding these from the Proposed Regulation provides businesses the necessary flexibility to continue operations effectively while maintaining compliance.

The 2016 Large Spark-Ignition (LSI) Engine Fleet Requirements Regulation recognized the necessity to exclude in-field forklifts from the previous regulations and we highly recommend the same consideration for the Proposed Regulation. Forklifts are an essential part of many on farm/in-field operations during harvest and many of these forklifts operate with diesel and/or propane. These forklifts have a distinct operational use primarily during the harvest seasons, many times only being used two to three months out of the year. It is important to acknowledge the unique demands and dynamics of in-field usage; the precedent has been set and should be continued in this new regulation.

### Commenter: [335-45d]

<u>Agency Response:</u> Although staff believe that all In-Field Forklifts are likely to be Rough Terrain Forklifts, which were already excluded from the Regulation, to provide additional clarity, changes were made in response to this comment. As part of the 15-Day Changes, a new definition is being added for "Agricultural Operations" that describes the type of businesses that would be considered Agricultural Operations. This definition is needed to incorporate the exclusion of In-Field Forklifts and is like the definition used in the LSI Engine Fleets Regulations (Title 13, CCR, section 2775, 2775.1, and 2775.2), which currently applies to LSI forklift fleets. The Agricultural Operations definition for this regulation does not include forest-related operations, which are included in the LSI Engine Fleets Regulations definition.

Accordingly, the definition for "In-Field Forklift" is being added to define that an Agricultural Operations or Forest Operations Forklift is a forklift in which more than 50% of its operating hours are used in either Agricultural Operations or Forest Operations, or a combination of the two, not including operating hours in Crop Preparation Services. Section 2433(b)(1)(A) Note (7) is being modified to add exclusions to the requirement that starting January 1, 2026, LSI forklift manufacturers cannot produce for sale or offer for sale a Class IV LSI forklift in California, and starting January 1, 2029, cannot produce for sale or offer for sale a Class V LSI

forklift with a rated capacity of 12,000 pounds or less. The exclusions are addressed in section 3005(c) and include In-Field Forklifts.

# 4. Forklift Population Issues

# a) Forklift Population – Estimated Impact

<u>Comment:</u> While CARB estimates that its Proposed Regulation would impact 95,000 forklifts, that is less than a third of the values produced by 2017 research for CARB by the Social Science Research Center at California State University, Fullerton. In reality, the Proposed Regulation will impact 308,000 forklifts statewide, or more than three out of every four forklifts in operation today.

# Commenter: [090-45d]

Agency Response: No changes were made in response to this comment.

In 2016, CARB contracted a survey conducted by CSU Fullerton focusing on businesses that use LSI forklifts. This survey 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 fleets that have three or fewer forklifts, the survey went further to try to extrapolate statewide population. The results from this portion 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 included businesses that were not likely to have forklifts, such as nail salons, personal tax accountants, and mobile phone repair stores as examples. This overrepresented the population of forklifts in the state by a significant amount.

The 2023 LSI Emission Inventory Model bases the overall population on the historical sales of new forklifts provided by the ITA and in-use forklift data from the DOORS online reporting system. This methodology was covered 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 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 the emission inventory, which has an estimated population of approximately 94,000 LSI forklifts is not perfectly linear.)

For there to be 308,000 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 38.5 years (38.5 years multiplied by 8,000 units sold per year would be 308,000 active forklifts at any given time), with little to no retirement of forklifts purchased between 1986 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 about 17,500 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.

# b) Forklift Population – Time Limited Information Source

<u>Comment:</u> Beginning on page 116 of the ISOR, CARB makes various comments regarding the existing and projected forklift population. Many of the comments made stem from a read of the

"Machinery Trader" website. While this could provide some useful information, we are concerned with making any conclusive decisions or comments based on that time limited information.

# Commenter: [335-45d]

Agency Response: No changes were made in response to this comment. Although staff did pull some information from the "Machinery Trader" website, that was by no means the only source of information used. Rather, the 2023 LSI Emission Inventory Model bases the overall population on data showing the historical sales of new forklifts provided by the ITA and in-use forklift data from the DOORS online reporting system. 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 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 used to estimate benefits of the Proposed ZEF Regulation, which has an estimated population of approximately 94,725 LSI forklifts statewide. Regarding sales growth, CARB staff used the historical national sales as reported by ITA from 1995 through 2020. These historical national sales of new LSI forklifts show stagnant LSI forklift sales over the last 25 years, with sales in the 2010s like sales in the 1990s and 2000s, and a decrease in new LSI forklift sales between 2018 and 2020. The 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.

# c) Forklift Population – ZEF Population

<u>Comment:</u> On page 32 a comment is made that about half of the forklift population in California is already using ZE technology. We cannot confirm this claim as a reference was not provided. Furthermore, we have surveyed the tree nut and cotton industries and that is most certainly not the case. Our data shows less than 16% of the forklift population in the ag community are ZE technology.

# Commenter: [335-45d]

<u>Agency Response:</u> No change was made in response to this comment. To estimate the total number of electric forklifts operating in California, CARB staff used national sales data for electric forklifts from multiple sources including the ITA and internal DOORS self-reporting. References are compiled in ISOR Appendix D. The statement that about half of the forklift population in California already uses ZE technology was across all industries and was not intended to suggest that all individual industry segments would have similar proportions for ZE technology adoption.

# 5. Electrical Infrastructure, Utilities, and Grid Concerns

# a) Electric Utility Planning – Infeasible

<u>Comment:</u> Section 3006(c) requires fleet operators and rental agencies to know exactly what they will need in electrical capacity at each facility by 3/31/2026 to tell the electrical provider of

the company's needs. The requirements of this section are quite unreasonable and overly burdensome and complicated.

There would be no way to make such an accurate assessment for a fleet that phases out over a 10 to 12 year time period. This restriction is even more infeasible to pinpoint by the specified dates for rental companies that move equipment around their many locations based upon demand and not based upon a facility's electrical capabilities. This section must simply state that if and when an issue may arise that relates to electrical capacity the Executive Officer must be notified and the electrical utility provider must be engaged by the fleet operator to provide solutions.

### Commenter: [012-45d]

<u>Comment:</u> Section 3006(c) must be amended to reflect that forklift operators in the business events industry, especially small businesses, cannot be expected to estimate their future electrical needs for an all-electric forklift fleet that will be phased in over a period of a decade or longer. ECA supports the proposal of other stakeholders that requires fleet operators to immediately engage with their electrical utility providers to identify solutions when additional capacity is needed.

#### Commenter: [090-45d]

<u>Grouped Agency Response:</u> Changes were made based on this comment. As part of the 15-Day Changes, CARB clarified in Section 3006(c) that only information that is applicable must be submitted. The intent of Section 3006(c) was never to require information that is impossible to obtain to be submitted, and the added "as applicable" makes that clearer. For example, if a fleet that rents out forklifts for events does not know in advance all the locations at which their forklifts will be used, then that location data is not applicable and need not be submitted. Indeed, Section 3006(c) states that the contact between the fleet operator and the utility provider is to "initiate discussions regarding potential" future electrical service needs. The proposed subsection does not include the phrase "exact" or similar language to "exact".

Based on feedback from electrical utilities, receiving electrical demand projections (even if there is uncertainty) and initiating early discussions regarding potential future demand are critically important for utility planning and development. Section 3006 cannot be amended to delay engagement with electric utility providers without risking potential substantial infrastructure delays causing regulatory implementation and compliance risk for fleets. Electric utility providers and stakeholders have mentioned that it is not uncommon for schedules for major electrical infrastructure assessments and the potential associated upgrade or installation of projects to be quoted at years out for completion in some situations. The Regulation only requires estimates of potential anticipated future needs and is intended to improve planning and development outcomes while reducing risk for fleet operators. Were fleet operators to wait to engage the electric utility until that time when the additional electrical capacity is needed, it could foreseeably create operational hardships, costs, and regulatory compliance risk for fleet operators.

#### b) Electric Utility Planning – Cumulative Infrastructure Needs

<u>Comment:</u> While it's true that CARB cannot solve the infrastructure challenge on its own, CARB can prevent exacerbating infrastructure deficiencies through allowing for

well-planned, feasible transitions for infrastructure end-users, accounting for the fact that most fleet operators are subject to multiple regulations that could result in increased power demand.

The 2023 Inventory indicates that the Proposed ZEF Regulation would approximately double the gridded energy demand from Targeted Forklifts [T]he 2023 Inventory indicates this [Proposed ZEF Regulation] demand represents less than half a percent of the current statewide gridded energy demand, the Proposed ZEF Regulation would be phased in over the same time period as several other significant regulatory programs that would increase reliance on the grid and require increased coordination between fleets and the electric utilities—including CARB's Advanced Clean Fleets (ACF) Regulation, CARB's Ocean-Going Vessels At Berth Regulation (At Berth), and CARB's 2022 Amendments to the TRU Airborne Toxic Control Measure, in addition to other existing and potential CARB and District-level regulations.

The Proposed ZEF Regulation seems to recognize this overlap, as it requires in §3006(c)(2) that a Fleet Operator or Rental Agency contact—or "may have" the "entity responsible for electrical infrastructure at the operating location" contact—the applicable electric utility provider by March 31, 2026 with information not only for the estimated power demand for infrastructure needed to charge or fuel ZEFs, but with "information on other new sources of power demand anticipated during the applicable phase-out period(s)." Given all of the adopted zero-tailpipe-emission rules that would come into effect over the Proposed ZEF Regulation's phase out period (2028-2038), including the ACF Regulation, this is a significant request, one that depends entirely on CARB's interpretation and enforcement discretion in wholly separate rules.

#### Commenter: [097-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff acknowledges that multiple CARB regulations including the ACF Regulation will require increased reliance on the grid. As noted in the ISOR, "other recent CARB rulemaking activities such as the Advanced Clean Fleets regulation, Advanced Clean Cars II regulation, Commercial Harbor Craft regulation, and In-Use Locomotive regulation also relate to increasing ZE equipment adoption. As part of these rulemakings, CARB staff is working with the CEC, California Public Utilities Commission (CPUC), CAISO, utility providers, and the Governor's Office of Business and Economic Development (GO-Biz), to support electric system planning that accounts for the significant growth in infrastructure needs to further support widespread deployment of ZE technology." Additionally, "information on other new sources of power demand anticipated during the applicable phase-out period(s)" can include any anticipated new sources of power demand and would not be limited to regulatory requirements. Finally, the Zero-Emission Forklift Regulation includes applicability, eligibility, and compliance specificity details ensuring conditions and requirements that are unambiguous and enforceable.

### c) Electric Utility Planning – Threshold

<u>Comment:</u> We have actively contributed to the state's multiple rulemaking efforts to enable public fleets to make a compliant ZE transition, while maintaining essential service and reliability. Given the overall breadth of ZE regulations that the state has adopted, the comments contained herein attempt to streamline reporting requirements and mitigate costs— all the while supporting this balanced approach.

Discussions with Utility Providers for Locations with ZEFs [§3006(c) and §3007(b)(3)(B)(1)] — This requirement could place an unnecessary burden on impacted entities to document

infrastructure requirements and should only be applicable to entities that are either requesting an Infrastructure Site Electrification Delay Extension, or where they exceed a threshold for forklifts at a single location. Establishing a threshold number of forklifts that could require a significant electrical upgrade would help smaller entities identify if additional engagement is needed with an electrical utility and eliminate unnecessary communication with utilities for sites that won't have a significant load impact. To additionally remove duplicative reporting and ARB review time, it is recommended that this requirement be automatically satisfied if a location has successfully received an electrical utility associated extension under the Advanced Clean Fleets regulation.

#### Commenter: [258-45d]

<u>Agency Response:</u> No changes were made in response to this comment. The purpose of Section 3006(c) of the Regulation is to ensure all forklift fleets, not just large fleets or those requesting an Infrastructure Site Electrification Delay Extension, plan for use of ZEFs. CARB staff therefore do not agree with making the change the commenter requests. All forklift fleets need to determine what chargers and power will be necessary and share that information with their electric utility provider. The variety of facilities that utilize affected forklifts, the variety of conditions and capacities of the associated utility infrastructure, as well as the range of potential operational needs of the replacement zero-emission technology selected by the fleet operator, all support the need for Section 3006(c) of the Regulation to require the contact and initiation of discussions with the utility regarding potential future needs. Exempting fleets with fewer forklifts from this planning requirement via a threshold number of affected forklifts at a single location could put smaller businesses at risk for having insufficient utility resources available when attempting to deploy ZEF and could prevent utilities from having a complete picture of the upcoming load due to use of ZEFs.

In addition, without the Section 3006(c) requirement to coordinate ahead of time with utilities, some fleets may not be motivated to investigate what ZEFs they will use or what charging and power they will need nor what limits their utility may face, and hence may not realize they need an Infrastructure Site Electrification Delay Extension per Section 3007(b)(3)(B). Therefore, CARB staff does not believe it would be prudent to limit the Section 3006(c) requirement only to fleets that are already pursuing such an extension.

Regarding the commenter's request to allow an electrical utility associated extension under the Advanced Clean Fleets regulation to automatically satisfy the ZEF Infrastructure Site Electrification Delay Extension, CARB staff appreciates the suggestion and shares the commenter's desire for streamlining and avoiding unnecessary duplication of effort. However, CARB staff did not add such a provision to the Regulation because to qualify for an Infrastructure Site Electrification Delay Extension under the Regulation, the Fleet Operator must have deployed the maximum number of ZEFs that can be supported by the site, whereas consideration of ZEFs is not included in the Advanced Clean Fleet regulation. Nevertheless, CARB staff recognizes that the qualifying factors for a ZEF Infrastructure Site Electrification Delay Extension are nearly identical to those for the Advanced Clean Fleet regulation, and CARB ZEF implementation staff plans to coordinate with ACF staff to avoid duplication of effort to the maximum extent feasible.

### d) Electrical Infrastructure – ZEF Rentals for Agricultural Operations

<u>Comment:</u> Renting a forklift becomes a complicated challenge when the Proposed Regulation prohibits or significantly restricts access to newer LSI forklifts. In situations where a company does not have the electrical infrastructure to support the rental of a ZEV forklift, this

requirement impedes the business from maintaining standard business practices during harvest when the need for rentals is essential to a successful operation. Maintaining a balance between regulatory compliance and the practical requirements of operating a seasonal operation is crucial to ensure a smooth and unhindered flow of operations. The useful life of an LSI forklift rental is notably diminished when it operates in a manner where it transitions from one harvest operation to the next. As such, the rental agency will frequently need to replace LSI forklifts at a much faster pace and will need access to new LSI forklifts. The nature of rentals in agriculture are unique and should allow for more flexibility and an extended amount of time allocated to rental services as we transition to ZEV fleets. Limiting the access to rental agencies directly affects businesses reliant on forklift rentals and our ability to function effectively.

### Commenter: [335-45d]

<u>Agency Response:</u> No change was made in response to this comment. For instances where a "company does not have the electrical infrastructure to support the rental of a ZEV forklift" it is staff's expectation that refueling solutions would be either the responsibility of the rental equipment provider or otherwise incorporated into the rental agreement contracting engagement. Additionally, the Regulation does not prevent fleet operator facilities from evaluating or installing infrastructure upgrades best suited for their operational needs. In fact, the Regulation includes early engagement with utility service providers to discuss future potential utility service needs. As part of compliance planning, a fleet's early engagement can include engaging with utilities, engaging with equipment rental companies to consider using mobile power charging or fuel cell power, and/or considering process alternative solutions like conveyor belts.

Additionally, Section 3004 is constructed to provide specific allowances for the rental of ZEF while supporting the emission reductions needed from the Regulation.

Regarding the unique nature of rentals in agriculture, CARB staff does not contest that agricultural operations are unique. Indeed, that is why the Regulation includes an alternative, slower phase-out schedule for crop preparation services. CARB staff do not agree with providing special, less stringent provisions for agricultural rentals because such provisions would be difficult or impossible to enforce and hence would undermine the emission reductions of the Regulation.

### e) Electrical Infrastructure – Charging Demands for Agricultural Operations

<u>Comment:</u> The electrical infrastructure in these [rural] regions is not yet equipped to meet the demands of charging these fleets, and unfortunately, our rural operations are at the bottom of the priority list for utility providers when it comes to upgrades or additional services.

### Commenter: [335-45d]

<u>Agency Response:</u> No changes were made in response to this comment. The Regulation includes a delayed phase-out schedule as compared to the large fleet schedule (3006(d)) for crop preparation service fleets' LSI forklifts providing additional operational time and provides multiple other exemptions and extensions detailed in Section 3007. These exemptions and extensions include the In-Field Forklift Extension, which allows for the indefinite use of an eligible LSI in-field forklift, Delivery Delay, and Infrastructure Delay extensions. Forklifts used in rural operations where the utility cannot provide necessary upgrades or services may receive an Infrastructure Site Electrification Delay Extension, which will allow them to continue to use

LSI forklifts and to replace such forklifts with other LSI forklifts as needed. In addition, the Regulation incorporates flexibility for the operators selecting technology solutions best suited for their operational and compliance needs and conditions. Solutions for consideration can include mobile power units to charge forklifts, fuel-cell forklifts, or where and if available, participation in remote grid programs which are standalone power systems independent of the electric grid utilizing a combination of solar, batteries and fuel-powered generation to provide continuous electricity.

### f) Electrical Infrastructure – Mobile Power Units

<u>Comment:</u> On page 35 of the ISOR, CARB recognizes remote locations and suggests that these operations could bring in "mobile power units" to charge forklifts. How does bringing in a diesel-powered generator to charge an electric forklift create any emission reductions beyond a simple propane forklift? The agricultural industry uses this opportunity to once again remind CARB of the unique nature of rural agricultural operations and the problems associated with expanding the electrical infrastructure to accommodate our needs and asks CARB to further adjust the proposed regulation to allow for even more time.

### Commenter: [335-45d]

<u>Agency Response</u>: No changes were made in response to this comment. CARB staff appreciates the unique nature of agricultural operations and potential challenges of remote locations.

The ISOR mentions that in "some instances, operators could opt to use mobile power units to charge forklifts." Mobile power unit in this context was not intended to refer only to diesel-powered generators; instead, mobile power units also include ZE mobile power stations and portable energy storage/battery pack units such as those offered by Dannar.

Regarding the commenter's question regarding bringing in a diesel-powered generator to charge an electric forklift, CARB staff agrees that replacing LSI forklifts with ZEFs powered by diesel-powered generators would be counterproductive. The Regulation is structured to avoid putting any Fleet Operators in a position where their only compliance option would be replacing LSI forklifts with ZEFs powered by diesel-powered generators. That is why the Regulation includes Infrastructure Site Electrification Delay provisions.

Although no changes were made specifically in response to this comment, the Regulation already included an alternative, slower phase-out schedule for crop preparation services. In addition, as described above in the response to Comment Definition of an In-Field Forklift, as part of the 15-day changes, the In-Field Forklift Exemption, 3007(a)(6) allowing for the continued usage of eligible in-field LSI forklifts was added to the Regulation.

# g) Electrical Infrastructure – Vehicle to Grid Technology

<u>Comment:</u> Another problem with the California electrical grid is the acknowledged lack of sufficient power. On page 37, CARB highlights the "vehicle-to-grid technology" where the grid can pull power from vehicles while they are being charged. That simply does not work in the agricultural community where equipment must be ready to go when the shift begins, especially with perishable commodities needing to be packed, processed, shipped, or stored. This would be devastating to the agricultural industry if these units are not ready to operate after their charging time, because they had been drained back into the grid. The agricultural community adamantly opposes this concept and once again urges CARB to consider further adjustments

to the regulation to allow sufficient time for the state's electrical infrastructure to be fully built out and able to adequately accommodate the needs without pulling back power.

# Commenter: [335-45d]

<u>Agency Response:</u> No changes were made in response to this comment. The potential for vehicle-to-grid technology was discussed in the ISOR in the context of being one of many concepts for supporting future grid resiliency. While the ISOR mentioned vehicle to grid technology, the Regulation does not require or mention vehicle to grid technology. In addition, the ISOR does not mention or reference targeting agricultural applications or equipment for vehicle-to-grid technology. Vehicle Grid Integration resiliency benefits may result from other transportation sectors such as SDG&E's Vehicle-to-Grid School Bus Pilot program referenced in the Complementary California Incentives for ZE Infrastructure chapter of the ISOR.

Further, CARB anticipates any forklift Vehicle Grid Integration programs implemented by utility operators would be the result of consultation and coordination with fleet operators.

# h) Electrical Infrastructure – Infrastructure Expansion for Agricultural Operations

<u>Comment:</u> On page 33 [of the ISOR] comments are made regarding "the dispersed nature of rural communities may not currently have additional capacity beyond what is already in use." We couldn't agree more and have provided numerous examples of where utility providers have already reported system capacity issues and situations where agricultural operations have told they cannot expand or for some new operations not provided electrical power at all. While the CPUC may have utilities to implement mitigation strategies to help in these situations, absolutely nothing has been done.

This lack of infrastructure greatly affects the ability of agricultural operations to comply with this new regulation and must be considered in the final rulemaking.

### Commenter: [335-45d]

<u>Agency Response</u>: No changes were made in response to this comment. CARB staff appreciates the commenter discussing such issues with us and associated agricultural crop preparation services facilities opening their doors to us during development of the Regulation. CARB staff acknowledges the points the commenter makes regarding infrastructure issues and delays expanding capacity to some facilities in rural areas, especially in the Central Valley, and crafted the Regulation with this in mind.

The Regulation includes compliance flexibilities for crop preparation service fleets including the alternative phase-out schedule in Section 3006 (d)(2), which provides additional time to phase out LSI forklifts. Additionally, the Regulation includes the Infrastructure Site Electrification Delay Extension in Section 3007(b)(2)(B) for exactly the situation described by the commenter. Via that Extension, forklift fleets that face infrastructure issues and/or utility delays may continue using LSI forklifts as needed. As part of the 15-Day Changes, staff added the ability for such fleets to also continue acquiring replacement LSI forklifts as needed, via the new Section 3007(b)(5) Replacement of LSI Forklifts Covered By an Operational Extension or an Infrastructure Site Electrification Delay Extension.

# i) Electrical Infrastructure – Sufficient Time

<u>Comment:</u> On page 34 [of the ISOR] CARB acknowledges the issues with infrastructure delays and that sufficient time is necessary. However, we strongly disagree with the comment that

"utilities have indicated that project phasing commonly allows fleets to deploy ZEVs quickly using existing infrastructure and that electrical infrastructure upgrades can be make while a fleet expands its ZE deployments over time." In many situations the agricultural industry has brought to the attention of CARB. In one example an almond processor was told it had to drop an entirely new transformer service to expand at all. Similarly, a walnut processing operation in the Sacramento Valley was told the exact same thing. Again, the agricultural industry reminds CARB of the lack of electrical infrastructure and the problems associated with it and respectfully asks CARB to adjust the proposed regulation further to allow for sufficient time to address these concerns.

#### Commenter: [335-45d]

<u>Agency Response:</u> Changes were made in response to this comment. CARB appreciates the commenter's reinforcement of the infrastructure development and upgrade challenges of agricultural operations. In part, the Regulation's requirement for early discussions with utilities regarding potential future service needs was intended to help align utility service needs with availability. The Regulation provides regulatory flexibility to fleet operators via delayed phase-out schedules for crop preparation service fleets (3006(d)) and multiple Exemptions and Extensions (3007) including phase-out extensions (3007(b)), Infrastructure Delay Extensions (3007((b)(3)), and allowing for LSI forklift replacement eligibility options. As part of the 15-Day Changes, in response to this comment and others, staff added the ability for such fleets to also continue acquiring replacement LSI forklifts as needed via the new Section 3007(b)(5) Replacement of LSI Forklifts Covered by an Operational Extension or an Infrastructure Site Electrification Delay Extension.

### j) Electrical Infrastructure – Infrastructure Upgrade Examples

<u>Comment:</u> CARB states on page 41 [of the ISOR] that the "CPUC has already approved utility investments for upgrading the electric grid along with electricity rate changes to fund those investments." We cannot verify this and have not seen any of those investments. Rather, we have seen tremendous rate increases, with more on the way, but little to no movement on infrastructure upgrades. Can CARB provide any specific examples? We have only seen the utilities focus their infrastructure upgrades on the undergrounding of power lines for fire safety purposes. We adamantly disagree with the statements made here and believe CARB is being misled by the CPUC on this matter, unless we can be shown specific examples of where the utilities have made any upgrades to the electric infrastructure that would help compliance with this regulation in any form.

### Commenter: [335-45d]

<u>Agency Response:</u> No change was made in response to this comment. CARB appreciates the comment and recognizes the concern, understanding that some areas, including agricultural, remote, or rural, have infrastructure challenges. Throughout the development of the Regulation, CARB met with stakeholders from both agricultural industries and PG&E. As a result, the Regulation includes Infrastructure Delay Extensions including the Construction and Site Electrification Delay provisions.

In response to the commenter's request for "specific examples of where the utilities have made any upgrades to the electric infrastructure" the Regulations ISOR cited multiple CEC and California Public Utility Commission (CPUC) documents. Additionally, CEC and CPUC host other informative resources for specific examples on their associated websites, (CPUC.ca.gov and energy.ca.gov).

# k) Utility Service Availability

<u>Comment:</u> In addition, the ACF Regulation and the Proposed ZEF Regulation would require that a multi-site fleet must evaluate what power could be supplied to each of its sites to confirm that no site can support additional upgrades prior to CARB's granting of an extension for a particular site... How will CARB address the circumstance where one utility can provide x% of power for forklift needs, y% of power for vehicle needs, and z% of power for At Berth needs, but another utility can provide different percentages for some or all of these?

### Commenter: [097-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB has been and continues to work cooperatively with other agencies including the CPUC and CEC regarding utility resources and services. Early initial assessments of each facility's vehicles and equipment that are subject to CARB's regulations, including which ZE equipment to phase in over time to satisfy compliance obligations, plus early engagement with utilities can be used to develop a better understanding of anticipated future potential service needs at each site over time. This understanding and coordination with the respective utility permitting officials should help the regulated party plan and develop site infrastructure that aligns with their compliance strategy, as well as maintain the flexibility for the fleet operator to evaluate and implement the ZE solutions that work best for their operation and needs. It is CARB staff's intent that regulated fleets design their own compliance strategy, including exemptions, across all applicable regulations. CARB staff do not intend to make these decisions on behalf of fleets.

In addition, regarding the commenter's question regarding a multi-site fleet who can get power from multiple utilities, such a fleet would need to take the power available from each utility into account when developing their compliance strategy.

# 6. LSI Forklift Purchase, Rental, and Sale Restrictions Issues

# a) Prohibit Sale of Used LSI Forklifts

<u>Comment:</u> The proposed rule should also not permit the sale of used LSI forklifts, as this contradicts the stated purpose of this regulation: to enable California to move towards 100% ZEFs.

# Commenter: [177-45d]

<u>Agency Response:</u> Changes were made in response to this comment, with which staff agrees in part. Staff agrees that sales of used LSI forklifts that have already been phased out by the Phase-Out Schedules in the regulation should be prohibited and as discussed further below, made that change in the 15-Day Changes. However, staff believes sale of used MY2025 and older forklifts that have not already been phased out by the Regulation should be allowed. Allowing the sale of such used forklifts will help provide operational flexibility and cost savings for fleets subject to the regulation, without increasing emissions. Consider for example a financially challenged fleet with a MY 2023 Class IV forklift that breaks down in 2026 and needs to be replaced. The fleet could not purchase a new MY2026 LSI forklift, because that would be prohibited by the Regulation. If the fleet needed more time to gather the financial resources to purchase a ZEF, allowing the fleet to purchase a used like-for-like 2023 LSI forklift would provide cost savings and flexibility to that fleet without increasing their emissions.

Staff inadvertently omitted in the originally proposed language of Section 3002(a) a restriction prohibiting the purchase of used 2025 and previous MY forklifts that have already been phased

out by the Regulation. In Section 3002(a), the text, "new or used 2026 or subsequent MY LSI Forklift or a new 2025 or previous MY" is being deleted. This change, in conjunction with the added language in Section 3002(a)(1) allowing acquisitions of used 2025 or previous MY LSI forklifts not yet phased out would remedy that omission. This would also align the LSI Forklift acquisition restrictions of the Regulation with the restrictions on possessing and operating such forklifts set forth in Section 3002(b).

# b) Sell-through Provision

<u>Comment:</u> Banning Possession and Sales of Any Prior MY New Class IV LSI Forklifts After 1/1/26, and Class V LSI Forklifts after 1/1/2029; Sell Through Provision Required: This last-minute added restriction on fleet operators and dealers must be removed from Sections 3002(a), 3003(a)(1)(B), 3003(a)(2), 3003(b)(1)(A), 3003(b)(2)(A)(1) and 3003(b)(2)(B)(1). Dealers will acquire Class IV and Class V forklifts from the manufacturer in 2024 and 2025 (or even prior) that could easily remain in inventory due to reasons beyond the dealer's control. There must be at least 1 year beyond 1/1/2026 in which this "new" Class IV and Class V inventory may be held in possession and sold, including sales both externally and internally to rental agencies, sales to fleet operators, as well as sales internally to a company's operations fleet.

[T]here needs to be some provision to allow the sale of a forklift ordered in 2024 or 2025 specifically for an end user that ends up being delayed by the manufacture until after 1/1/2026. That forklift should still be allowed to be sold and purchased by the end user after 1/1/2026 even though the forklift and/or engine could be model 2026. In this case, a 2026 MY forklift sold under this provision would be required to be phased out in the same year as the 2025 MY forklifts.

Commenter: [012-45d]

<u>Comment:</u> In addition, banning sales of ANY prior year MY new LSI forklifts after 1/1/26 is unworkable. New equipment often remains in inventory for longer than one year, often for reasons beyond the control of the owner/dealer. This ban on prior MY new LSI forklifts must be removed.

Commenter: [083-45d]

<u>Grouped Agency Response:</u> Changes were made in response to these comments. Based on the comments, staff believes it is appropriate to add a narrow sell-through provision for 2025 MY forklifts, Hence, as part of the 15-Day Changes, new language was added in section 3002(a)(2) that in conjunction with the changes in section 3002(a), would allow Dealers to sell new MY 2025 LSI Forklifts that they have in their inventory through the end of calendar year 2026. This sell-through provision for 2025 MY provisions is being made to allow Dealers to sell new 2025 MY LSI Forklifts until the end of 2026, so that such Dealers would be able to clear inventory remaining at the end of 2025.

As of January 1, 2026, as noted by the commenter, the Regulation prohibits dealers from possessing 2026 and subsequent MY Class IV LSI forklifts, as well as new 2024 and previous MY Class IV LSI forklifts. As of January 1, 2029, dealers are prohibited from possessing 2026 and subsequent MY Class V forklifts with a rated capacity of 12,000 pounds or less. The purpose of these prohibitions is to restrict the introduction of additional LSI forklifts into the

California fleet, to facilitate the reduction of emissions from the California LSI forklift fleet. Staff agrees that a narrow sell-through provision for 2025 MY forklifts is appropriate as a transitional measure, because 2025 MY forklifts will be the last MY of LSI forklifts generally allowed for sale in California ahead of the Regulation. However, staff does not believe such a provision is necessary for earlier MYs, which dealers have already had many years to sell,

In addition, staff disagrees with the commenter's request to allow the delivery of LSI forklifts manufactured after January 1, 2026, so long as the forklifts were ordered before January 1, 2026. Staff does not believe such a change is appropriate because allowing additional LSI forklifts to enter use in California would delay the emission benefits that would otherwise occur due to use of zero-emission technology. In fact, such a broad sell-through provision could allow fleets to purposefully delay compliance by placing large orders of LSI forklifts just before January 1, 2026.

See also Grouped Agency Response to B.7.c) Phase-out - Model Year.

### c) Spark-Ignited Forklift Manufacturer Requirements – Manufacture Date

<u>Comment:</u> The Proposed Regulation, at § 3005(a), prohibits manufacturers from selling forklifts that do not meet a zero-emission standard after January 1, 2026 for Class 4 LSI forklifts and after January 1, 2029 for Class 5 LSI forklifts having capacities up to 12,000 pounds. Likewise, footnote 7 of the proposed change to the emissions standards, 13 CCR §2443, sets forth the same sales prohibitions. These provisions, by targeting the sale date rather than the manufacture date of regulated engines and equipment, depart from the long-standing approach to LSI emissions regulations by both CARB and US EPA. The result is to distort the ordering, manufacturing, and delivery cadence for forklifts at a time when the industry is already coping with extreme delays caused by supply-chain bottlenecks resulting from the pandemic. Therefore, at least for the near-term deadline of January 1, 2026, ITA requests that CARB return to the traditional approach by permitting manufacturers to sell emissions-compliant LSI forklifts manufactured in 2025. If CARB has any concern about "stockpiling" of LSI forklifts, which is unlikely to be an issue under current conditions, CARB can easily address that concern with regulatory language.

### Commenter: [088-45d]

<u>Agency Response:</u> No changes were made to the manufacturer requirements in section 3005 in response to this comment. CARB staff believes the Regulation provides enough lead-time for manufacturers to plan their production and sales offerings to meet the proposed compliance dates. However, as part of the 15-Day Changes, CARB made changes in section 3002(a)(2) and section 3003(a)(2) that will allow Fleet Operators to acquire and take possession of new MY 2025 forklifts prior to January 1, 2027, and allow Dealers to have possession of new MY 2025 prior to January 1, 2027, respectively. This change provides additional sales time, allowing Dealers to sell any remaining new 2025 MY LSI inventory until the end of 2026 and for Fleet Operators to purchase new 2025 MY LSI forklifts until the end of 2026. CARB staff believes this approach provides the appropriate flexibility - allowing continued sales of existing LSI forklift inventory, while still establishing the necessary safeguard against LSI forklifts being sold indefinitely, thereby ensuring the Regulation achieves the necessary emission reductions.

# 7. Phase-out Provision Issues – General

### a) Alternatives to Phase-out

<u>Comment:</u> Alternative compliance can achieve similar emissions reductions for a fraction of consumer impact: There is a pathway to make similar (or better) reductions in criteria pollutants and greenhouse gas emissions from the forklift segment within California that do not obligate an expensive, forced transition to a singular technology solution:

1. Current generation propane forklifts outperform California's marginal and average grid emissions for total NOx emissions per kWh. Accelerating a phase-out of older, less efficient lifts – those built before the 2011 emissions standards were first required – for newer lifts can provide an immediate improvement in local air quality and reduce carbon intensity (CI). By CARB's own estimation, approximately 75% of the Population Weighted Average Hours Per Unit in 2020 was from pre-2009 propane forklifts. If those forklift-hours were to be shifted to a new model propane forklift operating under the current lowest standard, it would be an 81% reduction in total emissions from current- day conventional propane forklifts alone.

2. The state has no data to accurately assess the true market size of the regulated market under the ZE Forklift rulemaking for Large-Spark Ignited (LSI) engines. CARB's own calculations show wildly different figures for the potentially affected portion of the forklift market. Establishing a most robust reporting mechanism to determine the true size of the market can also provide insight into how ingrained forklifts are to every sector of the California economy and give stakeholders a better pathway to understanding the true emissions from this sector before acting on future rulemakings.

3. Increasing NOx and other criteria pollutant targets for future equipment – paired with the pending updates to LCFS – can incentivize even further improvements to air quality and carbon emissions without the technical, logistical, and infrastructure challenges that would arise from a mandated phase-out. This change would allow businesses subject to other reporting requirements from CARB or other air districts to determine how best to meet their compliance obligations in a way that achieves true reductions in GHG and criteria pollutants without significant financial obligation.

### Commenter: [294-45d]

<u>Agency Response:</u> No changes were made in response to this comment. As described in further detail in the paragraphs below, CARB staff disagrees that an alternative to the Regulation of phasing out pre-2009 propane forklifts would be superior. The Regulation was crafted after considering numerous alternatives and judged to be the best alternative. CARB staff disagrees that current generation propane forklifts outperform California's average grid emissions and does not believe there is any rationale for comparing to marginal grid emissions. Finally, CARB staff disagrees that the state has no data to accurately assess the regulated population of LSI forklifts; on the contrary, staff used robust data to create our population estimates for affected LSI forklifts and believe they are accurate.

The commenter incorrectly claims that the Regulation is an expensive, forced transition to a singular technology solution. On the contrary, the Regulation is estimated to provide net savings to most affected forklift owners, does not force transition to a singular technology and does not prescribe the use of any specific technology or equipment. Instead, regulated entities would be able to phase out Targeted Forklifts; they could then replace them with any compliant forklift or choose not to replace them at all. The Regulation would not specify how forklifts must

comply with the standards. Currently, battery-electric technology and fuel-cell electric technologies have demonstrated the capability of meeting the proposed performance standards. However, the Regulation would not preclude fleets from utilizing any technology that meets the proposed performance standards.

As described in ISOR Section I.H., Well-To-Tank (WTT) Criteria Emissions, CARB staff reviewed emissions related to the production of propane and the California grid that is used to charge electric forklifts to evaluate the Regulation's impact on total WTW emissions.

Using the CA-GREET3.0 model<sup>21</sup>, CARB staff evaluated the difference in NOx and PM emissions from the production of California liquid propane gas (LPG or propane) to instate California electricity generation emissions. CARB staff found that WTW GHG emissions from electric forklifts are markedly lower than for comparable propane forklifts, as are WTT NOx and PM emissions from electric forklifts. Electric forklift tank-to-wheel emissions (i.e., tailpipe emissions) are zero while propane forklift tank-to-wheel emissions are greater than zero, so it is follows that electric forklift WTW NOx and PM emissions from electric forklifts are markedly lower than for comparable propane forklifts are markedly lower than for comparable propane forklifts.

CARB staff disagrees with the commenter's statement that the current generation of propane forklifts produce less WTW NOx emissions than the grid average NOx emissions.

To give some background on what a marginal power generator is, the U.S. Department of Energy uses this description for describing 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.<sup>22</sup>

The marginal generator is a single power generator contributing to a vast electrical grid that is made up of many power generators who are also contributing to the electrical grid. The emission rate of each generator will vary depending on atmospheric conditions, location elevation, generator design, and maintenance. The marginal generator is typically the most expensive generator contributing to the grid and, depending on the type of generator, can have the highest emission rate. Using the marginal generator emissions, as suggested by the commentor, could skew the estimated aggregate emission rate for charging a ZEF since, as stated above, the marginal generator tends to be the least efficient generator. Therefore, the best measure of emissions due to power generation is the average emission rate which is also called the grid average emission rate. The average grid emission rate takes into account the emission rate for all the generators supporting the grid over a certain time period. In the paragraph below, the average NOx emission rate for the electricity grid is compared to the NOx emission rate of a zero-hour LSI engine.

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

<sup>&</sup>lt;sup>21</sup> CARB, CA-Greet Model: Version 3.0 Effective January 4, 2019 (web link:

https://ww2.arb.ca.gov/resources/documents/lcfs-life-cycle-analysis-models-and-documentation, last accessed August 2023)
The U.S. Energy Information Administration (EIA) states that for 2022 the California grid had an average NOx emission rate of 0.7 lbs/MWh, so 0.7 lbs/MWh can be considered the emission rate for ZEFs.<sup>23</sup> The lowest NOx emission rate standard for a current MY zero hour LSI engine, on the other hand, is 0.915 lbs/MWh, which is significantly higher than the comparable grid/ZEF emissions.<sup>2425</sup>

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 criteria emission rate for California will continue to decrease resulting in an even lower emissions for charging zero-emission equipment.

The commenter suggests an alternative to the Regulation of phasing out pre-2009 propane forklifts and thereby achieving an 81% reduction in total emissions from current-day conventional propane forklifts. The proposal by the commenter to phase out pre-2009 forklifts and thereby cut emissions 81% from today's levels is not adequate, and comparing to today's emissions is not the most relevant or appropriate metric. Instead, it is most illuminating to compare emissions over time with the Regulation versus the emissions that would occur over time in the baseline case. As noted in the ISOR Appendix D, Figure 3, even without the Regulation, most of today's pre-2009 forklifts will be removed from service due to natural attrition by the first compliance date of the Regulation. Therefore, simply phasing out the pre-2009 forklifts would not achieve an 81% reduction beyond the baseline in 2028 The Regulation, reduces both criteria emissions and GHG emissions quickly and beyond what is achieved by natural turnover, and meets the requirements of the California Governor's EO N-79-20.

For further discussion of alternatives to the Regulation considered, please see Chapter IX of the ISOR, Evaluation of Regulatory Alternatives.

As for the population of operating forklifts in California, the 2023 LSI Emission Inventory Model<sup>26</sup> bases the overall population on data showing the historical sales of new forklifts

<sup>&</sup>lt;sup>23</sup>. US Energy Information Administration, State Electricity Profiles, Table 1. 2022 Summary statistics (California), 2022 (web link: *https://www.eia.gov/electricity/state/california/*, last accessed May 2024)

<sup>&</sup>lt;sup>24</sup> This zero-hour emission rate does not include deterioration, which would increase the actual in-use emission rate due to engine wear caused by operating the engine. Further, although engine certification documents submitted to CARB by engine manufacturers indicate that the certification level for some LSI engines are lower than the average California grid NOx emissions, certification level measurements do not represent real-world emission rates for all certified engines. On the contrary, although certification level represents the emissions of the individual tested engine deteriorated to full useful life, via certification, the manufacturer is certifying that the engines sold will emit less than the emission standard, not less than the certification level.

<sup>&</sup>lt;sup>25</sup> CARB, Staff Report: Initial Statement of Reasons, Appendix D, Table 11, November 7, 2023 (web link: *https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/isor.pdf*)

<sup>&</sup>lt;sup>26</sup> CARB, 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*).

provided by the ITA<sup>27</sup> and in-use forklift data from the DOORS online reporting system<sup>28</sup>. 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 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 used to estimate benefits of the 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.)

Lowering the emission standard for LSI forklifts as suggested by the commenter would not achieve the emission reductions needed to meet California's State and federal air quality standards, protect public health, and the State's climate goals. The Regulation aims to reduce criteria, toxic, and GHG emissions by using a phase-out approach, sets clear targets to make a full conversion to ZEFs, and balances the needs of businesses with the need to improve air quality. The exemptions and delays provided in the Regulation were added to account for various technical, logistical, and infrastructure issues that may occur during implementation of the Regulation.

If new emission standards for LSI equipment were proposed, Fleet Operators would most likely have to turnover their forklift fleet faster than what CARB staff is currently proposing with fewer exemptions to achieve significantly less emission reductions than are projected from the Regulation. The shorter turnover time could increase the cost of replacement LSI forklifts by increasing the demand for new LSI forklifts. Additionally, the amount of time a Fleet Operator could keep an existing LSI forklift in their fleet would likely be shortened resulting in less time to get a return on an LSI forklift investment.

With regards to the commenter's mention of pending updates to LCFS, LCFS is an independent program that targets carbon reductions from the production of fuel and is not part of this Regulation. Therefore, CARB staff suggests that the commenter participate in the LCFS rulemaking process if they would like to see changes made to the LCFS program.

#### b) Phase-out Cap

<u>Comment:</u> Staff had promised stakeholders they would include a phase-out cap to reduce the financial burden on companies that have hundreds of forklifts affected by the phase out. Although staff had included a phase-out cap in a previous draft, a cap is not included in this proposal. A phase-out cap must be reinstated for this regulation to be feasible for large fleets, especially for rental fleets.

<sup>&</sup>lt;sup>27</sup> ITA, US Factory Shipments, 1997-2022, September 29, 2023 (web link: *https://www.indtrk.org/wp-content/uploads/2023/04/Factory-Shipments-Table-2023-Directory.pdf*).

<sup>&</sup>lt;sup>28</sup> 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.

Staff's reasoning is a phase-out cap was removed when they restructured the phase out schedule. However, when a company has hundreds of forklifts affected by the phase out, many of which will fall in the same phase out year, it becomes an economic infeasibility issue with forklift purchases and infrastructure.

#### Commenter: [012-45]

<u>Comment:</u> CMTA still fundamentally disagrees with the proposed phase-out requirements of the Regulation. While the Regulation has improved from earlier iterations, CMTA requests a MY/calendar year cap on the number of forklifts replaced based on the phase-out schedule... CMTA requests a cap on the number of forklifts that a fleet operator must replace in a given calendar year. The cap would only apply to business entities operating forklifts as part of their operation, not business selling or renting forklifts to another.

#### Commenter: [082-45d]

<u>Comment:</u> A Cap needs to be set for the phase out requirements. For companies with substantial fleets of forklifts it will become infeasible to replace them and provide new charging infrastructure. We recommend that no more than 25% per year of the applicable MY forklifts be phased out.

#### Commenter: [083-45d]

<u>Comment:</u> The phase-out cap from previous drafts of the Proposed Regulations must be reinstated to ensure that larger fleet operators within the business events industry are not required to disrupt the operations of their customers due to mass phase-outs of their forklift fleet. Not reintroducing the cap would not only create economic infeasibility for those operators, but it would also lead to supply disruptions in the marketplace that would almost certainly trickle down to smaller fleet operators seeking to replace soon-to-be phased out forklifts.

#### Commenter: [090-45d]

<u>Comment:</u> [W]e strongly recommend a flexible phase-out schedule with a cap of 25% to be phased out, in any given compliance year. This approach recognizes the differences in agricultural businesses versus year-round operations, by preventing a devastating capital expenditure that could potentially jeopardize their economic viability. As it stands, the proposed phase-out schedule poses a significant challenge for agricultural operations, requiring them to retire a substantial portion of their fleet disproportionately.

#### Commenter: [335-45d]

<u>Grouped Agency Response:</u> Staff made changes based on these comments. As part of the 15-Day Changes, staff added Section 3006(e), Phase-Out Percentage Caps to alleviate the compliance burden for fleets primarily composed of older forklifts. This cap limits the required turnover of forklifts to a maximum of 50% of forklifts per year for large fleets by the first compliance date. Small fleets and agricultural-related operations must turn over no more than 25% of forklifts by the first compliance date. The caps were added to prevent very old forklift fleets from being required to turn over all their forklifts by the first compliance date, which could be infeasible.

Staff is not including a cap for the second or later compliance dates because, for second compliance dates, which are spaced three years after the first compliance dates, fleets will have an opportunity to plan their turnover so that no more than 25% of forklifts never need to be turned over per year. For example, a very old small fleet of Class IV forklifts with lift capacity less than 12,000 pounds could have to turn over 25% of its forklifts by the first compliance date on January 1, 2028, and then the remaining 75% by the second compliance date on January 1, 2031. Hence, that example fleet could turn over 25% by January 1, 2028, and another 25% by each January 1, 2029, through 2031.

#### c) Phase-out – Model Year

<u>Comment:</u> As stated in our letters and conversations with staff, we asked that the forklift MY relate to the calendar year in which the forklift was manufactured, and not on the engine MY. Given the way the phase out schedule is set up, using the engine MY will prematurely shave off more years from the useful life for those forklifts with the engine MY being a year or more earlier than the year the forklift was manufactured. Though a forklift MY may not be posted on the equipment label, it is easily obtained from the manufacturer.

#### Commenter: [012-45d]

<u>Comment:</u> In determining "Useful Life" timelines the definition of MY should be based on the calendar year in which the forklift was manufactured, not the engine MY.

#### Commenter: [083-45d]

<u>Comment:</u> ITA believes that the final regulation should be based, as the other LSI emissions regulations have been, on the date of manufacture and not the date of sale (referring in this case to the forklift rather than the engine). Emissions regulations based on the date of manufacture contemplate that some percentage of the products manufactured legally in a given MY/calendar year will be delivered to the end user in the first part of the next calendar year. CARB should accept that normal practice, at least as to the January 1, 2026, deadline for Class 4 forklifts, in order to avoid significant dislocation of business operations. In the alternative, although removing restrictions on the date of sale would be the best approach, CARB could address the problem by specifying a later date certain by which MY 2025 forklifts must be sold. For example, CARB could insert into the final regulation an allowance permitting MY 2025 forklifts to be delivered through calendar year 2026 but not thereafter. Either approach would provide needed relief with negligible cost to the Proposed Regulation's long-term emissions benefits.

#### Commenter: [088-45d]

<u>Comment:</u> [T]he forklift MY should correspond to the calendar year in which the forklift was manufactured, rather than the engine MY. Utilizing the engine MY would reduce the useful life of forklifts, especially those with an engine MY a year or more earlier than the year the forklift was manufactured.

<u>Grouped Agency Response:</u> Regarding the MY definition, no change was made. Staff inspected numerous forklifts during field visits and discussed the best way to identify the MY of the forklift with stakeholders during the regulation development process. Staff concluded that using the engine MY is the best way a Fleet Operator or CARB inspectors can determine the MY of the forklift. Engine MY is available on engine labels, which are relatively easy to identify in the field physically present on the engine of each forklift, whereas forklift MY is much harder for field inspectors to ascertain just by looking at the forklift.

Regarding commenter [088-45d] and their proposal to specify a later date by which MY 2025 forklifts must be sold, changes were made in response. As part of the 15-Day Changes, new language was added in section 3002(a)(2) that in conjunction with the changes in section 3002(a), would allow Dealers to sell new MY 2025 LSI Forklifts that they have in their inventory through the end of calendar year 2026.

See also the Grouped Agency Response to B.6.b) Sell-Through Provision.

## d) Phase-out – Class IV and Class V Extension

<u>Comment:</u> Consistent with the Proposed Regulation's phase out of MY 2011 forklifts beginning in 2028, extend the phase out of all Class IV and Class V MY forklifts purchased prior to January 1, 2026 for 17 years from the calendar year in which the forklift was manufactured. For the business events industry, where 99% of all organizations are small businesses, this will provide those smaller operators with additional time necessary to fund the transition of their fleet while manufacturers work to supply additional electric forklifts to the California marketplace.

#### <u>Commenter:</u> [090-45d]

<u>Agency Response:</u> No changes were made in response to this comment. Extending the phase-out of all Class 4 and 5 MY forklifts purchased prior to January 1, 2026, for 17 years would forgo significant emissions reductions. Furthermore, it would prevent CARB from meeting commitments made in the 2016 State SIP Strategy, which identifies the need for substantial emissions reductions and increased penetration of ZE technology.

Regarding smaller operators, the Regulation includes an alternative MY Phase-out Schedule for small fleets in Section 3006(d)(2) that has a later start date for compliance and three to four years of additional time to phase out each MY. In addition, as part of the 15-Day Changes, staff added Section 3006(e), Phase-Out Percentage Caps, to alleviate the compliance burden for fleets primarily composed of older forklifts. Both provisions can help to reduce the number of forklifts that may be phased-out prematurely by postponing the forklift phase-out dates.

Regarding manufacturers and ZEF supply, CARB staff anticipates an adequate supply of ZEFs to meet demand. In the case of any possible supply disruptions, the Regulation has the ZEF Delivery Delay Extension described in Section 3007(b)(2), providing fleet operators additional time if needed.

#### e) Accelerate Phase-out to 2035

<u>Comment:</u> We recommend CARB set a timeline that phases out old equipment earlier and ensures a nearer-term transition to zero-emission technologies. CARB should limit

compliance extensions and limit the addition of older/used engines into fleets. These steps would help to ensure more complete fleet turnover to zero-emissions, which CARB should accelerate to 2035 (rather than 2038) in accordance with Governor Newsom's EO N-79-20 which called for all off-road equipment to be zero-emission by 2035.

### Commenter: [081-45d]

<u>Comment:</u> We ask that CARB align the proposal with EO N-79-20 and require the phaseout of LSI forklifts by 2035. This rule applies to a sector where zero-emission technology is commercially available and has been widely used in many applications for decades. CARB's ISOR notes that there are almost 400 models commercially available now. Class I electric forklifts with pneumatic tires can replace Class V internal combustion outdoor forklifts, and models with up to 20,000 lbs. capacity are available.

## Commenter: [177-45d]

<u>Comment:</u> The current proposal lacks ambition in only requiring phaseout by 2038 for a sector where the technology is already proven and in use. The 2038 deadline is eight years beyond the 2030 goal that the San Pedro Bay Ports and Port of San Diego have set to transition Cargo Handling Equipment to 100% zero emissions. Significant flexibility is already built into the rule, with exemptions accounting for any delays in infrastructure and technical infeasibility, and as previously noted, fleets can take advantage of numerous funding and incentive programs, such as CARB's CORE and Carl Moyer Program.

## Comment: [177-45d]

<u>Grouped Agency Response:</u> No changes were made in response to these comments. A phase-out of LSI forklifts is expected to be largely achieved by 2035, with only small fleets and crop preparation services businesses granted additional time beyond that date.

The additional time for such fleets is warranted because accelerating the phase-out to 2035 instead of 2038 could create an unreasonable cost burden for some small and crop preparation services fleets. While using ZEFs is expected to result in cost savings over time, the upfront cost of could be overly burdensome for such fleets that are more constrained with respect to available capital. Coupled with the anticipated higher cost of the ZEFs themselves, the infrastructure improvement costs that a 2035 phase-out could impose on California businesses and small businesses could substantially impair their profitability and competitiveness.

## f) Fleet-Average Approach

<u>Comment:</u> Notwithstanding Government Code section 11346.2(b)(4)(A) and the suggestion of stakeholders, CARB has chosen not to evaluate whether a fleet-average approach for LSI forklifts could be used to attain emissions reductions commensurate with those claimed for the Proposed Regulation. Whether implemented by amending the existing LSI Fleet Regulation or drafting a new regulation, the approach that ITA and others recommended rests on the idea that regulated entities should be allowed to determine for themselves when to retire and when to acquire forklifts, so long as they meet declining fleet averages that yield the required emissions reductions by specified dates. Providing this flexibility could avoid many hardships without sacrificing

emission-reduction goals. Basing a fleet-average regulation on engine horsepower, which is directly correlated to emissions and is simple to ascertain, would further increase flexibility and reduce unnecessary disruption of essential operations.

CARB states, "The Proposed Regulation would provide flexibility that could encourage innovation by allowing fleets to determine their compliance path based on their business model or operational needs." ISOR, p. 220. This apparently refers again to fleets' limited ability to choose battery-electric or fuel-cell electric, but this is the only sense in which fleets can determine their own compliance path. The Proposed Regulation rigidly prescribes the dates after which new forklifts cannot be acquired and the dates by which the specified MYs must be removed from the fleet. A fleet-average approach would prescribe neither but would be equally conducive to encouraging innovation.

CARB staff stated during the regulatory development process that a fleet-average regulation would pose enforcement challenges--the ISOR now mentions "assurance measures" --but this objection has not been explained. CARB is already enforcing the recently amended LSI Fleet Regulation and the In-Use Off-Road Diesel Fueled Fleets Regulation, which "bans older tier diesel-fueled equipment, and which requires emissions from fleets with diesel forklifts to be reduced dramatically over time." ISOR, p. 7. By contrast, while enforcement measures are already in place for these fleet-average regulations, the Proposed Regulation, whose many definitions, exemptions, extensions, and reporting requirements take up most of the regulatory text, will require 17 permanent staff positions. ISOR, p. 175. Under these circumstances, it does not appear that additional flexibility would come at the expense of enforcement.

#### Commenter: [088-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff considered proposing a fleet-average based regulation. However, CARB staff concluded, based on experience with other in-use fleet regulations, that such a fleet average approach would be extremely difficult to enforce. CARB currently has more than 11 staff (excluding enforcement personnel) assigned to working on the implementation of the In-Use Off-Road Diesel Fueled Fleets (ORD) and LSI Engine Fleet Requirements Regulations and enforcement continues to be a challenge. To enforce a ZEF Regulation based on a fleet average, an inspector would need to view and verify the MY of every LSI forklift owned by a fleet. This would present enforcement challenges that would potentially lead to the slower deployment of ZEFs and loss of emission benefits. With the MY phase-out structure of the Regulation, on the other hand, if an inspector encounters just one LSI forklift of a MY that has already been phased out, the inspector could check for any applicable exemptions or extensions, and then take enforcement action.

Regarding "assurance measures," the ISOR notes, "Anything less prescriptive than the Regulation … would erode the ability to secure the emissions reductions needed for meeting California's public health and climate goals and State and federal air quality standards. Less prescriptive measures would allow, by omission, additional flexibilities on technology, valuation, fleet mixing, and assurance measures that would not achieve the same magnitude of emissions reductions. More performance-based alternatives would thus undermine the goals of the Regulation." In this context, "assurance measures" refer to enforcement actions. As stated above, a fleet average approach would be less enforceable than a strict MY phaseout.

Regarding the "definitions, exemptions, extensions, and reporting requirements" the commenter mentions, having a fleet average approach would do little or nothing to reduce the

need for such definitions, exemptions, extensions, and reporting requirements. For example, fleets would still need exemptions for low-use, dedicated emergency use, transport for delivery or sale, transport for delivery out of state, use on San Nicolas and San Clemente Islands, and in-field forklifts. In addition, in a fleet average approach, fleets would still have need for extensions in case of ZEF delivery delay, infrastructure delay, or need for operational extension. All in all, having a fleet average approach would not shorten or simplify the regulation, and – because it would require an inspector to have information on every forklift in a fleet- it would make enforcement markedly more difficult.

## g) Phase-out Clarification – 1

## <u>Comment:</u> § 3002 (a)(1)(2)

Per regulation, "(1) The date is prior to January 1, 2038 and the Forklift is a 2026 through 2028 MY Class V Forklift rented from a Rental Agency for operation;

(2)The Forklift is a Class V LSI Forklift with a Rated Capacity greater than 12,000 pounds that the Fleet Operator has reported to the Executive Officer in accordance with Section 3009(h); or

(3) The Forklift is exempt pursuant to Section 3007(a)(2)."

Request clarification, are (1) and (2) intended to be an "and" or "or".

#### <u>Commenter:</u> [016-45d]

<u>Agency Response:</u> Changes were made in response to this comment. As part of the 15-Day Changes, Section 3002(a) was edited to provide additional clarity for fleet operator LSI affected forklifts acquisitions to allow for used 2025 or previous MY forklifts not yet phased-out, Section 3006(d), new MY 2025 forklifts obtained prior to January 1, 2027, dedicated emergency forklifts operating on San Clemente or San Nicolas islands or as an In-Field forklift (Section 3007(a)(6)), or prior to January 1, 2038 the forklift is being acquired pursuant to Section 3007(b)(5), Replacement of LSI Forklifts Covered By an Operational Extension or an Infrastructure Site Electrification Delay Extension.

With regard to the request for clarification regarding "and' or "or" in Section 3002(a), the Regulation is clear as is. Conditions 3002(a)(1)-(6) are a list of individual situations, any of which qualify the Forklift for an exception, as indicated by the" or" between 3002(a)(5) and 3002(a)(6).

#### h) Phase-out Clarification – 2

#### Comment: § 3003 (a)(1)(A) and § 3003 (b)(A)

Section 3003(a)(1) Starting January 1, 2026, Dealers in California shall not possess:

Section 3003(a)(1)(A) 2026 and subsequent MY Class IV LSI Forklifts, except for new LSI Forklifts that are exempt pursuant to Section 3007(a)(4) or Section 3007(a)(5);

(b) Transaction Requirements. The following requirements apply to all LSI Forklift sales and leases to an entity located in California except for transactions involving Class V LSI Forklifts with a Rated Capacity greater than 12,000 pounds.

• Transactions with Fleet Operators. Starting January 1, 2026, except for new LSI Forklifts sold or leased to be operated as Dedicated Emergency Forklifts, a Dealer shall not sell, lease, offer for sale, lease, or deliver to a Fleet Operator in California: • Any new LSI Forklift of any MY

*Specific Requested Revision:* Please clarify as these two items contradict each other because in § 3003 (a)(1) they can possess 2026 MY and subsequent if exempt. Then § 3003 (b)(A) directly conflicts with this statement.

## Commenter: [016-45d]

<u>Agency Response</u>: Changes were made in response to this comment. As part of the 15-Day Changes, additional text was added to 3003(b) including 3003(b)(1)(A)(1) clarifying the dealer transaction limitation applicability to new 2024 or previous MY LSI forklifts.

Addressing the commenter's request to clarify the permissibility of possessing a 2026 MY LSI forklift, section 3003(a)(1) and section 3003(b)(1)(A) of the Regulation are consistent. Section 3003(a)(1) states that "starting January 1, 2026, Dealers in California shall not possess any of the following" and (A) is the first item of the list, "2026 and subsequent MY Class IV LSI forklifts". 3003(b)(1)(A) states that "starting January 1, 2026, a Dealer shall not sell, lease, offer for sale, offer for lease, or deliver to a Fleet Operator California" and 1-3 detail the applicable list items, the first being "Any new 2024 or previous MY LSI Forklift", and the second addressing "Any 2026 or subsequent MY LSI forklift". It appears that the commenter is confusing the exception in 3003(a) for the possession of forklifts for transport for delivery out-of-state with 3003(b) which is specific to transactions with fleet operators within California. Dealers can be in possession of the 2026 and subsequent MY applicable forklifts Transported for Delivery Out-Of-State exception noted in 3003(a) does not apply to forklifts associated with in-state deliveries. Staff believes additional clarification is not warranted.

## i) Phase-out – Exemption for Low-Use LSI Forklifts

<u>Comment:</u> The Proposed ZEF Regulation should clarify in §3007(a)(1) that low-use targeted forklifts are not only exempt from the general LSI forklift prohibition of §3002(b), but also the phase-out provisions in §3006.

## Commenter: [097-45d]

<u>Comment:</u> CARB should clarify in the proposed rule in \$3007(a)(1) that low-use affected forklifts are exempt from the phase-out provisions in \$3006 through December 31, 2030. Low-use forklifts are implied to be exempt from the phase-out provisions through the exemption of \$3002(b)(1) requirements, however this should be clearly stated in \$3007(a)(1).

Commenter: [336-45d]

## Grouped Agency Response:

As part of the 15-Day Changes, Section 3007(a)(1)(A) was edited to remove the Low-Use LSI Forklift 2013-2025 MY restriction. Also, Section 3002(b)(4) was edited to clearly name the Low-Use LSI Forklift Exemption, 3007(a)(2). Section 3006(b)(1) addresses Phase-Out Requirements and states "Except as provided in Section 3007" which is the Exemptions, Extensions section of the Regulation. With these edits, it is now clear that low-use LSI forklifts are exempt from 3006(b) Phase-Out Requirements as noted in 3006(b)(1).

## j) Large Fleet Becoming Small Fleet – Phase-out Schedule

<u>Comment:</u> In regards to, "A Large Fleet that becomes a Small Fleet after January 1, 2026, shall continue to meet the phase-out schedules set forth in Section 3006(d)(1) for its Class IV LSI Forklifts."

Request that fleets going from Large to Small be allowed to meet either large or small phase out schedules.

Specific Requested Revision: § 3006 (e)(2) "A Large Fleet that becomes a Small Fleet after January 1, 2026, shall meet the phase-out schedules of Large or Small Fleets, set forth in Section 3006(d)(1) for its Class IV LSI Forklifts."

#### Commenter: [016-45d]

Agency Response: No changes were made in response to this comment. Section 3006(f)(2) sets forth that a large fleet that becomes a small fleet would be required to continue to comply with the phase-out schedule for large fleets. If a fleet is already on a trajectory to comply with the Class IV LSI forklift phase-out for large fleets and it shrinks below the 26-forklift threshold for being defined as a large fleet and becomes a small fleet, staff does not believe it is necessary to allow said fleet to further delay its phase-out. Consider for instance Example Fleet A that owns 26 forklifts and that meets the large fleet requirement in Table 1. MY Phase-Out Schedules for Class IV LSI Forklifts to phase out all 2021 MY and previous Class IV LSI forklifts by January 1, 2031. Under the large fleet requirements, Example Fleet A would be required to phase out 2022 and 2023 MY LSI forklifts by January 1, 2033. If later in 2031, Example Fleet A sells one forklift and drops to 25 forklifts total, it would become a small fleet. Under the commenter's suggestion, Example Fleet A would then be able to wait until January 1, 2036, before taking any further action to phase out 2022 and 2023 MY LSI forklifts. Staff does not see a need to give this additional three years for Example Fleet A to take action on their 2022 and 2023 MY forklifts. Making the change suggested by the commenter would unnecessarily delay turnover of LSI forklifts and forego emission reductions.

# 8. Phase-out Provision Issues – ZEF Replacements for Class IV LSI Forklifts with Greater than 12,000 lbs. Lift Capacity

## a) Class IV LSI Replacements – Comment 1

<u>Comment:</u> This last-minute expansion of the Proposed Regulation's requirements, after nearly three years of stakeholder discussions, threatens to eliminate a distinct spark-ignited forklift category for which there currently is no viable electric replacement. Now, CARB proposes to remove even the 12,000-pound limit for Class LSI 4 forklifts. The question is whether the facts justify this latest change.

CARB explains the situation as follows (ISOR, p. 110):

At the beginning of the regulatory development process, staff evaluated the availability of ZEFs [Zero Emission Forklifts] and found that there were few ZE options commercially available with a lift capacity greater than 12,000 pounds. Therefore, staff limited the scope of the regulatory concept to only those forklifts with a lift capacity of up to 12,000 pounds. However, a more recent survey of available ZEFs has shown that several manufacturers currently offer Class-IV-equivalent ZEF with a lift capacity of more than 12,000 pounds.

It would be useful to know whether CARB believes its original evaluation was incomplete or instead believes that the capabilities of available forklifts have expanded significantly since the beginning of the regulatory development process. The ISOR does not address this. More importantly, because the record does not examine the unique design and performance attributes of these larger Class 4 forklifts, it cannot support the conclusion that the market offers any Class-4-equivalent ZEF.

As to CARB's more recent survey, which is in the record (ISOR, p. 32, fn. 48), staff states, "a recent online search and manufacturer survey conducted by staff of ZEF offerings identified almost 400 models, more than 130 of which were models with a lift capacity greater than 12,000 pounds." The earlier evaluation that CARB mentions is not in the rulemaking record. ITA is confident that the same online search and manufacturer survey conducted three years ago, at the outset of the regulatory process, would have produced essentially these same models. It appears therefore that the change is not in the technological capabilities of electric forklifts in the last three years, but in CARB's unexplained assessment of which electric forklifts above 12,000 pounds capacity might be suitable replacements for Class 4 forklifts. The ISOR's treatment of this issue is conclusory, without analysis.

#### Commenter: [088-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff disagrees with the commenter's characterization of the Regulation's inclusion of Class IV forklifts over 12,000 pounds lift capacity as a "last-minute expansion". The development effort for the Regulation has been conducted in accordance with the California Administrative Procedure Act (APA). The APA does not require CARB staff to workshop every detail of a proposal in advance of the official 45-day comment period. Indeed, CARB staff often make changes to a proposal between the last workshop and the release of the ISOR.

CARB staff disagrees with the commenter's statement that "it cannot support the conclusion that the market offers any Class-4-equivalent ZEF." In the September 22, 2023, on-line search conducted by staff, a wide variety of ZEFs in multiple lift capacities including models with a lift capacity greater than 12,000 pounds were identified. For each of the over 130 ZEF identified in the survey as having a lift capacity exceeding 12,000 pounds, a source reference to market availability is included. This survey was included within Appendix F in the ISOR as document relied upon number 48 cited for the ISOR, entitled Available Zero-Emission Forklift Models. The data filter options include distinguishing lift capacity and tire type.

The Regulation's ISOR, Appendix F document relied upon number 48 cited for the ISOR is a spreadsheet entitled Available Zero-Emission Forklift Models which includes Lift Capacity and Tire Type distinctions for each model listed. The survey data includes functionally equivalent ZEFs with a greater than 12,000-pound lift capacity and can be filtered by tire type. The survey of available ZEF models listed 15 forklifts with greater than 12,000-pound lift capacity and cushioned tire type (i.e., potential replacements for Class IV forklifts), as well as 59 forklifts with greater than 12,000-pound lift capacity and an unspecified tire type (i.e., which may be cushion tired and hence potential replacements for Class IV forklifts).

As the commenter states, this has been a multi-year effort to develop the Regulation that includes consideration for technical feasibility and cost effectiveness. During rulemaking, CARB staff identified commercially available ZEFs exceeding the 12,000-pound lift capacity and as expected, forklift manufacturers have continued to introduce new models with new carrying capacities and capabilities. CARB staff believe manufacturers have made advancements in the past three years and that both evaluations of available ZEF were

accurate representations at the time of each undertaking. It was reasonable to craft the Regulation to reflect the current and anticipated market.

In recognition of the fact that some forklift applications over 12,000 pounds lift capacity can be more challenging for ZEFs and the relatively few equivalent current ZE models available over 12,000-pound lift capacity, the Regulation gives fleets more time to phase out Class IV LSI forklifts with lift capacity over 12,000 pounds. Large fleets have until January 1, 2035; to begin phasing out such forklifts and small and crop preparation services fleets have until January 1, 2038, to do so. That gives fleets and ZEF manufacturers over 10 years to prepare for this phase-out requirement. Further, the Regulation includes Operational Extensions provisions that allow continued use of LSI forklifts for instances where a ZEF is not yet available (i.e., there is no commercially available ZEF model that can meet the needs of an operation currently served by an LSI Forklift).

The inclusion of greater than 12,000-pound lift capacity Class IV forklifts, along with the Operational Extension provisions, mean that affected fleets may continue to use LSI forklifts with over 12,000-pound lift capacity as long as there is no commercially available ZEF model that can do their particular operation. However, the inclusion of these greater than 12,000-pound lift capacity Class IV forklifts means there is an incentive for forklift manufacturers to develop ZE models in this range with additional capabilities, as there will be a guaranteed market for such ZEFs, upon availability.

Overall, including greater than 12,000-pound lift capacity Class IV forklifts in the Regulation is important to realize the full emission reductions and health benefits expected from the Regulation.

#### b) Class IV LSI Replacements – Comment 2

<u>Comment:</u> CARB characterizes the relevant LSI forklift classes as follows: "Class IV forklifts typically use smooth solid tires, called cushion tires, and are designed to be used on smooth, paved surfaces. A Class IV forklift is what is commonly considered a standard warehouse forklift. Class V forklifts typically use taller tires that can be pneumatic (air-filled, foam-filled, or solid), with a tread designed for use on uneven surfaces. A Class V forklift is typically used outdoors." ISOR, p. 6. Based on this distinction, it is not useful to know that there are 130 models of electric forklifts with a lift capacity greater than 12,000 pounds. The relevant question is how many of these 130 models have cushion tires, which is the only way that Class 4 forklifts are distinguished from Class 5 forklifts. Electric forklifts with capacities greater than 12,000 pounds and pneumatic tires are potential substitutes for Class 5 forklifts, not Class 4 forklifts.

#### Commenter: [088-45d]

<u>Agency Response</u>: No changes were made in response to this comment. CARB staff recognizes the distinction between Class IV and Class V LSI forklifts and appreciates this comment.

The Regulation's ISOR, Appendix F document relied upon number 48 cited for the ISOR is a spreadsheet entitled Available Zero-Emission Forklift Models which includes Lift Capacity and Tire Type distinctions for each model listed. In response to the commenter, the survey data was evaluated for forklifts with a greater than 12,000-pound lift capacity and by tire type. The survey of available ZEF models listed 15 forklifts with greater than 12,000-pound lift capacity and sevel us 59 forklifts.

with greater than 12,000-pound lift capacity and an unspecified tire type (i.e., which may be cushion tired and hence potential replacements for Class IV forklifts).

Based on the data in the Available Zero-Emission Forklift Models spreadsheet mentioned above, CARB Staff is confident ZEFs can do the job of many Class IV LSI forklifts over 12,000 pounds lift capacity. For cases where a ZEF is not yet available, as noted above in the response to Class IV LSI Replacements – Comment 1, the Regulation includes Operational Extension provisions that allow continued use of LSI forklifts.

Also, as noted in the response to Class IV LSI Replacements – Comment 1, it was reasonable to craft the Regulation to reflect both the current and anticipated ZEF market, and the Regulation gives fleets over 10 years to prepare for the Class IV LSI over 12,000 pounds phase-out requirement. And the inclusion of these greater than 12,000-pound lift capacity Class IV forklifts means there is an incentive for forklift manufacturers to develop ZE models in this range with additional capabilities.

Overall, including greater than 12,000-pound lift capacity Class IV forklifts in the Regulation is important to realize the full emission reductions and health benefits expected from the Regulation.

#### c) Class IV LSI Replacements – Comment 3

<u>Comment:</u> ITA examined CARB's recent survey of available ZEFs, which is entitled "CARB, Available Zero-Emission Forklift Models, Version 1.1, September 2023." ISOR, p. 32, fn. 48. This is a spreadsheet providing information showing the manufacturer, model number, lift capacity, tire type, voltage, and load center for 390 electric-forklift models. Of these 390 models, fewer than 20 models are shown as combining a capacity of greater than 12,000 pounds with cushion tires:

10 such models are manufactured by one company, ranging in capacity from 15,000 pounds to 40,000 pounds.

5 such models are shown as manufactured by a second company, ranging in capacity from 20,000 to 40,000 pounds, but ITA has learned these models are no longer manufactured by the company, having been manufactured for a short time in partnership with a smaller company specializing in unique explosion-proof forklifts; and a few such models may be manufactured by a third company, which primarily manufactures large Class 1 pneumatic forklifts but appears to offer a cushion-tire option on a limited number of models.

Thus, while the ISOR leaves the impression that there are 130 electric models available to replace Class 4 forklifts with greater than 12,000 pounds capacity, this is off by a factor of 10 or more. Whatever the differences between CARB's initial analysis and the more recent survey, the recent survey itself refutes the idea that the market provides ample replacements for Class 4 LSI forklifts with capacities greater than 12,000 pounds.

#### Commenter: [088-45d]

<u>Comment:</u> During the informal rulemaking period, CARB staff had proposed to exclude Class IV Forklifts with a lift capacity of greater than 12,000 pounds from the phase-out requirements, given limited commercial availability of ZEFs in that configuration. In the ISOR, staff indicates that these Forklifts are now included in the phaseout schedule because "a more recent survey of available ZEFs has shown that several manufacturers currently offer Class-IV-equivalent

ZEF with a lift capacity of more than 12,000 pounds." In order to better understand what threshold staff is using to determine that a ZEF is commercially available, please provide a citation to the recent survey data referenced in the ISOR that includes the number of models available and the estimated incremental cost differential relative to a Class IV LSI Forklift lift capacity of more than 12,000 pounds.

#### Commenter: [097-45d]

<u>Comment:</u> Very simply, HYG requests that CARB revises the Proposed Regulation consistent to that contemplated and aligned among CARB and industry over. the 3-year regulatory development period - omitting LSI Class 4 >12,000 lb. forklifts from the Proposed Regulation. The RIA confirms that the scope of the regulation under consideration as of April 2023 was limited to forklifts of lower capacity than LSI Class 4 >12,000 lb. forklifts. RIA, p. 110. There is no support for CARB's scope expansion in the Proposed Regulation and near certainty of real and imminent harm to essential commerce functions. The Proposed Regulation's last-minute scope expansion, is not technically, financially, or commercially viable and must be corrected. Risks to LSI Class 4 >12,000 lb. operators are exacerbated and disproportionate, as LSI Class 4 >12,000 lb. have a more frequent replacement cadence because LSI Class 4 >12,000 lb. forklifts accumulate so many hours, every year.

Importantly, omitting LSI Class 4 >12,000 lb. forklifts from the Proposed Regulation will not delay CARB's energy transition goals. As CARB states, "As more fleets convert to ZEFs due to the Proposed Regulation, forklift manufacturers may invest in maintaining or even expanding their zero-emission product lines. Such investments could contribute to break-through technologies and lead to even broader acceptance of ZE technologies in other off-road vehicle applications." RIA, p. 32. Such break-through technology advancement will enable Zero-Emissions Class 4 >12,000 lb. forklifts in the future, and HYG will remain at the technological forefront.

Commenter: [254-45d]

<u>Grouped Agency Response:</u> No change was made in response to these comments. CARB staff disagrees with the commenter's claim that "the ISOR leaves the impression that there are 130 electric models available to replace Class IV forklifts with greater than 12,000 pounds capacity." Rather, the ISOR indicates there are over 130 electric models available total for both Class IV and Class V forklifts, an estimate which CARB staff believes is accurate.

The referenced spreadsheet of available ZEFs identifies forklifts that are available to replace LSI forklifts. The data is the result of a survey by CARB staff of manufacturer websites, discussions with dealers and manufacturers, and from the equipment eligibility list of the Clean Off-Road Equipment Voucher Incentive Project and represents an effort by staff to identify available ZEF. The data is presented in a spreadsheet that lists lift capacities and tire types along with other data for the equipment listed. There are many lift capacities listed ranging from 2,500-70,000 pounds. As can be concluded from reviewing the referenced spreadsheet, 74 forklifts with a greater than 12,000-pound lift capacity and either cushion or unspecified tire types were identified as available in September 2023. When all tire types are included, 137 forklifts from nine manufacturers are also listed with greater than 12,000-pound lift capacities. Additionally, for cases where a ZEF is not yet available, as noted above in the response to Class IV LSI Replacements – Comments 1 to 3, the Regulation includes Operational Extension provisions that allow continued use of LSI forklifts. Also, as noted in the response to B.8.a)

Class IV LSI Replacements – Comment 1, it was reasonable to craft the Regulation to reflect both the current and anticipated ZEF market, and the Regulation gives fleets over 10 years to prepare for the Class IV LSI over 12,000 pounds phase-out requirement. Finally, the inclusion of these greater than 12,000-pound lift capacity Class IV forklifts means there is an incentive for forklift manufacturers to develop ZE models in this range with additional capabilities.

## d) Class IV LSI Replacements – Comment 4

<u>Comment:</u> As shown, there are at least 7 manufacturers of Class 4 LSI forklifts that are designed for these heavy-duty/confined-space applications. But there are no forklift manufacturers, with one possible exception, that manufacture an electric forklift corresponding to these Class 4 models. If CARB eliminates these Class 4 models, end users in these important industries will have no options. Some of the Class 4 forklift models (sometimes called "paper roll specials" or "box car specials") that fit this application niche requiring relatively high lift capacity and maneuverability in confined spaces have capacities slightly below or precisely at 12,000 pounds capacity. Therefore, CARB's earlier proposal to eliminate Class 4 LSI forklifts having capacities of 12,000 pounds or less would already have reduced end users' choice of models significantly, requiring them to purchase Class 4 forklifts at the 13,500-15,500 pounds end of this range. CARB's latest proposal would remove even this limited option...

... ITA requests that CARB allow the purchase of higher-capacity Class 4 LSI forklifts until manufacturers of forklifts and batteries for forklifts have had time to make the investments necessary to realize the break-through technologies that will be needed to create a viable electric substitute. While reinstituting the scope that had been contemplated until recently this year would be the most straightforward way to meet the need, there may be other approaches, like the treatment of later-MY Class 5 LSI forklifts, that would address the situation as well.

#### Commenter: [088-45d]

<u>Agency Response</u>: Based on the data in the Available Zero-Emission Forklift Models spreadsheet mentioned above, CARB Staff is confident ZEFs can do the job of many Class IV LSI forklifts over 12,000 pounds lift capacity. However, staff recognizes there will be situations such as those described by the commenters where a ZEF is not yet available.

The Regulation includes Operational Extension provisions that allow continued use of LSI forklifts in the case of such situations, and changes were made to the Operational Extension provisions in response to this comment. As part of the 15-Day Changes, new section 3002(a)(6) was added to allow the acquisition of LSI Forklifts if the Fleet Operator has qualified for an Operational Extension and is replacing an existing LSI forklift covered by such extension, even if the replacement needs to be made years in advance of the upcoming compliance date. Also, as part of the 15-Day Changes, the sunset date of January 1, 2038, for the Operational Extension was removed because Operational Extensions may continue to be needed beyond that date and there is no date that an Operational Extension should cease to be available to Fleet Operators.

## e) Class IV LSI Replacements – Comment 5

<u>Comment:</u> Beyond the need to maximize lifting capacity while maintaining maneuverability, forklifts in the paper, metal and manufacturing industries face multi-shift, high-throughput requirements that demand continuous high performance exceeding the capabilities of today's battery-electric forklifts. As explained in the ISOR at pp. 29-30,

A flooded lead-acid battery pack that is used in a forklift for an eight-hour shift generally requires eight hours to charge and an additional eight hours to cool down following a charge before it can be used again. As such, lead-acid batteries can typically be used for only one full work shift per day. To work around this limitation, multiple-shift operations have historically employed the use of two or three lead-acid battery packs per forklift and a battery-swapping strategy. This type of arrangement requires a dedicated area for charging and storing battery packs, which takes away from square footage the facility could otherwise use, and additional resources to manage, maintain, and swap battery packs as necessary.

This explanation is accurate for typical electric forklift applications, but heavier, more intense operations will deplete the battery sooner, perhaps in less than one-half of an 8-hour shift. This can more than double the forklift downtime, reducing productivity to unacceptable levels and requiring more charging capacity and floor space.

#### Commenter: [088-45d]

Agency Response: No changes were made in response to this comment. The commenter believes that the current battery electric ZEF technology cannot support applications where heavy loads need to be moved and the operating hours are above average. As noted in Section 3007(b)(4) of the Regulation, if a currently available ZEF cannot meet the needs of an operation served by an LSI Forklift, the Fleet Operator may apply for an Operational Extension. If approved by the Executive Officer, the extension allows a Fleet Operator to keep their LSI forklift until a ZEF that meets their needs is available (provided extension and renewal requirements are met). Additionally, stakeholders informed CARB staff that the forklift battery type and size are matched to the Fleet Operators' application by the forklift Dealer. The correct battery can maintain productivity by reducing the charging requirements. Further, flooded lead-acid batteries are not the only zero emission power option for ZEFs. As described in Section I.E. Technological Feasibility of the ISOR, for example, lithium batteries can charge quicker than lead-acid batteries, are not as maintenance intensive, have longer life, can have a higher power density, and do not need time to cool down. Another possible zero-emission option are fuel cell powered forklifts which have operating characteristics like propane powered forklifts. As described in Section VIII.B.6. Technology Mix Projections of the ISOR, staff expect fleets to choose the ZE technology that works best for them, whether that is lead-acid battery, lithium-ion battery, or fuel-cell technology.

#### f) Class IV LSI Replacements – Comment 6

<u>Comment:</u> [L]ithium-ion technology is not a panacea. When it comes to forklifts that require balancing a relatively small footprint, sufficient power for capacities exceeding 12,000 pounds, and enough energy to maintain performance for a full shift, the fact that lithium-ion batteries may come closer in some respects than lead-acid batteries is academic because neither battery technology is adequate. Sit-down counterbalanced forklifts require a counterweight to offset the load that the front end of the forklift must handle—the higher the capacity, the heavier the required counterweight. Spark-ignited forklifts, by using an extremely dense block of (typically) cast iron as the counterweight, minimize the space taken up by the counterweight, i.e., minimize the footprint of the forklift. For forklifts with

lead-acid batteries, the battery weight itself acts as the counterweight. However, the battery is not nearly as dense (compact) as a cast iron counterweight, so the dimensions of the battery exceed the dimensions of the cast iron counterweight and the forklift's footprint is thereby larger. Lithium-ion batteries change the calculus somewhat because they have greater energy density by both volume and by weight than lead-acid batteries. This permits reducing the volume of the battery itself, but also means that additional counterweighting is required and that the footprint increases. Weight distribution and other engineering considerations come into play, but the bottom line is that there is no lithium-ion or lead-acid battery solution that matches the combined attributes of a spark-ignited forklift having a relatively small propane tank as the energy source and a cast-iron counterweight to offset the load.

### Commenter: [088-45d]

<u>Agency Response:</u> No changes were made in response to this comment. The commenter has noted that in some circumstances a ZEF may not be able to match the operational characteristics of an LSI forklift. As noted in Section 3007(b)(4) of the Regulation, if a currently available ZEF cannot meet the needs of an operation served by an LSI Forklift, the Fleet Operator may apply for an Operational Extension (formerly called Technical Infeasibility Extension). If approved by the Executive Officer, the extension allows a Fleet Operator to keep their LSI forklift until a ZEF that meets their needs is available. In addition, as noted in the response to Class IV LSI Replacements – Comment 1, it was reasonable to craft the Regulation to reflect both the current and anticipated ZEF market, and the Regulation gives fleets over 10 years to prepare for the Class IV LSI over 12,000 pounds phase-out requirement; and the inclusion of greater than 12,000 pound lift capacity Class IV forklifts creates an incentive for forklift manufacturers to develop additional ZE models in this range.

## g) Class IV LSI Replacements – Comment 7

<u>Comment:</u> The problems are not limited to the additional space taken up by large battery compartments. Even if the electric forklift battery is fully charged, there are significant differences in the performance of internal combustion and electric forklifts in terms of travel speed and lift/lower speeds, especially at the higher capacities. In one example previously shared with CARB, a comparison between a company's 15,000-pound capacity electric forklift and its 15,000-pound capacity internal combustion forklift showed that the internal combustion unit's travel speed was 2.6 times faster, its lifting speed while loaded was 2 times faster, and its lowering speed while unloaded was 1.7 times faster. The comparisons of travel and lift/lower speeds for the only other manufacturer that offered both electric and internal combustion forklifts with 15,000 pounds capacity were very similar, with huge differences in favor of the internal combustion forklift. Thus, in addition to the footprint problem and the running-time problem, electric forklifts over 12,000 pounds capacity are not substitutes for Class 4 LSI forklifts because of these performance differences.

## Commenter: [088-45d]

<u>Agency Response:</u> Changes were made in response to this comment. CARB recognizes that replacement equipment decisions are the result of multi-faceted considerations beyond rated lift capacities. The Regulation includes Operational Extension provisions that allow continued use of LSI forklifts in the case of such situations, and changes were made to the Operational Extension provisions in response to this comment. As part of the 15-Day Changes, new section 3002(a)(6) was added to allow the acquisition of LSI Forklifts if the Fleet Operator has qualified for an Operational Extension and is replacing an existing LSI forklift covered by such extension, even if the replacement needs to be made years in advance of the upcoming compliance date.

Please see the Grouped Agency Response to B.13.a) Operational Extension – Timeline for further discussion on the 15-Day Changes made for compliance flexibility.

## h) Class IV LSI Replacements – Comment 8

<u>Comment:</u> Product literature from manufacturers of large cushion-tired electric forklifts, including ITA members, naturally emphasizes their capabilities and advantages. But any conclusion that these forklifts are realistically an available commercial option to satisfy the market demand for Class 4 LSI forklifts with capacities greater than 12,000 pounds is unwarranted. ITA's statistical reporting program, in which members report (among other things) retail shipments of various categories of forklifts by class, capacity, and geography, reveals that ITA-member shipments of cushion-tired electric forklifts with a capacity exceeding 12,000 pounds in California from January of 2022 to the end of November 2023 were almost nonexistent. The absence of demand shows more clearly than any other evidence that those electric units have not been deemed an adequate substitute for the hundreds of Class 4 LSI forklifts above 12,000 pounds capacity shipped by ITA members in that same period. Electric forklifts at lower capacities are, of course, pervasive in many indoor facilities. CARB states as follows under the heading Technological Feasibility (ISOR, p. 29):

Today, about half of the forklift population in California uses ZE technology largely due to advantages that the technology can provide, such as reduced indoor air pollution and lower operating costs, and because many forklift applications have duty cycles that are well-suited for its use. ZEFs are common in the logistics industry, but growth in other industries and applications has been relatively slow. Staff believes ZEFs today are capable of serving as a direct replacement for the forklifts required to be phased out by the Proposed Regulation.

While ITA agrees that the issue is technological feasibility, there is a difference between smallto-medium capacity electric forklifts, which have proven themselves in many applications, and large-capacity electric forklifts with cushion tires, for which there has been almost no market acceptance because of current technology constraints. CARB attributes this difference broadly to "perceptions about performance and other factors," ISOR, p. 29, but the differences in footprint/maneuverability and performance/productivity when it comes to forklifts greater than 12,000 pounds capacity are real. Bridging those differences, which amounts to designing and developing a new type of forklift, presents technological challenges with an uncertain outcome.

With time, ITA forklift manufacturers presumably can design a battery-powered forklift with a smaller footprint, but advances in battery technology, to make them simultaneously smaller and able to deliver adequate power for a full shift, may be the greater challenge. In short, existing technology does not permit electric forklifts to replace Class 4 LSI forklifts with greater than 12,000 pounds capacity and it is unclear how long it will take to close the gap. Under these circumstances, CARB's recent decision to target Class 4 LSI forklifts above 12,000 pounds capacity threatens to deprive important California industries of the equipment they need. The last-minute expansion of the Proposed Regulation's scope, at the end of a 3-year regulatory process, exacerbates matters by shortening the lead time for the necessary development work.

ITA appreciates that the Proposed Regulation provides a more lenient phase-out schedule for Class 4 forklifts greater than 12,000 pounds capacity than for those with capacities 12,000 pounds or less. But this longer phase-out schedule will not address the problems of fleet operators whose higher-capacity Class 4 LSI forklifts are nearing the end of their useful lives,

which are likely shortened in many cases because these forklifts are typically used in intensive multi-shift operations. By the time of the CARB public hearing in mid-2024, less than 18 months will remain before the prohibition on acquiring new LSI forklifts takes effect. But designing and producing a new category of forklift—a higher-capacity electric that can truly replace a higher-capacity Class 4—will take much longer.

### Commenter: [088-45d]

<u>Agency Response:</u> Changes were made in response to this comment. Although some ZEFs with lift capacity over 12,000 pounds are available, staff recognizes the constraints described by the commenter. The Regulation included Operational Extension provisions that allow continued use of LSI forklifts in the case of such situations, and changes were made to the Operational Extension provisions in response to this comment as part of the 15-Day Changes. First, new section 3002(a)(6) was added to allow the acquisition of LSI Forklifts if the Fleet Operator has qualified for an Operational Extension and is replacing an existing LSI forklift covered by such extension, even if the replacement needs to be made years in advance of the upcoming compliance date. Please see the Grouped Agency Response to B.13.a) Operational Extension – Timeline for further discussion on the 15-Day Changes made for compliance flexibility. With these changes, if situations remain such that there is no commercially available ZEF model that can meet the needs of an operation currently served by an LSI Forklift, the fleet can continue to use LSI forklifts indefinitely.

# 9. Exemptions and Extensions – General

## a) Prioritization of Regulation Compliance and Exemptions

<u>Comment:</u> If a utility can only provide a limited amount of power to a facility, and that level of electrification isn't sufficient to power all of CARB's requirements, how does an entity choose which regulation to comply with and which one to apply for an exemption? Or do they need to apply for exemptions for all the regulations and let CARB decide?

## Commenter: [097-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff acknowledges that a fleet may be subject to not only this Regulation but other CARB regulations including the ACF Regulation, as an example. Each regulation provides an alternative compliance pathway recognizing site utility infrastructure delay challenges outside of the control of fleet operators. Section 3006(c) of the Regulation specifies that a fleet should contact the utility provider by March 31, 2026, to initiate discussions addressing all future potential service needs. This discussion with utilities could incorporate other regulations such as the ACF Regulation as well as service projections not associated with regulatory compliance. While there may be some commonalities in exemptions and extensions of independent regulations, the Infrastructure Site Electrification Delay Extension application allows for the potential for case-by-case consideration specific to the Regulation.

Regarding letting "CARB decide," it is CARB staff's intent that regulated fleets design their own compliance strategy, including exemptions, across all applicable regulations. CARB staff do not intend to make these decisions on behalf of fleets. See also the response to Utility Service Availability above.

## b) Low-Use LSI Forklift Exemption – Model Year Restriction

Comment: Currently only 2013 through 2025 may be operated as Low Use LSI forklifts.

Request that MYs be expanded to include 2011 through 2025 as MY that allowed to operate as Low Use. This is to maximize fleet flexibility and minimize additional procurement for only low-use forklifts.

Specific Requested Revision: § 3007 (a)(1)(B) "Eligible Model Years. Only 2011 through 2025 MY LSI Forklifts may be operated as Low-Use LSI Forklifts."

### Commenter: [016-45d]

<u>Comment:</u> Low-Use LSI forklift exemption [§3007 (a)(1)(A)(1) & (B)] — The Proposed ZEF Regulation allows use of low-use LSI forklifts (model year [MY] 2013-2025) through calendar year 2030. Metropolitan recommends that ARB remove both the MY 2013 eligibility and the 2030 sunset dates in recognition that public agencies are not commercial enterprises and operate with limited budgets and resources to buy cleaner vehicles and equipment in a timely manner. An alternative would be to provide a sunset date that corresponds with the final phase-out date in the respective Class IV and Class V tables. These linked sunset and phase-out dates would be more appropriate and manageable for public agencies as they navigate competing compliance obligations under various ZE regulations.

#### Commenter: [258-45d]

<u>Comment:</u> Requiring facilities to invest significantly in new forklifts for sporadic operations amounts to a substantial expense for such a limited use equipment, presenting an economic challenge for many agricultural businesses. When evaluating the limited emission reductions relative to the associated costs, it is unreasonable to have a sunset date of December 31, 2030, for this type of limited use forklifts. As written, a low use LSI forklift must be a MY 2013, or newer. However, most of our facilities would need to purchase a new LSI forklift in 2026, only to use it for less than 1,000 hours and having to sunset the list in 2031. The investment would be too high for the intended short useful life. We recommend a revision of this exemption, specifically proposing the elimination of the sunset date and requiring a MY 2013 or newer.

#### Commenter: [335-45d]

<u>Grouped Agency Response:</u> Changes were made in response to part of these comments. As part of the 15-Day Changes, Section 3007(a)(1) was edited to remove the restriction that low-use forklifts be only MY 2013 to 2025. Now, under the Regulation, a forklift of any MY may be a Low-use LSI Forklift. This change is being made because the intent of the Regulation is to allow fleets to use forklifts they phase out as low-use forklifts and not acquire additional forklifts for that purpose. Further, this provision could cause unnecessary disruption to businesses and removing the provision could achieve emission benefits since there could be a reduction in the use of vehicles with internal combustion engines (ICE) that may be used to shuffle LSI forklifts within the State.

Staff did not, however, make changes to eliminate the December 31, 2030, low-use sunset date. Fleet Operators with low-use forklifts will have at least four years to plan and purchase compliant forklifts. Furthermore, Fleet Operators can comply with the requirements of the Regulation by renting forklifts if funding is not available to purchase compliant forklifts. As described above in the response to B.1.c) Low-use LSI Forklift Exemption – Sunset Date Emissions Benefit, the Regulation's low-use provisions strike a balance between allowing flexibility and convenience for fleets to continue using a LSI forklift from time to time and ensuring the emission reductions that will come from phasing out LSI forklifts in favor of

lower-emitting alternatives. Although staff understands the commenter's reason for wanting to eliminate the low-use sunset date, staff judged the potential emission benefit losses associated with eliminating the sunset date to be too great.

See also the response to B.1.c) Low-use LSI Forklift Exemption – Sunset Date Emissions Benefit.

#### c) Exemptions for San Nicolas and San Clemente Islands

## Comment: §3000(c)

Request that an exemption be added for large-spark ignition (LSI) forklifts operating solely on San Nicolas or San Clemente Islands. These locations have limited power generation resources, and adding EV charging and storage to a grid already operating at and above capacity may have consequential impacts to training operations.

#### Specific Requested Revision: Add (c)(8) to state:

"Exemption for LSI forklifts used solely on San Nicolas or San Clemente Islands. LSI forklifts used solely on San Nicolas or San Clemente Islands are exempt from all requirements in sections 3000-3007. If the land use plans for the islands are changed to allow use by the general public of the islands, this exemption shall no longer be applicable."

## Commenter: [016-45d]

<u>Agency Response:</u> Changes were made based on this comment. As part of the 15-Day Changes, CARB modified section 3007(a) to add an exemption for forklifts being acquired to be solely operated on San Nicolas Island and/or San Clemente Island. Section 3007(a)(5) as amended will allow the Department of Defense to operate affected forklifts on San Clemente and San Nicolas Islands without needing to comply with the phase-out requirements of the regulation. Currently, the islands are used for military training purposes only and are not open to the public. As such, the islands have limited power generation resources. This exemption is necessary because requiring the phase-out of LSI forklifts could impair training operations. This exemption is like an exemption provided in the In-Use Off-Road Diesel-Fueled Fleets Regulation (Title 13, CCR, sections 2449 and 2449.1 through 2449.3). LSI forklifts used solely on San Nicolas or San Clemente Islands are exempt from all requirements in sections 3000-3007. This modification addresses the concerns raised by the commenter by ensuring that LSI forklifts may operate within the San Clemente and/or San Nicolas Islands.

#### d) Exemption for 24-Hour On-Site Operations

<u>Comment:</u> Technical challenges of run time & operational loads could impact overall cost: While CARB staff noted that "opportunity charging" may resolve use needs for battery electric forklifts during workshops, manufacturers and industry experts remain skeptical that there is a one-to-one replacement for ICE forklifts versus battery electric. Considering an 8-hour use period, 8-hour charge period, and 8-hour battery cool down period for the bulk of existing battery electric forklifts, the rulemaking could actually require a three-to-one replacement for businesses utilizing 24-hour shifts such as warehousing, goods movement, and agricultural services during harvest season. Such ratios would significantly increase the total financial impact of this regulation and are not accounted for in the cost analysis. In addition, lift capacities of battery electric units can make real-world runtimes for heavier loads much lower than rated capacities. An exemption for fleets that require 24-hour on-site operations would protect fleet owners and operators from having to significantly increase the size of their fleets to meet their current operational needs.

#### Commenter: [294-45d, propane-45d]

<u>Agency Response</u>: No changes were made in response to these comments. Staff disagrees with the assertion that fleets will need to increase fleet size to operate ZEFs or that a 24-hour on-site operations exemption is warranted.

Regarding needing 8-hours a day for a battery cool down period, the cool down period associated with flooded lead-acid battery-electric forklifts can be resolved by employing battery swapping strategies, thus increasing the probability of one-to-one replacement even when using flooded lead-acid batteries. An option for fleets with 24-hour on-site operations would be lithium-ion batteries, which are already used in many multi-shift operations.<sup>29</sup> Indeed, lithium-ion batteries can be charged much more quickly than flooded lead-acid batteries and do not require a cooldown period after each charging event, which allows them to take advantage of opportunity charging to extend the amount of time it can be used in each day. In addition, the energy density of lithium-ion batteries is much higher than lead-acid batteries, which allows operators to configure forklifts with capacities higher than has been historically available with flooded lead-acid batteries. An additional 24-hour on-site operational solution option is fuel cell fueled forklifts.

Based on \*discussions with stakeholders, including manufacturers, staff concluded that with the range of battery-electric options including flooded lead-acid, gel cell, absorbed glass mat, thin plate pure lead, and lithium-ion batteries, and fuel-cell technologies, in many applications commercially available ZEF can serve as one-to-one replacements for ICE forklifts.

However, the staff recognizes the vast range of forklift performance and operational variations and acknowledges that, in limited situations with specific performance or operational needs, there may not be a one-for-one ZEF replacement commercially available. The Regulation has multiple potential compliance flexibility options including the Operational Extension option (3007(b)(4)). The Operational Extension allows Fleet Operators to request this extension if there is no commercially available ZEF model that can meet the needs of an operation currently served by an LSI Forklift required to be phased out by the upcoming compliance date. CARB assumes that in all situations a fleet will make a reasonable attempt to select an appropriate ZEF considering the best fit technology configuration and performance standard applicable to operational needs.

#### e) Low-use LSI Forklift Exemption – Model Year Restriction

<u>Comment:</u> Requiring facilities to invest significantly in new forklifts for sporadic operations amounts to a substantial expense for such a limited use equipment, presenting an economic challenge for many agricultural businesses. When evaluating the limited emission reductions relative to the associated costs, it is unreasonable to have a sunset date of December 31, 2030, for this type of limited use forklifts. As written, a low use LSI forklift must be a MY 2013 or newer however, most of our facilities would need to purchase a new LSI forklift in 2026, only

<sup>&</sup>lt;sup>29</sup> ISOR source: Zhukov A., Review of the North American Lithium Forklift Battery Market: The 7 Most Popular Brands in the USA and Canada, OneCharge, October 11, 2021 (web link: *https://www.onecharge.biz/blog/review-of-the-north-american-lithium-forklift-battery-market-the-7-most-popular-brands-in-the-usa-and-canada/*)

to use it for less than 1,000 hours and having to sunset the list in 2031. The investment would be too high for the intended short useful life. We recommend a revision of this exemption, specifically proposing the elimination of the sunset date and requiring a MY 2013 or newer.

#### Commenter: [335-45d]

<u>Agency Response:</u> Changes were made in response to address part of this comment. As part of the 15-Day Changes, Section 3007(a)(1) was edited to remove the restriction that low-use forklifts be only MY 2013 to 2025. Now, under the Regulation, a forklift of any MY may be a Low-use LSI Forklift.

Staff did not, however, make changes to eliminate the December 31, 2030, low-use sunset date. The Regulation's low-use provisions strike a balance between allowing flexibility and convenience for fleets to continue using an LSI forklift from time to time and ensuring the emission reductions that will come from phasing out LSI forklifts in favor of lower-emitting alternatives. Although staff understands the commenter's reason for wanting to eliminate the low-use sunset date, staff judged the potential emission benefit losses associated with eliminating the sunset date to be too great. See also the response to B.1.c) Low-use LSI Forklift Exemption – Sunset Date Emissions Benefits.

#### f) Manufacturer Cancellation – Government Fleet Operators

<u>Comment:</u> Section 3007(b)(2)(B)2.a. must not provide for preferential treatment to government for securing an alternate purchase or lease agreement if a manufacturer cancels an agreement. Either the 180 days or 1 year must apply to all fleets.

#### Commenter: [012-45d]

<u>Agency Response:</u> No change was made in response to this comment. Section 3007(b)(2)(B)2.a. discusses what happens if a forklift manufacturer cancels a purchase or lease agreement for a ZEF ordered to replace an LSI Forklift subject to the upcoming compliance date due to circumstances beyond the control of the fleet operator. Section 3007(b)(2)(B)2.a. gives a fleet operator 180 calendar days to secure another purchase or lease agreement for another ZEF in case of such a cancellation, but gives the government Fleet Operators a full year to do so. The commenter thinks it is unfair to give government fleets more time. Government entities have highly regulated financial structures which could impair their ability to quickly order another forklift should a manufacturer cancel an existing order. For example, government funds typically have both encumbrance and expenditure deadlines. If the encumbrance deadline of appropriated funding for a forklift has passed, the government entity would not be able to use that funding for another forklift should an existing forklift order be canceled.

#### g) Temporary Storage of Non-Compliant LSI Forklifts – Extension to 12 Months

#### Comment: § 3007 (a)(3)

In regards to, "Temp storage of non-compliant LSI forklifts awaiting sale, scrap, or relocations. Subject to the following conditions, a fleet operator may temporarily store onsite for up to 6 consecutive months a non- compliance LSI forklift while forklift is awaiting sale, scrap, or relocation."

Request temporary storage onsite for up to 12 months, due to time requirements for planning and funding cycles for large equipment removal.

Specific Requested Revision: "Temp storage of non-compliant LSI forklifts awaiting sale, scrap, or relocations. Subject to the following conditions, a fleet operator may temporarily store onsite for up to 12 consecutive months a non-compliance LSI forklift while forklift is awaiting sale, scrap, or relocation."

## Commenter: [016-45d]

<u>Agency Response:</u> No change was made in response to this comment. CARB staff disagrees that increasing the permitted temporary on-site storage of a non-compliant LSI forklift beyond six months is warranted. Six months is enough time to arrange for sale, scrappage or relocation of a forklift. CARB staff is concerned that extending the storage period beyond 6 months would make it too easy for ill-intentioned fleets to avoid phase-out requirements by inappropriately extending temporary storage. In practice, if CARB inspectors came across a fleet that had stored non-compliant LSI forklifts for longer than 6 months due to circumstances beyond the fleet's control, that situation would be considered per CARB's Enforcement Policy.

## h) Temporary Storage of Non-Compliant LSI Forklifts – Tagout Devices

<u>Comment:</u> Section 3007(a)(3)(B) is unreasonable and should be removed. First, in 3007(a)(3)(A) once the battery is disconnected or removed, there is no "Energy Isolation Device" other than the battery cables; there is no circuit breaker. So whether you put a lock on the battery cables or you put a red tag on the cables the method of isolation is one and the same and both are acceptable lockout/blockout means according to the Occupational Safety and Health Administration (OSHA) regulation. Thus, this section should either just require the battery to be disconnected or removed and the cables locked or tagged, or the propane tank should be removed, and the gas regulator locked or tagged. No other equipment like the attachments (e.g. forks or mast) should ever need to be removed. Again, removing items requires more labor costs to remove and reinstall for sale, and it presents more ways something can go wrong in either disassembly or reassembly prior to sale.

#### Commenter: [012-45d]

<u>Agency Response:</u> Changes were made in response to this comment. As part of the 15-Day Changes, Section 3007(a)(3)(B) was amended. The text, "work attachments, such as the forks," is being deleted from the section so that now, if a Non-Compliant LSI Forklift awaiting sale, scrap, or relocation has a Tagout Device, the battery and propane tank must be removed, but work attachments such as forks may be left attached. The staff agrees with the commenter that removing attachments could be too time consuming and is unnecessary if the battery and propane tank are removed.

Staff disagrees with the commenter's recommendation against requiring both disconnection of the battery and removal of the propane tank. To ensure that a Non-Compliant LSI Forklift is truly non operable and that the MY phase-out requirements of the Regulation are enforceable, Staff believes it appropriate to keep the other tagout requirements (i.e., removal of both the battery and propane tank).

## i) Extension for Agricultural Operations

<u>Comment:</u> Meanwhile, electricity rates persist as some of the highest in the US, escalating each year. In the most recent general rate case presented to the Public Utilities Commission (PUC) by PG&E and SCE, both utility providers have proposed a substantial 45% increase in rates. This places us at a distinct economic disadvantage, hindering our

competitiveness in the global market. This unique situation creates an inherent significant challenge for agricultural operations. Given these circumstances, it is crucial to extend the compliance timeline for agricultural operations by 5-6 years, allowing them to allocate this significant compliance expense over an expanded period of time. This places us at a distinct economic disadvantage, hindering our competitiveness in the global market...

...During our meetings with utility providers, we discovered the completion and operation of a new substation can take up to 13 years. The CEC is in the process of conducting a study to identify the infrastructure needs, it will identify how much infrastructure will be needed, where it will be needed and when it will be needed. Unfortunately, our facilities, mostly located in rural areas are slated to be last on the priority list for upgrades. Utility providers are currently directing their efforts and resources toward addressing other concerns such as wildfire mitigation, with extensive projects like undergrounding thousands of miles of transmission lines which will take precedence over projects like ours. In recognizing these challenges, we recommend a reconsideration of the proposal, advocating for an extended initial exemption from three years to a minimum of eight years minimum timeline for agricultural operations.

#### Commenter: [335-45d]

<u>Agency Response:</u> No changes were made in response to these comments. The Regulation allows Crop Preparation Services to follow the small fleet phase-out schedule terminating in 2038, three years after the 2035 date for the large fleet phase-out schedule (3006(d) Table 1). In addition, a phase-out percentage cap of 25% may be applied pursuant to Section 3006(e), Phase-Out Percentage Caps. Furthermore, the Exemptions and Extensions section 3007 offers multiple compliance alternatives such as the Infrastructure Site Electrification Delay Extension, 3007(b)(3)(B), which allows for up to ten years of compliance extensions to address long lead times on infrastructure installation. Since a fleet could apply for an Infrastructure Site Electrification Delay Extension up to January 1, 2034, and it could be valid for a maximum term of ten years, such extensions may be valid out to 2044, i.e., two decades from now, if necessary.

As described further in the response to 6.b) Electric Utility Planning – Cumulative Infrastructure Needs comment, CARB staff is working with the CEC, CPUC, CAISO, utility providers, and the GO-Biz, to support electric system planning that accounts for the significant growth in infrastructure needs to further support widespread deployment of ZE technology. If that planning effort is not successful and there is still a need for Infrastructure Site Electrification Delay Extensions after several decades, CARB staff will have an opportunity to propose any needed amendments to the Regulation.

Regarding the commenter's request to extend the timeline for agricultural operations by an additional 5 to 6 years, CARB staff does not recommend doing so for the following reasons:

- Crop preparation services are already given three extra years via the Alternative MY Phase-Out Schedules for Small Fleets and Crop Preparation Services. Via that Alternative Phase-out Schedule, even without any special extensions, a crop preparation service fleet could still be owning and operating LSI forklifts until the end of 2037, more than 13 years from now.
- The Regulation includes numerous extension provisions, including for Infrastructure Site Electrification delays; and
- Extending the timeline for Crop Preparation Services fleets further would forego needed emission reductions, and it would inappropriately remove the sense of urgency to improve infrastructure to further support widespread deployment of ZE technology.

Regarding the commenter's concern regarding future electricity rate increases ("a substantial 45% increase in rates"), staff's regulation cost analysis assessment included current and projected electricity rates and found that overall, over the course of the regulation, fleets are expected to see savings. For further discussion of cost, see also the Agency Responses to B.2.k), I), and m) Cost Analysis - Cost of Electricity Comments 1, 2 and, 3, respectively.

### j) Extension Requests – Timeline

<u>Comment:</u> The Proposed ZEF Regulation would require that extension requests for site electrification delays, infrastructure construction delays, ZEF delivery delays, and technical infeasibility be submitted no more than 90 days prior to the compliance date, and CARB has 45 days to respond. Other regulations also contain extensions and exemptions that will be granted based on Executive Officer discretion. While CCEEB agrees that these types of extensions are necessary to facilitate compliance with the zero-tailpipe-emissions rules as written, the fact that each extension/exemption would be granted on a case-by-case, discretionary basis means that fleets will not know what or where they are required to make infrastructure upgrades until three to five months prior to the compliance date. This is simply not feasible for fleets and could result in a barrage of last-minute changes in requests to the electric utilities.

#### Commenter: [097-45d]

Agency Response: Staff made changes in response to this comment. As part of the 15-Day Changes, section 3007(b)(3)(B)4.a. was edited to eliminate the 45-90 day Infrastructure Site Electrification Delay Extension submittal window to provide additional flexibility to fleet operators. This modification, along with changes to Section 3007(b)(1)(D), now allows fleets to apply for extensions well ahead of a compliance date. Staff disagrees with the commenter's claim that extensions/exemptions would be granted on a "discretionary basis." Instead, Executive Officer approval will be provided if all applicable eligibility criteria (clearly laid out in the regulation) are satisfied. Per Section 3007(b)(1)(D), if CARB does not respond to the Fleet Operator within 45 calendar days of an initial submittal, the request is deemed approved, and the extension is effectively granted 45 calendar days after receipt of submittal. Thus, fleets can obtain the lead time they need for planning with utilities by submitting any extension requests early. Consider, for example, a fleet that submits a complete application for an Infrastructure Site Electrification Delay Extension Fleet 11 months ahead of an upcoming compliance date. Such a fleet could expect to get an approval within 45 days, i.e., 9 and a half months ahead of the upcoming compliance date. And if CARB does not respond within 45 days, the extension will be granted automatically. With these modifications, fleets will be able to submit requests or renewals up to the 45-days ahead of a compliance date with minimal risk of potential noncompliance.

In addition, the Regulation's 3006(c) condition requiring fleets to contact, no later than March 31, 2026, the applicable electric utility provider to initiate discussions regarding potential electrical-service installations or upgrades for each separately metered building or operating location with LSI <u>F</u>orklifts subject to the phase-out requirements, should significantly reduce the risk that "fleets will not know what or where they are required to make infrastructure upgrades until three to five months prior to the compliance date." The first phase-out

compliance date is not until January 1, 2028<sup>30</sup>, nearly two years after the March 31, 2026, deadline to initiate discussions with the utility.

## k) Extension Requests – Confidentiality

<u>Comment:</u> [T]he requirements and information mandated for requesting an extension delay far surpass the essential details necessary to demonstrate the necessity for such an extension. Preserving the confidentiality of business information should be of utmost importance. We firmly believe that furnishing documents such as a year's worth of billing statements from the electrical utility provider is excessive. This information on a company's overall usage is irrelevant and poses a potential threat to the privacy and security of the business. A more streamlined approach, such as an attestation from the utility provider stating their inability to provide the required service along with an estimated date, should be deemed sufficient for the extension request process.

#### Commenter: [335-45d]

<u>Agency Response:</u> Staff made changes in response to this comment. Staff agree with the commenters regarding the importance of preserving the confidentiality of business information. Therefore, as part of the 15-Day Changes, Section 3000 was modified to add the word "Confidentiality" to the section title, and a new section 3000(e) is being added to the Regulation to clarify procedures for designating information submitted to CARB by manufacturers, dealers, rental agencies, and any regulated parties as confidential. Further, the section explains that confidential information will be handled in accordance with title 17, CCR, section 91000, which governs CARB's obligations in the disclosure of public records. This change is needed to inform forklift manufacturers, forklift dealers, rental agencies, and any regulated parties that transaction data can be identified as confidential information.

The staff also agrees that furnishing a year's worth of billing statements may be unnecessary, when the key information to be provided to utilities is load profiles depicting electricity usage. Hence, as part of the 15-Day Changes, Section 3007(b)(3)(B)4.v. was also edited to eliminate the reference to billing statements and to now read, "load profiles depicting the location's typical electricity usage on an hourly basis from the electrical utility provider covering the previous 12-month period."

Regarding the commenter's request for a more streamlined approach, such as an attestation from the utility provider, staff disagrees. Instead, an attestation would not be adequate because the documentation requested for the extension request submittal is necessary to allow the Executive Officer to evaluate baseline energy use at the facility relative to total capacity, which would help determine if additional ZEF could be deployed without additional electrical capacity.

#### I) Hour of Use Monitoring – Dealer Transfers

Comment: 3007(a)(4) Must Be Revised With Respect to the 10 Hour Limit on Dealer Transfers

<sup>&</sup>lt;sup>30</sup> Per in section 3006(d) Table 1, January 1, 2028, is the first compliance date for Class IV Forklifts with a Rated Capacity of 12,000 pounds or less, in large fleets.

As forklifts dealers we know there are cases where a manufacturer delivers a new forklift to a dealer that may already have more than 10 hours on the hour meter. Additionally, transfers between dealers nationwide happen all the time and it is possible a forklift may have accumulated hours during the time with the out of state dealer for demonstration that might push the hour meter past 10 hours. In either case, the forklift remains new because it has yet to be sold into commerce.

This section should state nothing more than the forklift being transported for delivery out of state shall not be operated while in California for more than 10 hours. To prove this, should an CARB inspection occur, the dealer could produce a bill of lading (BOL) that would indicate the hours when shipped to the dealer that could be compared to the hour meter at the time of an inspection.

## Commenter: [012-45d]

<u>Agency Response:</u> Changes were made in response to this comment. Staff agrees that an LSI forklift being transported into California for sale and use outside of California could have more than ten hours of operation on the hour meter when first arriving at a dealer's lot in California. Therefore, staff amended this provision as part of the 15-Day Changes to allow for ten hours of operation in California before the LSI forklift is transported out of California. The change is being made to clarify that operating hours accrued prior to delivery to the dealer would not count towards the dealer's ten-hour in-State operating limit. A bill of lading, on which forklift operating hours are typically recorded, would be used to verify the operating hours prior to delivery to the dealer.

# **10. Extensions – ZEF Delivery Delay Extension**

## a) ZEF Delivery Delay Extension – Purchase Order Requirement

<u>Comment:</u> Requiring a purchase order to be drawn at least 2 years in advance is unreasonable. The purchase order must be limited to no more than 1 year from a compliance date.

## Commenter: [012-45d]

<u>Comment:</u> Request ZEF order requirement is one year instead of two years. The additional year allows for more flexibility to order new/different forklifts to complete and update fleets with the most capable equipment.

Specific requested revision: § 3007 (b)(2)(A)(2)(a-c) c. The purchase or lease agreement shows that the new ZEF was ordered at least one year prior to the upcoming compliance date.

## Commenter: [016-45d]

<u>Grouped Agency Response:</u> No changes were made in response to these comments. The ZEF Delivery Delay Extension is for businesses that have made a good faith effort to purchase a ZEF before the compliance date and, due to circumstances beyond their control, the forklift that was ordered will not be delivered when scheduled. Based on stakeholder input, current lead times for forklifts are 18 months or more, so fleets are required by market realities to order their forklifts at least 18-months in advance of when they need replacement. As such, staff does not believe it is unreasonable to require a fleet to order a ZEF at least 2 years ahead of a

compliance date in order to qualify for a ZEF Delivery Delay Extension. In addition, to clarify, the requirement is only applicable if a fleet opts to request a ZEF Delivery Delay Extension. If a fleet is confident ZEFs would be delivered ahead of the applicable compliance deadline, the timing of their orders would be at their sole discretion.

## b) ZEF Delivery Delay Extension – Delivery Window

<u>Comment:</u> [W]hy would the purchase order need to specify the delivery to be made at least 45 days prior to a compliance date? This too is unreasonable given no vendor can actually commit to that a specific time period for delivery given long lead times and manufacturer delays. This requirement must be removed.

Commenter: [012-45d]

Comment: Request that delivery timeframe be removed to allow for fleet flexibility.

Specific requested revision: § 3007 (b)(2)(A)(2)(a-c) b. The purchase or lease agreement identifies the make and model of the ZEF that the Fleet Operator committed to purchase or lease, the date of the order, and that the purchase is for delivery by the compliance date to the Fleet Operator;

<u>Commenter:</u> [016-45d]

<u>Comment:</u> In addition, the delay request requires a specific delivery date to be made at least 45 days prior to a compliance date. This is unreasonable given no vendor can actually commit to that a specific time period for delivery given long lead times and manufacturer delays... [W]hy would the purchase order need to specify the delivery to be made at least 45 days prior to a compliance date? This requirement seems impractical, as no vendor can reliably commit to a specific delivery timeframe, especially considering extended lead times and potential manufacturing delays. This requirement must be removed.

Commenter: [335-45d]

<u>Grouped Agency Response:</u> Changes were made in response to these comments. The commenters requested that the requirement of a forklift being delivered at a minimum of 45 days before the compliance date be removed. CARB staff agrees that meeting the proposed 45-day delivery minimum for a forklift could be difficult, and, as part of the 15-Day Changes, the requirement was removed from the Regulation. This change is being made because staff believes the requirement is of limited utility given that Fleet Operators would already be expected to order the ZEFs well in advance (i.e., two years prior) of the upcoming compliance date. The only delivery requirement is that the ZEF be delivered before the compliance date and if the ZEF cannot be delivered before the compliance date, the Fleet Operator can prevent noncompliance by requesting a valid Delivery Delay Extension request. Requests are subject to Executive Officer approval.

## c) ZEF Delivery Delay Extension – Delay Request Window

<u>Comment:</u> [T]he requirement to submit a delay request between 45 to 90 days could be infeasible. A notice of equipment being delayed could occur from the manufacturer all the way up to the end of the year due to material shortages. As dealers, we have seen this as the result

of supply chain issues. This requirement must also be removed. A request should be allowed to be submitted up to and including 12/31 prior to the compliance date.

### Commenter: [012-45d]

<u>Comment:</u> Request specific time period for extension request be removed. Extensions may be needed on short notice depending on the manufacturer/seller and is not within the control of the fleet operator.

Specific requested revision: § 3007 (b)(2)(D)(1) "Fleet operator shall submit the following to the executive officer in its request for the extension by the compliance deadline."

## Commenter: [016-45d]

<u>Comment:</u> [T]he demand for submitting delay requests within a 45 to 90-day window may also be unworkable. Notification of equipment delays could arise from the manufacturer at any point throughout the year due to material shortages, as evidenced by supply chain challenges experienced by dealers. This requirement must also be removed. A request should be allowed to be submitted and extended as necessary prior to the compliance date.

#### Commenter: [335-45d]

<u>Grouped Agency Response:</u> Changes were made in response to these comments. As part of the 15-Day Changes, staff added text that explains the way a ZEF Delivery Delay Extension will be approved and if approved, when the delay will be granted. Further, the submittal period of 45 to 90 days was removed in the 15-day changes. This change is necessary to allow Fleet Operators to submit requests further in advance than 90 calendar days before the compliance date, so that they would have time to pursue a different compliance pathway should their request get denied. Additionally, comments from stakeholders expressed concerns that the need for an extension request could occur within 45 days of an upcoming compliance date. Staff removed the 45-day requirement allowing extension requests to be submitted within 45 days of the upcoming compliance date. While requests would be accepted within 45 days of the compliance date, Fleet Operators submitting such requests close to the compliance date would be taking a risk of non-compliance should their request fail to receive approval prior to the upcoming compliance date.

#### d) ZEF Delivery Delay Extension – Letter of Intent

<u>Comment:</u> Recognizing today's economy, the extended timelines that will be necessary to secure forklifts can be significant with much uncertainty. We urge you to reconsider the requirements to qualify for the delay extension. Requiring a purchase order to be drawn at least 2 years in advance is unreasonable. Today, businesses face a 12-month waiting period for the delivery of new equipment after placing an order. When placing an order, there is no assurance of a fixed price, and the cost may experience significant increases by the time the forklift is delivered. Most dealers will not provide a cost over 90 days ahead of delivery. It is extremely difficult to run a successful business when you don't know your cost of operation. In order to apply for the delay extension, a purchase or lease agreement is required. We strongly suggest CARB reevaluate and potentially eliminate this requirement for a formal contract. This leaves businesses in a risky position, with uncertainty regarding both delivery timelines and

equipment costs. We propose replacing the contract requirement with a letter of intent, providing a more flexible approach, given the current market.

## Commenter: [335-45d]

<u>Agency Response:</u> Changes were not made in response to this comment. The Regulation cannot anticipate every possible scenario that might occur over the phase-out period. CARB staff has built in sufficient flexibility within the Regulation while providing reasonable criteria for fleet owners to demonstrate a good faith effort to remain in compliance. The intent of placing the purchase order two years in advance is to have a verifiable paper trail that the Fleet Operator has made a good effort to comply with the regulation that will minimize the need for requesting a delay extension. In addition, the requirement is only applicable if a Fleet Operator opts to request a ZEF Delay Extension. If a Fleet Operator is confident ZEF can be delivered ahead of the applicable compliance deadline, the timing of their forklift purchase order would be at their sole discretion.

For the possible cost increases over a two-year purchase order period, staff believes that if the cost of a forklift significantly changes over the period of two years, this increase would not change the fact that the Fleet Operator will still need a Forklift to keep their operation running unless the operation is modified to the point where a forklift is not needed. Regardless of when the operator ordered the forklift, two years, a year, or six months in advance, the cost increase would still occur, and the Fleet Operator would still have to pay the same price for the forklift. It would be expected that the Dealer would be providing cost information to the Fleet Operator as the cost for the ZEF changes. Doing so will help the Fleet Operator fund the Forklift purchase.

Regarding the commenter's asking that a letter of intent suffice in lieu of a contract the legally binding contract is needed to ensure that the Fleet Operator would be fully committed to purchasing ZEFs and that all specific details and contingencies regarding the purchase have been resolved and confirmed. The language prevents Fleet Operators from changing terms of the purchase or lease agreement within one year of the upcoming compliance date, which could otherwise be used to purposefully delay the delivery of ZEFs. Further, the requirement that a purchase order must be in place to qualify for an extension is needed to have a paper trail that can be verified by CARB staff.

## 11. Extensions – Infrastructure Construction Delay Extension

## a) Infrastructure Construction Delay Extension – Broaden Requirements

<u>Comment:</u> As stated on Page 1, many stakeholders explained to staff that there is a need for a delay extension where physical infrastructures are necessary to accommodate ZEFs. The construction of such physical infrastructures can encounter many possible delays. In a recent discussion with staff, they indicated all ZEFs can be stored and charged outside so there is no need for roofed areas. This is an extremely erroneous assumption. While some ZEF forklifts are made to withstand weather, the useful life of an electric forklift is diminished, and damage can occur when stored outside. As stated by a major forklift manufacturer: "Always store electric trucks inside in dry conditions and around 20°C to ensure a long lifetime for your trucks and their battery components. The battery and electrical components can be damaged by certain weather conditions like rain and snow, particularly if the truck is not in use."

## Commenter: [012-45d]

<u>Comment:</u> Section 3007(b)(3) for Infrastructure Delay Extensions only pertains to charging and fueling infrastructure. This section must also include provisions for any delays with physical infrastructure such as a roofed area that must be constructed to protect the charging systems and electrical from environmental elements. If ample existing locations under roof are not available at a site, a separate roof-covered space would be required. The charging systems, stored lithium or lead-acid batteries, and electric forklifts themselves cannot just be placed outside. Delays with physical infrastructures can include, but are not limited to, material shortages, inspections, contractor and subcontractor issues, plan and permit approvals, fire marshal restrictions or plan/permit denials (e.g. circumstances that would prohibit the use of lithium battery powered forklifts or storage at a facility), and rain delays; all of which are out of the control of the owner. This process may take a couple years or more from design to installation.

#### Commenter: [012-45d]

<u>Comment:</u> The infrastructure-related extensions do not provide enough consideration for facilities not owned by a fleet operator. Through CMTA's membership outreach, we have confirmed that numerous facilities will need to increase the square footage of an existing building to accommodate the need for charging infrastructure and storage. For facilities not owned by the fleet operator, expanding an existing facility would require renegotiating the lease agreement with the property owner or landlord. This consideration is not explicitly referenced within the infrastructure delay extension and should be included. Further, CMTA has been made aware that certain local jurisdictions have been exceptionally problematic in providing the necessary flexibility for an entity to expand its facility to accommodate business growth and/or projects designed to improve environmental sustainability. Delays affiliated with the permitting process from local entities have been, and continue to be, a hindrance to compliance. Therefore, CARB should coordinate with the appropriate local jurisdictions to provide a standardized roadmap that businesses can follow to comply with this Regulation.

#### Commenter: [082-45d]

<u>Comment:</u> The electrical and structural infrastructure and equipment delivery delay extensions requirement needs to be reconsidered and re-written. It does not include consideration for the fire-safety requirement for this new equipment; inadequate time is allowed for planning, permitting and construction of the needed facilities; the purchase order timing requirement is excessive and the suggestion that equipment should be moved to sites where utilities can provide infrastructure rather than where the equipment is needed is ridiculous.

#### Commenter: [083-45d]

<u>Comment:</u> Extend the Section 3007(b)(3) infrastructure delay extensions to include any delays with physical infrastructure that must be constructed. As other stakeholders have previously set forth, charging systems, stored lithium or lead-acid batteries, and electric forklifts themselves cannot be stored outside. These materials require dedicated physical infrastructure, the building of which can often be delayed by material shortages, inspections, plan and permit approvals, fire marshal restrictions, and weather delays. This should be accounted for in Section 3007(b)(3).

<u>Comment:</u> The permitting process for constructing or upgrading facilities can encounter various obstacles. A notable example can be found in Amador County, where the fire marshal expressed significant concerns with fire hazards associated with electric batteries and ultimately denying the building permit for a facility. In such instances, there is a crucial need for recognition and the establishment of a suitable avenue for companies to navigate this unique situation. The addition of ZEV forklifts into a fleet will require physical infrastructure at many facilities (e.g. roofed areas for forklift charging and battery storage). The proposed regulation must include an extension for facility upgrades needed, when delays occur beyond the operations control such as building permitting delays. A physical infrastructure delay extension is necessary and should be included in the regulation be added. In circumstances beyond the company's control, there needs to be an extension that is not limited to two years and should allow for renewal when necessary.

#### Commenter: [335-45d]

<u>Grouped Agency Response:</u> Changes were made in response to these comments. As part of the 15-Day Changes, Section 3007(b)(3)(A)1.a. was amended to include allowances for "delay in delivery of necessary building materials", "delays in construction of ZEF-related storage and shelter", and "delays obtaining permits; delays due to landlord-tenant issues regarding the installation of charging or fueling infrastructure".

Regarding the commenter's concern regarding "the fire-safety requirement for this new equipment," a fleet could apply for an Infrastructure Construction Delay Extension if any construction delays occur due to the need to install prevention, detection, or suppression systems. Similarly, delays in roofing and structures needed for fire safety would make a fleet eligible to apply for an Infrastructure Construction Delay Extension consideration (they would be considered necessary building materials or storage and shelter). Finally, if a fleet has concerns about fire safety and storing ZEFs inside, fuel cell forklifts could provide an alternative solution since they may be stored outside.

The inclusion of section 3006(c) requiring the early engagement with electric utility providers will reduce the risk of a fleet operator being unaware of the electrical utility needs of ZEF, and the Infrastructure Site Electrification Delay Extension option provides a compliance pathway for those instances where the electrical infrastructure is delayed by the utility.

#### b) Infrastructure Construction Delay Extension – Cap

<u>Comment:</u> The Extension Term [for an Infrastructure Construction Delay Extension] must not be capped at 2 years. From design, to plans, to building department plan check, to contractor selection and actual construction, this can easily be more than 2 years, especially with building new structures or bringing in additional power lines. There must be a provision for continuing one (1) year extensions with supporting documentation.

#### <u>Commenter:</u> [012-45d]

<u>Comment:</u> [T]he Extension Term [for an Infrastructure Construction Delay Extension] should not be capped at two years. This is particularly important when bringing in additional power lines and capacity to account for the larger electric forklift fleet.

<u>Grouped Agency Response:</u> No changes to the maximum two-year term for Infrastructure Construction Delay Extension were made in response to these comments. Staff believes limiting the extension to two years allows for sufficient time for fleet operators to resolve their construction issues while still ensuring projects are completed in a timely manner. The first phase-out compliance deadline is January 1, 2028, for large fleets and then potentially adding the two-year Infrastructure Construction Delay Extension would provide until January 1, 2030, (over five years from now) to resolve any construction delays.

Regarding the commenters' request for additional time for bringing in additional power lines and capacity, applying for the Regulation's Infrastructure Site Electrification Delay Extension would be appropriate in such circumstances; hence, no changes to the Infrastructure Construction Delay Extension term are needed for such circumstances. The Regulation expressly states that the Infrastructure Site Electrification Delay Extension is for situations when the "utility provider determines it cannot provide, prior to the upcoming compliance date, the requested power to the site where needed ZEFs will be charged or fueled". When the condition of section 3006(c) March 31, 2026, engagement with the utility is considered with the potential compliance options afforded by the Infrastructure Construction Delay Extension cap term of two-years and the Infrastructure Site Electrification Delay Extension cap terms of threeyears, two-years, and one-year renewed every year for up to a total term of ten years, staff believe additional changes are not warranted.

## c) Infrastructure Construction Delay Extension – Forklift Relocation

<u>Comment:</u> The requirement to relocate forklifts per Section 3007(b)(3)(A)1.c. and d. make no sense given a fleet must comply universally across all facilities, and the number of forklifts located at a facility are dictated by the company's operations at a site, and not by the electrical capacity at a site.

## Commenter: [012-45d]

<u>Agency Response:</u> No change was made in response to this comment. The Regulation's provisions in section 3007(b)(3)(A)1. c. regarding deploying as many forklifts as the infrastructure is able to support and in section 3007(b)(3)(A)1.d. regarding relocating forklifts as possible to maximize compliance, were included to ensure a fleet maximizes compliance across its entire fleet accounting for infrastructure service availability. Consider, for example, a fleet with two locations set up as follows:

- Location A: 30 LSI forklifts, all MY 2017; encounters an infrastructure delay, cannot deploy ZEFs for many years.
- Location B: 50 LSI forklifts, all MY 2024; which has no infrastructure delay issues and so could easily accommodate switching to ZEFs.

Sections 3007(b)(3)(A)1.c. and 3007(b)(3)(A)1.d. would ensure the fleet considers deploying ZEFs at Location B so that 30 MY 2024 forklifts can be moved from Location B to A. Staff believes these provisions are necessary and appropriate to maximize emission reductions.

# 12. Extensions – Infrastructure Site Electrification Delay Extension

## a) Infrastructure Site Electrification Delay Extension – Utilities

<u>Comment:</u> As demonstrated by several hours of discussion at CARB's recent Truck Regulation Implementation Group meetings on December 4th and December 8th, 2023 related to ACF, most fleet operators continue to have questions about what documentation CARB will consider sufficient to show that fleets are working with the utilities—and concerns about what is required to receive such documentation—as well as what will happen if there are significant delays in delivering the necessary power to their operations. CCEEB suggests CARB provide flexibility to entities that have made good-faith efforts to provide documentation to the utilities.

## Commenter: [097-45d]

<u>Agency Response:</u> No changes were made in response to this comment. The Regulation, in Section 3006(c), provides the requirements regarding the initiation of discussions with utility service providers for potential future service needs. The Infrastructure Site Electrification Delay Extension as detailed in 3007(b)(3)(B) provides detailed directions regarding submitting the associated initial request and renewal requests.

#### b) Infrastructure Site Electrification Delay Extension – Extension Request

## Comment: § 3007 (b)(3)(B)(4)(a)

Request specific time period for extension request be removed. Extensions may be needed on short notice depending site electrification delays that are not in the control of the fleet operator.

Specific Requested Revision: "Fleet operator shall submit the following to the executive officer in its request for the extension <u>by the</u> compliance deadline."

#### Commenter: [016-45d]

<u>Agency Response:</u> Changes were made in response to this comment. As part of the 15-Day Changes, section 3007(b)(3)(B)(4)(a) addressing the Infrastructure Site Electrification Delay Extension was updated to no longer include the requirement to submit the request within 45 to 90 days prior to the upcoming compliance date. Section 3007(b)(3)(B)(4)(a) of the Regulation now reads, "The Fleet Operator shall submit the following to the Executive Officer in its request for the extension prior to the upcoming compliance date." This modification will provide fleets with additional flexibility to submit requests up to the associated compliance date.

#### c) Infrastructure Site Electrification Delay Extension – Forklift Relocation

<u>Comment:</u> The concern raised by our respective membership is that the servicing utility may face significant delays in providing the needed energy supply. Permitting, utility design, and utility construction of new infrastructure to serve a facility will face considerable challenges. We are aware that certain energization projects may take 18 months to 3 years or more to complete. While the utilities are obligated to serve, it does not mean that service will occur expeditiously. The challenge with the current proposal is that it presumes adequate energy is available to support any deployment of ZEFs. The eligibility criteria require an entity to "deploy the maximum numbers of ZEFs that can be supported by the electric utility provider." In some instances, due to constraints, the maximum may be zero ZEFs. Yet, the Regulation is unclear whether that scenario would grant an extension. Further, the Regulation requires a fleet operator with multiple sites to relocate forklifts to the extent possible to maximize compliance

across all sites. This requirement is unduly burdensome and will increase emissions from transporting forklifts to other facilities.

## Commenter: [012-45d]

<u>Agency Response:</u> No change was made in response to this comment. The section 3006(c) condition initiating engagement with the utility service provider by March 31, 2026, coupled with the potential eligibility for an Infrastructure Site Electrification Delay Extension, 3007(b)(3)(B), provides flexibility to assist fleets experiencing site specific electrification related challenges that are outside of their control. This extension recognizes and provides relief for specific eligible considerations. It has been designed to provide flexibility, allowing for partial ZE equipment deployments based on the existing electrical service capacity. For example, if the fleet operation has deployed the maximum number of ZEFs that can be supported by the existing electric infrastructure service, the Infrastructure Site Electrification Delay Extension would create relief for the remaining fleet portion turn-over to ZE equipment, if all other conditions including the extension requirements are met.

If the Fleet Operator operates at multiple sites, the Fleet Operator would be expected to distribute ZEFs to those locations based upon fleet operational needs and existing electrical infrastructure service maximizing compliance across sites. CARB staff disagrees that asking a fleet operator with multiple sites to consider relocating forklifts to the extent possible to maximize compliance across all sites is unduly burdensome. Although transporting a forklift to another facility would indeed cause some emissions, the emissions from a one-time transport of a forklift would likely be far less than the emissions caused by allowing delays of the phase-out of LSI forklifts, potentially for up to ten years (the maximum term of an Infrastructure Site Electrification Delay Extension). See also the response to Infrastructure Construction Delay Extension – Forklift Relocation and the example therein of how requiring a fleet with two locations to transport forklifts from one to another may speed emission reductions and the deployment of ZEFs.

Regarding the commenter's assertion that the maximum number of ZEFs that can be supported by the electric utility provider may in some instances be zero ZEFs, CARB staff agrees that may sometimes be the case. The Regulation is clear that an extension could be granted in that case. Per sections 3007(b)(3)(B) et seq, if a fleet's utility provider determines it cannot provide, the requested power to the site where needed ZEFs will be charged in time for the upcoming compliance date, the fleet will be granted an Infrastructure Site Electrification Delay Extension, as long as it meets all Fleet Eligibility Criteria in section 3007(b)(3)(B)1 and submits all documentation and information described in section 3007(b)(3)(B)4.a within the timelines specified.

## d) Infrastructure Site Electrification Delay Extension – Electric Utility Planning

<u>Comment:</u> CARB has pointed to the inclusion of extensions to allow for site electrification delays to allay fleet concerns that compliance depends on receiving timely responses, and adequate power, from the electric utilities. The Proposed ZEF Regulation has such a provision in its Infrastructure Site Electrification Delay Extension in §3007(b)(3)(B). In order for a Fleet Operator to qualify for this extension, the Fleet Operator or "entity responsible for infrastructure at the operating location" would have to formally request from the electric utility provider the power necessary to meet its compliance obligations for the Proposed ZEF Regulation on certain time frames as follows:
- For the January 1, 2028, compliance date, by January 1, 2027,
- For the January 1, 2029-January 1, 2036, compliance period, at least two years prior to the compliance date, and
- For the January 1, 2038, compliance date, by January 1, 2034

CCEEB agrees that early dialogue between the electric utilities and fleet operators is critical for implementation of all regulations that will increase demand for electricity. However, CARB's own regulatory requirements serve to complicate, rather than ease, the path forward to provide comprehensive, accurate estimates of fleet energy demand to the utilities.

### Commenter: [097-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB appreciates the commenter's recognition of the value provided by early discussions with utilities regarding potential future service needs. CARB staff disagrees that CARB's regulatory requirements complicate the path forward to provide comprehensive, accurate estimates of fleet energy demand to the utilities, and the commenter has provided no support for that assertion. CARB staff crafted the requirements of Section 3006(c) of the Regulation for fleets to initiate discussions regarding potential electrical-service installation or upgrades with utilities based on feedback from the utilities themselves regarding what information they need from fleets.

CARB expects regulated parties to develop their own compliance plans across all applicable regulations tailored to their operational needs. Regulated parties may be granted extensions and flexibilities across the applicable regulations to ensure the compliance plan maximizes inuse vehicle compliance while requesting extensions for the remainder of the fleet that may require additional time due to infrastructure site electrification delays. These extension options enhance, rather than detract from, the flexibility available to regulated parties.

# 13. Extensions – Operational Extension

### a) Operational Extension – Timeline

<u>Comment:</u> The 12/31/2037 sunset date in Section 3007(4) must be removed. If a company has been trying diligently to find a solution with a ZEF for their operations but no such ZEF exists by 12/31/2037, the company cannot just be told they must cease operations. An extension must be allowed beyond 12/31/2037 until a feasible solution is available to a company to use a ZEF to continue their operations.

### Commenter: [012-45d]

<u>Comment:</u> Recognizing the impact CARB's Proposed Regulation will have on the still-nascent electric forklift market in the state, eliminate the proposed sunset date in Section 3007(4). Fleet operators in California, especially small businesses, should not be forced to cease operations if a feasible ZEF solution is not available in the marketplace by an arbitrary date.

#### Commenter: [090-45d]

<u>Comment:</u> The sunset date included in the technical infeasibility delay set for the end of 2037 does not take into account that this may not be sufficient time for technology to meet the demands or needs of all operations. There needs to be an understating and additional flexibility in these situations. An extension must be allowed beyond 2037 until a feasible solution is available.

<u>Grouped Agency Response:</u> Changes were made in response to these comments. Based on discussions with manufacturers and other stakeholders, CARB staff believes all operational feasibility issues will be addressed prior to January 1, 2038. However, as part of the 15-Day Changes, Section 3007(4) was edited to remove the December 31, 2037, sunset date for the Operational Extension (formerly called the Technical Infeasibility Extension). As requested by the commenters, now, if a fleet qualifies for an Operational Extension, even if it is after December 31, 2037, the fleet could receive an Operational Extension and thereby postpone turnover of an LSI forklift and/or allow an LSI forklift to be replaced with another LSI forklift.

### b) Operational Extension – LSI Forklift Replacement

<u>Comment:</u> If an LSI forklift is granted an extension due to infeasibility and that forklift must be replaced for any reason (damage, theft, fire, worn out) there must be an exception that allows for a new 2026 or later MY LSI forklift replacement. CARB cannot just tell an end user that they must cease their operations if there is no technologically feasible electric replacement for the LSI forklift needing to be replaced at the time the replacement is necessary.

### Commenter: [012-45d]

<u>Agency Response:</u> Changes were made in response to this comment. As part of the 15-Day Changes, CARB staff has included the new Section 3007(b)(5), which will allow Fleet Operators to purchase new 2026 and later LSI forklifts if they have a valid Operational Extension, even if the replacement needs to be made years in advance of the upcoming compliance date. The replacement LSI Forklift would be allowed even when its acquisition, possession, or operation would otherwise be prohibited by Sections 3002(a), 3002(b), 3003(a), 3003(b)(1), and 3005(a) CARB staff agrees with the commenter that the change is necessary to allow fleets to obtain replacement LSI forklifts in situations where an Operational Extension applies since there would be no commercially available ZEF model that can meet the needs of the operation.

### c) Operational Extension – Extension Renewal

<u>Comment:</u> If the Fleet Operator desired to renew the extension, the Fleet Operator would be required to complete a new market evaluation focused on ZEF model availability within six months prior to the expiration date of the existing extension.

These requirements pose several potential challenges. If a Fleet Operator cannot submit their extension request until 90 days prior to the compliance date, and CARB has 45 days to respond, Fleet Operators will have between one and three months to change course should CARB reject their extension request. Given the Proposed ZEF Regulation relies on long-lead time activities, including delivery of zero-tailpipe-emission equipment, installation of charging/refueling infrastructure that needs to conform to the specific equipment model, and, most likely, power upgrades to the site, this timeline does not seem feasible for Fleet Operators, nor will it increase certainty for all entities in the energy and equipment supply chain.

### Commenter: [097-45d]

<u>Agency Response:</u> Changes were made in response to this comment. The commenter states that requiring a Fleet Operator to submit their market evaluation within a 45 to 90-day window

of the compliance date could cause problems for the Fleet Operator due to long lead times related to the purchase and installation of zero-emission equipment if CARB rejects the Operational Extension (formerly called Technical Infeasibility Extension) request. CARB staff agrees that meeting the proposed 45 to 90-day window to submit a ZEF market evaluation could have created compliance issues for Fleet Operators. As part of the 15-Day Changes, the requirement has been removed from Section 3007(b)(2)(D)1. This change will allow Fleet Operators to submit requests for Operational Extensions further in advance than 90 calendar days before the compliance date, so that they would have time to pursue a different compliance pathway should their request get denied. The change is also being made to allow extension requests to be submitted within 45 days of the upcoming compliance date. Fleet Operators submitting requests fail to receive approval prior to the upcoming compliance date. However, to accommodate Fleet Operators who realize an operational issue close to the compliance date, CARB staff believes allowing submittal of Operational Extension requests within 45 days of the upcoming Extension requests within 45 days of the upcoming compliance date, compliance date, compliance date is better than not doing so.

### d) Operational Extension – Market Evaluation

<u>Comment:</u> [W]hile CCEEB understands CARB's concern that evaluating available ZEF models too early risks "pre-judging" the market, Fleet Operators need more than six months to plan for compliance, and limiting the market evaluation to that time period is unlikely to leave enough time for a fleet to order and take delivery of equipment if they do identify a ZEF that meets their needs.

### Commenter: [097-45d]

Agency Response: Changes were made in response to this comment. As the commenter pointed out, a Fleet Operator who is unable to renew or is denied an Operational Extension because a ZE forklift model recently becomes available and who encounters a delay in forklift delivery, or an infrastructure delay could be put in a position where it might be impossible to comply with the Regulation. To address this issue, the Regulation text was revised to allow Fleet Operators encountering expiration or denial of an Operational Extension (formerly called Technical Infeasibility Extension) the ability to apply for a Delivery Delay Extension, Infrastructure Construction Delay Extension, and an Infrastructure Site Electrification Delay Extension if a replacement ZEF becomes available. Additionally, text was added that lists specific sections of the extensions with deadlines that might otherwise limit the Fleet Operator's eligibility to apply for the extensions. Notwithstanding these sections, the Fleet Operator is eligible to apply for the extensions, if applications are submitted within 135 calendar days of the expiration of, or denial of a request for an Operational Extension. Because the new compliance date for the Fleet Operator is 180 calendar days from expiration of, or denial of an Operational Extension request, and CARB has 45 calendar days to respond to a request, the remaining 135 calendar days is an appropriate window for submittal of an application for a ZEF Delivery Delay Extension, an Infrastructure Construction Delay Extension, and/or an Infrastructure Site Electrification Delay Extension, if needed.

### e) Operational Extension – Extension Determination

<u>Comment:</u> We appreciate that this extension would allow submission of one extension request for identical equipment types, particularly given the extensive market analysis and use case descriptions CARB would require Fleet Operators to provide to qualify for this extension. CCEEB believes that CARB's extension determination should be granted automatically to

other Targeted Forklifts that are similarly unavailable given market evaluations CARB has deemed appropriate for a particular timeframe and use case. Doing so will make both Fleet Operators' and CARB staff's work much more efficient and go further towards ensuring that Fleet Operators with the same use cases are treated equally under the Proposed ZEF Regulation.

### Commenter: [097-45d]

<u>Agency Response:</u> Changes were not made in response to this comment. Based on information provided to CARB staff by stakeholders, forklifts are used in a variety of applications that vary from operational location to operational location. Additionally, the physical requirements at each site such as electrical service, storage area layout, and how the forklift is used by the Fleet Operator vary enough to require a review of all extension applications. Having CARB staff review all applications will assure that each Fleet Operator has made their best effort to comply with the Regulation, that the physical constraints at an operating location are consistently evaluated, and that maximum emission reductions are achieved.

## f) Operational Extension – Infeasibility Determination for Costs

<u>Comment:</u> Lastly, none of these considerations allow for an infeasibility determination based on prohibitive costs, be that for a ZEF or for the infrastructure to support the ZEF. CCEEB remains concerned that CARB does not account for prohibitive cost in any exemption or extension.

### Commenter: [097-45d]

<u>Agency Response:</u> Changes were not made in response to this comment. Although the Regulation does not have an infeasibility determination for cost, overall, the Regulation is expected to result in savings for Fleet Operators, and there are several provisions in the Regulation that help reduce or eliminate the cost burden for Crop Preparation Services, Microbusinesses, and Small Businesses. For example, Microbusinesses that have a Low-Use LSI forklift may keep the forklift indefinitely which will allow the business to avoid all costs related to the Regulation. Additionally, Crop Preparation Services and Small Businesses have been given several more years to phase out their LSI forklifts when compared to Large Businesses. Another option that businesses could use to comply with the Regulation and keep upfront cost down is to rent a ZEF or purchase a used one instead of purchasing new forklifts.

## g) Operational Extension – Required Documentation

<u>Comment:</u> While most of the extension requests seem unrealistic... the only extension that we see feasible for anyone in our industry, is the [Operational] Extension. However, it is not without issues. While the intent seems reasonable, the required documentation to submit would be near impossible.

### Commenter: [253-45d]

<u>Agency Response:</u> Changes were not made in response to this comment. For the Operational Extension request, the documentation requested is needed to verify that the Fleet Operator has made a good faith effort to comply with the Regulation. Each of the required documents informs CARB staff that the Fleet Operator is trying to comply with the Regulation and has taken the necessary steps that will minimize the number of forklifts that will need an operational extension. For example, the request for a market evaluation proving that an

existing ZEF forklift cannot replace an LSI that is phased out is not overly burdensome and depending on the forklift requirements, could be completed by reviewing manufacturers' websites. Not requesting Fleet Operators to evaluate the available ZEF forklifts could create a loophole that could incentivize minimal compliance with the Regulation.

As with other CARB programs which CARB has implemented for many years, CARB staff plans to develop streamlined electronic reporting methods for reporting information to CARB, as well as standardized forms to help ease the gathering and provision of required documentation.

# 14. Reporting and Recordkeeping Issues

# a) Private Transaction Information – Dealer

# <u>Comment:</u> § 3003 (c)

Pertaining to, "Starting January 1, 2026, a Dealer in California shall collect and maintain information and documentation of each sale or lease of an LSI Forklift for a minimum of five years following the transaction."

*Specific Requested Revision:* Request the removal of transaction information as this is private information.

## Commenter: [016-45d]

<u>Comment:</u> Equipment dealers should not be required to obtain and disclose detailed information regarding the sale or lease of an LSI forklift, as the confidentiality of such transactions and information should be of top priority. Requiring equipment dealers to access and possibly disclose specific data about the sale or lease of LSI forklifts could compromise the privacy of businesses and individuals involved in these transactions.

## Commenter: [335-45d]

<u>Grouped Agency Response:</u> No changes were made in response to these comments. However, as described in response B.9.k) Extension Requests – Confidentiality, CARB acknowledges the sensitivity of certain data and as part of the 15-Day Changes added a confidentiality clause in section 3000(e). The change allows for Dealers and Rental agencies to designate current and prior transaction data as trade secret. The change also allows for Spark-Ignited Forklift Manufacturers to designate current and prior production report information as trade secret. Additionally, any regulated party may make a case-specific request for designating other information as confidential or trade secret. Any information so designated will be handled in accordance with Title 17, CCR, Section 91000.

It is important to note that the section the commenter wants revised, now designated as Section 3003(d), only requires that the transaction information be collected and maintained by the Dealers, not that the information be transmitted to CARB. This recordkeeping requirement is necessary to allow CARB staff to spot check dealer compliance with the Regulation's restrictions on selling or offering for sale certain LSI forklifts. If CARB requests the transaction information and the Dealer designates this information as confidential or trade secret, CARB will handle the information in accordance with Title 17, CCR, Section 91000.

## b) Private Transaction Information – Manufacturer

### <u>Comment:</u> § 3005 (b)

Production/Sales Reporting. For LSI Forklifts, the manufacturer shall submit to the Executive Officer annual production and sales reports in accordance with the applicable requirements in Section 3009(k).

*Specific Requested Revision:* Request the removal of transaction information as it is private information.

### Commenter: [016-45d]

<u>Agency Response:</u> No changes were made in response to this comment. The proposed requirement is necessary for enforcement purposes. Specifically, the proposed requirement provides the Executive Officer with information necessary to determine if forklift manufacturers are producing for sale or selling non-compliant LSI forklifts in California. In addition, the information allows the Executive Officer to monitor the production and sale of Class V LSI forklifts with a rated capacity greater than 12,000 pounds and will be used to inform future regulations. However, as described in the response Extension Delay Requests – Confidentiality, CARB acknowledges the sensitivity of certain data and as part of the 15-Day Changes added a confidentiality clause in section 3000(e).

### c) Record Retention – Three Years

### Comment: § 3007 (a)(1)(E)(3)

In regards to, "The photographs or logged hour-meter readings, as applicable, shall be maintained for a minimum of five years from the date the reading was gathered."

Request that records be maintained for three years to align with other mobile source regulations.

Specific Requested Revision: "The photographs or logged hour-meter readings, as applicable, shall be maintained for a minimum of three years from the date the reading was gathered."

### Commenter: [016-45d]

<u>Agency Response</u>: No changes were made in response to this comment. The record keeping requirements are necessary for the implementation and enforcement of section 3007(a)(1) the Low-Use LSI Exemption. CARB understands that there are other mobile source regulations limited to a three-year record keeping requirement, however CARB staff believes that the five-year requirement is not overly burdensome and aligns with other five-year record retention requirements within this regulation.

### d) Large Fleet Reporting

<u>Comment:</u> The reporting of each building with LSI forklifts that will be subject to this regulation is an undue burden for large entities like military installations. Facilities with multiple fleets and charging locations may not correlate directly with future forklift charging needs. Infrastructure planning will be needed to optimize charging abilities and locations for future operations, these potential locations may not correlate with current locations.

Specific Requested Revision: 3009(c)(1)(D)(4). This subsection does not apply to military installations where current charging needs and locations will be different from future planned

charging infrastructure to optimize charging infrastructure needs and electrical grid updates for multiple fleets.

### <u>Commenter:</u> [016-45d]

<u>Agency Response:</u> No changes were made in response to this comment. These subsections are needed to verify that responsible officials of large fleets, including military installations, have contacted their electric utility provider and provided the necessary information by March 31, 2026, as required by Section 3006(c). The intent of the requirement in the Proposed ZEF Regulation for fleets to communicate location, power requirements, power demand, and panel capacity with utilities is to encourage the fleets and utilities to jointly plan for potential increase in power demand due to the ZEF Regulation. Although CARB staff recognizes that things change over time, especially at big facilities like military installations, providing a snapshot of the information as of March 31, 2026, will start the conversation and be much more helpful than not providing any information to utilities.

## e) Large Fleet Becoming Small Fleet – Reporting Deadline

<u>Comment:</u> In regards to: § 3009 (d)(1) "MY phase out and reporting no later than September 30, 2026. Annual report due Sept 30 each year for small fleets".

Request clarification if a fleet is large and becomes small does the fleet reporting deadline change?

### Commenter: [016-45d]

<u>Agency Response:</u> No changes were made in response to this comment. The Regulation under section 3009(c)(2) & (d)(2) requires that an Annual Report be submitted for each calendar year following the submittal of the initial report regardless of fleet size designation. Annual reports are due to CARB by April 30 or for small fleets, September 30 of each calendar year. Following the submittal of the Initial Report, the Regulation provides flexibility with regard to annual report submittal due dates for fleets that experience a change in fleet size.

A Large Fleet that becomes a Small Fleet after January 1, 2026, shall continue to meet the phase-out schedules set forth in section 3006(d)(1) for its Class IV LSI Forklifts as required in section 3006(f)(2).

For Small Fleet that become Large Fleets, the Fleet Operator or Rental Agency, as applicable, shall notify the Executive Officer of the fleet size change within 30 calendar days of becoming a Large Fleet as required in section 3006(f)(1) and achieve compliance with the Large Fleet Phase-Out schedule in section 3006(d)(1) no later than January 1 two years after the year it became a large fleet.

## f) Dedicated Emergency Forklift Exemption – Reporting

<u>Comment:</u> Regarding the Dedicated Emergency Forklift Exemption section. Request to report initially and as needed with updated emergency forklifts instead of annually.

Specific Requested Revision: "(C) Additional reporting required with 6 months if new emergency forklifts are added to the fleet, or older emergency forklifts are removed from the fleet."

Commenter: [016-45d]

<u>Agency Response:</u> No changes were made in response to this comment. The Regulation Section 3009 (g) requires an initial and annual report to the Dedicated Emergency Forklift fleet. CARB staff believe it is important to maintain this annual requirement. Annual reports are meant as a reminder to Fleet Operators to update changes to the fleet such as equipment being added or removed.

### g) Manufacturer Reporting – Redundant Information

<u>Comment:</u> ITA believes that CARB does not need to receive from manufacturers the forklift information specified under §3009(b)(2) that is available from other sources and that CARB should instead require only that forklift manufacturers maintain their records for transmittal to CARB upon request. This approach would ensure that CARB has access to any manufacturer information that it may need, but without imposing an unnecessary burden on manufacturers to affirmatively submit redundant information every year.

### Commenter: [088-45d]

<u>Agency Response</u>: No changes were made in response to this comment. The proposed requirement is necessary for compliance and enforcement purposes. Specifically, the proposed requirement provides CARB staff with information necessary to determine if forklift manufacturers are producing for sale or selling non-compliant LSI forklifts in California.

## h) Manufacturer Reporting - Dealer Engine Information

<u>Comment:</u> For both categories of Class 5 forklifts, the information that CARB is seeking from manufacturers under §3009(b)(2) will already be available from dealers pursuant to §3003(c), which requires dealers to "collect and maintain information and documentation of each sale or lease of an LSI Forklift for a minimum of five years following the transaction." This information must include the MY, model, manufacturer, rated capacity, and serial number of the forklift. Although the list does not include engine information, which is included in "forklift information" under §3009(b)(2), the engine information will be readily available from the same dealer records (or could be added to §3003(c). When it comes to enforcement, the California dealers' sales and lease records will be more relevant than the out-of-state manufacturers' shipment records because the dealers are closest to the point of ultimate sale and the actual use of any forklift about which CARB enforcement personnel may need to inquire. If there is any reason that the dealer's records do not yield some information that the manufacturer may possess, which seems unlikely, CARB can then contact the manufacturer for that information.

## Commenter: [088-45d]

<u>Agency Response</u>: No changes were made in response to this comment. This requirement is for enforcement purposes, to ensure the sales performed by LSI manufacturers comply with the Regulation's LSI manufacturer requirements.

As part of the 15-Day Changes, CARB modified §3003(c), the section referenced in the comment has been renumbered to §3003(d). While Section §3003(d) could be amended to have Dealers include information previously required of the manufacturer so the reporting requirements are identical, staff's intent is not to have Dealers act as an intermediary between CARB and the LSI manufacturers. The Regulation will affect multiple sectors of the industry from manufacturers, dealers, rental agencies, and fleet operators, these requirements are essential to an effective regulation that encourages zero-emission technology within the forklift industry.

# i) Manufacturer Reporting – Heavy Class V LSI Forklifts

<u>Comment:</u> For heavy Class 5 LSI forklifts, which CARB emphasizes in its Purpose and the Rationale discussion, the Proposed Regulation contains another reporting provision, §3009(h), which requires fleets to submit both Initial and Annual Reports that cover each heavy Class 5 forklift, including the same "forklift information" being sought from manufacturers.11 In fact, the fleet submissions compared to the manufacturer submissions would be substantially more informative because they include the forklift's "[p]rimary location operating address," which the manufacturer is unlikely to know in many cases. For the most part, however, the information from the manufacturer would be duplicative. In the occasional instance where CARB may need to confirm something through the manufacturer's sales records for heavy Class 5 forklifts, those records will be available, but there is no reason to require their submission every year.

Thus, whether the rationale is enforcement or evaluating the presence of heavy Class 5 LSI forklifts for purposes of future rulemaking, CARB will gain no additional benefit by requiring forklift manufacturers to submit detailed information for every forklift they produce for California. It is reasonable to require manufacturers to provide entity information under §3009(k)(1) so that CARB will have all relevant contact information. Manufacturers can also inform CARB of the total number of LSI forklifts sold or produced for sale in California for the previous year under §3009(k)(3), to assist in various CARB analyses. As for the detailed forklift information in §3009(k)(2), the Proposed Regulation should require that manufacturers retain the information in case CARB requests it but should not require that it be submitted annually.

### Commenter: [088-45d]

<u>Agency Response:</u> No changes were made in response to this comment. For Class 5 LSI forklifts with a rated lift capacity greater than 12,000 pounds, the annual reporting requirement for LSI forklift manufacturers ensures information on the total number of LSI forklifts sold and produced for sale in California. The LSI manufacturer reporting requirements are necessary to verify compliance with the Regulation as well as monitor the sales volume in California. Class V LSI forklifts with a rated capacity greater than 12,000 pounds are not subject to the proposed phase-out requirements, the annual reports may be used to inform future zero-emission regulations. Issues may arise during the change of custody of the equipment, the final purchaser or forklift retailer may fail to report manufacturer information. Our intent of the ZEF regulation is to have separate reporting requirements within the LSI forklift stream of commerce, which will ensure organization of reporting because each entity will report their own information. For clarity of reporting, we advised against the reporting of information for manufacturers by other entities.

## j) Diesel Forklift Replacement Reporting

<u>Comment:</u> CCEEB is unclear as to why §3008(j) is necessary to include in the Proposed ZEF Regulation. Along with reporting requirements for new Diesel Forklifts, the Proposed ZEF Regulation would require a Fleet Operator or Rental Agency to provide to CARB:

Information and documentation demonstrating one or more of the following:

An LSI Forklift is not capable or suitable for the operation to be served by the Diesel Forklift based on Forklift Specifications.

No Forklifts currently in operation at the operating location use propane, gasoline, or other fuel formulated for LSI engines.

This is more than a mere reporting requirement, as it would seem to suggest that CARB could in some cases prevent the acquisition and/or use of a new Diesel Forklift if an LSI Forklift was "capable or suitable for the operation," particularly if there are any other LSI Forklifts at the operating location. Yet ISOR specifically states that the Proposed ZEF Regulation does not apply to Diesel-Fueled Forklifts. The ISOR also describes why it is unlikely that fleets will replace LSI Forklifts with Diesel Forklifts over ZEFs, and notes that "any replacements of LSI forklifts with diesel forklifts that do occur would be subject to the current "Adding Vehicle" requirements in CARB's Off-Road Diesel Regulation, which are aimed at ensuring only newer, cleaner vehicles can be added to fleets."

It is unclear, based on the definition of "Fleet Operator" in §3001(a), if the justification requirement in §3008(j) applies only to those fleets that operate both LSI and Diesel Forklifts or any fleet that operates Diesel Forklifts. If the latter, it's possible many Diesel Forklift operators are not aware there may be new requirements applicable to those forklifts, given the scope of the Proposed ZEF Regulation CARB has described. It would appear to CCEEB that CARB should have adequate access to diesel forklift inventory information through DOORS and the requirements of the In-Use Off-Road Diesel-Fueled Fleets Regulation such that this section is not necessary.

### Commenter: [097-45d]

<u>Comment:</u> Justification for Adding Diesel Forklifts [§3009 (j)] — This reporting requirement overlaps with the Off-Road Regulation. To streamline regulatory reporting, Metropolitan recommends that this provision be removed from the Proposed ZEF Regulation. There could be multiple reasons why an entity may require the purchase of a diesel forklift, and if in accordance with the Off-Road Regulation, this purchase would be legal and compliant.

### <u>Commenter:</u> [258-45d]

<u>Grouped Agency Response:</u> Changes were made in response to these comments. As part of the 15-Day Changes, CARB removed section 3009(j), and is no longer requesting information related to adding a diesel forklift to an LSI fleet. Staff agrees that CARB receives diesel forklift information from entities reporting under the In-Use Off-Road Diesel Fueled Fleets (Off-Road) regulation. If the Regulation is approved and adopted, when an LSI forklift is retired, the retired equipment's reporting under ZEF will end, and the diesel forklift replacement will be reported under the Off-Road regulation in DOORS. Our intent of the ZEF regulation is to have reporting program because each entity subject to the ZEF regulation will report their applicable information under ZEF, while non-LSI forklift equipment will report under the applicable regulation.

In addition, as part of the 15-Day Changes, CARB modified section 3011(a), General Requirements, to require fleets already subject to the In-Use Off-road Diesel Regulation reporting (Title 13, California Code of Regulation, Section 2449(g)), to indicate whether a diesel forklift added is doing work previously done by an LSI Forklift that has been phased out of the Fleet. Although CARB staff expects replacement of LSI forklifts with diesel to be rare, this reporting will enable CARB staff to track the extent to which such replacement is happening.

## k) DOORS - Fleet Reporting

<u>Comment:</u> Under the existing LSI Regulation, fleets are aggregated based on where purchasing decisions are made, so fleets reported in DOORS are reported by facility. The Proposed ZEF Regulation would aggregate fleets at the parent company level. CCEEB recommends that DOORS allow reporting under the Proposed ZEF Regulation at the parent company level and at the site/facility level such that Fleet Operators could determine which is the most appropriate reporting mechanism for their particular situation.

### Commenter: [097-45d]

<u>Comment:</u> Under the proposed regulation, fleets will be aggregated based on common ownership or control (i.e., the parent company level), which conflicts with the current for the LSI Fleet Requirements regulation, which groups fleets by purchase decision and does not require fleets under a parent company to be aggregated. Will DOORS, the program in which fleet information is currently reported, be modified to report fleets at parent company level (i.e. not by location/site) or will there be a separate reporting portal for the proposed regulation?

### Commenter: [336-45d]

<u>Grouped Agency Response:</u> Changes were made in response to these comments. As part of the 15-Day Changes, CARB added section 3001 (a) "Fleet Portion" to define how a fleet portion will be aggregated with the fleet. CARB disagrees with the commenters that the fleet will not be aggregated based on where a fleet's purchasing decisions are made. Despite the location of the equipment, the total number of LSI Forklifts and ZEF under Common Ownership or Control of the parent company, corporation, or agency determines the fleet size. It is under the fleet's discretion whether to operate as a fleet portion. A fleet must follow the definition of "Common Ownership and Control" to establish their fleet size. ZEF reporting may be integrated in DOORS, it is an option for the Regulation, but CARB staff have yet to make that determination.

### I) Confidentiality – Attestation

<u>Comment:</u> Maintaining the privacy of business information is of utmost importance. The safeguarding of personal data, addresses, contact information, fleet size, tax information, communication between utility provider, utility usage, financial records, and other sensitive information is integral to ensuring a company's safety, competitive advantage and long-term success.

Confidentiality shields businesses from potential threats; these types of threats have occurred at agricultural operations in the past when critical and private information becomes accessible. We must prioritize the confidentiality of business information and would suggest an attestation from a company stating they have converted over the fleet within the appropriate phase-out period. As agriculture has proven in the past with the previous LSI regulation, we can work towards the same goals while maintaining the privacy and safety of the agricultural businesses in California.

### Commenter: [335-45d]

<u>Agency Response:</u> Changes were made in response to this comment. CARB acknowledges the commenter's concerns related to privacy of business information; as part of the 15-Day

Changes, new language added a confidentiality clause in Section 3000(e). The addition states any regulated party may make a case-specific request for designating other information as confidential or trade secret. Any information so designated will be handled in accordance with Title 17, CCR, Section 91000. While CARB takes the safety of all regulated entities seriously, it will be necessary to report applicable information when requesting a compliance extension or exemption, this is a necessary requirement so that staff can thoroughly evaluate each request. CARB staff believes disclosing relevant information when requesting a compliance extension or exemption is not overly intrusive or burdensome and aligns with other requirements within this regulation.

# 15. Labelling Issues

# a) Labelling – Rough Terrain Forklifts

<u>Comment:</u> The current challenge with the rough terrain forklift definitions lies in the requirement of a specific label from the manufacturer designating it is a rough terrain forklift to be on the lift itself. The manufacturer currently does not provide this distinctive label on the equipment. Requiring a label poses a challenge, especially for older equipment. Most rough terrain forklifts will bear a label with the make, model of the forklift, which should suffice as a classification for a rough terrain forklift. The requirement for this label should be deleted.

### Commenter: [335-45d]

Agency Response: No changes were made in response to this comment. Staff carefully vetted the proposed definition for rough terrain forklifts with stakeholders at public workshops/workgroup meetings held on October 7, 2020, August 17, 2021, February 22, 2022, January 24, 2023, and March 22, 2023. Additionally, staff met with trade organizations during the regulation development process, and specifically stakeholders who have knowledge of forklift identification methods and are directly involved with the development of forklift standards. As stated in the Staff Report, the definition relies on an industry-accepted standard for classifying a forklift as a rough terrain forklift. Further, the Proposed Amendment provides flexibility, allowing for the rough terrain forklift to bear a manufacturer label or some other equivalent identifying mark.

Based on the information provided to CARB during the public process, most rough terrain forklifts that are subject to the Regulation (i.e., not in-field forklifts) will have the manufacturer label or identifying mark to be able to comply with this requirement. For rough terrain forklifts without a label or identifying mark, the fleet owner will need to contact the manufacturer. CARB staff expects the process for getting a label from the manufacturer will not be unduly burdensome and will be like the current process used every time an attachment is changed, and a new load rating plate must be obtained from the manufacturer.

## b) Equipment Identification Number Labelling

<u>Comment:</u> Please clarify if any existing equipment identification number (EIN) labels issued and utilized to comply with the existing LSI Regulation serves to meet any EIN requirements under the Proposed ZEF Regulation.

## Commenter: [097-45d]

<u>Comment:</u> CARB should clarify if the labeling requirements included in the proposed rule would supersede, be in combination with, or be separate from the labeling requirements under the current LSI regulation. WSPA is concerned that the establishment of a second EIN for the Regulation may create confusion among fleets as an EIN already exists for forklifts under the current LSI regulation.

### Commenter: [336-45d]

<u>Grouped Agency Response:</u> No changes were made in response to these comments. The LSI regulation's labeling requirements sunset on June 30, 2023, and hence are no longer applicable. However, if the Regulation requires a fleet to label a forklift that already has an EIN from the LSI regulation, CARB staff will work with the fleet operator to enable the fleet to reuse that same EIN and thereby limit confusion. The Fleet Operator will be able to go to CARB's Off-Road Zone website to learn more about the documentation needed for complying with the Regulation. Additionally, the website will have directions explaining how to get EIN numbers, how to report forklifts that already have an EIN number, and how to complete other documentation required by the Regulation.

# 16. Public Regulatory Process and Outreach Concerns

### a) Process Concern – 45-Day Comment Period

<u>Comment:</u> In September staff informally presented us with a draft of the proposed regulation they intended to bring to the Governing Board. We were shocked at how many significant changes were made in comparison to what was proposed at the final public workshop in 2023... We also have concern that the 45-day comment period is released 7 months in advance of the Governing Board hearing in June 2024.

### <u>Commenter:</u> [012-45d]

<u>Comment:</u> The ISOR states (ISOR, p. 110) that the scope of the regulation under consideration as of April 2023 had been limited to forklifts having no greater than 12,000 pounds capacity, whereas the Proposed Regulation applies to all Class 4 LSI forklifts regardless of capacity. ITA received notice—informally— of this major expansion of the scope only in August of this year following our email inquiry asking CARB staff about any changes. Official notice of the change came only with the release of the 45-day notice.

#### <u>Commenter:</u> [088-45d]

<u>Comment:</u> After reviewing the latest proposed draft of the Zero-Emission Forklift regulation, the Partnership is concerned with the substantial amount of changes made from the prior draft version released for public review in March 2023. We are also concerned with the very limited amount of time the public was afforded to review and provide comments on those changes (for example the comment deadline is the day after the Christmas holiday).

#### Commenter: [293-45d]

<u>Grouped Agency Response:</u> No changes were made in response to these comments. CARB staff has made an extensive effort over three years to engage stakeholders and solicit

feedback that has been thoroughly evaluated and considered for the Regulation to be as effective, clear, and implementable as possible. CARB described the public process in detail in section XI of the Staff Report. This long-standing record of outreach efforts and considerations when developing regulations is a practical and fundamental aspect of CARB's regulation development efforts.

The requirements in the Administrative Procedures Act (APA) are designed to provide the public with a meaningful opportunity to participate in the adoption of state regulations and to ensure that regulations are clear, necessary, and legally valid. The APA requires that CARB post notice of the Regulation at least 45 days prior to the Board hearing. CARB issued this notice on October 2, 2023, for the June 27, 2024, Board hearing. As part of this notice and in accordance with the APA, CARB informed interested members of the public that they may present comments orally or in writing during the hearing and may provide comments before the hearing. The public comment period began on November 10, 2023, and ended on December 26, 2023.

Furthermore, regarding the comment on the "large amount of changes made from the prior draft", the structure, content, applicability, and provisions of the Regulation were all very similar to the draft regulatory language that was shared at that March 22, 2023, workshop, with the only significant change being the broadening of applicability to include Class IV forklifts over 12,000 pounds lift capacity. Please see the Grouped Agency Response to B.16.c) Process Concern – Workshops, for more details.

### b) Process Concern – Stakeholder Engagement

<u>Comment:</u> Acknowledging the green transition. First, the construction industry does in fact understand the need and efforts toward the state's green transition. Climate change is one of the most vital issues we are currently facing. We ask that our state agency partners actively work and engage with stakeholders, including the construction industry, to develop policies and guidelines that are both practical and will allow the State to realistically reach its climate objectives.

#### Commenter: [086-45d]

Agency Response: Changes were not made in response to this comment. Section XI of the Staff Report describes the public process staff engaged in to develop the Regulation. Over the past three years of rule development for the Regulation, staff hosted five public workshops and workgroups. In addition, CARB staff reached out directly to affected stakeholders and conducted numerous meetings with forklift fleets, dealers, rental agencies, manufacturers, industry groups, and other stakeholders. Specifically, CARB staff met with the Construction Industry Air Quality Coalition (CIAQC), and the West Coast Lumber & building Materials Association along with the mason contractors and the California Sheet Metal, Air Conditioning Contractors National Association and other construction businesses who attended the workshops or workgroup meetings. Furthermore, CARB staff has also sent over 270,000 mailers to trucking fleets, over 200,000 mailers to small businesses, and email notices to over 70,000 subscribers of the ZEF Rulemaking email list and other public email subscriber lists. A webpage was developed to host all information pertaining to the regulatory-development process, including all public meeting announcements, materials made available for public comment, draft regulation language, an email list signup link, and staff contact information. For every public event, staff used notices sent to the email list to announce meeting events, documents, translation resources, and other associated regulatory materials to encourage participation and attendance at the workgroups and workshops. CARB staff made changes to

the Regulation based on comments provided by several organizations including CIAQC. All workgroup and workshop meetings were open to all members of the public.

As part of the rulemaking process, as detailed in the Staff Report, CARB staff reviewed technology feasibility and conducted a benefits analysis, air quality analysis, cost analysis and alternatives analysis. CARB's analysis found the technology is feasible and available, and that the Regulation is the most effective option to achieving the necessary emission reductions through ZEs technology.

CARB staff looks forward to engaging further with the construction industry to ensure successful implementation of the ZEF Regulation.

#### c) Outreach Concern – Workshops

<u>Comment:</u> We find it very disconcerting the proposal before you, containing so many major changes, is being considered for 45-day comments without having had a formal public workshop.

<u>Commenter:</u> [012-45d]

<u>Comment:</u> CCEEB respectfully requests that CARB staff hold a hybrid workshop in the first quarter of 2024 to assist fleets operating vehicles and equipment subject to multiple zero-tailpipe-emission regulations understand: the applicability of each zero-tailpipe-emission regulation and the timelines for compliance with each; how CARB plans to implement provisions related to infrastructure in each rule for those entities subject to multiple regulations; and anticipated future efforts that could overlap with existing requirements.

#### <u>Commenter:</u> [097-45d]

<u>Comment:</u> We reiterate our ask that CARB staff host a workshop to help fleets understand how to comply with multiple, overlapping zero- tailpipe-emission rules. A comprehensive discussion should facilitate further discussions about what we anticipate collectively learning over the next few years of implementation and how those lessons learned could inform ongoing zero-tailpipe-emission rule development.

#### Commenter: [097-45d]

<u>Comment:</u> Workshops put forth by CARB staff have been very helpful on this and many other proposed rule changes. Given the extent of comments received and some of our comments noted herein, we believe additional Workshop(s) on this Proposed Regulation (before and/or after its adoption) would be helpful to address any points requiring further clarification.

#### Commenter: [252-45d]

<u>Comment:</u> [W]e would respectfully request that CARB consider conducting a public workshop sometime during the seven-month period that will transpire prior to the scheduled adoption hearing next year.

<u>Commenter:</u> [293-45d]

<u>Grouped Agency Response:</u> No changes were made in response to these comments. As described further in Chapter XI of the Staff Report, consistent with Government Code sections 11346, subdivision (b), and 11346.45, subdivision (a), and keeping with the long-standing practice at the Board, CARB staff held public workshops, workgroups, and other meetings with stakeholders during the development of the Regulation. Over the past three and a half years of rule development, staff hosted five public workshops and workgroups. In addition, CARB staff reached out directly to affected stakeholders and conducted numerous meetings with forklift fleets, dealers, rental agencies, manufacturers, industry groups, and other stakeholders.

The public process and gathering of pre-regulatory information were thorough and sufficient. In addition, the changes in the proposal between the final March 22, 2023, workshop and the release of the Staff Report and Regulation were not significant enough to warrant another public workshop during that period. The structure, content, applicability, and provisions of the Regulation were all very similar to the draft regulatory language that was shared at that March 22, 2023, workshop, with the only significant change being the broadening of applicability to include Class IV forklifts over 12,000 pounds lift capacity.

In addition, since the close of the 45-day comment period on December 26, 2023, staff has continued to meet with affected stakeholders, including several of these commenters.

Finally, it is important to note that after rule adoption, CARB has a well-documented history of providing stakeholder outreach and regulatory compliance training when implementing regulations. This was recently demonstrated by the Off-Road Implementation Section of CARB's Mobile Source Control Division hosting a series of Informational Meetings following the adoption of the 2022 Amendments to the Off-Road Regulation. CARB staff appreciates the commenter's request and anticipates that CARB will provide outreach and educational resources if the Regulation is approved by the Board.

# 17. Funding and Incentive Program Issues

## a) Incentives – Clarification

<u>Comment:</u> It is unclear why the ISOR contains references to incentives for zero-emission infrastructure that are generally not applicable to this Regulation. While it is clear that programs such as Carl Moyer, CORE, and elements of the Community Air Protection Program provide financial incentives to ease the transition to ZEF, Table 5 references numerous investor-owned utility EV charging programs that are not eligible for ZEF.

CMTA is aware that specific programs are available for forklifts and industrial customers, such as Southern California Edison's (SCE) Charge Ready Transport program and San Diego Gas & Electric's (SDG&E) Power Your Drive program. However, Assembly Bill 1082/1083 for EV charging infrastructure at California schools, parks and beaches certainly has no relevance to the Regulation. Similarly, SCE's Charge Ready Pilot program is available to commercial, multifamily, and public sector properties, and it is not entirely clear that programs offered by PG&E are eligible for ZEF conversion. As CARB knows, different transportation electrification incentives and programs have various eligibility requirements. While CMTA supports incentive programs that provide additional opportunities for entities to reduce their respective emissions, limiting factors include unassured funding, vehicle eligibility, and customer class. CARB should remove those programs irrelevant to the Regulation and provide adequate assurance that any programs listed are available to ZEF fleet operators.

## Commenter: [082-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB appreciates the commenter's recognition of potential incentive options that were listed in the ISOR. The commenter is correct that some sections of the ISOR provide information regarding the state's overall progress toward ZEs and a low-carbon future, including for on-road vehicles, and not all programs mentioned in the ISOR are directly pertinent to ZEFs. Regardless, since the Regulation does not include any provisions related to incentive programs, the discussion of incentive programs in the ISOR is purely informational and is not germane to the regulation itself.

## b) Incentives – Program Expansion

<u>Comment:</u> A proven strategy in enhancing air quality involves the utilization of incentives, particularly for source categories where achieving compliance is economically challenging. An outstanding example of successful implementation is evident in the FARMER Program, focusing on the replacement of agricultural tractors and harvesters. This substantial achievement not only meets the SIP goals, accounting for 11 tons of emissions reductions, but also exemplifies the effectiveness of incentive programs in addressing air quality concerns. Given this proven and successful example where the agricultural industry, the state and federal agencies came together to work on the same air quality goals, we strongly advocate for funding sources and propose the consideration of expanding programs, such as the Carl Moyer Program, to encompass the replacement of propane forklifts.

### Commenter: [335-45d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB appreciates the commenter's recognition and praise for the role incentives serve in emission reductions. However, the development or expansion of new or existing incentive programs is not included within the scope of this Regulation. As a result, no change to the Regulation is necessary. That said, ZEF incentive funding eligibility may be available in several CARB programs, including CORE, Carl Moyer, and FARMER. Finally, as described further in the Staff Report Section I.D. Regulatory History, CARB's LCFS program. provides forklift Fleet Operators who choose to participate annual credits for the use of electric and other low carbon fueled forklifts.

# 18. Miscellaneous Issues

## a) General Support

<u>Comment:</u> I am a Canadian clean-air activist and I work part-time at a facility where forklifts are used frequently, and I am well aware of the air and noise pollution they create. I believe that this regulation, if implemented as proposed, will solve those two problems and help improve economic productivity as a co-benefit.

I urge the Board to adopt the regulation as proposed and do as much as possible to accelerate the transition to electric forklifts in all sectors in California.

## Commenter: [032-45d]

<u>Comment:</u> We support this proposal and ask that the Board pushes for a complete transition to electric forklifts as soon as possible.

Commenter: [084-45d]

<u>Grouped Agency Response</u>: No changes were made in response to these comments. Thank you for your comments; Staff appreciates your support.

### b) Strengthen the Regulation

<u>Comment:</u> CARB must develop a strong Zero-Emission Forklifts Rule that will protect community health, worker safety, and facilitate a rapid transition to ZEFs. Replacing LSI forklifts with healthier and more efficient zero-emission models is a low-hanging fruit... CARB can still create an even stronger proposal and bring additional emission reductions to communities. The proposed rule is an opportunity to accelerate the transition to zero-emissions at warehouses and other facilities across the state and provide relief to environmental justice communities.

Commenter: [177-45d]

<u>Agency Response:</u> No changes were made in response to this comment. Staff conducted a thorough public process and worked with stakeholders to develop a regulation that will achieve criteria and GHG emissions reductions in a cost-effective way, providing needed health benefits to communities. Additionally, staff considered the potential challenges that the electrification of mobiles sources brings to facilities that use LSI forklifts. Staff also considered with difficulty electrifying facilities. The Regulation brings a balance between achieving the highest emission reductions that are feasible in the shortest reasonable timeframe.

As described in the Staff Report, CARB considered a proposal like what the commenter suggests, i.e., Alternative 1, which would have required a faster turnover of Targeted Class IV and Class V LSI Forklifts as compared to the Regulation. Staff rejected Alternative 1 because would create a significantly greater cost burden for fleets during the first five years of the regulation and for the other reasons described in the Staff Report Section IX, A. Alternative 1: Accelerated Zero-Emission transition – More stringent Alternative, subsection 4. Reasons for Rejecting.

### c) Fleet Size – ZEF Exclusion

<u>Comment:</u> In order to incentivize early action to transition LSI Forklifts to ZEFs, the proposed rule should not include ZEFs for the purposes of determining the size of the fleet.

Commenter: [097-45d]

<u>Comment:</u> CARB should not include ZEFs in the proposed rule for the purposes of determining the size of the fleet. This exclusion can incentivize early action to transition LSI forklifts to ZEFs for owners and operators that desire to transition large fleets to small fleets prior to January 1, 2026, and take advantage of the phase-out schedule for Class IV forklifts in small fleets. ZEFs are interpreted to count towards fleet size based on the definition "fleet" and the applicability provision in §3006(c).

<u>Grouped Agency Response:</u> No changes were made in response to these comments.

Because it may be more difficult for smaller businesses to absorb the additional capital costs of ZEFs (the likely alternative for businesses that must phase-out use of LSI forklifts), the Regulation includes elements that would help ease cost impacts on them. Staff used fleet size as an indication of which fleets would be likely to be owned by smaller businesses, i.e., assuming most small businesses would fall into the small-fleet category (fleet size 25 or fewer forklifts). Elements to ease cost for small fleets include delay of phase-out of Class IV forklifts by one year and the extension of phase-out age of affected forklifts from 10 to 13 years old. If ZEF were not included in the determination of applicable fleet size, as suggested in these comments, fleet size would no longer be a good surrogate for business size. Consider for example an enormous fleet consisting of 1,000 ZEF and 20 LSI forklifts, which would be very unlikely to be owned by a small business. If ZEF were not included in the determination of applicable fleet size, as suggested in these comments, this enormous fleet would be rery unlikely to be owned by a small business. If ZEF were not included in the determination of applicable fleet size, as suggested in these considered a small fleet and inappropriately allowed to comply with the more lenient small fleet provisions. This would reduce the emission benefits of the Regulation.

In addition, including ZEF in fleet size determinations provides clarity for fleet implementation as an operator that replaces LSI forklifts would not have to worry about changing to a small fleet as they complete their phase-out.

### d) Temporary Deployed Fleets

<u>Comment:</u> We do not think the CARB fully understands that there will always be a need for an LPG or Internal Combustion Forklift on all job sites where permanent infrastructure has yet to be established.

These fleets are deployed to the jobsite for a temporary amount of time and were never intended to be a permanent fixture. This would hold relevance to CARBs 100% phase out in 2038. The idea that regulation would spur technology is not responsible to Fleet Operators and would only do a disservice to the construction industry.

It is not the intention to suggest we are not open to change. However, the fact that jobsites under construction do not have the proper infrastructure in place, those temporary deployed fleets need to be 100% excluded.

The use of LPGs or Internal Combustion Forklifts need to be at the discretion of the Fleet Operator. In an effort to maintain responsibility, we could see that the Fleet Operator maintains records to justify their use if requested by CARB.

### Commenter: [253-45d]

<u>Agency Response:</u> No changes were made in response to this comment. To the extent that referenced forklifts are covered by this Regulation, it does not prescribe the zero-emission technology solution or the associated charging or fueling solution. CARB disagrees that LPG or internal combustion forklifts are the only and indefinite solution for job sites without permanent infrastructure. CARB understands that grade preparation is one of the earliest processes in the development of a construction site that lacks power and that Class VII forklifts which may operate on such rough terrain are exempt from this regulation. For job sites that utilize Class IV or V forklifts subject to the Regulation, the material storage area in which it

would likely operate would either be potentially serviceable by mobile charging solutions, accessible for equipment rental solutions, or occur in a sufficiently advanced project as to reasonably expect available power resources. Indeed, one of the first activities on large construction sites is providing power and setting up a temporary office trailer. Such power may also be sufficient to charge ZEFs.

In addition, under the Regulation, fleets needing LPG forklifts on a construction site could continue to rent or own them until 2038. In addition, in the case where a long-term large construction site lacked power, a fleet could apply for an Infrastructure Site Electrification Delay Extension.

Overall, staff expects the commenter's claim that LPG or internal combustion forklifts will always be required on all job sites to be proved wrong in the coming years via the collaborative and creative efforts of manufacturers, dealers, and fleet operators.

### e) Uncertainty With Other Rulemakings

<u>Comment:</u> The proposed regulation and other rulemaking proceedings currently underway create uncertainty as to how our members are expected to comply with one mandate this year but then be asked to transition and comply with a totally different goal or objective which requires the need to purchase or try to purchase new vehicles regardless of costs and performance.

#### Commenter: [293-45d]

<u>Agency Response:</u> No changes were made in response to this comment. As described in the response to B.16.a) Outreach Concern – Workshops, CARB conducted a robust public process to develop the Regulation. As detailed in the Staff Report, CARB reviewed technology feasibility and conducted a benefits analysis, air quality analysis, cost analysis and alternatives analysis.

Regarding the issue of performance, as described in Chapter I.E. of the Staff Report, today, about half of the forklift population in California already uses ZE technology and ZEFs are largely able to do the jobs currently done by LSI forklifts. For the rare cases where a ZEF cannot meet a business' needs, the Regulation includes extension provisions for cases where there is no commercially available ZEF model that can meet the needs of an operation currently served by an LSI Forklift.

With regard to the issue of cost, although it is true that initial purchase price for ZEFs is higher than for LSI forklifts, the Regulation is expected to result in significant fuel savings for fleets. In fact, staff projects cumulative cost-savings from full implementation of the Regulation through calendar year 2043 of \$2.7 billion in net fleet cost savings.

### f) Battery Technology Analysis

<u>Comment:</u> CARB's discussion of technology advancements emphasizes the limitations of lead battery-powered forklifts and expresses the view that "even at current upfront prices, the potential operational savings provided by lithium-ion technology would make it the preferred solution for many fleets, especially for those that are space-constrained and operate multiple shifts." The staff analysis of the technology mix over time assumes rapid growth in lithium-ion forklift sales, culminating in 100% of new battery- electric forklift sales by 2037. These assumptions disregard significant advancements in lead battery designs that allow lead

battery-powered forklifts to compete in a broader range of applications that are beyond the capabilities of historical flooded lead-acid batteries.

The Consortium for Battery Innovation (CBI) previously provided information to CARB describing recent innovations in lead battery technology, including design enhancements that utilize more of the active material in the battery along with more efficient carbon electrodes, which also allow for a 46% reduction in battery weight. Some designs offer a 3-fold increase in deep cycle life (from 500 to 1,500 cycles), and improved recharge, charge acceptance and opportunity charging capabilities. In addition, the ability to charge modern lead batteries without removing them from the forklift also eliminates the need for battery changing infrastructure. In forklift applications, these attributes translate to a lower total cost of ownership and a more versatile forklift fleet.

CARB's limited analysis of the forklift technology mix through 2037 also disregards the reality that forklift fleet owners will choose technologies and battery chemistries that best fit the specific operational needs of their facilities. CARB's analysis of battery technologies should recognize that recent advancements in lead battery technology will improve the fleet owner's return on investment for lead battery-powered forklifts relative to other forklift technologies.

### <u>Commenter:</u> [089-45d]

Agency Response: No changes were made in response to this comment. In the development of this Regulation, CARB did not favor or express a preference for ZEF technology or favor a particular battery technology. CARB staff concurs that forklift fleet owners will choose technologies and battery chemistries that best fit the specific operational needs of their facilities. As described in Section IX to the ISOR, Standardized Regulatory Impact Analysis, staff expects fleets to choose the zero-emission technology that works best for them, whether that is lead-acid battery, lithium-ion battery, or fuel-cell technology. When modeling projected costs for the Regulation, staff assumed a mix of new lead-acid, lithium ion, and fuel cell ZEFs each year as shown in Figure 12 of the ISOR. For that analysis, staff assumed that 10% of new battery-electric forklifts in 2022 would use lithium-ion battery technology and 48% by 2028. It was also assumed that 10% of ZEFs added as result of the Regulation would be fuelcell forklifts. CARB staff would like to note that the technology mix assumed for modeling costs for the Regulation is just one potential compliance pathway, and it is not intended to be a recommendation or prediction by CARB staff. Indeed, CARB staff anticipates that during the Regulation's implementation period multiple ZEF manufacturers will provide technological advancements and introduce new solutions. This includes within the lead battery powered forklift space.

### g) Regulation is Prescriptive

<u>Comment:</u> The "ISOR" states, "Government Code section 11346.2(b)(4)(A) requires that when CARB proposes a regulation that would mandate the use of specific technologies or equipment, or prescribe specific actions or procedures, it must consider performance standards as an alternative." ISOR, p. 220. In maintaining that it complies with this requirement, CARB suggests that the Proposed Regulation is not prescriptive but that, even if it is prescriptive, it is necessarily so. ITA cannot agree on either count.

First, the heart of the Proposed Regulation is an abrupt prohibition on the acquisition of new Large Spark-Ignition ("LSI") forklifts having a lifting capacity of 12,000 pounds or less after January 1, 2026 (with limited permission for rental agencies to acquire Class 5 LSI forklifts1 for another three years), combined with the mandatory phase-out of almost all LSI forklifts on a

prescribed timetable. A prohibition/phase-out mandate is the epitome of a prescriptive regulation. While CARB states that the Proposed Regulation would not preclude the use of any technology, CARB acknowledges that only two technologies—battery-electric and fuel-cell electric—exist to replace LSI forklifts. And since fuel cells represent only 10% of the ZEF population (ISOR, p. 31), many users will have no option other than to replace their phased-out LSI forklifts with battery-electric forklifts. CARB's suggestion (ISOR, p. 220) that regulated entities could "choose not to replace [their forklifts] at all"—simply stop using forklifts in their businesses—only highlights just how prescriptive the Proposed Regulation is. The ISOR should have acknowledged this fact.

Because the Proposed Regulation "would mandate the use of specific technologies or equipment or prescribe specific actions or procedures," CARB must consider "the imposition of performance standards . . . as an alternative." Government Code section 11346.2(b)(4)(A). But while CARB concludes that a performance approach would be less effective, it has not identified, much less analyzed, an actual performance approach. At the outset of the regulatory process, ITA and other stakeholders urged CARB to consider a performance approach based on a regulation that already exists, namely, the Large

Spark-Ignition Engine Fleet Requirements Regulation ("LSI Fleet Regulation"), which CARB discusses in the Regulatory Background section and elsewhere in the ISOR. As CARB explains, the LSI Fleet Regulation included the option of using Zero-Emission equipment and it has reduced NOx and hydrocarbons. ISOR, p. 27...

...The Proposed Regulation is prescriptive, and CARB has not genuinely considered obvious alternative performance approaches. ITA therefore believes that the CARB has not complied with Government Code section 11346.2(b)(4)(A).

#### <u>Commenter:</u> [088-45d)

<u>Agency Response</u>: No changes were made in response to this comment. The Regulation is silent as to performance standards in place of prescriptive standards.

The Regulation would not prescribe the use of any specific technology or equipment. Instead, regulated entities would be able to phase out Targeted Forklifts; they could then replace them with any compliant forklift or choose not to replace them at all. During site visits CARB staff made during development of the Regulation, CARB staff learned of several nut processing facilities who had switched to use of conveyor systems in place of LSI forklifts or were considering doing so. Hence, the choice to not replace LSI forklifts with other forklifts is truly a reasonable option for some Fleet Operators. The Regulation would not specify how forklifts must comply with the standards. Currently, battery-electric technology and fuel-cell electric technologies have demonstrated the capability of meeting the proposed performance standards. However, the Regulation would not preclude fleets from utilizing any technology that meets the proposed performance standards.

To the extent affected forklifts are covered by this regulation, regulated entities could replace affected forklifts with any compliant forklift or choose not to replace them at all. Even if the Regulation is considered a prescriptive standard, to the extent it establishes specific measurements, actions, or quantifiable means of limiting emissions, it would still be preferred over other performance-based alternatives. Performance-based alternatives would undermine the goals of the Regulation. Furthermore, to the extent the Regulation is determined to specify a sole means of compliance through specific actions, measures, or other quantifiable means, this means of compliance is necessary to accurately confirm compliance with the requirements to ensure that Targeted Forklift emissions are permanently reduced.

If entities elect to use LSI forklifts, the Regulation establishes requirements such as the phase out schedule that operates as an alternative to meet performance standards to ensure an overall emission reduction performance standard over time. The LSI Fleet Regulation provided an option for Zero-Emission equipment; however, the LSI regulation fails to meet the aggressive emission reductions as identified in the 2022 State Strategy for the State Implementation Plan. With the sunset of the LSI regulation on June 30, 2023, the Regulation will replace the LSI regulation. As analyzed under ZEF Staff's ISOR, multiple alternatives to the Regulation were considered; however, the Regulation is needed because it could secure the emissions reductions needed for meeting California's public health and climate goals and State and federal air quality standards.

### h) Preemption

Comment: Diesel Forklift Restrictions Violates CAA and Conflicts With Off-Road Regulation

Section 3007(j) and Section 3011(a) must be removed because these sections not only violate the Clean Air Act (CAA) Section 209(e) (42 U.S.C. Section 7543), but these sections also conflict with the off-road diesel mobile regulation.

The CAA prohibition (preemption) of nonroad engines and vehicles states... "No State or any political subdivision thereof shall adopt or attempt to enforce any standard or other requirement relating to the control of emissions from either of the following new nonroad engines or nonroad vehicles subject to regulation under this chapter—

(A) New engines which are used in construction equipment or vehicles or used in farm equipment or vehicles and which are smaller than 175 horsepower."

There is no allowable waiver process to this preemption.

Because Section 3011(a) relates the addition of a diesel forklift to a replacement of either an LSI or diesel forklift, this is controlling the emissions from nonroad diesel equipment under 175 HP that are presumed to be construction or agriculture and preempted from regulation by California.

Each of the following examples of adding new diesel forklifts that this section attempts to prevent in violation of the CAA clearly relates to the control of emissions from this equipment. 1) a rental company will be prevented from adding additional diesel forklifts in its fleet to meet demand. A rental company has no way to demonstrate if the use by its renter could also be served by the use of an LSI forklift; 2) a company with no LSI or no diesel forklifts would not be able to add a diesel forklift because they could not relate it to the removal of an existing diesel forklift; 3) a company with only diesel fuel available for use on site (e.g. a construction site) could not add a diesel forklift; 4) a new company could not purchase any diesel forklifts for their new operations; 5) a company expanding its operations would not be able to add a diesel forklift.

As for the conflict with the off-road diesel mobile regulation, by preventing a fleet from purchasing diesel nonroad forklifts it creates a potential impediment to a fleet's ability to achieve a final NOx fleet average in accordance with that regulation's performance requirements. Further, the ISOR clearly states in at least 13 paragraphs that "The Proposed Regulation is focused on the replacement of large spark-ignition (LSI) forklifts with ZEFs and does not cover diesel-fueled (compression-ignited) forklifts. Diesel-fueled forklifts are currently subject to CARB's current In-Use Off-Road Diesel Fueled Fleets Regulation (Off-road Diesel Regulation)."

For these reasons, these sections must be removed from the regulation due to their relation to the control of emissions from this preempted equipment under the CAA, the conflict it creates with a fleet's compliance with the off-road diesel mobile regulation, and the multiple discrepancies with the ISOR with respect to stated exclusion of off-road diesel mobile equipment.

#### Commenter: [012-45d]

<u>Comment:</u> The sections of the proposed regulation that attempt to limit the purchase of new diesel forklifts is a clear violation of the provisions of the CAA that prohibit the States' abilities to regulate new nonroad diesel vehicles smaller than 175 horsepower. These sections also conflict with the off-road diesel mobile regulation. In fact, as stated at least a dozen times in the ISOR, CARB states this proposed regulation is excluding diesel forklifts, yet, clearly the opposite of that intent is found in this proposal before the Governing Board. These sections must be removed.

#### Commenter: [083-45d]

<u>Comment:</u> Therefore, the only remaining preemption question is whether §3011(a)'s prohibition against acquiring or operating a diesel forklift to replace a phased-out LSI forklift is a "requirement relating to the control of emissions." If so, CARB cannot apply it to new diesel forklifts under 175 horsepower. According to the ISOR, p. 66, "The overarching purpose of the Proposed Regulation is to reduce harmful emissions from forklifts by accelerating the transition to ZEFs throughout the state to reduce emissions of NOx, fine PM, other criteria pollutants, TACs, and GHG." According to Appendix E's Purpose and Rationale for Each Regulatory Provision, p. 104, the specific rationale for §3011(a) (and related provisions) is as follows:

These subsections help prevent the replacement of Class IV LSI forklifts of any rated capacity and Class V LSI forklifts of a rated capacity of up to 12,000 pounds with diesel forklifts once the fleet begins to phase out said LSI forklifts. While staff believes such replacements would be unlikely because of the flexibilities the Proposed Regulation would provide and operational considerations, such as indoor air quality, it is possible that some fleets could choose diesel forklifts over ZEFs. To the extent those replacements occur, the emission benefits of the Proposed Regulation would be reduced. Therefore, CARB staff is proposing this restriction to prevent such replacements.

Given this record, it seems obvious that the prohibition on replacing LSI forklifts with diesel forklifts is a "requirement relating to emissions." As applied to new diesel forklifts under 175 horsepower, it is preempted. CARB can cure this problem by clarifying that §3011(a) does not apply to new diesel forklifts under 175 horsepower.

### Commenter: [088-45d]

<u>Comment:</u> In summary, due to the items noted above we believe that some additional thought be placed into whether diesel fueled forklifts are fully exempt from the Proposed Rule or conditionally exempt if no other ZEV options are available. If the latter is true and/or reporting is required for newly added diesel-powered forklifts, as inferred in Section 3008(j), there should be a clear statement in the supporting documents (ISOR, other discussion documents and Notice of Public Hearing) of their inclusion under specific circumstances. <u>Comment:</u> As a national organization, AED would like to particularly highlight the proposed regulation's direct conflict with the federal CAA. Section 3007(j) and Section 3011(a) of the proposal must be revised due to federal preemption. The CAA, in 42 U.S. Code § 7543, explicitly prevents a state from adopting requirements related to new engines used in construction and farm equipment smaller than 175 horsepower. Furthermore, by declaring the inapplicability of Subsection (b) "Waiver" to Subsection (e), the EPA is prohibited from granting waivers to allow states to regulate engines used in construction and farm equipment smaller than 175 horsepower.

### Commenter: [334-45d]

<u>Comment:</u> The ability of a business to make independent decisions regarding the selection of equipment is vital for its overall success and operational efficiency. Every company operates within a unique environment, facing specific challenges, goals, and operational requirements. The choice of equipment, whether it be diesel forklifts, operating equipment, technology, or tools, directly impacts productivity, cost-effectiveness, and the quality of goods produced. Ultimately, the diesel forklift restrictions proposed clearly violate the nonroad engine and vehicle preemption in the CAA and the provisions of the Off-Road Mobile Diesel Regulation. The freedom to make independent decisions regarding equipment selection should be maintained and driven by the company's needs and operating preferences. This section [3011] and reference in Section 3007 must be removed for the reasons stated above.

Commenter: [335-45d]

Grouped Agency Response: Changes were made that are relevant to the comments.

Several commenters referenced Section 3007(j). CARB staff believes that these commenters intended to state Section 3009(j) instead of Section 3007(j) because there is not a Section 3007(j) in the Regulation. Similarly, Commenter [252-45d] references Section "3008(j)" in the Regulation. CARB staff believes that the commenter intended to state Section 3009(j) instead since Section 3008(j) does not exist in the Regulation.

As part of the 15-Day Changes, the text in section 3011(a) discussing the prohibition on Diesel Forklifts was removed because Diesel Forklifts are already regulated under the In-Use Off-Road Diesel-Fueled Fleets Regulation, and bifurcating the provisions for Diesel Forklifts between two regulations could cause confusion. However, complying with the Regulation could help Fleet Operators comply with the In-Use Off-Road Diesel-Fueled Fleets Regulation since there is an incentive for purchasing zero emission off-road equipment in the In-Use Off-Road Diesel-Fueled Fleets Regulation.

Section 3011(a) was modified to instead require fleets already reporting acquisition of a diesel forklift under CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation on or after January 1, 2026, to indicate whether the forklift is doing work previously performed by a Class IV LSI Forklift of any Rated Capacity or a Class V LSI Forklift of a Rated Capacity of 12,000 pounds or less that has been phased out of the Fleet. Although replacing an LSI forklift with a diesel one will not be prohibited, the modified Section 3011(a) will permit CARB staff to track the extent to which such replacements are happening. CARB intends to use this information to

help determine whether future regulatory efforts may be needed to limit operation of highly polluting diesel forklifts in the future.

One of the commenters stated that the ZEF regulation will conflict with the In-Use Off-Road Diesel-Fueled Fleets Regulation by preventing Fleet Operators from complying with the fleet emission standard. CARB staff disagrees that Section 3011(a), which prohibited the acquisition of a Diesel Forklift as a replacement for Class IV Forklifts or Class V Forklifts with a Rated Capacity of up to 12,000 pounds, conflicted with the In-Use Off-Road Diesel-Fueled Fleets Regulation. The In-Use Off-Road Diesel-Fueled Fleets Regulation provides compliance benefits to fleets that purchase zero-emission off-road equipment, making the requirements of Section 3011(a) beneficial to fleets complying with In-Use Off-Road Diesel-Fueled Fleets Regulation.

The reporting related to justification for adding diesel forklifts in Section 3009(j) was removed as part of the 15-Day Changes and thereby removed the required justification for adding diesel forklifts because, after Section 3011(a) was changed, such justification is no longer required to be reported. Further, the section as written would be difficult to enforce as well as unnecessary because most operators would have an economic incentive to choose replacements other than diesel forklifts.

The Regulation does not set new emissions standards for any equipment preempted from state regulation under the CAA. In fact, the Regulation specifically excludes from its definition of LSI Forklifts those forklifts that fall under the CAA section 209(e) referenced by the Commenters. Commenters, furthermore, have not provided any evidence or examples of how this Regulation would impermissibly regulate diesel forklifts that would qualify as being under 175 horsepower and used only in construction or agriculture, as those terms are used in the federal CAA, section 209(e).

## i) Supports Other Commenters – 293-45d

<u>Comment:</u> In regards to specific concerns regarding the draft regulation, we concur with the comments submitted by the Construction Industry Air Quality Coalition.

### Commenter: [293-45d]

<u>Agency Response</u>: The comments supported by the commenter are already summarized and responded to in other parts of this FSOR and do not require a different response here. See agency responses to comment code [083-45d].

# **19. Out of Scope and Irrelevant Comments**

## a) Irrelevant – Low Carbon Fuel Standard

<u>Comment:</u> We encourage the Board not to focus on promoting electric energy, but rather continue using the LCFS as a primary driver for reducing transportation carbon emissions. The program has been incredibly successful. By 2022, the LCFS has reduced the CI of California's transportation fuel pool by 12.63%, 2.63 percentage points ahead of the 10% target for that year. Further, it is our understanding that CARB will initiate a rulemaking in the near future to expand the LCFS by tightening annual CI benchmarks through 2030 and extending the program with additional CI benchmarks through 2045. This will further reduce

extending the program with additional CI benchmarks through 2045. This will further reduce emissions in the transportation sector and incentivize the development and production of lower and lower carbon intense fuels.

Commenter: [085-45d]

<u>Agency Response</u>: This comment is not directed at the ZEF Regulation or the process by which it was adopted and therefore CARB is not required to respond.

# C. 15-Day Comment Period Public Comments with Agency Responses

# 1. Definition Issues

# a) Definition of In-Field Forklift - Exemption for Construction Sites

<u>Comment:</u> Modifications 86 & 87, regarding In-Field Forklifts, should also include those on multi-level construction sites and construction sites without permanent electrical infrastructure.

On multi-level construction projects, forklifts are typically hoisted via crane to level of the building where work is being performed and they remain on that level until they are no longer needed. Fuel is brought to the forklifts as needed. Using electric forklifts on such construction sites would require either (1) installing temporary charging facilities at each level of the building, or (2) constantly hoisting forklifts between levels or to and from the ground level for the purpose of recharging. Neither option is feasible.

• Installing temporary charging infrastructure on each level of a multi-level building during construction would be cost-prohibitive. Temporary power at the site is also not likely to be of sufficient capacity to accommodate multiple charging stations.

• Moving electric forklifts between levels for the purpose of charging would be incredibly inefficient and dangerous. Moving a forklift to a location for hoisting, securing the forklift, hoisting it between levels, un-securing the forklift, and moving it to a charging station would materially impact the time required to complete a job. It would also take up valuable hoisting time needed for moving building materials around the site. Additional movement of the forklifts around the site for charging purposes presents increased opportunity for safety incidents compared to keeping forklifts in the immediate area where they are needed. Hoisting a forklift is also a dangerous task and would increase safety risks to workers on the site...

...[I]t is clear that the construction industry faces challenges similar to the forestry and agricultural industries that merit the new In-Field Forklift exemption. The exclusion of the construction industry from the definition of In-Field forklifts appears arbitrary and prejudicial.

## Commenter: [001-15d]

Agency Response: No changes were made in response to this comment. Changing the In-Field Forklift designation is not necessary since the Operational Extension (Section 3007(b)(4) of the Regulation) is an available option to address the commenter's concerns regarding forklifts used on multi-level construction projects. The Operational Extension application can be applied to a fleet in accordance with the application conditions (3007(b)(4)(D)(1). The Operational Extension provides the ability to extend the compliance date of one or more 2025 or previous MY LSI Forklifts subject to an applicable phase-out schedule set forth in Section 3006(d) and accommodates the operation of one or more replacement LSI Forklifts for which current Operational or Infrastructure Site Electrification Delay Extensions are in effect.

CARB staff met with the commenter to better understand how LSI forklifts are currently used on the commenter's multi-level construction projects. In addition to the concerns delineated in the comment, the commenter verbally explained that their LSI forklifts are used on the higher levels of multistory buildings being constructed soon after the concrete for the structures is poured and before it has completely cured and has its full strength. Even if the charging difficulties listed were resolved, they expressed safety concerns regarding using ZEFs to replace their LSI forklifts because ZEFs are heavier and hence less safe for hoisting and for the partially cured concrete to support. This safety issue associated with ZEFs could qualify the commenter for the Operational Extension. Just as safety issues associated with use of ZEFs in metal smelting make the Operational Extension appropriate for such fleets, those related to hoisting heavy ZEFs make it appropriate for fleets using their forklifts on multilevel construction sites.

Additional considerations such as the incorporation of mobile charging units and/ or fuel cell forklifts and the Infrastructure Site Electrification Delay Extension could all be potential options to address the electrical service availability concern referenced by the commenter.

With the potential Extension options, the exclusion of Rough-Terrain Forklifts, and the freedom of fleets to determine the zero-emission solution that is best suited for the operation, staff are confident the regulation accommodates fleets operating on multi-level construction sites and construction sites without permanent electrical infrastructure and that broadening the definition of In-Field Forklifts is not necessary.

Staff disagrees that the definition of, or conditions applicable to, In-Field Forklift were developed arbitrarily or with prejudice for the exclusion of the construction industry. The definition is consistent with the existing LSI Engine Fleets Regulation (Title 13, CCR, section 2775) which currently applies to LSI forklift fleets. In addition, in-field forklifts are predominantly rough terrain forklifts, and rough terrain forklifts are not within the scope of the Regulation and were excluded from the Regulation as proposed in November 2023.

### b) Definition of Rent

<u>Comment:</u> The definition for "Rent" in Section 3001(a) must be modified to remove any time limit. A rental forklift cannot be moved back and forth for compliance between the rental fleet and an end user's fleet simply because the rental may exceed 12 months. Doing so provides no emissions benefit, and it creates an administrative nightmare for reporting inconsistencies by both the rental company and the end user, and it will add unnecessary complexity to the current way rental companies contract and operate...

### Modify Definition of "Rent" to Remove Any Time Limit

This definition must be modified to state the following without any time limit: "Rent" means to pay for the use of an LSI Forklift offered by a Rental Agency." We, and all other rental companies, have rentals with government, large businesses, seasonal source operations, and within a company's own divisions that can be of any length from a single day to beyond 12 months. Simple contracts can actually be taken out for a short period and then end up being out past 12 months. End users that only rent a forklift for a project would have no idea they need to report to CARB if the rental surpasses 12 months. In the LSI regulation it made sense to distinguish a rental of more than 12 months as in the possession of the end user for the calculation of a fleet average. However, in this regulation whether the rental is 12 months or less, or it is over 12 months, the forklift is still owned by the rental company, and the rental company is the one responsible for complying to the phase-out schedule, not the end user. Trying to move the vehicle back and forth between the rental company and the end user only adds unnecessary complexity to an already complexly written regulation, with no emissions

benefit. There must not be any time limit to what is considered a rental and the rental forklift must remain only in the rental fleet that is responsible for its compliance.

#### Commenter: [003-15d

<u>Comment:</u> The Regulation has incorporated a new term and definition of "Rent," which will only further disrupt California businesses and our ability to reduce emissions.

As defined by the Regulation, "Rent" means to pay for the use of an LSI Forklift for a period no longer than 12 calendar months.

Rentals and leasing are critical strategies for many companies. These options are driven by the need for flexibility and cost-effectiveness, as renting or leasing allows companies to access the necessary equipment without significant capital investment. These decisions can also reflect seasonal demands. Seasonal impacts result in widely varying operational peaks that drive significant disparity in business staffing, costs, equipment, and sales demands. Businesses that rely on forklifts to handle their materials often need to rapidly scale their fleet sizes to accommodate seasonal peaks, with the option to quickly shed units as demand subsides.

Given these considerations, it is common for businesses to sign multi-year or long-term agreements with rental companies. We question the need for CARB to interfere and add further complexity to an already challenging regulatory framework. As proposed, the Regulation shifts the reporting and compliance obligations between the rental companies and end users once a rental exceeds 12 months. This back-and-forth reporting element will eventually cause for a company (either the rental business or end user) to be cited and fined for failing to report accurately. In the LSI regulation, it was necessary to distinguish a rental of more than 12 months for determining possession of the end user and for the calculation of a fleet average. However, for purposes of the ZEF Regulation, the forklift is still owned by the rental company regardless of a contractual term, and the rental company is the entity responsible for complying with the phase-out schedule, not the end user.

CMTA respectfully requests additional clarification for the definition of "rent" and its applicability to the Regulation. This new definition has caused significant confusion and concern amongst the regulated community. Should this provision not be clarified, CMTA recommends entirely removing it from the Regulation.

#### Commenter: [006-15d

<u>Comment:</u> Specifically, the definition of "rent" should be modified to reflect the reality that rentals often exceed 12 months, and the forklift is still owned by the forklift rental company despite the length of the rental agreement

The proposed "phase out" schedule remains problematic, particularly for larger operations and fleets, and the reporting requirements are still burdensome and impractical.

### Comment: [013-15d]

<u>Grouped Agency Response</u>: No changes were made in response to these comments. While CARB appreciates the comment, the regulation does not require a rental forklift "be moved back and forth for compliance". The LSI Fleet Requirements Regulation, which is currently applicable to forklifts, also limits rentals to "a period of less than one year" as does the ACF

Regulation and similar language is included in the Regulation to Reduce Emissions of Diesel Particulate Matter, NOx and Other Criteria Pollutants from In-Use Heavy-Duty Diesel-Fueled Vehicles (Truck and Bus Rule) Matching the definition in these existing CARB programs makes the Regulation easier to understand for the regulated public. Addressing the commenter's expressed concern that the end user of a rental forklift "would have no idea that they need to report to CARB if the rental surpasses 12 months", CARB has not been presented with evidence suggesting that a rental provider would not be sufficiently capable of communicating rental conditions. For example, CARB expects that a fleet forklift could immediately recontract for the rental of a forklift that complied with the conditions (i.e., phaseout compliance schedule) of the regulation. This is consistent with the LSI Regulation which also recognized the "option to renew the contract or agreement" in the Rental Forklift definition.

The definition also provides the flexibility for a Fleet Operator that wants the flexibility to keep a rental forklift longer than 12 months. Once the forklift becomes part of a Fleet Operator's fleet, the Fleet Operator could apply for an Operational Extension for the forklift. If the Operational Extension is approved, the Fleet Operator could keep the forklift beyond the scheduled forklift phase-out date.

### c) Definition of Rough Terrain Forklifts

### Comment: Section 3001 Definitions

The current challenge with the rough terrain forklift definitions lies in the requirement of a specific label from the manufacturer designating it is a rough terrain forklift to be on the lift itself. The manufacturer currently does not provide this distinctive label on the equipment. Requiring a label poses a challenge, especially for older equipment. Most rough terrain forklifts will bear a label with the make, model of the forklift, which should suffice as a classification for a rough terrain forklift. The requirement for this label should be removed.

### Commenter: [011-15d]

<u>Agency Response:</u> No changes were made in response to this comment. For the definition of a Rough Terrain Forklift, staff chose to rely on an industry-accepted standard (ANSI/ITSDF B56.6-2021, "Safety Standard for Rough Terrain Forklift Trucks) for classifying a forklift as a rough terrain forklift. The application of the safety standard, manufacturer's labeling or equivalent other identifying mark, and identification in marketing materials as a Rough Terrain Forklift or Class VII is necessary to aid in the implementation and enforcement of the regulation, from which the Rough Terrain Forklifts are exempt. In instances where a manufacturer does not provide a distinctive label, equivalent other identifying marks (i.e. make and model number) will be utilized in conjunction with manufacturer identification and marketing to identify the forklift as exempt from the regulation if applicable.

### d) Definition of Agricultural Operation

<u>Comment:</u> We strongly oppose the proposed additions to the definition of "Ag Operation" in Section 3001(a), which exclude retail nurseries from the definition. Retail nurseries are an integral part of the agriculture industry, and their exclusion is not justifiable. Horticultural products such as plants are cultivated and cared for at retail nurseries in the same meticulous manner as in non retail nurseries, involving watering, fertilizing, and ongoing maintenance. These operations are fundamental to the agricultural process and should be recognized as part of the "Ag Operation" category. Excluding retail nurseries from the definition disregards the essential role they play and is inconsistent with the true scope of agriculture within our state. We are concerned about the new 'Crop Preparation Services' definition and its interaction with the 'Agriculture Operations' definition, and how these changes might impact cooperatives and packinghouses that operate within both, sometimes simultaneously. The overlap between these two definitions may create ambiguity and operational challenges for entities that engage in both agricultural operations and crop preparation services at the same time, on the same property. Cooperatives and packinghouses often integrate these activities, and the distinct categorization could lead to regulatory confusion, increased compliance burdens, and potential disruptions in their seamless operation. We urge a reconsideration or clarification of these definitions to ensure they adequately reflect the interconnected nature of modern agricultural practices, specifically for farm cooperatives and packinghouses. We support the revised definition of ZEF and oppose the requirement for ZEF certification which would have been required by the previous definition.

#### Commenter: [011-15d]

Agency Response: No changes were made in response to this comment.

Since fleets operated by agricultural crop preparation services are subject to different requirements than other fleets under the regulation, defining the term avoids misinterpretation of the regulation. Additionally, staff chose to rely on the North American Industry Classification System, US Census Bureau definition for Industry

115114 - "Post Harvest Crop Activities" because it is commonly used by industry and is consistent with both the LSI Fleet Regulation (Title 13, CCR, Section 2775) and the In-Use Off-Road Diesel-Fueled Fleets Regulation (Title 13, CCR, Sections 2449, 2449.1, 2449.2, and 2449.3).

This definition includes the same operations previously identified in "Agricultural Crop Preparation Services" and includes packinghouses. However, because the definitions for Agricultural Crop Preparation Services and Forest Crop Preparation Services are being separately identified now, the definition for Crop Preparation Services needed to be created to include activities from both Agricultural Crop Preparation Services and Forest Crop Preparation Services. Additionally, this definition clarifies that when a Forklift that does not qualify as an In-Field Forklift, but over half its annual operating hours are used in Agricultural Operations or Forest Operations, or a combination of the two, the Forklift is considered to be engaged in Crop Preparation Services.

Retail nurseries are consistently and expressly excluded from the agricultural operations definition in the Off-Road Diesel Regulation and LSI Fleet Regulation. Including retail nurseries in the Regulation would create inconsistencies with other regulations.

Additionally, agricultural crop preparation services are a subset of operations that would be included in the definition for "Agricultural Operations." Agricultural Crop Preparation Services" are identical to the definition set forth for the term in the LSI Fleet Regulation, which is the regulation to which LSI forklifts are subject today, except that it would also include first processing activities. First processing activities face similar circumstances as other agricultural operations, which is why such activities were included in the definition for "Agricultural Operations" established in the In-Use Off -Road Diesel-Fueled Fleets Regulation.

Additionally, the Regulation provides numerous exemptions and extensions if there are any compliance challenges that arise for fleet operators during implementation. Finally, thank you for your support of the revised definition of ZEF.

# 2. LSI Forklift Purchase, Rental, and Sale, Restriction Issues

### a) Sell-through Provision – Allow Sale of MY 2021 to 2025 LSI Forklifts in 2026

<u>Comment:</u> A 1-year sell through provision must be provided for any new 2021 to 2025 MY Class IV or Class V LSI forklift after 1/1/26. It is extremely common for dealers to have new prior MY vehicles and equipment in inventory due to unforeseen circumstances...

A Sell Through Provision Is Required for Sales of Any 2021 - 2025 MY New Class IV and Class V LSI Forklifts After 1/1/26

In response to our request of the Board in our December 18 letter on this issue, CARB staff did incorporate a sell through provision for one (1) year following 1/1/2026 for dealers to sell remaining new inventory. However, the language provided by staff only allows for sales of engine MY 2025 forklifts. Dealers will acquire Class IV and Class V forklifts from the manufacturer in 2024 and 2025 and prior that could easily remain in inventory due to reasons beyond the dealer's control. Therefore, Sections 3002(a)(2), 3003(a)(2), 3003(b)(1)(B) and 3003(b)(2)(B) must be modified and Sections 3003(a)(1)(B), 3003(b)(1)(A)1. 3003(b)(2)(A)1. must be removed to allow the one (1) year sell through provision for any new LSI Class IV or V forklift with engine model 2021 - 2025 still on the dealer's lot. Sales must be allowed both externally and internally to rental agencies, sales to fleet operators, as well as sales internally to a company's operations fleet. Further, as also requested in December, there must be some provision to allow the sale of a forklift ordered in 2024 or 2025 specifically for an end user that ends up being delayed by the manufacture until after 1/1/2026. That forklift should still be allowed to be sold and purchased by the end user after 1/1/2026 even though the forklift and/or engine could be model 2026. In this case, a 2026 MY forklift sold under this provision would be required to be phased out in the same year as the 2025 MY forklifts.

### <u>Commenter:</u> [003-15d]

<u>Agency Response:</u> No changes were made in response to this comment. As acknowledged by the commenter, CARB Staff already changed the regulation to incorporate a one-year sell-through allowance for 2025 MY class IV or V LSI forklifts. This change was made to allow Dealers to sell new 2025 MY LSI Forklifts until the end of 2026 so that Dealers would be able to clear inventory remaining at the end of 2025. This "sell through" provision was requested by stakeholders and was incorporated in the 15-day changes.

The commenter is now requesting additional changes "to allow the one (1) year sell through provision for any new LSI Class IV or V forklift with engine model 2021 - 2025 MY forklifts still on the dealer's lot." Again, the change allowing for the additional sell-through provision through December 31, 2026, specific to 2025 MY forklifts already capture the final MY referenced in the request. Section 3003 currently accommodates the sale of MYs prior to 2025 by allowing for the clearing of that inventory through to January 1, 2026. Effectively, this means that the regulation includes a one-year sell-through provision for MYs preceding 2025.

Staff disagree that an additional provision is needed to allow for the sale of an LSI forklift ordered in 2024 or 2025 that is delayed by the manufacturer until after January 1, 2026. CARB staff believe one year of sell-through is adequate and do not recommend expanding the sell-through provisions, as doing so could provide a loophole for continued purchase of LSI forklifts and thereby reduce the emission reductions anticipated from the Regulation.

## b) Sell-through Provision – Allow Sale of MY 2025 LSI Forklifts in 2026

Comment: 1. Sale of new MY 2025 LSI forklifts in calendar year 2026.

MLA Request to CARB in 15 Day Comment Period: All MY 2025 forklifts can be sold in calendar year 2026. Remove the word "inventory" where applicable.

a. Current language is confusing. Modification 26 allows dealers to sell MY 2025's in dealer inventory while Modification 24 does not specify in dealer inventory.

b. "In dealer inventory" and "inventory" is not defined.

c. Relevant Modifications:

i. Modification 24: allows dealers to sell new 2025 forklifts until the end of 2026

ii. Modification 26: "would allow Dealers to sell new MY 2025 LSI Forklifts that they have in their inventory through the end of calendar year 2026. This change is being made to allow Dealers to sell new 2025 MY LSI Forklifts until the end of 2026 so that such Dealers would be able to clear inventory remaining at the end of 2025."

### Commenter: [005-15d]

Agency Response: No changes were made in response to this comment. Regulation modifications were made in the 15-Day Notice published May 14, 2024, allowing Dealers to sell new MY 2025 LSI Forklifts that they already have in their inventory prior to January 1, 2026, through the end of calendar year 2026. The modifications do not permit adding MY 2025 LSI forklifts to the Dealer fleet at California locations via acquisition or taking possession of LSI forklifts after January 1, 2026. The modifications are not intended to allow Dealers unrestricted sales of all MY 2025 LSI forklifts. Allowing such unrestricted sales would slow the phase-out anticipated from the Regulation and reduce expected emission reductions, which is counter to CARB staff's intent. The word "inventory" remains necessary for clarity and applicability of the Regulation.

### c) Sell-through Provision – Sale of Special-ordered Forklifts in 2026

<u>Comment:</u> Additionally, while the "sell-through" provision was changed in the regulation's latest draft, it is still unworkable, and it should also allow for the sale of special-ordered forklifts delayed by the manufacturer past January 1, 2026.

### Commenter: [013-15d]

<u>Agency Response:</u> No changes were made in response to this comment. The change to language in section 3002(a)(2) created the MY 2025 existing inventory sell through period allowance through 2026. The existing 18 months of planning time is expected to be sufficient for Fleet Operators to plan for special orders. Staff disagree that there is a need to add additional accommodation for special orders.

## d) Rental Agency Requirements

### Comment: Section 3004 Rental Agency Requirements

Renting a forklift becomes a complicated challenge when the Proposed Regulation prohibits or significantly restricts access to newer LSI forklifts. In situations where a company does not have the electrical infrastructure to support the rental of a ZEV forklift, this requirement

impedes the business from maintaining standard business practices during harvest when the need for rentals is essential to a successful operation. While the latest proposed draft acknowledges the challenges faced by Fleet Operators and Dealers and allows for the sale, lease, and possession of an LSI forklift in accordance with Sections 3002(a)(5) and 3002(a)(6), it fails to recognize that rental agencies face similar challenges. Rental agencies are integral to many agricultural operations, providing the necessary flexibility for businesses that operate seasonally and use forklifts only a few months out of the year. We strongly urge the inclusion of Sections 3002(a)(5) and 3002(a)(6) for Rental Agencies to allow for rent of LSI forklifts in these circumstances. They must be equipped to fulfill the requirements of businesses and their ability to function effectively.

### Commenter: [011-15d]

<u>Agency Response:</u> No changes were made in response to this comment. The commenter seems to suggest that fleets are limited to renting battery electric ZEFs, inaccurately omitting other considerations such as mobile charging and fuel cell solutions. In addition, through 2035, rental agencies will be able to continue renting some LSI forklifts. Rental agencies are not restricted from offering a variety of compliant solutions. In addition, fleets with approved Infrastructure Electrification Delay Extensions have access to 3002(b) which allows for replacements of LSI forklifts.

# 3. Phase-out Provision Issues

### a) Phase-out Cap – Compliance Extension

<u>Comment:</u> In the interest of facilitating a more manageable implementation process for both CARB and the regulated community, and as a means of rewarding early adoption of ZEFs in a manner consistent with the phased implementation structure of the Regulation, we propose that CARB allow additional time extensions based on the ratio of ZEFs to the total fleet inventory.

For example, a covered entity that meets the 25% Class IV cap on or after January 1, 2026, would be granted a one-year compliance extension with a new effective date of January 1, 2027. A covered entity that meets the 50% cap on or before January 1, 2027, would be granted a two-year extension to January 1, 2029, and a covered entity that meets the 75% cap by January 1, 2028, would be given a three-year extension to January 1, 2031. If CARB determines this approach is unworkable, we recommend a simple two-year compliance period with an effective date of January 1, 2028, and corresponding changes to all other compliance dates.

### Commenter: [006-15d]

<u>Agency Response:</u> No changes were made in response to this comment. The creation of phase-out percentage cap options is intended to help ease the compliance burden for older fleets. This addresses concerns from numerous stakeholders that such fleets could be required to phase out nearly all their forklifts by their first compliance date. In other words, the phase-out percentage cap is not a phase-out goal but rather a responsive regulatory compliance flexibility. No evidence was provided that demonstrates equivalent emission reductions or justification for adding additional phase-out time extensions to the phase-out percentage cap flexibility.

In addition, the MY phase-out schedule is intended to allow fleets an orderly, gradual phaseout of LSI forklifts, and to create an enforceable requirement and hence a level playing field for affected fleets. The phase-out schedule can be enforced by checking the MY of any forklift an inspector may encounter. The 25%, 50%, 75% phase-out alternative suggested by the commenter would be impossible to enforce without an inspector being able to view every forklift in a fleet.

### b) Phase-out Cap – 20% for all Compliance Dates for Crop Preparation Fleets

Comment: Section 3006 Fleet Phase-Out Provisions for Fleet Operators and Rental Agencies

While we support the proposed 25% cap for the initial compliance year, it fails to fully address the broader issue at hand. Considering the unique operational characteristics of agricultural businesses, many operate only for a few months each year, resulting in reduced overall forklift usage. Additionally, the age of most forklifts in agricultural operations often surpasses those in year-round businesses, leading to a disproportionate number of forklifts being phased out by the second compliance year alone.

The proposed phase-out schedule could impose significant financial strain on these companies, necessitating the replacement of a disproportionately high number of forklifts in subsequent phase-out years, such as 2032. Our survey of the tree nut and cotton industries indicates that a considerable number of operations would need to replace a substantial number of forklifts by 2032. In fact, the surveyed businesses anticipate 96% of their forklift fleet will be phased out by the second compliance date.

To address this alarming concern, we strongly urge setting the Phase-Out Percentage CAP at 20% for all compliance years, including 2032 and beyond. This approach acknowledges the differences between agricultural businesses and year-round operations, mitigating the risk of imposing overwhelming capital expenditures that could potentially jeopardize their economic viability

### Commenter: [011-15d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff appreciates the commenter's support for the 25% phase-out cap option. The Alternative MY Phase-Out Schedules for Small Fleets and Crop Preparation Services (3006(d)(2)), which starts after the regular MY Phase-Out Schedules for Class IV Forklifts (3006(d)(1)), lists the second compliance phase-out for class IV LSI forklifts with 12,000 pound or less lift capacity as January 1, 2032, eight years from now and three years after the first compliance date listed on January 1, 2029.

Staff disagree that the commenter's proposal of a cap of "20% to all compliance years, including 2032 and beyond:" is necessary.

Staff acknowledges the "differences between agricultural businesses and year-round operations" and has included accommodations for "mitigating the risk of imposing overwhelming capital expenditures" by including measures such as the Alternative MY Phase-Out Schedules for Small Fleets and Crop Preparation Services (3006(d)(2)) and In-Field Forklift Exemption (3006(a)(6)).CARB staff does not support adding 20% phase-out caps for all compliance years for Crop Preparation Services fleets because this would slow turnover and forego needed emission reductions.

## c) Phase-out Cap – 25% for all Compliance Dates for Large Fleets

<u>Comment:</u> The phase-out cap provided in this regulation is unacceptable, especially for very large operations and rental fleets. The phase-out cap must be set at 25% per year for all fleets and be allowed to extend forward through the entire phase out period between 2027 and 2037. Setting a higher 50% phase out cap for all large fleets is not only excessive, but it puts these fleets at an unreasonable competitive disadvantage...

### Phase Out Cap Unreasonable

The phase-out cap provided in this regulation is unreasonable, especially for very large operations and rental fleets. The phase-out cap must require no more than 25% per year of the applicable MY forklifts to be phased out, with the remainder of the fleet not turned over by the phase out MY to be carried into the next year. Each ensuing year the oldest forklifts already meeting the phase out would be subject to retirement first under that cap.

Phase-outs must continue with only 25% per year throughout the entire phase out period between 2027 and 2037. They must not be limited to a one fell swoop in the first year of phase-outs. Further, setting a higher 50% phase out cap all large fleets is not only excessive, but it puts these fleets at an unreasonable competitive disadvantage. As it is, a 25% per year cap will create an economic infeasibility, and most certainly a physical infeasibility, for very large fleets. Large companies will require mass replacements, thus creating potential electric forklift availability issues and possibilities of leaving companies with the inability to properly operate their business. The footnote in 3006(d) must be removed, and the entire section on phase-outs must be revised to allow the phase-outs at no more than 25% for all fleets throughout the entire phase-out timeline.

Commenter: [003-15d]

### Comment: Fleet Phase-Out Provisions for Fleet Operators and Rental Agencies

CMTA continues to disagree with the proposed phase-out schedule of the Regulation. While we acknowledge that the Regulation has improved from earlier iterations, the phase-out structure is still significantly limited. CMTA has argued that the availability, whether purchased, leased, or otherwise, of ZEFs is still largely unpredictable, as is the readiness of facilities to accommodate the added infrastructure. While the Regulation does include exemptions and extensions under limited circumstances, the Regulation and phase-out cap should not be designed to force businesses to apply for an appropriate exemption and extension.

The phase-out cap should provide additional flexibility and avoid any potential rush to the exemption and extension process. While the concept of the phase-out cap is agreeable, it only offers one year of added flexibility for fleet operators. While 25% of a fleet conversion is capped in one calendar year, the following year would require the other 75% remaining non-compliant forklifts to be immediately replaced. This phase-out would occur concurrently with other MY phase-out dates that follow. The process prescribed is overly cumbersome for fleet operators and compliance reporting purposes at CARB.

CMTA recommends that the current structure be modified so that forklift phase-outs continue with a 25% replacement cap per year throughout the entire 2027-2037 phase-out period. This static, predictable, and simplified replacement strategy would still achieve emission reductions and ensure greater availability of zero-emission replacements to consumers early in the conversion schedule.
The current phase-out strategy is still excessive and places equipment dealers and forklift operators (i.e., warehouses, manufacturers, etc.) at varying competitive disadvantages. CMTA believes CARB has largely misunderstood how companies interact with equipment dealers, rental agencies, etc. Limited inventories exist with dealers, and forklifts are often designed as site-specific configurations where the specifications for a particular ZEF replacement may or may not meet the business customer's needs.

Commenter: [006-15d]

## Comment: Lower Phase-Out Percentage Cap for Large Fleets

While the most recent amendments added an option to utilize a percentage phase-out cap in lieu of the MY phase-out, TRC believes the current cap of 50% for large fleets still constitutes an undue burden on California companies. For reference, some of TRC's large fleet clients will still see a significant phase-out obligation in 2028 even if they utilize the percentage phase-out cap option. For example, this would require one fleet to phase out and replace nearly 100 forklifts by 2028, with another 100 scheduled for 2031. As a result, TRC is recommending setting the percentage phase-out cap for large LSI fleets to 25% for the 2028 compliance year for Group IV forklifts and 2030 for Class V forklifts. Additionally, TRC recommends extending the percentage phase-out cap to allow for a 25% cap in all subsequent compliance years to allow for sufficient capital planning to meet the requirements.

#### Commenter: [012-15d]

<u>Grouped Agency Response:</u> No changes were made in response to these comments. As noted, the phase-out schedule had already been adjusted from a previous concept to allow additional time for fleet compliance. Considering the multiple flexibilities in the Regulation and the fact that the first large fleet phase-out compliance date is 42 months or 3 1/2 years from now, staff believe that sufficient time has been provided to plan for the phase-out compliance dates. The referenced second compliance date in 2031 is over six years from now and should also be sufficient time to ease the phase-out obligations of Large Fleets.

The phase-out cap percentage option is misrepresented as adding a single year to the requirements of Section 3006(e). All applicable LSI Forklifts not phased out due to utilization of a phase-out percentage cap shall be phased out by the next applicable compliance date, not the next calendar year. The Table 1 MY Phase-Out Schedule for Class IV LSI Forklifts (3006(d)(1)) has a three-year gap between the first and the second phase-out date. The associated Phase-Out Percentage Cap Reporting is necessary for implementation and enforcement purposes and has a flexible due date preceding the applicable phase-out date.

Staff disagrees with one of the commenter's assertions that the Regulation or Phase-Out Percentage Caps were designed to force businesses to apply for appropriate exemptions or extensions. Many of the regulatory flexibility referenced by the commenter were the result of robust engagement with stakeholders and careful consideration for achieving cost effective emission reductions. Likewise, the current phase-out schedules are also the result of such engagement and provide multi-year phase-out gaps for fleet operational planning. This implementation over-time approach provides more operational planning and fleet flexibility than the annual phase-out implementation approach.

Flexibilities are incorporated into the regulation that address the commenters' concerns regarding ZEF availability.

Eligible Fleet Operators may request a Zero Emission Forklift Delivery Delay Extension (3007(b)(2)) if the ZEFs they have ordered to replace LSI Forklifts required to be phased out by the upcoming compliance date cannot be delivered to the Fleet Operator by said compliance date due to circumstances beyond the Fleet Operator's control.

If there is no commercially available ZEF model that can meet the needs of an operation currently served by an LSI Forklift required to be phased out by the upcoming compliance date, the eligible Fleet Operator can apply for an Operational Extension (3007(b)(4)).

Finally, to address the commenter's concern regarding infrastructure readiness the regulation provides an Infrastructure Site Electrification Delay Extension for instances where the utility provider determines it cannot provide, prior to the upcoming compliance date, the requested power to the site where needed ZEFs will be charged or fueled. The Site Electrification Delay Extension is, like all the exemptions and extensions detailed in section 3007 of the regulation, subject to the associated conditions of eligibility.

# d) Phase- Out Cap – Large Fleet Reporting

<u>Comment:</u> Simplify Section 3009(k) for large fleets to participate in the phase-out cap to only require the initial and annual reporting to indicate the total number of forklifts broken out by engine MY instead of requiring all other forklift detail required in 3009(b)(2)...

Simplify Section 3009(k) for Large Fleet Reporting to Participate in the Phase-Out Cap

This section is unreasonable, especially for quite large fleets like our dealer fleets. First, large fleets should not need to provide all detailed information for each and every forklift as of 1/1/2026 just to participate in the phase-out cap option. Large fleets should still only be required to report initially and annually in accordance with 3009(c) showing only the total number of Class IV and Class V LSI forklifts (separately), but to participate in the phase-out cap option a large fleet would need to break out the totals by engine MY. This will give CARB the information necessary to know what LSI forklifts must be managed year by year in the phase-out approach described above in this letter. In addition, 3009(k)(2), which requires reporting of a primary operating location address, must be removed because it is meaningless for a large fleet with multiple locations. CARB will already have the main address provided by the company in the initial reporting in accordance with 3009(b). Finally, 3009(k)(3) is unnecessary as long as in the annual reporting the fleet shows that 25% of the oldest engine MYs have been removed. It is virtually impossible for a fleet to know before a compliance date whether a specific unit will be replaced by a compliance date in a phase-out cap. For example - 1) equipment wear and tear that may make one forklift retirement better than another, but such information may only be known just before a compliance date, 2) a unit in a fleet 1/1/2026 may no longer be in the fleet by the compliance date. We would suggest this whole section be simplified.

# Commenter: [003-15d]

<u>Agency Response:</u> No changes were made in response to this comment. The Regulation does not prohibit fleets from electing to report Phase-Out Percentage Cap Reporting as an attachment to or within either the initial or annual report preceding the applicable compliance date. The inclusion of identifying forklift specific information listed in 3009(b)(2) is critical for linking equipment to a fleet and allowing for effective and efficient audit and enforcement actions if necessary. For example, if a complaint regarding phase-out compliance was received regarding a fleet, an enforcement audit or investigation evaluating the complainant's claim supported by phase-out cap data could be efficiently conducted minimizing the time needed with the fleet. If only engine MYs were provided in the Phase-Out Percentage Cap Reporting as suggested by the commenter, additional time would be needed to effectively identify equipment and evaluate and determine compliance. The phase-out cap option was included as a stakeholder responsive Regulation update for which additional reporting is necessary to ensure effective implementation and enforcement.

The inclusion of operational locations in 3009(k)(2) and indication of specific equipment phaseout expectation in 3009(k)(3) are necessary for effective and efficient audit and enforcement actions as referenced in example.

3009(k) requires that the Phase-Out Percentage Cap Reporting in accordance with 3006(e) be provided prior to the applicable compliance date. This aligns the reporting with the associated compliance date.

# e) Phase-out – Individual Facilities

<u>Comment:</u> CARB Should Tailor Compliance Requirements to Individual Facilities [§3006 (b)(3)]

Individual facilities, even under common ownership, may have entirely different business models that dictate the number, composition, and operation of their forklift fleets. Moreover, the capital budgets afforded to individual facilities are likely to differ dramatically based on the relative scale of the facility operation and the level of facility production or throughput. A small facility with one building and five forklifts should not be compelled to meet the same compliance requirements and deadlines as a large industrial complex with 100 forklifts. Accordingly, CMTA recommends that CARB remove proposed section 3006(b)(3) and specify instead that applicability determinations shall be made on a facility-specific basis, regardless of common ownership or control, and that such determinations shall include only forklifts subject to the applicability and fleet operator requirements of the proposed Regulation (Title 13 CCR, section 3000(c) and section 3002,

respectively).

# Commenter: [006-15d]

<u>Agency Response:</u> No changes were made in response to this comment. If a business has multiple facilities with forklifts, if it meets the large fleet MY phase-out requirements, it is welcome to plan for, budget for, and conduct phase-out at each of its individual facilities separately, as desired by the commenter.

The applicability of the Regulation to a fleet as defined as including equipment under common ownership and control is consistent with other Regulations such as the Off-Road In-Use Diesel Fueled Fleet Regulation. Including common ownership or control is necessary to ensure consistent interpretation and application of the Regulation's requirements. Determining the number of forklifts within a fleet, including those under common ownership or control, is important in consistent interpretation and determination of phase-out schedule applicability and phase-out date compliance.

The Regulation accommodates the wide range of businesses affected by including flexibilities and compliance options depending on eligibility, for microbusinesses and small fleets, low-use and emergency equipment, in-field equipment, and operational, and infrastructure construction and site electrification extensions.

# f) Phase-out Schedule Remains Problematic

<u>Comment:</u> The proposed "phase out" schedule remains problematic, particularly for larger operations and fleets, and the reporting requirements are still burdensome and impractical.

# Commenter: [013-15d]

<u>Agency Response:</u> No changes were made in response to this comment. Please see the above Agency Responses to C.3.a) Phase-out Cap – Compliance Extension, C.3.b) Phase-out Cap – 20% for all Compliance Dates, and C.3.c) Phase-out Cap – 25% for all Compliance Dates. The phase-out schedules for LSI forklifts are necessary to ensure the achievement of the proposed emission reductions The regulation provides three LSI forklift phase-out schedules for Fleet Operator planning while achieving the proposed emission reductions. Without the reporting requirements, the regulation would be difficult, if not impossible, to implement and enforce. The need for reporting goes further in that it provides fleet early insights into future planning for operational needs.

# g) Alternative Phase-out Schedule Clarification

<u>Comment:</u> I would like to clarify the Alternative Phase Out Schedule for LSI for a Small Fleet of Class V Forklifts on Table 3.

1. If I have several units falling under the MY 2017 & older, and I phase out 25% of them by the deadline of 1/1/2030, When is the next compliance deadline to phase out the remaining units in the same category?

- 2. Is it 25% each time (for each compliance date)?
- 3. Or do all the units need to be removed by the next compliance date?

# Commenter: [015-15d]

Agency Response: No changes were made in response to this comment. CARB staff appreciates the inquiry and opportunity to address this specific scenario. A small fleet of class V LSI forklifts that phased out 25% of the applicable forklifts by the January 1, 2030, compliance date would phase out the remaining 75% of forklifts in the same category of MY 2017 and older forklifts by the January 1, 2033, compliance deadline. The 25% phase-out cap applies to the first compliance date only, and there is no phase-out cap for subsequent compliance dates. In addition, CARB staff would like to clarify that the 25% cap is for 25% of a fleet's entire LSI forklift fleet. For example, if a small fleet owns 20 MY 2017 forklifts and 4 MY 2024 forklifts, it could cap its turnover by 1/1/2030 at 6 forklifts (i.e., 25% of the fleet's total 24 forklifts). It could not satisfy the 25% cap requirement by turning over 5 MY 2017 forklifts, i.e., just 25% of its MY2017 and older forklifts.

# 4. Exemptions and Extensions

# a) Low-use LSI Forklift Exemption – Phase-out Clarification

<u>Comment:</u> CCEEB would like to reiterate our previous comments on the 45-Day package that the Proposed ZEF Regulation should clarify in §3007(a)(1) that low-use targeted forklifts are not only exempt from the 3 general LSI forklift prohibition of §3002(b), but also the phase-out

provisions in §3006. CCEEB's interpretation of this requirement is that §3006 could be read as a standalone provision from §3002(b). The 15-Day changes did not clarify this confusion.

If CARB's interpretation is that an exemption from §3002(b) triggers exemption from §3006, then we would request CARB clarify this by simply writing the exemption into §3007(a)(1) and avoid any unnecessary ambiguity. If this is not the case, then CARB has not made this intention clear, and the regulated community would request an opportunity to comment on this specific requirement. Such an interpretation would effectively be more stringent than that December 31, 2030, sunset for low-use exemption. This ambiguity leaves the regulated community unsure how to comply.

## Commenter: [010-15d]

<u>Agency Response:</u> No changes were made in response to this comment. The commenter is requesting clarity regarding Section 3007(a)(1) and if low-use forklifts are exempt from both Section 3002(b) and 3006. Low-use targeted forklifts are exempt from the phase-out provisions in Section 3006. Please see the Grouped Agency Response to B.7.i) Phase-out – Exemption for Low-Use LSI Forklifts.

Section 3006(b)(1) states "Except as provided in Section 3007". Section 3007(a)(1) describes the Low-Use LSI Forklift Exemption and 3007(1)(1)(A) states the operational sunset date of LSI Forklifts as Low-Use LSI Forklifts as December 31, 2030. The associated rationale provided in the ISOR Appendix E Purpose and Rational for Each Provision states "Until January 1, 2031, the Regulation would allow fleet operators to continue operating phased-out LSI forklifts so long as the forklifts are operated less than 200 hours per year and the fleet operator complies with all applicable exemption conditions."

## b) Low-use LSI Forklift Exemption – Emissions Benefits

<u>Comment:</u> CCEEB is unclear what emissions benefits would result from sunsetting the low-use exemption on December 31, 2030. Occasional utilization of LSI Forklifts is and will be necessary for Fleet Operators to protect employees from utilizing riskier, more labor-intensive manual approaches to move heavy items. Low-use provisions will be necessary past 2030 for these Fleet Operators, and renting is not always an option when moving an item without advance notice as part of normal business operations. We ask staff to please clarify what emissions benefits would result from sunsetting the low-use exemption.

## Commenter: [010-15d]

<u>Agency Response:</u> No changes were made in response to this comment. Please see the Agency Response to B.1.c) Low-use LSI Forklift Exemption – Sunset Date Emissions Benefits.

# c) ZEF Delivery Delay Extension – Qualification Requirements

<u>Comment:</u> Recognizing today's economy, the extended timelines that will be necessary to secure forklifts can be significant with much uncertainty. We urge you to reconsider the requirements to qualify for the delay extension. Requiring a purchase order to be drawn at least 2 years in advance is unreasonable. Today, businesses face a 12-month waiting period for the delivery of new equipment after placing an order. When placing an order, there is no assurance of a fixed price, and the cost may experience significant increases by the time the forklift is delivered. Most dealers will not provide a cost over 90 days ahead of delivery. It is extremely difficult to run a successful business when you don't know your cost of operation. In order to apply for the delay extension, a purchase or lease agreement is required. We strongly

suggest CARB reevaluate and eliminate this requirement for a formal contract. This leaves businesses in a risky position, with uncertainty regarding both delivery timelines and equipment costs. We propose replacing the contract requirement with a letter of intent, providing a more flexible approach, given the current market.

The conversion to electric forklifts involves various considerations beyond the purchase of the equipment itself. Ensuring the necessary infrastructure and support for charging is equally imperative. Purchasing or phasing out forklifts according to proposed schedules becomes useless if the infrastructure for charging is lacking or not there. Past examples have demonstrated that simply connecting to utility services can take several years. This can mean newly purchased equipment that a company is legally contracted to purchase can sit idle for an extended period of time. No business can sustain the capital cost expenditure and afford to have equipment sitting idle for years. Therefore the 2-year advance purchase order can cause undue financial burden in these very likely situations and should be a reasonable timeframe of no more than 90 days prior.

## Commenter: [011-15d]

<u>Agency Response</u>: No changes were made in response to this comment. Requiring purchase or lease documentation two years prior to the compliance date is needed to ensure there is documentation from the manufacturer, dealer, or shipper substantiating a fleet operator's application's stated need for the extension. This documentation requirement prevents potentially granting a ZEF Delivery Delay Extension to a fleet that failed to contract with a reasonable product delivery expectation.

Addressing the commenter's concern regarding price instability, the regulation does not state that the unit price must be included in the purchase or lease agreement (3007(b)(2)(A)2.c).

Finally, potential infrastructure delay extensions and LSI replacements are available independent of the Forklift Delivery Delay Extension which addresses the commenter's concern regarding the suggestion that the delivery delay eligibility requirement of contracting two years in advance of the applicable compliance date would risk unsupported equipment.

## d) Infrastructure Delay Extension – Construction Sites

<u>Comment:</u> [T]he Infrastructure Delay Extension described in 3007(b)(3) does not appear appropriate for construction sites where no permanent power is available. This extension appears to focus on the delay of construction and electrification of permanent infrastructure. It does not appear to contemplate active construction sites where no power or only temporary power is available. Further, if the construction industry were to rely on this extension as a means for approval of LSI forklifts on construction sites, it would face the same overly burdensome requirements described above in relation to the Operation Extension request.

## Commenter: [001-15d]

<u>Agency Response:</u> No changes were made in response to this comment. Section 3007(b)(3)(A)(1) lists the recognized eligibility criteria and does not include language limiting application to only permanent infrastructure. It is not clear that zero-emission technology solutions such as, but not limited to, mobile charging equipment or fuel cell equipment options were considered by the commenter. Additionally, a condition of the Infrastructure Construction Delay Extension is the maximization of ZEF deployments by relocating forklifts as appropriate consistent with utility service availability. The regulation supports multiple options and considerations for construction associated zero-emission solutions.

## e) Infrastructure Construction Delay Extension – Quasi-governmental Entities

<u>Comment:</u> Specifically, while Proposed Regulatory Modification 97 on page 19 of the Notice of Public Availability of Modified Text and Availability of Additional Documents and Information amends Section 3007(b)(3)(A)1.a. to include four scenarios that qualify for an Infrastructure Construction Delay Extension, regrettably none of these are applicable to the forklift use case of the business events industry, which includes exhibitions, conferences, trade shows, and other time-limited business events.

As previously shared with CARB staff, all large California convention centers are quasi-governmental entities or political subdivisions of state or local government. Business event organizers and exhibitors operate as short-term lessees and sub-lessees of space in these publicly owned facilities, usually only for a few days. As such, the general service contractors, exhibitor appointed contractors, experiential designers and producers, and other industry service providers they hire are contractually bound by the terms of the lease and operational restrictions and limitations as set forth by these governmental entities.

While Section 3007(b)(3)(A)1.a. identifies "a construction delay beyond the Fleet Operator's control" to include "delays due to landlord-tenant issues regarding the installation of charging or fueling infrastructure," ECA does not believe this language is specific enough for our industry's operations. If a publicly owned convention center does not have the CARB-required ZEF-related charging, fueling, or short-term storage infrastructure and/or the operation of ZEFs is contractually restricted or not practicable due to the facility's ZEF infrastructure limitations, business events industry Fleet Operators cannot comply with the proposed CARB ZEF Regulation within that facility, whether the Fleet Operators' forklift fleets are owned or rented.

Within this context, ECA proposes further amending Section 3007(b)(3)(A)1.a. with a fifth scenario that recognizes this important concern. Specifically, ECA respectfully suggests the amended language below (with new text [bolded]).

a. A construction delay is anticipated as a result of any of the following circumstances beyond the Fleet Operator's control: change of a general contractor; delay in manufacture and shipment of zero-emission charging or fueling infrastructure equipment; delay in the delivery of necessary building materials; delays obtaining power from a utility; delays in construction of ZEF-related storage or shelter; delays due to unexpected safety issues on the project; delays obtaining permits; delays due to landlord-tenant issues regarding the installation of charging or fueling infrastructure; **contractual or operational limitations set forth by quasigovernmental entities or political subdivisions of state or local government**; discovery of archeological, historical, or tribal cultural resources described in the California Environmental Quality Act, Public Resources Code Division 13, Section 21000 et. seq.; or natural disasters.

With California state and local governments facing unprecedented budget shortfalls, which are likely to persist in the coming years, ECA believes that this language will increase the workability of the proposed ZEF Regulation by ensuring that exhibitions, conferences, and trade shows will continue to be welcome at convention centers in the Golden State regardless of the near-term infrastructure investment decisions and fiscal tradeoffs made by local policymakers...

ECA's suggested further amendment to Section 3007(b)(3)(A)1.a. of CARB's proposed ZEF Regulation will allow the business events industry, which employs 335,567 Californians and will generate \$50.872 billion in direct spending statewide this year, to continue driving

economic growth, supporting job creation, and empowering small businesses in California while continuing along our path to net zero emissions.

## Commenter: [007-15d]

<u>Agency Response</u>: No changes were made in response to this comment. Staff disagrees with the commenter that additional modifications are necessary to support the business events industry.

California LSI forklift fleets subject to the phase-out requirements of the regulation, convention centers included when applicable, are required to initiate discussions regarding potential electrical-service installation or upgrades for each separately metered building or operating location with LSI Forklifts subject to the phase-out requirements in accordance with 3006(c). This early engagement would reduce the risk that potential infrastructure site electrification issues delay the phase-out of LSI forklifts because it would give time to the electric utility provider to plan and fulfill site electrification requests.

Staff has engaged with the commenter providing clarification regarding the potential eligibility and applicability of the previous change listed as number 97 in the 15-day Notice, bullet point number four "...when a Fleet Operator is a tenant and is experiencing issues with obtaining landlord approval for the installation of the infrastructure upgrades necessary to charge or fuel ZEFs. This is necessary to allow Fleet Operators additional time to identify a solution to comply with the Regulation in these situations (e.g., come to an agreement with the landlord, relocate operations, etc.)."

For instances where contractual or operational limitations set forth by "quasi-governmental entities or political subdivisions of state or local government," regarding the operation of ZEF exists, the fleet may consider other potential exemptions, extensions, alternative processes, or alternative equipment solutions. CARB is not party to facility specific contractual limitations of other organizations.

The suggested addition of the language, "contractual or operational limitations set forth by quasi-governmental entities or political subdivisions of state or local government" to section 3007(b)(3)(A)1.a. is not necessary since the Infrastructure Construction Delay Extension provides eligibility potential for the business events industries' concern regarding California Convention Centers.

# f) Infrastructure Construction Delay Extension – Uniform Requirements Across Regulations

<u>Comment:</u> TRC acknowledges CARB staff have made several improvements to the infrastructure delay extensions language when compared to previous versions of this and other zero-emission regulations. However, consideration should be given to the non-LSI forklift Zero-Emission regulations and the compliance dates associated with them when qualifying LSI fleets for an Infrastructure Construction Delay Extension. Specifically, the Advanced Clean Fleets and Zero-Emission TRU Regulations both require extensive investment in charging infrastructure and considerable utility engagement to meet the requirements for each. Reprieve from the infrastructure requirement for one regulation should be automatically granted to fleets with locations subject to infrastructure requirements under multiple transportation asset categories, given that utility delays will apply uniformly to each property regardless of end-use technology. The requirements for an infrastructure delay should be uniform across these regulations as many of the constraints transcend their individual regulations.

## Commenter: [012-15d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff recognizes the reasonable request for fleets subject to multiple CARB regulations to have the infrastructure exemption process be streamlined and as common from one regulation to another as possible. CARB infrastructure specialists are committed to working with the various zero-emission regulatory teams like ZEF and Advanced Clean Fleets to streamline the infrastructure exemption processes across regulations. In addition, no part of the regulation prevents or discourages a fleet from utilizing existing documentation including from utilities, that may be associated with or required by a separate regulation for submission to satisfy in full or in part, the Zero-Emission Forklift Regulation presuming the fleet verifies the duplicated data includes, addresses, and conforms with all associated

Zero-Emission Forklift Regulation conditions for which the fleet is submitting or reporting.

# g) Infrastructure Construction Delay Extension – Architectural or Engineering Plans

<u>Comment:</u> In Section 3007(b)(3)(A)(1)(b), it states "For Fleets experiencing delays due to landlord-tenant issues regarding the installation of charging or fueling infrastructure, in lieu of a construction permit or construction permit application, the Fleet Operator demonstrates that necessary architectural and engineering plans were completed at least 18 months prior to the upcoming compliance date." Instead of requiring architectural and engineering plans 18 months in advance to qualify for this extension, TRC recommends fleets show they submitted a formal request to the landlord to install the charging or fueling infrastructure to qualify for this extension. Asking fleets to incur the significant cost of having architectural or engineering plans drafted for a project that may not be approved by the site's landlord is not a reasonable requirement.

## <u>Commenter:</u> [012-15d]

<u>Agency Response:</u> No changes were made in response to this comment. Via 15-day changes, the Regulation was previously changed to accommodate a fourth scenario specific to Infrastructure Construction Delay Extension options, when a Fleet Operator is a tenant and is experiencing issues with obtaining landlord approval for the installation of the infrastructure upgrades necessary to charge or fuel ZEFs. This change was necessary to allow Fleet Operators additional time to identify a solution to comply with the Regulation in these situations (e.g., come to an agreement with the landlord, relocate operations, etc.). The architectural or engineering documentation eligibility flexibility is included to provide an alternative option to the fleet, avoiding the additional efforts and costs that would be associated with submitting a construction permit application. Additionally reducing the submittal condition to submitting "a formal request to the landlord" would result in a less substantial and meaningful demonstration of commitment to construction efforts for consideration for and potential awarding of an Infrastructure Construction Delay Extension. Finally, the architectural or engineering plans are necessary for there to be certainty that the landlord and tenant have a common understanding of the infrastructure upgrades necessary to charge or fuel ZEFs.

## h) Infrastructure Site Electrification Delay Extension – Fleet Eligibility Criteria

<u>Comment:</u> This is a point of clarification relative to Section 3007(b)3B1(c&d) - Page 47 - Fleet Eligibility Criteria for an Infrastructure Site Electrification Delay.

Republic Services has nearly 50 operating locations in CA with at least one affected forklift. Most of the facilities don't have a large number of forklifts (generally 1 per site) with the exception being our recycling plants which may have 3-4 forklifts at each location (there are 3 such facilities statewide). These locations are served by a wide range of public and municipal utilities.

Subdivision c of this section notes that in order for the extension request to be considered the "Fleet Operator has deployed the maximum number of ZEFs that can be supported by the electric utility provider". Due to the limited number of ZEF at each location, the number deployed will most likely be zero since the issue will be access to power or Construction Delays as noted below. There will be limited ability to move units between locations as is required in subdivision d of this section. This will be challenging due to the limited number of units at each site to start with (ie. one at most locations that is needed for continuation of operations at that location).

This is more of an FYI and that this type of situation may arise with several companies like ours that operate numerous locations throughout the state that have only 1 forklift. As such, our ability to power and deploy any forklifts at the site if there is an Infrastructure Site Electrification Delay or relocate units from another location and remain in compliance as we Phase Out certain MYs will be extremely limited. This may also be the case for Infrastructure Construction Delay Extension requests (outlined on Page 44) as the criteria for receiving the extension are similar to the Electrification Delay criteria.

The reporting platform to be developed by CARB should allow us to map this out for CARB staff as it will be a complete listing of all of our units that operate in the state. We note this here as there is at times a tendency to view large corporations as having the resources to cover their needs statewide and just simply transfer spare equipment between locations. However, the Phase-Out Criteria along with the manufacturer, dealer and rental restrictions contained within the regulation could make it difficult to gain access to qualified forklifts as there will be a higher demand on compliant units throughout the state for all sectors. As noted, there will not be a surplus of spare units that are compliant within our company pool due to the limited number at each location that are needed to continue operations at each site.

Just noting this so that if and when a situation such as the one described herein does arise, all of the factors noted are taken into consideration when reviewing the extension request. The interaction with several utilities will also complicate matters in this regard and since our Fleet will be viewed as an aggregate of our statewide position (due to the provisions in the Common Ownership or Control definition) the extension request will most likely involve information from multiple locations and multiple utilities.

#### Commenter: [002-15d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff appreciate the comments and suggestions regarding the future reporting system for the Regulation. CARB staff would like to provide additional clarity regarding sections 3007(b)(3)(B)(1)c and d, Infrastructure Site electrification Delay extension. Fleets need to deploy "the maximum number of ZEFs that can be supported" by the utility service available at the site while maximizing compliance by relocating forklifts for compliance. As applicable to the commenter's example of multiple facilities with a single or otherwise small number of forklifts, the fleet operator would evaluate each of the fleet locations for utility infrastructure service sufficiency for accommodating equivalent zero emission forklifts, equipment, or process changes. If the fleet is eligible for and is granted an Infrastructure Site Electrification Delay Extension the applicable LSI forklift(s) would have conditional operating potential of up to 10 years depending upon continued eligibility, compliance, and renewals. The fleet's locations that have utility service adequate to support the phase-out of LSI forklifts would be required to deploy zero emission replacements each calendar year in accordance with compliance requirements. Locations with a single ZEF would not be expected to move the ZEF to multiple sites. The intent of an Infrastructure Delay Extension is to recognize the hardship faced by a fleet that is trying to replace LSI forklifts but faces delays due to conditions outside of their control, utility service upgrade or eligible construction delays. The fleet would replace the LSI forklift with a zero-emission alternative as utility or construction allows and in accordance with the granted extension.

## i) Infrastructure Site Electrification Delay Extension – Load Profile Requirements

Comment: The proposed Infrastructure Site Electrification Delay Extension includes one requirement that is of concern to SCE. Specifically, the draft ZEF regulation required the customer or fleet to provide "billing statements" from the electrical utility provider covering the previous 12-month period."1 The Proposed 15-Day Changes version modifies this requirement to mandate that the customer (fleet) provide "load profiles depicting the location's typical electricity usage on an hourly basis from the electrical utility provider covering the previous 12month period." This requirement is unique to the proposed ZE Forklift Regulation. SCE wants to clarify that it will not be able to provide historical billing statements or load information that is relevant to a planned new account for EV charging equipment. Specifically, pursuant to Assembly Bill (AB) 841, the IOUs' EV Charging Infrastructure Rule (SCE's Rule 29) requires the installation of a separate meter for EV charging infrastructure. As such, no historical billing statements or usage information would be available for the new meter/account. If applicable, SCE could provide the customer with billing statements or usage information for other meter(s)/account(s) in their name at the location. However, this would likely reflect other use cases (e.g., lighting, office buildings, etc.), and it is unclear to SCE how unrelated billing and usage information would allow CARB to better understand the need for an Infrastructure Site Electrification Delay.

SCE respectfully requests that CARB eliminate the requirement for the customer to provide either historical billing or usage data in support of the Infrastructure Site Electrification Delay Extension. Removing this requirement will also increase consistency with the Advanced Clean Fleets regulation.

## Commenter: [004-15d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB appreciates the comment and feedback. Assembly Bill 841 from September 2020 and the associated SCE Rule 29 are understood to connect the EV service rates to a separate meter dedicated to EV charging. The dedicated EV charging meter separated from any other onsite use would not have a prior 12 month use record to report and any other associated business onsite meters' prior 12 months of load use would not influence or impact the dedicated EV separate meter. The prior 12 months load profile for the existing operation may, however, be critical to the fleet as it evaluates service rate options, infrastructure costs, and infrastructure upgrade needs that lead to the Infrastructure Site Electrification Delay Extension application. Additionally, the prior 12-month load profile will be used by Fleet Operators and electric utilities to assist in determining the best time to charge ZEFs at the facility, and the number of ZEFs that could be charged using the existing facility infrastructure.

# j) Infrastructure Site Electrification Delay – Agricultural Operations

<u>Comment:</u> The current statewide electrical infrastructure shortfall we are facing poses a challenge to the state's transition to ZEV forklifts. We must consider and recognize the simultaneous regulations pushing for the widespread adoption and conversion of electric trucks, commercial vehicles, appliances, etc. will only further exacerbate the electrical infrastructure shortfall. The proposed electrical infrastructure delay provides some recognition of these challenges however falls short to understand the significant actual time it currently takes for utility providers to connect or meet the companies demands. While the proposed delay acknowledges these challenges to some extent, it falls short of grasping the true magnitude of the time currently required for utility providers to fulfill or accommodate the demands and needs of agricultural operations, many of which are locating in rural areas. Facilities in rural areas often find themselves at the bottom of the priority list for upgrades or modifications to infrastructure such as substations or simple upgrades or interconnections. Whether dealing with new business developments or existing ones, the statewide infrastructure currently lacks the support needed for the state's electrification initiatives.

During our meetings with utility providers, we discovered the completion and operation of a new substation can take up to 13 years. The CEC is in the process of conducting a study to identify the infrastructure needs, it will identify how much infrastructure will be needed, where it will be needed and when it will be needed. Unfortunately, our facilities, mostly located in rural areas are slated to be last on the priority list for upgrades. Utility providers are currently directing their efforts and resources toward addressing other concerns such as wildfire mitigation, with extensive projects like undergrounding thousands of miles of transmission lines which will take precedence over projects like ours. In recognizing these challenges, we recommend a reconsideration of the proposal, advocating for an extended initial exemption from three years to a minimum of eight years minimum timeline for agricultural operations.

The requirements and information required for requesting an extension is excessive and burdensome. In addition, preserving the confidentiality of business information should be of utmost priority. We firmly believe that furnishing documents such as a load profile from the electrical utility provider is unnecessary. This information on a company's overall usage is irrelevant and poses a potential threat to the privacy and security of the business. A more streamlined approach, such as an attestation from the utility provider stating their inability to provide the required service along with an estimated completion date, should be deemed sufficient for the extension request process.

## Commenter: [011-15d]

<u>Agency Response:</u> No changes were made in response to this comment. The commenter requests moving the first phase-out compliance date from three years out to eight. The current structure of the regulation incorporates the three years after January 1, 2026, and has up to 10 more years of potential Infrastructure Site Electrification Delay Extensions (accounting for renewals). Changing the first agricultural phase-out compliance schedule date to 2033 while maintaining the potential for the 10 years of Infrastructure Site Electrification Delay Extension would amount to a potential 18 years, or 19 years from now, before some agricultural LSI forklifts would be phased out. This would have the potential to significantly impact the rate of emission reductions and create a potential loophole for the agricultural industry to avoid participating in this emission reduction effort.

Regarding confidentiality, CARB staff have already addressed this comment. Please see the Agency Response to B.9.) Extension Requests – Confidentiality. Staff disagrees that the

Infrastructure Site Electrification Delay Extension application is either excessive or burdensome. The requested information is detailed in order to provide for an unambiguous review and for effective implementation and enforcement. Additionally, an attestation, as suggested by the commenter, would not be adequate because the documentation requested for the extension request submittal is necessary to allow the Executive Officer to evaluate baseline energy use at the facility relative to total capacity, which would help determine if additional ZEF could be deployed without additional electrical capacity.

## k) Operational Extension – Denials

Comment: 2. Denials of Operational Extensions.

MLA Request to CARB in 15 Day Comment Period: Specify how extension deadlines could be extended for a fleet operator who is denied an operational extension.

a. Relevant Modifications:

i. Modification 112: states that fleet operators who are denied an operational extension may apply for a ZEF delivery delay extension, infrastructure delay extension, and infrastructure site electrification delay extension. "Text is being added that lists specific sections of the aforementioned extensions with deadlines that might otherwise limit the Fleet Operator's eligibility to apply for the extensions. Notwithstanding these sections, the Fleet Operator is eligible to apply for the extensions, provided that applications are submitted within 135 calendar days of the expiration of, or denial of a request for an Operational Extension."

b. How will the deadlines be altered? For example, the delivery delay extension requires that the fleet operator submit an order for a ZEF two years in advance of the deadline. That is impossible in the above scenario.

c. Need detailed "how to" guide

## Commenter: [005-15d]

<u>Agency Response:</u> No changes were made in response to this comment. A fleet operator that is denied an operational extension may still consider eligibility for other provisions within the Regulation that may extend phase-out deadlines. A fleet may wish to evaluate eligibility and applicability of low-use, dedicated emergency use, or in-field forklift categorizations, phase-out cap percentages (3006), and extensions (3007) including ZEF Delivery Delay or Infrastructure Delay Extensions.

As stated in the Regulation, "Notwithstanding the deadlines in Section 3007(b)(2)(A)2.a. and Section 3007(b)(2)(A)2.c. for ZEF Delivery Delay Extensions, in Sections 3007(b)(3)(A)1.b and 3007(b)(3)(A)4.e. for Infrastructure Construction Delay Extensions, and in Section 3007(b)(3)(B)1.a. for Infrastructure Site Electrification Delay Extensions, a Fleet Operator whose Operational Extension expires or is denied may apply for a ZEF Delivery Delay Extension, an Infrastructure Construction Delay Extension, and/or an Infrastructure Site Electrification Delay Extension as long as the application is submitted within 135 calendar days of the expiration of, or denial of a request for, an Operational Extension." The detailed How to Guide requested by the commenter would be the eligibility and application conditions listed in the relevant regulatory sections for each option considered. However, CARB staff appreciates the suggestion and may develop compliance assistance documents during implementation, once a final regulation is approved by the Office of Administrative Law.

# I) Operational Extension – Construction Sites

<u>Comment:</u> Although the Operation Extension described in 3007(b)(4) could be used to request exceptions for construction sites, the application process would be overly burdensome. Due to the requirements for a request, as set forth in 3007(b)(4)(D), a contractor could not apply for an extension for its entire fleet, but rather would be required to constantly submit new requests for every job site. This would place an unnecessary burden on both the applicant and the Executive Officer.

## Commenter: [001-15d]

<u>Agency Response:</u> No changes were made in response to this comment. The commenter claims in error that the regulation does not allow a contractor to apply "for an extension for its entire fleet". The regulation in section 3007(b)(4)(D) allows a fleet to apply a single Operational Extension request for an entire fleet consisting of the same equipment type, in this case, forklifts. The contractor would not "be required to constantly submit new requests for every job site" but could instead submit a single request for the fleet of LSI forklifts, which could be renewed annually. CARB staff appreciates the opportunity to provide this clarification.

# 5. Public Regulatory Process, Funding, and Outreach Concerns

# a) Process Concern – Uncertainty

Comment: CARB has been working to develop the Regulation for more than four years and has shared various iterations of draft language with the public. However, as the pending 15-day notice demonstrates, CARB is still accepting public comments on substantive changes to the Regulation within a few weeks of the anticipated Board adoption hearing, scheduled for June 27, 2024. Until the Regulation is adopted and approved by the Office of Administrative Law, there will be continuing uncertainty regarding the applicability of certain requirements, which will impede investments in replacement forklifts and support infrastructure. As a practical matter, fleet operators cannot base procurement decisions on unfinished regulations. The rulemaking record also documents many uncertainties regarding the availability of ZEFs for specific applications, access to the materials and skilled labor necessary to install new or additional charging infrastructure, and the ability of load-serving entities to provide enough additional electricity to support fleet conversions. While we appreciate that CARB has created mechanisms for compliance extensions to address these issues, assuming an effective date of October 1, 2024, and an initial compliance deadline of January 1, 2026, CARB is likely to be inundated with requests for compliance extensions because regulated entities will be unable to secure funding for new equipment purchases and implement the physical changes necessary to comply with the Regulation within this 15-month timeframe.

## Commenter: [006-15d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB has developed this Regulation consistent with Government Code sections 11346, subdivision (b), and 11346.45, subdivision (a), and kept with the long-standing practice at the Board of holding public workshops, workgroups, and other meetings with stakeholders during the development of the Regulation. To ensure an open and transparent rulemaking process, staff have engaged in an extensive public process throughout the development of the Regulation as acknowledged by the commenter. It is not unusual for 15-day comment periods to occur and in fact, in many instances, these occur even later in the process, often after the Board has approved a regulation for adoption.

CARB staff believes fleets have adequate lead time to plan for compliance and disagrees that CARB is likely to be inundated with requests for compliance extensions because regulated entities will be unable to secure funding for new equipment purchases and implement the physical changes necessary to comply with the Regulation. The first compliance date is January 1, 2026; the first phase-out compliance date is January 1, 2028, and is limited to 2018 and prior MY class IV forklifts with less than 12,000-pound lift capacities in large fleets. Fleet engagement with their applicable utility regarding future potential service needs is required by March 31, 2026, twenty-one months prior to the first phase-out compliance date.

Not only does the Regulation anticipate LSI forklifts with MYs newer than 2018 to be in use after January 1, 2028, the Alternative MY Phase-Out Schedules for Class IV LSI Forklifts (3006(d)(2)) has a first compliance phase-out date of January 1, 2029, the phase-out schedules are designed to phase out LSI forklifts over time (extending to 2035 or 2038 depending on applicability), and the Regulation includes exemptions and exceptions (section 3007).

## b) Outreach Concern – Workshops

Comment: Increased Reliance on the Grid

As of 2019, prior to initiating rulemaking on ACF and the Proposed ZEF Regulation, California was the largest state importer of electricity in the US, positioning the state in an already untenable position with regard to electricity generation. Demand will only continue to increase following implementation of the rulemakings mentioned above. The 2022 Scoping Plan Update highlights the extensive challenges that lie ahead in the State's effort to simultaneously decarbonize and expand the electrical grid to support an electrified future. CCEEB believes a workshop needs to be held in order to convene electrical utilities, fleets, and other stakeholders in order to discuss both grid readiness and regulatory requirements, in order for successful implementation to be achieved.

Coordination between Fleets, Electric Utilities, and CARB

CARB's zero-tailpipe-emission regulatory programs, while sharing similar goals, are distinct in nature with differing requirements. However, these regulatory programs are often comingled with one another, leaving regulated entities unsure how to comply. In that regard, CCEEB respectfully reiterates our request from our December 2023 letter that CARB staff hold a hybrid workshop in 2024 to assist electric utilities, and fleets operating vehicles and equipment subject to multiple zero-tailpipe-emission regulations understand:

• the applicability of each zero-tailpipe-emission regulation and the timelines for compliance with each;

• how CARB plans to implement provisions related to infrastructure requirements in each rule for those entities subject to multiple regulations; and

• anticipated policy efforts that could overlap with existing requirements.

Such a workshop would be an opportunity to convene stakeholders to encourage dialogue and collaboration in the work electric utilities and fleets will need to do to facilitate California meeting its ambitious goals. Given the immediate need to resolve these issues to meet compliance deadlines for deployment of numerous zero emission regulations at CARB, we appreciate CARB's timely attention to this issue

Commenter: [010-15d]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff welcomes CCEEB's suggestions regarding streamlining processes for fleets subject to multiple CARB regulations. CARB staff looks forward to working with CCEEB and other stakeholders during implementation of the Regulation. Please see the Grouped Agency Response to B.16.c) Outreach Concern – Workshops.

# 6. Miscellaneous Issues

# a) Supports 15-Day Changes

<u>Comment Summary:</u> Commenters support specific 15-Day Changes.

Commenter: [008-15d, 010-15d, 011-15d]

<u>Grouped Agency Response</u>: No changes were made in response to these comments. CARB staff appreciates the supportive comments.

## b) Supports Other Commenter – 013-15d

<u>Comment:</u> AED strongly associates with the detailed comments submitted by the California Caterpillar dealers and the California agricultural organizations. The significant concerns raised in both these letters are based on substantial industry experience and expertise and reflect the consternation of dealers and customers. Consequently, they should be fully considered by CARB.

## Commenter: [013-15d]

<u>Agency Response</u>: The comments supported by the commenter are already summarized and responded to in other parts of this FSOR and do not require a different response here. Please see the Agency Responses to comment codes 003-15d and 011-15d.

## c) Supports Other Commenter – 014-15d

<u>Comment:</u> We would draw your attention to the comment letter submitted by McClone Construction citing the complexities of using electric forklifts during the construction of a multistory building which by design only has temporary power.

We concur that construction should be included in the in-field exemption provided to forestry and agriculture...

...We also support the recommendations submitted by the Caterpillar Dealers of California. CAT is the primary supplier of equipment for our industry both rental and for purchase and we work closely in partnership with them on issues that affect our industry. They have made five very specific recommendations for changes to the regulation.

1. That you modify the definition of RENT to remove any time limit.

2. That a sell through provision be required for sales of any 2021-2025 MY new class IV and Class V LSI forklifts after 1/1/26.

3. That a provision is included that allows for the sale of a forklift ordered in 2024 or 2025 specifically for an end user that ends up being delayed by the manufacture until after 1/1/2026. That forklift should sell be allowed to be sold and purchased by the end user after 1/1/2026 even though the forklift and/or engine could be MY 2026.

4. That the phase-out cap be set at 25% per year of the applicable MY to be phased out and the remainder of the fleet not turned over by the phase out MY to be carried into the next year.

5. That Section 3009(k) be simplified for large fleet reporting to participate in the phase-out cap.

# Commenter: [014-25d]

<u>Agency Response</u>: The comments supported by the commenter are already summarized and responded to in other parts of this FSOR and do not require a different response here. Please see the Agency Responses to comment code 001-15d and 003-15d.

# 7. Out of Scope Comments Not Directly Addressing the 15-Day Changes

# a) Out of Scope – General

<u>Comment Summary</u>: The commenters make assertions and requests that are not directly related to the ZEF Regulation 15-Day Changes.

Commenter: [006-15d, 009-15d, 010-15d, 011-15d, 012-15d, 015-15d, 016-15d]

<u>Grouped Agency Response</u>: No changes were made in response to these comments. The commenters make assertions and requests that are not directly related to the ZEF Regulation 15-Day Changes or the process by which it was adopted and therefore CARB is not required to respond. Thank you for your comment.

# b) Out of Scope – Infrastructure Costs

<u>Comment:</u> Charging stations costs will exceed \$6.3 billion to implement. Costs do not factor in the cost of building power supply upgrades, or infrastructure upgrades for the generation, transmission and delivery of electricity.

<u>Comment:</u> 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.

## Commenter: [016-15d]

<u>Agency Response</u>: No changes were made in response to these comments. The commenter makes assertions that are not directly related to the ZEF Regulation 15-Day Changes or the process by which it was adopted and therefore CARB is not required to respond. Nevertheless, it is responded to here.

About half the forklift population is already zero-emission (ZE), demonstrating the readiness for this sector to continue advancing in the ZE direction. Please see Appendix D: 2023 Large Spark Ignition Forklift Emission Inventory for further information on the electric forklift population.

CARB staff acknowledges the Regulation will require some infrastructure upgrades, and CARB staff included infrastructure costs (installing charging stations and upgrading power supply) in the cost and economic analysis for the Regulation. However, the commenter's estimated \$6.3 billion in charging station costs is inflated by about a factor of five.

# c) Out of Scope – Replacement Technology is Cost Prohibitive

<u>Comment:</u> In total, \$10 billion will be spent on ICE forklift replacements. Duplicative fleets or significant downtime in operations will be needed as battery electric forklifts require time to charge and cool and cannot run for 24-hour business operations like ICE forklifts. Battery replacement costs and maintenance costs amount to over \$2.8 billion between 2026 and 2038.

## Commenter: [016-15d]

<u>Agency Response</u>: No changes were made in response to these comments. The commenter makes assertions that are not directly related to the ZEF Regulation 15-Day Changes or the process by which it was adopted and therefore CARB is not required to respond. Nevertheless, it is responded to here.

CARB staff believes this cost assessment of replacing LSI forklifts with ZEFs is overstated. Staff believe that the commenter assumed 1.2 ZEFs are needed for each LSI forklift phased out, with multi-shift LSI forklifts replaced primarily by lead-acid ZEFs. ZEFs running multiple shifts would use lithium-ion or fuel cell technology and be replaced 1:1. Although these ZEFs have higher upfront costs, the higher operating hours from multiple shifts shorten the payback period. Additionally, staff believe that the methodology behind this cost estimate ignores the normal forklift turnover, inaccurately including the full replacement cost of all current forklifts instead of the incremental cost difference between the Regulation and business-as-usual.

Although CARB staff recognizes that initial purchase cost for ZEFs is more expensive than for traditional propane forklifts, ZEFs result in fuel and maintenance cost savings over time, which lead to an estimate of overall savings for the Regulation.

Please see the ISOR, Section E., for further discussion of technology advancements and multiple-shift operations

## d) Out of Scope – Flawed and Inaccurate Analysis

<u>Comment:</u> 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 California) will be impacted

## Commenter: [016-15d]

<u>Agency Response</u>: No changes were made in response to these comments. The commenter makes assertions that are not directly related to the ZEF Regulation 15-Day Changes or the process by which it was adopted and therefore CARB is not required to respond. Nevertheless, it is responded to here.

CARB staff disagrees that the number of impacted forklifts is "vastly underestimated". The analysis to estimate the impacted forklift population was conducted using approved methodologies per Government Code sections 11346.2(b)(2) and 11346.3(c), as required for major regulations. CARB's emission inventory used forklift-age data from DOORS and sales data from the ITA (a forklift manufacturer association) to determine statewide population. Staff believe that the commenter is relying on a deeply flawed methodology that ignores the natural turnover of forklifts and overestimates replacement forklifts needed. The commenter's population estimate is based on a California State University Fullerton study (CARB funded) that was not designed to accurately estimate forklift population as it surveyed businesses likely

to have forklifts and scaled that up too many types of businesses, including those that do not commonly use forklifts.

For further information, please see the Agency Response to B.4.a) Forklift Population – Estimated Impact.

# e) Out of Scope – Fairness

<u>Comment:</u> The proposed rule does not establish a fair and level playing field among fleet operators, forklift manufacturers, forklift dealers, and forklift rental agencies, which is one of CARB's stated objectives.

## Commenter: [016-15d]

<u>Agency Response:</u> No changes were made in response to these comments. The commenter makes assertions that are not directly related to the ZEF Regulation 15-Day Changes or the process by which it was adopted and therefore CARB is not required to respond. However, during rulemaking, CARB staff worked extensively with fleet operators, forklift manufacturers, dealers, rental agencies, industry groups, and impacted businesses to craft a rule that will be fair, effective, and enforceable. The Regulation has numerous provisions that provide flexibility and recognition of specific circumstances faced by different industries and groups (agriculture, metalworking, microbusinesses, etc.)

## f) Out of Scope – Scope of Regulation

Comment: The proposed regulation would eliminate ICE forklifts across California by 2043

<u>Comment:</u> CARB's ZEF rule would eliminate combustion forklifts across California by 2038. The rule, which is set to be voted upon on June 27, 2024, would mandate that all Class IV (cushion tire) and the majority of Class V (pneumatic tire) combustion forklifts be removed from existing fleets and replaced by battery-electric replacements.

<u>Comment:</u> We are writing to express our concerns with CARB's proposed regulation that would eliminate ICE forklifts by banning sales of all new forklifts that are not zero-emission by 2026

<u>Comment:</u> The cost of farming and ranching operations—specifically moving hay, grain and produce—may be about to get a lot more expensive in our state.

That will be the outcome if the CARB adopts its proposed rule to eliminate ICE forklifts across the state. The regulation, scheduled to be voted on June 27, would mandate that all Class IV cushion-tire combustion forklifts and the majority of Class V pneumatic-tire models be removed from existing fleets in favor of EVs, namely forklifts powered by rechargeable batteries...

...The rule would impact leased forklifts and force all owners and operators to purchase ZEFs by 2026—regardless of whether their current fleet of internal-combustion forklifts is still in good working condition.

## Commenter: [016-15d]

<u>Agency Response</u>: No changes were made in response to these comments. The commenter makes assertions that are not directly related to the ZEF Regulation 15-Day Changes or the process by which it was adopted and therefore CARB is not required to respond. However, CARB staff is alarmed by these inaccurate and exaggerated assertions.

The Regulation does not eliminate all ICE forklifts, rather it only targets LSI forklifts and excludes diesel forklifts. Diesel forklifts are already subject to the In-Use Off Road Diesel Fueled Fleets Regulation. In addition, regarding the claim that the Regulation would "force all owners and operators to purchase ZEFs by 2026," the rule's phase-out requirements do not begin until 2028 and the rule never forces owners to purchase ZEFs.

Furthermore, the Regulation employs a gradual phase-out extending through 2038. The schedule is designed so that no forklift is required to be turned over before 10 years of use, with additional time granted to crop preparation fleets.

Finally, the Regulation has numerous provisions that provide flexibility where appropriate through exemptions and extensions.

# g) Out of Scope – Exemptions for Small Fleets, Agricultural Use, or Feasibility

<u>Comment:</u> Yet under the proposed rule, there are no exemptions for small fleets of forklifts moving goods within the agricultural sector... Importantly, there are no exemptions for agricultural use or feasibility.

## Commenter: [016-15d]

<u>Agency Response:</u> No changes were made in response to this comment. This comment was not directed at the ZEF Regulation15-Day Changes and therefore CARB is not required to respond. Nevertheless, it is responded to here.

CARB staff have worked extensively with stakeholders in the agricultural sector during rule development through site visits and meetings. Staff has included in the regulation numerous provisions that were proposed and requested by agricultural stakeholders, including but not limited to an In-Field Exemption, a phase-out percentage cap, and alternative phase-out schedule for crop preparation services. While there is not a specific exemption for small fleets, small fleets are provided additional time for phase-out. Additionally, microbusinesses may continue to operate a single LSI Forklift under the

Low-Use LSI Forklift Exemption. As such, staff strongly disagree with the assertion that there are no exemptions for the agricultural sector.

## h) Out of Scope – State Government Costs

<u>Comment:</u> Of particular concern is that under CARB's regulation the state government will incur \$33 million in costs as state agencies currently own and operate 581 affected ICE forklifts. There will be additional impacts as forklifts owned, leased, and operated by the California State University and University of California systems are not included in WPGA's analysis. These costs come at a time of an enormous state deficit and when state agencies, universities, and small businesses can least afford them.

## Commenter: [016-15d]

<u>Agency Response:</u> No changes were made in response to this comment. This comment was not directed at the ZEF Regulation 15-Day Changes and therefore CARB is not required to respond. Nevertheless, it is responded to here. CARB staff disagrees that the state government will incur \$33 million in costs; staff estimates net direct savings of \$18.6 million through 2043 (upfront costs plus operational costs/benefits) for the State of California, as discussed in Chapter VIII, Section E.2 of the ISOR. Please see the Agency Response to B.2.0) Cost Analysis – State and Local Government Costs for further discussion.

# i) Out of Scope – Implementation Concern

<u>Comment:</u> In 2022, the total number of battery electric forklifts sold across North America (including the U.S., Canada and Mexico) in 2022 was approximately 225,000. If CARB's rule goes into effect, the majority of battery electric forklifts being sold in North America would – out of necessity – need to be sold within California just to keep pace with the implementation phase-in of the rule

# Commenter: [016-15d]

<u>Agency Response:</u> No changes were made in response to this comment. This comment was not directed at the ZEF Regulation 15-Day Changes and therefore CARB is not required to respond. Nevertheless, it is responded to here. It's ambiguous what the commenter is referring to in regard to a "majority," as this noun can refer to either a greater quantity or share, or a number more than half of the total. The commenter also does not indicate where most sales of battery electric forklifts reside within any one state, providence, or country across all of North America for staff to provide a more comprehensive response. Figure 9 in the ISOR clearly illustrates the projected new California forklift unit sales per MY for both LSI and ZEFs because of the Proposed Regulation, which ranges from as few as 2,656, to at most 31,323 units. Figure 10 in the ISOR illustrates the projected shift in LSI and ZEF forklift population due to the Regulation. The estimated baseline population of ZEFs in 2028 is approximately 79,000 units and is projected to increase to approximately 168,000 units in 2038, an increase of approximately 89,000 units phased-in over 12 years, because of the Regulation.

# j) Out of Scope – Alternatives to Phase-out

<u>Comment:</u> Beginning in 2020 the California Caterpillar dealers have worked with staff to help educate them on the limits and infeasibilities of replacing large spark-ignited (LSI) forklifts with electric. We appreciate the interaction with staff and what changes have been made to address some of our concerns listed in the December 2023 letter to your Board. Unfortunately, even with those modifications, the regulation is still unworkable, extremely disruptive and economically infeasible for businesses throughout the state, especially for large operations and rental fleets and dealers. For the record we are committed to emissions reduction. However, we and many other industry experts, identified that staff has not fully vetted more reasonable approaches and alternatives in lieu of a mandated

phase-out of propane forklifts. Alternatives could include incentivizing replacements with electric, phase-out only of pre-2010 forklifts that do not meet the current low large spark-ignited (LSI) forklift standards, setting lower standards for LSI engines, or use of renewable propane; any of which could transition the industry more feasibly and economically. Until these alternatives can be made a part of this regulation, we ask this Board to not approve this regulation and instruct staff to redraft the regulation to provide alternatives that can achieve the same or better results without a mandate to phase out propane forklifts.

# Commenter: [003-15d]

<u>Comment:</u> There is a cheaper, more feasible, and more effective way to meet the state's air quality goals. An alternative pathway to compliance will ensure the state is meeting its greenhouse gas reduction goals while at the same time ensuring that the goods movement sector in critical industries such as food bank distribution is protected from untenable costs:

1. Ensure California has an accurate understanding of how forklifts are utilized within the state and how the rulemaking would affect real-world operations.

2. Accelerate the adoption of stricter NOx standards for LSI engines over the same phase in period set in the rulemaking.

3. Accelerate the phase-out of older, less efficient, higher emitting pre-2011 MY forklifts to provide an immediate improvement in local air quality and reduce CI.

## Commenter: [016-15d]

<u>Grouped Agency Response:</u> No changes were made in response to these comments. The commenter makes assertions that are not directly related to the ZEF Regulation 15-Day Changes or the process by which it was adopted and therefore CARB is not required to respond. Nevertheless, it is responded to here.

As acknowledged by commenter [003-15d], CARB staff have worked with stakeholders during the development of this regulation and modified the regulation in response to stakeholder feedback to achieve a cost-effective and balanced regulation. In accordance with Government Code section 11346.2, subdivision (b)(4), CARB has considered reasonable alternatives to the Regulation and provided reasons for rejecting those alternatives. The two primary alternatives to the Regulation: Alternative 1, which would accelerate the phase-out of both Targeted Class IV Forklifts and Targeted Class V Forklifts; and Alternative 2, which would apply only to Targeted Class IV and Class V Forklifts with a lift capacity of 8,000 pounds or less were declined in favor of the Regulation.

Regarding the alternatives proposed by the commenters; current forklift incentive opportunities already exist in both the Carl Moyer and Clean Off-Road Equipment incentive programs and phasing out only pre-2010 forklifts that do not meet current LSI forklift standards or mandating the use of renewable diesel would achieve far less emission reductions as the ZEF Regulation and would not be consistent with the directives in EQ-79-20.

For more information, please see the Agency Response to B.7.a) Alternatives to Phase-out.

# k) Reiteration of 45-Day Comment – 006-15d

<u>Comment:</u> CMTA's membership is greatly concerned that the market availability for ZEF replacements will be insufficient to meet the demands of California's regulated community. The Regulation assumes a 1:1 replacement ratio of large-spark ignition (LSI) forklifts to an equivalent electric model. Through various internal evaluations, our membership has conveyed that an all-electric conversion will require additional capital investments. For example, limited space for ZEF charging stations has created a need to purchase additional ZEFs to offset the limited charging capacity. Further analyses have indicated that replacement batteries are incredibly heavy, and facilities would likely charge them in the forklifts rather than be removed to avoid workplace safety concerns. Given the required

8-16 hours of downtime and the inability to easily remove the batteries from the forklifts, companies are considering increasing their fleet size to maintain regular operations. Some facilities would need two charging stations for every three forklifts to take advantage of intermittent daily charging and satisfy the full-charge needs.

Commenter: [006-15d]

<u>Agency Response</u>: No changes were made in response to this comment. The commenter makes assertions that are not directly related to the ZEF Regulation 15-Day Changes or the process by which it was adopted and therefore CARB is not required to respond. However, this comment repeats a comment received during the 45-Day Comment Period and has already been responded to. Please see the Grouped Agency Response to B.2.e) Cost Analysis - Additional Costs and Replacement Ratio.

## I) Reiteration of 45-Day Comment – 011-15d

<u>Comment:</u> Equipment dealers should not be required to obtain and disclose detailed information regarding the sale or lease of an LSI forklift, as the confidentiality of such transactions and information should be of top priority. Requiring equipment dealers to access and possibly disclose specific data about the sale or lease of LSI forklifts could compromise the privacy of businesses and individuals involved in these transactions. We strongly suggest eliminating this requirement...

...As it stands, the proposed phase-out schedule poses a significant challenge for agricultural operations, requiring them to retire a substantial portion of their fleet disproportionately. Compounding this issue is the underdeveloped infrastructure in rural areas, where the majority of our members are situated. The electrical infrastructure in these regions is not yet equipped to meet the demands of charging these fleets, and unfortunately, our rural operations are at the bottom of the priority list for utility providers when it comes to upgrades or additional services. Meanwhile, electricity rates persist as some of the highest in the US, escalating each year. In the most recent general rate case presented to the Public Utilities Commission (PUC) by SCE, the utility provider proposed a substantial 45% increase in rates. This places us at a distinct economic disadvantage, hindering our competitiveness in the global market. This unique situation creates an inherent significant challenge for agricultural operations. Given these circumstances, it is crucial to extend the compliance timeline for agricultural operations by 5-6 years, allowing them to allocate this significant compliance expense over an expanded period of time.

Moreover, the forklift MY should correspond to the calendar year in which the forklift was manufactured, rather than the engine MY. Utilizing the engine MY would reduce the useful life of forklifts, especially those with an engine MY a year or more earlier than the year the forklift was manufactured...

... We vehemently object to the reporting requirement outlined in this regulation. The precedent set by the Large Sparked Ignited Rule (LSI) has enabled Agricultural Operations to convert their forklift fleets to compliant forklifts without the necessity of reporting. California businesses already contend with a plethora of regulations and reporting obligations from various state agencies. Introducing an additional reporting requirement that is unnecessary would only add to this burden and should therefore be eliminated

Moreover, maintaining the privacy of business information is of utmost importance. The safeguarding of personal data, addresses, contact information, fleet size, tax information, communication between utility provider, utility usage, financial records, and other sensitive information is integral to ensuring a company's safety, competitive advantage and long-term success. Confidentiality shields businesses from potential threats; these types of threats have occurred at agricultural operations in the past when critical and private information becomes accessible. We must always prioritize the confidentiality of business information and would suggest the removal of reporting and record keeping or at the most suggest an attestation from a company stating they have converted over the fleet within the

appropriate phase-out period. As agriculture has proven in the past with the previous LSI regulation, we can work towards the same goals while maintaining the privacy and safety of the agricultural businesses in California.

# Commenter: [011-15d]

<u>Agency Response:</u> No changes were made in response to this comment. The commenter makes assertions that are not directly related to the ZEF Regulation 15-Day Changes or the process by which it was adopted and therefore CARB is not required to respond. However, the concerns raised in this comment have already been addressed. Please see the Grouped Agency Response to B.14.a) Private Transaction Information – Dealer, the Grouped Agency Response to B.6.c) Phase-out – Model Year, the Agency Response to B.14.l) Confidentiality – Attestation, and the Agency Responses to comment code 335-45d in general.

# D. June 27, 2024, Board Hearing Public Comments with Agency Responses

# 1. Emissions-related Issues

## a) Emissions Impact of ZEFs due to Increased Demand on Electrical Grid

<u>Comment:</u> With California importing 30% of its Electricity and with 48.7% coming from the burning of Fossil Fuels. How do Zero Emissions Forklifts impact emission output from adding an increase to the electric grid?

## Commenter: [001-WT]

<u>Agency Response:</u> No changes were made in response to this comment. Due to the requirements of the RPS, the percentage of renewable generation will continue to grow until renewable generation reaches 100% of the electricity generation for the State. A percentage of fossil generation has been replaced by renewable generation for more than 10 years. For example, in 2012 there were 34,007 gigawatt hours (GWh) of electricity generated by renewable resources and by 2022 there were 106,147 GWh of electricity generated by renewable resources in California.

Behind the meter solar, electrcity storage, and energy efficiency programs have helped to take some of the load off the grid. Additionally, electricity providers use demand reduction programs to reduce electricity demand. These types of resources and programs eliminate the need for building utility scale generation and reduce the electricity cost for rate payers. Behind the meter renewable resources and load reduction programs are not measured by the CEC and are not included in the total system electric generation data compiled by the CEC. If behind the meter generation was included in the data, the percentage of electricity generated by renewable resources would be higher. The unmeasured renewable resources are having an impact on utility scale electricity generation as indicated by the total system electric generation data over the past 10 years. In general, utility scale electrcity consumption in California has slightly decreased and the consumption decrease has occurred while the States population has grown and EVs have gained popularity.

Additionally, as stated in Appendix D of the ISOR, the increase in electricity demand due to the Regulation is estimated to be less than 0.4% of in-state electricity generation. Further, as shown in Section I, subsection H, of the ISOR, the emissions from electricity generation are lower than the emissions from an LSI forklift. There are also additional emission benefits due

to the efficiency of an electric motor when compared to an LSI engine. Therefore, this regulation will provide a significant emissions reduction benefit.

# b) Site-to-Source Emissions

<u>Comment Summary</u>: The commenter argues that the emissions profile for ZEFs is not zero when accounting for total site-to-source emissions, including battery manufacturing, transportation, and the electricity needed for recharging. They also highlight that propane, when compared to diesel, produces 94% less NOx emissions and 76% less sulfur oxides emissions, claiming that a well-maintained propane forklift can meet national indoor air quality standards.

## Commenter: [034-OT]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff disagrees that the life cycle emissions for an electric forklift are higher than the life cycle emissions of an LSI forklift. Electric forklifts tend to have lower life cycle emissions than LSI forklifts, making electric forklifts more sustainable. Production and disposal of batteries for electric forklifts can be an environmental concern, but one that is being addressed. Battery recycling advancements are reducing the environmental impact. Further, as electricity generation continues the transition to renewable generation, the overall emission footprint of electric forklifts will decrease. On the other hand, LSI forklifts require fossil fuel to be discovered, extracted, refined, and transported to the location of final use for the entire life of the forklift. This results in a larger carbon footprint throughout the LSI forklift lifecycle. Additionally, scrapping an LSI has its own environmental impacts due to the possibility of the engine containing hazardous materials.

CARB staff agrees that LSI forklifts emit lower criteria emissions than diesel forklifts. That said, this Regulation does not apply to diesel forklifts.

CARB staff agrees that a well-maintained combustion forklift can help reduce indoor emissions. However, it will never be as low as a ZEF. In addition, the biggest factor in influencing employee exposure to emissions is the amount of ventilation that is in the building. If the building does not have adequate ventilation, even a well-maintained LSI forklift can expose employees to emissions that can easily exceed indoor air quality standards, and this is not the case for zero emission forklifts.

# c) Carbon Intensity of Propane

<u>Comment Summary</u>: The commenter asserts that propane forklifts are not a significant environmental problem as they are near-zero emissions and are allowed to be operated inside warehouses by the OSHA. The commenter pointed out that the CI of traditional propane is comparable to California's electric grid and argued that propane could achieve even lower CI with renewable propane, potentially reaching negative CI levels. The commenter stated that propane forklifts are "part of the solution" and requests that CARB consider the use of propane in LSI Forklifts to achieve emissions reductions goals.

# Commenter: [013-OT]

<u>Agency Response:</u> The stakeholder commented that OSHA allows the use of propane forklifts in warehouses, which is true. However, on the OSHA website there is a list of requirements and recommended practices for operating an LSI forklift indoors. A couple of the recommendations are to "Consider switching to battery-powered forklifts, if much of the work is

in poorly ventilated spaces or operators may be over-exposed to exhaust byproducts.", and "Install carbon monoxide monitors to detect levels." These recommendations along with several others listed on the webpage indicate that although operating an LSI forklift indoors is allowed, doing so is not the best choice to keep a forklift operator safe.

The stakeholder commented that renewable propane has a lower CI than the CI of California electricity grid and traditional propane CI is comparable to California's electric grid CI. While the stakeholder's comment is true based on current fuel pathways in CARB's LCFS program, the fuel pathways only consider the process used to get the energy in a state where it can be consumed and does not include the conversion of energy to useful work. When the energy conversion is considered, the carbon emissions for an electric forklift are lower than the carbon emissions for a forklift that combusts renewable propane, as discussed in Chapter I, Section H, of the ISOR.

Additionally, the CI for electricity generation is continually being reduced as mandated by the RPS and other legislation.<sup>31</sup> For instance, SB 100 requires that retail sellers and local publicly owned electric utilities procure increasing quantities of electricity products from eligible renewable energy resources.<sup>32</sup> The CI for electricity in California will continue to decline until 2035 when the RPS will require the procurement of 100% of retail electricity sales are from renewable sources.

Allowing the continued use of LSI forklifts as suggested by the commenter would not achieve the emission reductions needed to meet California's State and federal air quality standards, protect public health, and meet the State's climate goals. The Regulation aims to reduce criterion, toxic, and GHG emissions by using a phase-out approach, sets clear targets, and balances the needs of businesses with the need to improve air quality.

The commenter also stated that the CI for renewable propane could have CI levels that are negative. While this could be possible, the current pathways listed in the LCFS for renewable propane all have a positive CI. However, currently, there several electricity generation pathways listed in the LCFS program that are producing electricity with a negitive CI of over 700.

# 2. Cost Comments

# a) Cost of Regulation

<u>Comment Summary</u>: The commenters state that the cost of the Regulation is \$27 billion, citing an independent cost analysis conducted by Andrew Chang & Company and released by the Western Propane Gas Association (WPGA).

<u>Commenter:</u> [001-OT, 023-OT, 036-OT]

<u>Agency Response:</u> No changes were made in response to this comment. The Andrew Chang & Company analysis was funded by the Western Propane Gas Association, whose members

<sup>32</sup> SB 100, De León, Public Utilities Code new section 454.53, California Renewables Portfolio Standard Program: emissions of greenhouse gases, ch.312 (web link:

https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\_id=201720180SB100)

<sup>&</sup>lt;sup>31</sup> CPUC, RPS Program (web link: *https://www.cpuc.ca.gov/rps/*, last accessed July 2023)

stand to lose considerable business when the Regulation is implemented, and propane forklifts are phased out of use in California.

Several aspects of the cost analysis performed by Andrew Chang & Company for the Western Propane Gas Association are clearly incorrect. First, the WPGA/Chang analysis overestimated the affected LSI forklift population by a factor of more than two. Please see the Agency Response to B.4.a) Forklift Population - Estimated Impact, for a discussion on staff's estimated forklift population and why the WPGA/Chang estimate is invalid. Second, WPGA/Chang assumed 1.2 ZEF replacements for every one LSI forklift that is phased out. This assumes that LSI forklifts operating multiple shifts will be replaced primarily with lead-acid ZEFs. Staff disagrees with this assumption and instead believes it more reasonable to assume that, if needed, fleets will use lithium-ion or fuel cell technology, which can replace LSIs operating multiple shifts on a 1:1 replacement ratio. Please see the Agency Response to B.2.e) Cost Analysis – Additional Costs and Replacement Ratio. Also, the WPGA/Chang methodology does not account for the natural turnover of LSI forklifts, thereby dramatically overstating the cost of the Regulation. Finally, WPGA/Chang includes the entire cost to replace every one of today's forklifts with a ZEF. Many of today's forklifts would normally be retired and be replaced over the course of the regulation (between now and 2043).

CARB's analysis of costs from the Regulation, on the other hand, estimates the incremental cost of purchasing a ZEF versus an LSI forklift and the impact of such replacement earlier than would otherwise occur. The net costs should not include the entire cost to replace every forklift in operation now with a ZEF but should instead reflect the incremental costs calculated in CARB's analysis. Staff stands by its determination that the Regulation will provide an estimated \$2.7 billion in net fleet cost savings statewide through 2043.

## b) State and Local Government Costs

<u>Comment Summary</u>: The commenter states that there are significant unfunded costs to state and local government in the hundreds of millions of dollars.

# Commenter: [001-OT]

<u>Agency Response:</u> No changes were made in response to this comment. Please see the Agency Responses to B.2.o) Cost Analysis - State and Local Government Costs and C.7.h) Out of Scope – State Government Costs

## c) Forklift Replacement Ratio

<u>Comment Summary</u>: The commenters state that two to three ZEFs are needed to replace a single LSI forklift as opposed to a 1-to-1 replacement ratio. Additionally, the commenters further state that ZEFs are not suitable replacements for heavy-use, multi-shift, and 24/7 operations.

Commenter: [001-OT, 002-OT, 026-OT, 029-OT, 034-OT]

<u>Agency Response</u>: No changes were made in response to this comment. Please see the Agency Responses to B.2.e) Cost Analysis – Additional Costs and Replacement Ratio and B.9.d) Exemption for 24-Hour On-Site Operations

## d) Economic Impact – Electric Utilities Costs and Rates

<u>Comment Summary</u>: The commenters express concerns about additional utility costs and rate increases associated with electric infrastructure upgrades. Additionally, one commenter is concerned about increases to the off-peak electric rate due to ZEFs being charged at night.

# <u>Commenter:</u> [003-OT, 002-WT]

<u>Agency Response:</u> No changes were made in response to these comments. Staff recognizes that there are factors that could apply both downward and upward pressure on utility rates. For example, as discussed in Chapter IV, Section E of the ISOR, Senate Bill (SB) 350 directs investor-owned utilities to implement programs to accelerate widespread transportation electrification, including the deployment of charging infrastructure. SB 350 goals include increasing the sales of ZE vehicles, reducing air pollutant emissions to help meet air quality standards and reduce GHGs. As a result of SB 350, the States' three large investor-owned utilities (PG&E Company, SDG&E Company, and SCE Company) are establishing or have established commercial electricity rate programs that reduce battery charging rates at specified times of the day. Some publicly owned utilities have developed similar transportation electrification rate programs as the investor-owned utilities. Consequently, electricity rates for ZEF charging could decline because of SB 350 and the additional deployment of ZEFs.

Another factor that could impact electricity rates is discussed in Chapter VIII, Section B.8.b of the ISOR. Although staff's cost estimates for electrical infrastructure installation include utilityside upgrade costs, staff anticipates that nearly all utility-side upgrade costs would be rolled into the utility pay rates of the facility, or the customer base at large per AB 841, to be recovered over time.

As detailed in Chapter VIII, Section F of the ISOR, staff performed a sensitivity analysis in which electricity rates were doubled for a typical fleet. Even with a doubled electricity rate, a typical fleet is estimated to experience net savings of approximately \$2.7 million (in 2021\$). With respect to the commenter's concerns about the possibility of night electricity rates rising, both lithium-ion battery-electric forklifts and fuel cell electric forklifts have an advantage because their charging/fueling times are significantly faster than for lead-acid batteries, which enables opportunity charging. Depending on the level of usage, lithium-ion forklifts could potentially be charged during times at which electricity rates are the lowest. As discussed in Chapter VIII, Section B.6 of the ISOR, as lithium-ion battery technology advances and prices decline, the proportion of lithium-ion battery-electric forklifts relative to lead-acid battery-electric forklifts is expected to increase. By 2028 and 2037, staff estimates that 48% and 100%, respectively, of new battery-electric forklifts would be lithium-ion.

## e) Economic Impact – Small Businesses

<u>Comment Summary</u>: The commenters state that the Regulation places a heavy financial burden on small businesses due to ZEF replacements and costly investments in charging infrastructure. One commenter emphasizes that while larger businesses might absorb these costs, small businesses could face severe impacts on their operations.

# Commenter: [019-OT, 029-OT, 036-OT]

<u>Agency Response:</u> No change was made in response to these comments. The Regulation includes numerous provisions intended to cushion the impact on small business. For example, the Regulation includes the Alternative MY Phase-Out Schedules for Class IV LSI Forklifts set forth in Section 3006(d)(2), as well as a phase-out percentage cap of 25% which may be

applied to the first compliance date for Class IV LSI forklifts, January 1, 2029, or January 1, 2030, for applicable Class V LSI forklifts. For small businesses that qualify as a microbusiness, the ability to\_operate a single LSI Forklift as a Low-Use LSI Forklift beyond December 31, 2030, into perpetuity. These small business conditions provide accommodations that will ease the burden for small business as they comply with the regulation.

## f) Economic Impact – Job Losses

<u>Comment Summary</u>: The commenters state that the Regulation will lead to job losses, particularly those related to the agricultural, propane, and construction industries. One commenter claims that CARB staff has not considered how implementation will impact them or their stakeholders.

## Commenter: [003-OT, 011-OT, 014-OT, 032-OT]

<u>Agency Response:</u> No changes were made in response to these comments. As discussed in Chapter VIII, Section D of the ISOR, the Regional Economic Model Inc. (REMI) model is used to model the estimated macroeconomic impacts of the Regulation. REMI is a structural economic forecasting and policy analysis model that integrates input-output, computable general equilibrium, econometric and economic geography methodologies. The REMI model cannot directly estimate the creation or elimination of businesses. However, changes in output and jobs for the California economy can be used to understand some potential impacts.

Figure 32 of the ISOR shows the expected change in output by major sector. The figure indicates that the overall jobs and output impacts of the Regulation are small relative to the total California economy, representing changes of no greater than 0.02%. However, impacts to some specific industries are relatively larger. Regarding the propane industry, the decreasing trend in demand for propane and gasoline has the potential to result in the elimination of businesses downstream of refineries, such as propane wholesalers and merchants, if sustained over time. For the farming sector, no notable change is expected. The construction industry is expected to see overall growth, with a decline around mid-implementation of the Regulation, followed by growth.

Table 33 of the ISOR shows the impacts of the Regulation on employment in major sectors in California. The Regulation is estimated to result in an initial decrease in employment growth that is less than 0.01% of baseline employment and begins to diminish towards the end of the regulatory horizon. The job impacts represent the net change in employment across the economy, which is composed of positive impacts for some industries and negative impacts for others. In 2043, the Regulation is estimated to result in job gains of 8,047, primarily in construction, retail and wholesale, and services, and zero jobs foregone.

Throughout the regulatory process, staff worked closely with stakeholders and made many adjustments to the regulation based on stakeholder feedback. For an overview of the regulatory process and the staff's engagement efforts, please see the Agency's Response to D.9.A) Process Concern – Accountability. For a summary of changes made to the Regulation, see Chapter II of this document, Modifications Made to the Original Proposal.

# g) Cost Analysis – ZEF Charger Installation on Construction Sites

<u>Comment Summary</u>: The commenter asserts that CARB's cost analysis of the Regulation overlooks the unique challenges of installing charging infrastructure on construction sites

which differ from sites with more permanent infrastructure. The commenter argues that CARB inaccurately assumes that the installation costs are like those of a level two electric car charger and that the cost and feasibility assumptions do not translate to the construction industry.

## Commenter: [009-OT]

<u>Agency Response:</u> No changes were made in response to this comment. With respect to infrastructure costs, as discussed in Section VIII B.8.b of the ISOR, individual fleets may be subject to infrastructure costs that are higher or lower than the estimated statewide average infrastructure costs. Several conservative assumptions (which err on the side of being more costly) were built into staff's estimation for infrastructure installation costs. For example, although installation costs per charger decrease as more chargers are installed per site, staff conservatively assumed that more than half of charger installations would be the most expensive option, one charger per site. Staff also assumed costs for one charger per forklift, although staggered charging times could reduce the need to install one charger for every ZE forklift. Please see the Agency Response to B.2.a) Cost Analysis – Infrastructure Costs Comment 1 for more details.

In addition, a sensitivity analysis was included in Section VIII.F.3 of the ISOR with the hypothetical scenario in which infrastructure costs for a typical fleet are twice the levels assumed in the cost analysis. Even if higher infrastructure costs are included in the cost analysis, the estimated savings of the Regulation for a typical fleet would be approximately \$5.6 million instead of \$6.0 million by 2043.

It is also important to note that construction sites without available power may be eligible for Operational Extensions. Please see the Agency Responses to C.1.a) Definition of In-Field Forklift - Exemption for Construction Sites and C.4.I) Operational Extension – Construction Sites, for more details. In addition, as part of the 15-Day Changes, the scope of the Operational Extension was broadened. With the proposed changes, LSI forklifts covered under an Operational Extension could also be replaced with 2026 MY or newer LSI forklifts, as needed, during the effective period of Operational Extensions.

# 3. Definition Issues

# a) Definition of Agricultural Operation

<u>Comment Summary</u>: The commenter requests the inclusion of retail nurseries in the definition of agricultural operation.

## Commenter: [017-OT]

<u>Agency Response:</u> No changes were made in response to this comment. Please see the Agency Response to C.1.d) Definition of Agricultural Operation.

## b) Definition of Rent

<u>Comment Summary</u>: The commenters request the removal of the 12-month period in the definition of rent.

Commenter: [025-OT, 027-OT]

<u>Agency Response</u>: No changes were made in response to this comment. Please see the Agency Response to C.1.b) Definition of Rent.

# c) Definition of In-Field Forklift

<u>Comment Summary</u>: The commenter requests the inclusion of construction in the current definition, asserting that the construction industry faces similar challenges to those in the forestry and agricultural industries.

## Commenter: [021-OT]

<u>Agency Response</u>: No changes were made in response to this comment. Please see the Agency Response to C.1.a) Definition of In-Field Forklift – Exemptions for Construction Sites.

# 4. Forklift Population Issues

## a) Forklift Population Underestimated

<u>Comment Summary</u>: The commenters claim that CARB staff underestimated the impacted LSI forklift population in California, citing an independent cost analysis conducted by Andrew Chang & Company and released by the Western Propane Gas Association.

Commenters: [001-OT, 023-OT, 029-OT]

<u>Agency Response</u>: No changes were made in response to this comment. Please see the Agency Responses to B.4.a) Forklift Population – Estimated Impact and C.7.d) Out of Scope – Flawed and Inaccurate Analysis.

# 5. Electrical Infrastructure, Utilities, and Grid Concerns

# a) Grid Cannot Support More Demand

<u>Comment Summary:</u> The commenters claim that the grid cannot support more demand, with one commenter noting that the grid can barely meet demand during storms and high heat.

Commenter: [003-OT, 002-WT]

<u>Agency Response:</u> No change was made in response to this comment. Please see the Agency Response to B.5.b) Electric Utility Planning – Cumulative Infrastructure Needs which states in part, "CARB staff is working with the CEC, CPUC, CAISO, utility providers, and GO-Biz, to support electric system planning that accounts for the significant growth in infrastructure needs to further support widespread deployment of ZE technology."

# 6. LSI Forklift Purchase, Rental, and Sale Restrictions Issues

# a) Sell-through Provision – Allow Sale of LSI Forklifts Ordered in 2024 and 2025

<u>Comment Summary</u>: The commenter requests that the sell-through provision be modified to allow for the sale of LSI forklifts ordered in 2024 and 2025.

## Commenter: [025-OT]

<u>Agency Response</u>: No change was made in response to this comment. Please see the Agency Response to C.3.a) Sell-through Provision – Allow Sale of MY 2021 to 2025 LSI Forklifts in 2026

# 7. Phase-out Provision Issues

## a) Phase-out Cap – 20% for all Compliance Dates for Crop Preparation Fleets

<u>Comment Summary</u>: The commenters request the phase-out cap for crop preparation fleets be changed to 20% for all compliance dates to allow crop preparation fleets more time for phase-out. The commenters cite the seasonality of their operations, immense capital costs, and the older age of their forklift fleets, as reasons for their request.

## Commenter: [004-OT, 005-OT, 017-OT, 035-OT, 039-OT]

<u>Agency Response:</u> No changes were made in response to this comment. Please see the Agency Response to C.3.b) Phase-out Cap – 20% for all Compliance Dates for Crop Preparation Fleets. The Board discussed the request for a 20% phase-out cap for all compliance dates for crop preparation fleets, and the Resolution includes the following language, "Be it further resolved that the Board directs the Executive Officer to evaluate the effectiveness of implementation of the rule and report back to the Board by 2028, either in writing or with a Board presentation and propose any adjustments in the compliance schedule as necessary." Consideration of adjustments to the compliance schedule as necessary will include considering the need for additional phase-out caps.

## b) Phase-out Cap – 25% for all Compliance Dates for Large Fleets

<u>Comment Summary</u>: The commenters request that the phase-out cap of 25% be available for large fleets for all compliance dates to allow large fleet operators more time for phase-out. One commenter emphasizes that the 50% phase-out limit for large fleets places a considerable strain on California companies. They illustrate this with an example from one of their clients, who, despite opting for the phase-out cap, will face a substantial phase-out in 2028, needing to replace nearly 100 forklifts within their fleet.

## Commenter: [024-OT, 025-OT]

<u>Agency Response:</u> No changes were made in response to this comment. Please see the Agency Response to C.3.c) Phase-out Cap – 25% for all Compliance Dates for Large Fleets.

## c) Delay Phase-out by 5 Years

<u>Comment Summary</u>: The commenters request that the fleet phase-out dates be delayed by five years. One commenter highlights concerns about the implementation of the Regulation coinciding with over a dozen other zero-emission regulations from CARB and other agencies.

#### Commenter: [027-OT, 028-OT]

<u>Agency Response:</u> No change was made in response to this comment. Please see the Agency Responses in C.7. Phase-Out Provision Issues which include an acknowledgement that the phase-out schedule had already been adjusted from a previous concept to allow additional time for fleet compliance.

## d) Extend Phase-out by 4 Years for Smaller Agricultural Operations

<u>Comment Summary</u>: The commenter suggests an extension of four additional years to alleviate the compliance burden on smaller agricultural operations. The commenter cites significant capital costs that smaller farmers would struggle to meet.

## Commenter: [040-OT]

<u>Agency Response</u> No change was made in response to this comment. With regard to capital costs for farmers, CARB staff notes that farmers' in-field forklifts are already completely exempt from the Regulation. In addition, crop preparation services fleets already get an extra year before the first phase-out compliance date and three years longer to complete phase-out of LSI forklifts. Delaying phase-out an additional four years is unwarranted and would reduce the needed emission reductions expected from the Regulation.

## e) Accelerate Phase-out

<u>Comment Summary</u>: The commenters ask CARB to review the state of technology before implementation to consider whether the phase-out timeline can be accelerated to expedite the health benefits for affected communities.

Commenter: [006-OT, 018-OT, 031-OT]

<u>Agency Response:</u> No changes were made in response to these comments. As detailed in Chapter IX, Section A of the ISOR, staff considered an accelerated phase-out timeline, designated as Alternative 1. Although the accelerated timeline would achieve greater emission benefits and greater cumulative net savings due to the accelerated turnover of Targeted Class IV and Class V Forklifts to ZEFs, it was rejected for reasons described in the ISOR and summarized below.

The turnover rate of Targeted Forklifts under Alternative 1 would create a significantly greater cost burden for fleets during the first five years of the regulation.

In addition, Alternative 1's turnover rate could also pose a challenge for manufacturers to build sufficient numbers of ZEF products in the proposed timeframe. During the first three years of the phase-out schedule, Alternative 1 would require added purchases of almost three times more ZEFs than the Regulation (52, 280 ZEFs versus 18,810 ZEFs).

Coupled with the anticipated higher cost of the ZEFs, themselves, the financial burden that Alternative 1 or another accelerated timeline could impose on California businesses, especially small businesses, could substantially impair their profitability and competitiveness. Taking the above factors and others into consideration, staff believes that the proper balance has been achieved in establishing the phaseout timeline for the Regulation.

# f) Alternatives to Phase-out

<u>Comment Summary</u>: The commenters ask CARB to consider alternative pathways to meet emissions reduction goals asserting that such alternatives, when compared to the Regulation, are more cost-effective, feasible, and accommodating to impacted businesses.

Commenter: [001-OT, 023-OT, 027-OT]

<u>Agency Response</u>: No changes were made in response to these comments. Please see the Agency Response to B.7.a) Alternatives to Phase-out and C.7.j) Out of Scope – Alternatives to Phase-out.

# 8. Exemptions and Extensions

## a) Extension Requests are Too Burdensome

<u>Comment Summary</u>: The commenter states that the information required for extension requests is too burdensome, especially for contractors in the construction industry.

## Commenter: [021-OT]

<u>Agency Response:</u> No change was made in response to this comment. A previous response, C.4.j) Infrastructure Site Electrification Delay – Agricultural Operations, stated that requested extension application information is detailed to provide for an unambiguous review and for effective implementation and enforcement. The Regulation also provides a 45-day CARB application submittal response commitment whereby applications for extensions are automatically approved if CARB staff takes longer than 45 days to respond. Staff disagrees that the extension application request submittal requirements are too burdensome and points to, as an example, the flexibility incorporated into the Operational Extension that allows whenever a Fleet Operator wishes to retain multiple LSI Forklifts of the same equipment type, for which the extension justification provided is identical, the Fleet Operator may submit a single request to cover all associated LSI Forklifts.

# 9. Public Regulatory Process, Funding, and Outreach Concerns

## a) Process Concern – Accountability

<u>Comment Summary</u>: The commenter expresses concern and states that the process for adopting the Regulation delegates all the Board's policy discretion to the staff and leaves the Board with only the option of an omnibus up or down vote. This method diminishes the purpose and the role of the board and leaves the final product in the hands of staff who have no accountability for the economic impact of their decisions.

# Commenter: [025-OT]

<u>Agency Response:</u> No changes were made in response to this comment. This Board's rule-making process has been robust and is in full compliance with the Administrative Procedure Act. The Board has the option of asking staff to make 15-day changes and does so as part of approving many staff proposals, and so the commenter's statement that the Board only has the option of an omnibus up or down vote is incorrect. In addition, over the past three years of proposal development, staff conducted five public workshops and workgroups and conducted numerous visits of sites with operating forklifts. Staff received over 300 comments during the 45-day comment period for the Regulation and amended the regulatory proposal via 15-day changes that were open for public comment. When crafting the staff proposal, staff keep in mind not only emission reductions but also the impacts on the economy. Indeed, as stated on CARB's website, "CARB's mission is to promote and protect public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy."

A public hearing before the Board was also held. The Board played an important role in this process by considering the proposed amendments and unanimously voting to adopt them. When the Board adopts proposed regulations, it endorses the recommendations developed by program staff, who are technical experts in the subject matter and have engaged in extensive coordination with interested and affected persons, as required by law and demonstrated by the

lengthy rulemaking process and record. The Board also adopts the underlying policies as reflected in the rulemaking documents, based on the extensive evidence presented, and after considering the comments made on the proposed regulations.

## b) Forklift Financing for Impacted Industries and Small Business

<u>Comment:</u> It seems that California will lose some number of jobs and businesses with adoption of this rule. There is no question about that. But this regulation can go into full effect, if CARB supports financing of the forklifts for any of the industries or small businesses that have voiced such challenges. Use of propane seems to also be a verifiably life cycle winner of lower emissions when compared to electric forklifts.

So, unless CARB provides this financing, people will lose their jobs and owners will lose their businesses, unless the less expensive propane forklifts are allowed.

Unless CARB levels the field by providing free or zero-interest loans to each small business or essential public service who must buy one or more forklift, especially those who might need to buy three electric units to replace each existing unit but must buy such forklift(s) at a cashflow loss for several years before then can break even.

Or, unless CARB comes to its senses regarding life cycle emissions of propane forklifts versus "clean" energy.

This seems like a safe bet for CARB and the people of California.

#### Commenter: [003-WT]

<u>Agency Response:</u> No changes were made in response to this comment. Regarding effect on jobs and businesses, the macroeconomic modeling included in the ISOR for the Regulation identified the estimated change in output by sector, along with estimated jobs lost or created, and is summarized in Table 32 and 33 of the ISOR, respectively. The Proposed Regulation is estimated to result in an initial decrease in employment growth that is less than 0.01 percent of baseline employment and begins to diminish towards the end of the regulatory horizon. The job impacts represent the net change in employment across the economy, which is composed of positive impacts for some industries and negative impacts for others. In 2043, the Regulation is estimated to result in job gains of 8,047, primarily in construction, retail and wholesale, and services, and zero jobs foregone. This modeling and analysis were performed without the inclusion of potential incentive programs. Further, the ISOR does assume that ZEFs have an upfront cost premium when compared to LSI forklifts and has included this along with potential cost saving for reduced fuel and maintenance in the cost analysis for fleets impacted by the Regulation.

Regarding CARB-provided financing or low interest loans for purchase of ZEFs, ZEFs with a lift capacity of over 8,000 pounds are currently eligible for funding through CARB's CORE Voucher Incentive Project. ZEFs are also eligible for Carl Moyer Program funding, although phase-out requirements affect eligibility.

With regard to life cycle emissions, the ISOR includes a comparison of upstream emissions, as well as CI, between propane and electric powered forklifts, which is summarized in Tables 3 and 4, respectively. Contrary to what the commenter has stated, the life cycle analysis completed in the ISOR indicates that electric forklifts have lower emissions than LSI forklifts. Additionally, the life cycle emissions for electric forklifts will continue to decrease as the RPS is phased in resulting in lower electricity generation emissions.

Additionally, CARB staff disagree with the commenter that fleets will need to purchase three electric forklifts for each propane powered forklift replacement and instead believe a 1:1 replacement will generally be possible. Please see also the Agency Response to B.2.c) Cost Analysis – Additional Costs and Replacement Ratio.

# c) Rebate Program for Class 5 Forklifts

<u>Comment Summary</u>: The commenter suggests that CARB develop a rebate program for small and outdoor businesses that use class V forklifts, with the rebate amount ranging from \$500 to \$5000 for forklifts between 3000 to 8000 lbs. lift capacity. The commenter states that forklifts in this range are not eligible for the Carl Moyer Program or other programs as they require over 8000 lbs. lift capacity.

## Commenter: [041-OT]

<u>Agency Response:</u> No changes were made in response to this comment. As included in the ISOR, incentives for forklifts with less than 8,000 pounds of lift capacity are currently available through several programs, including, but not limited to, the Carl Moyer and Community Air Protection Programs. Other programs in CARB's incentive portfolio do currently require funded forklifts to be greater than 8,000 pounds of lift capacity to be eligible, as described in the ISOR. However, the economic analysis was conducted without consideration of incentives and resulted in estimated cumulative net cost-savings statewide of \$2.7 billion (\$2.2 billion without consideration of LCFS credit revenue).

## d) Funding Information

<u>Comment Summary</u>: The commenter requests CARB provide information on funding resources for the accelerated adoption of ZEFs.

## Commenter: [018-OT]

<u>Agency Response:</u> No changes were made in response to this comment. While similar requests have previously been provided with a response, CARB appreciates the opportunity to again share that current forklift incentive opportunities already exist in, and may not be limited to, both the Carl Moyer and Clean Off-Road Equipment incentive programs. ZEFs generate LCFS credits as well.

# 10. Miscellaneous Issues

## a) General Support

Comment Summary: Commenters support the Regulation as is.

<u>Commenter:</u> [006-OT, 008-OT, 010-OT, 012-OT, 015-OT, 016-OT, 018-OT, 031-OT, 033-OT, 037-OT]

<u>Agency Response:</u> No changes were made in response to these comments. Thank you for your comments and support.

## b) General Opposition

<u>Comment Summary</u>: The commenters generally oppose the Regulation.

Commenter: [002-WT]
<u>Agency Response</u>: No changes were made in response to this comment. Thank you for your comment.

### c) Supports Other Commenters – 014-OT

<u>Comment Summary:</u> Commenter supports comments made by CIAQC, WPGA, Western States Carpenters, and the Nor Cal Carpenters Union.

#### Commenter: [014-OT]

<u>Agency Response</u>: The comments supported by the commenter are already summarized and responded to in other parts of this FSOR and do not require a different response here. Please see the Agency Responses to comment codes, 025-OT, 001-OT, 007-OT, and 009-OT.

#### d) Regulation is Infeasible for Construction Industry

<u>Comment:</u> The commenters state that the Regulation is unrealistic and unworkable for the construction industry, requesting exemptions and further consideration of their operational needs. The commenters further state that the extension delays do not consider the nature of construction work sites, particularly multilevel construction and sites with temporary or no available power. One commenter states the Regulation would impose a disproportionate burden on construction operations.

#### Commenter: [007-OT, 009-OT, 014-OT, 021-OT, 025-OT, 039-OT]

<u>Agency Response:</u> No changes were made in response to this comment. Please see previous McClone [001-15d] responses. Those previous responses mention mobile charging, fuel cell forklifts, and the Operational Extension as possible options for remote and underpowered construction work sites. CARB staff would also like to note that rough terrain forklifts are exempt from the regulation. Additionally, while not every potential solution is appropriate for every situation, an evaluation of process changes such as incorporating additional time into a schedule to allow for concrete curing that supports heavier equipment could also be considered.

### e) Executive Order N-79-20 – "Where Feasible"

<u>Comment Summary</u>: The commenter asserts that CARB staff has ignored "where feasible" language in EO N-79-20.

### Commenter: [025-OT]

Agency Response: No changes were made in response to this comment. EO N-79-20 states, "It shall be further a goal of the State to transition to 100% zero-emission off-road vehicles and equipment by 2035 where feasible." Staff disagrees that "where feasible" language in EO N-79-20 was ignored. The Regulation provides multiple specific exclusions and exemptions designed to address and accommodate feasibility limitations. The Operational Extension, which Fleet Operators may request "if there is no commercially available ZEF model that can meet the needs of an operation currently served by an LSI Forklift required to be phased out by the upcoming compliance date," is available for situations when a ZEF is infeasible for a certain operation. Additional examples of accommodating feasibility concerns in the Regulation, include, but are not limited to, the exclusion of rough terrain forklifts from the Regulation and the allowance for a Microbusiness to continue to operate a single LSI Forklift as a Low-Use LSI Forklift beyond December 31, 2030.

#### f) LCFS Credits and Renewable Propane

<u>Comment Summary</u>: The commenter states that the Regulation contradicts existing LCFS goals and will drastically decrease the amount of transportation gallons available for LCFS credits, creating a chilling effect on the production of renewable propane.

#### Commenter: [026-OT]

<u>Agency Response:</u> No changes were made in response to this comment. CARB staff disagrees with the commenter. As stated in the ISOR, "the amount of renewable propane currently available to consumers is very small when compared to the entire California propane market. EPA estimates that 4.6 million gallons of renewable propane were produced nationally in 2021<sup>33</sup> (i.e., for the entire nation) whereas over 12.7 billion gallons of total propane was supplied during the same year." Any quantities of renewable propane dispensed to propane vehicles operating in California may continue to participate in the LCFS program. Renewable propane is generally produced as a co-product alongside renewable diesel or alternative jet fuel at biorefineries, both of which are incentivized by the LCFS program, and staff disagrees that a transition to zero emission forklifts would substantially chill production of renewable propane.

#### g) Future Review of Regulatory Implementation

<u>Comment Summary</u>: The commenter requests a review of the Regulation's implementation in 2-3 years to evaluate and address any challenges, especially those affecting rural agricultural operations.

#### Commenter: [032-OT]

<u>Agency Response:</u> At the June 27, 2024, Board Hearing, the Board added to the Resolution the following language, "Be it further resolved that the Board directs the Executive Officer to evaluate the effectiveness of implementation of the rule and report back to the Board by 2028, either in writing or with a Board presentation and propose any adjustments in the compliance schedule as necessary." Consideration of the effectiveness of implementation would include the commenters' concern for rural agricultural operations.

#### h) ZEF Availability

<u>Comment Summary</u>: The commenter expresses uncertainty with the market availability of ZEFs, stating that the Regulation will strain the current market.

#### Commenter: [020-OT]

<u>Agency Response:</u> No change was made in response to this comment. In the ISOR (ISOR, p. 32, fn. 48), staff states, "a recent online search and manufacturer survey conducted by staff of

<sup>&</sup>lt;sup>33</sup> Steve Whaley, The Future is Now: Renewable Propane, Advanced Clean Tech News, January 13, 2023 (web link: *https://www.act-news.com/news/the-future-is-now-renewable-propane/*)

ZEF offerings identified almost 400 models, more than 130 of which were models with a lift capacity greater than 12,000 pounds." Staff has not been presented with evidence that the Regulation will strain the current market and the Regulation includes the Operational Extension as an option to ease market availability concerns, as well as the Zero Emission Forklift Delivery Delay Extension, where applicable.

### i) Reiteration of 15-Day Comments – 020-OT

<u>Comment Summary</u>: The commenter reiterates the points and requests made in their 15-Day comment letter. The commenter recommends extending compliance deadlines for a more flexible phase-out schedule, offering incentives for early adoption, and adjusting requirements based on facility capabilities.

#### Commenter: [020-OT]

<u>Agency Response</u>: No changes were made in response to this comment. The points and requests made in this comment are already summarized and responded to in other parts of this FSOR and do not require a different response here. Please see the Agency Responses to comment code 006-15d.

#### j) Reiteration of 15-Day Comments – 024-OT

<u>Comment Summary</u>: The commenter reiterates some of the points and requests made in their 15-Day comment letter. The commenter believes that the current 50% phase-out cap for large fleets still imposes an undue burden on California companies and recommends setting the phase-out cap at 25% for large LSI fleets, specifically for class IV forklifts in 2028 and class V forklifts in 2030. Additionally, the commenter suggests extending the 25% cap to all subsequent compliance years to allow for sufficient capital planning to meet requirements, especially considering concurrent zero-emission regulations such as the Advanced Clean Fleet Regulation and the Zero-Emission TRU regulations.

#### Commenter: [024-OT]

<u>Agency Response:</u> No changes were made in response to this comment. The points and requests made in this comment are already summarized and responded to in other parts of this FSOR and do not require a different response here. Please see the Agency Responses to comment code 012-15d.

#### k) Reiteration of 15-Day Comments – 027-OT

<u>Comment Summary</u>: The commenter reiterates some of the points and requests made in their 15-Day comment letter. The commenter requests a five-year delay in the regulation due to insufficient electrical infrastructure and recommends setting the phase-out cap at no more than 25% for all fleets from 2027 to 2037, instead of the proposed 50%. The commenter also calls for the removal of specific reporting requirements.

#### Commenter: [027-OT]

<u>Agency Response</u>: No changes were made in response to this comment. The points and requests made in this comment are already summarized and responded to in other parts of this FSOR and do not require a different response here. Please see the Agency Responses to comment code 003-15d.

### I) Reiteration of 15-Day Comments – 028-OT

<u>Comment Summary</u>: The commenter reiterates some of the points and requests made in their 15-Day comment letter. The commenter reiterates the call for a prohibitive cost extension in the regulation and emphasizes the need for clarity that low-use forklifts are exempt from both the general LSI forklift prohibition and the phase-out provisions, which they feel were not adequately addressed in the 15-Day changes.

#### Commenter: [028-OT]

<u>Agency Response:</u> No changes were made in response to this comment. The points and requests made in this comment are already summarized and responded to in other parts of this FSOR and do not require a different response here. Please see the Agency Responses to comment code 010-15d.

# V. Peer Review

Health and Safety Code Section 57004 sets forth requirements for peer review of identified portions of rulemakings proposed by entities within the California Environmental Protection Agency, including CARB. Specifically, the scientific basis or scientific portion of a proposed rule may be subject to this peer review process. Here, CARB determined that the rulemaking at issue does not contain a scientific basis or scientific portion subject to peer review. The Regulation requires phasing out LSI forklifts, and CARB staff expects most fleets to respond by phasing out LSI forklifts and replacing them with ZEFs. As discussed further in the Staff Report, Section I.E. Technology Feasibility, ZEFs are widely commercially available today, and no new scientific findings or portions were relied on in developing the Regulation. Thus, no peer review as set forth in section 57004 needed to be or was performed.

# **VI. Reference Corrections**

### A. Initial Statement of Reasons

4. and 116. Juanita Constible et al., NRDC, Climate Change and Health in California, p.13, 2019 (web link: https://www.nrdc.org/sites/default/files/climate-change-health-impacts-california-ib.pdf)

The author was updated. The information relied upon has not changed.

39. CARB, Low Carbon Fuel Standard, Public Workshop: Potential Regulation Amendment Concepts, February 22, 2023. (web link: https://ww2.arb.ca.gov/sites/default/ files/classic/fuels/lcfs/lcfs\_meetings/LCFSpresentation\_02222023.pdf).

The title was updated. The information relied upon has not changed.

64. California Public Utilities Commission, Order Instituting Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resources Future, November 2021 (web link: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M422/K949/422949772.PDF).

The title was updated. The information relied upon has not changed.

72. CEC, National Electric Vehicle Infrastructure Program (NEVI) (web link: https://www.energy.ca.gov/programs-and-topics/programs/national-electric-vehicle-infrastructure-program-nevi, last accessed August 2023).

The author and title were updated. The information relied upon has not changed.

114. CARB, 2022 State Strategy for the State Implementation Plan, page 2, September 2022 (web link: https://ww2.arb.ca.gov/sites/default/files/2022- 08/2022\_State\_SIP\_Strategy.pdf).

The title was updated. The information relied upon has not changed.

116. CARB, Inhalable Particulate Matter and Health (PM2.5 and PM10) (web link: https://ww2.arb.ca.gov/resources/inhalable-particulate-matter-and-health, last accessed July 2023).

The last accessed date was updated. The information relied upon has not changed.

122. CARB, Health & Air Pollution (web link: https://ww2.arb.ca.gov/resources/health-air-pollution, last accessed August 2023).

The last accessed date was updated. The information relied upon has not changed.

131. CARB, Public Hearing to Consider Proposed Amendments to the In-Use Off-Road Diesel Fueled Fleets Regulation, Staff Report: Initial Statement of Reasons, p.35, September 20, 2022 (web link: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/off-roaddiesel/isor.pdf).

The title was updated. The information relied upon has not changed.

132. CARB, 2022 Area Designations for State Ambient Air Quality Standards Ozone, last updated November 2022 (web link: https://ww2.arb.ca.gov/sites/default/files/2023-02/State\_2022\_O3.pdf).

The title was updated to remove an erroneous semicolon. The information relied upon has not changed.

133. CARB, 2022 Area Designations for State Ambient Air Quality Standards PM2.5, last updated November 2022 (web link: https://ww2.arb.ca.gov/sites/default/files/2023-02/State\_2022\_PM25.pdf).

The title was updated to remove an erroneous semicolon. The information relied upon has not changed.

161. California Air Resources Board, Valuation Estimates Spreadsheet. September 2023.

The publish date was updated. The information relied upon has not changed.

## B. Appendix B-1 Standardized Regulatory Impact Assessment

51. Contractors State License Board, Industry Bulletin - Attention Contractors Who Use Forklifts: Attend California Air Resources Board Meeting on Possible Regulations to Transition Forklift Fleets to Zero Emissions, February 16, 2022 (web link: https://www.cslb.ca.gov/Resources/IndustryBulletins/2022/22-02\_CARB\_Forklifts.pdf).

The publish date was updated. The information relied upon has not changed.

102. Ibid.

This reference was updated as it is a repeat of the previous citation (101). The information relied on has not changed.

## C. Appendix C: Draft Environmental Impact Assessment

41. Ambrose, H. and Kendall, A., Life Cycle Modeling of Technologies and Strategies for a System in California, National Center for Sustainable Transportation, November 2019 (web link: https://rosap.ntl.bts.gov/view/dot/53769/dot\_53769\_DS1.pdf).

The letter "f" was deleted from the title. This change was made to correct a typographic error and the information relied upon has not changed.

55. Kinhal, Vijayalaxmi, How Does Mining Affect the Environment?, November 2019 (web link: https://greenliving.lovetoknow.com/How\_Does\_Mining\_Affect\_the\_Environment, last accessed May 2023).

The publish date and web link were updated. The information relied upon has not changed.

56. Sacramento Metropolitan Air Quality Management District, Chapter 6, Greenhouse Gas Emissions, CEQA Guide, February 2021. (web link: http://www.airguality.org/LandUseTransportation/Documents/Ch6GHG2-26- 2021.pdf).

The chapter reference was added. The information relied upon has not changed.

57. Bay Area Air Quality Management District, CEQA Air Quality Guidelines, May 2017. (web link: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa\_guidelines\_may2017-pdf.pdf?la=en).

The publish date was updated. The information relied upon has not changed.

58. South Coast Air Quality Management District. Draft Guidance Document – Interim CEQA Greenhouse Gas Significance Threshold, October 2008. (web link: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf).

The publish date was updated. The information relied upon has not changed.

59. Placer County Air Pollution Control District, Recommended CEQA Modeling Analysis Tools, CalEEMod Model, (web link: https://www.placerair.org/1808/Recommended-CEQA-Modeling-Analysis-Tools).

The title was updated. The information relied upon has not changed.

114. and 116. CARB, Final Environmental Analysis for the 2022 Scoping Plan for Achieving Carbon Neutrality, December 2022. (web link: https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp-appendix-b-final-environmental-analysis.pdf, last accessed May 4, 2023).

The publish date was updated. The information relied upon has not changed.

115. and 117. CARB, Final Environmental Analysis for the Proposed 2022 State Strategy for the State Implementation Plan, September 2022. (web link: https://ww2.arb.ca.gov/sites/default/files/2022-9/Final%20EA%202022%20SIP.pdf, last accessed May 6 2023).

The publish date was updated. The information relied upon has not changed.

## D. Appendix D: 2023 LSI Forklift Inventory Document

1. California Air Resources Board, Overview: OFFROAD Model, September 13, 2023 (web link: https://ww2.arb.ca.gov/sites/default/files/2023-6/offroad\_overview.pdf). The document metadata date is September 13, 2023.

The title was updated. The information relied upon has not changed.

6. Social Research Center at CSU, Fullerton, Survey of Large Spark-Ignited (LSI) Engines Operating within California, January 31, 2017 (web link: https://ww2.arb.ca.gov/sites/default/files/2020-08/ssrc\_2017.pdf)

The author was updated. The information relied upon has not changed.

9. California Air Resources Board, 2020 Emissions Model for Small Off-Road Engines – SORE2020, September 2020 (web link: https://ww2.arb.ca.gov/sites/default/files/2020-09/SORE2020\_Technical\_Documentation\_2020\_09\_09\_Final\_Cleaned\_ADA.pdf).

The web link was updated. The information relied upon has not changed.