# Appendix D-1

## ~~Draft~~Final Environmental Analysis

Prepared for the Proposed Amendments to the
Commercial Harbor Craft Regulation

**California Air Resources Board**
**~~4001 Iowa Avenue~~1001 I Street**
**~~Riverside, California 92507~~Sacramento, California 95814**

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## TABLE OF CONTENTS

**LIST OF FIGURES**



**LIST OF TABLES**

## List of Abbreviations and Acronyms

| | |
|---|---|
| AB | Assembly Bill |
| ACE | Alternative Control of Emissions |
| APE | Area of Potential Effect |
| APCD | Air Pollution Control District |
| APPD | Average Pounds Per Day |
| AQMD | Air Quality Management District |
| ATCM | Air Toxic Control Measure |
| BLM | Bureau of Land Management |
| CAA | Clean Air Act |
| CAAQS | California Ambient Air Quality Standards |
| CCAA | California Clean Air Act |
| CAL FIRE | California Department of Forestry and Fire Protection |
| CalEEMod | California Emissions Estimator Model ® |
| Caltrans | California Department of Transportation |
| CARB or Board | California Air Resources Board |
| CCR | California Code of Regulations |
| CEC | California Energy Commission |
| CEQA | California Environmental Quality Act |
| $CH_4$ | Methane |
| CHC | Commercial Harbor Craft |
| CO | Carbon Monoxide |
| $CO_2$ | Carbon Dioxide |
| $CO_2e$ | Carbon Dioxide Equivalent |
| CPUC | California Public Utilities Commission |
| dB | Decibels |
| dBA | A-weighted Decibels |
| DPF | Diesel Particulate Filter |
| DPM | Diesel Particulate Matter |
| Draft EA | Draft Environmental Analysis |
| EA | Environmental Analysis |
| EIR | Environmental Impact Report |
| EV | Electric Vehicle |
| <u>Final EA</u> | <u>Final Environmental Analysis</u> |
| FTA | Federal Transit Administration |
| GHG | Greenhouse Gases |
| hp-hr | Horsepower-hour |
| ICT | Innovative Clean Transit |
| in/sec | Inches per Second |

| | |
|---|---|
| ISOR or Staff Report | Initial Statement of Reasons |
| Kg | Kilogram |
| kW | kilowatts |
| kWh | Kilowatt Hour |
| $L_{eq}$ | Equivalent Level Measurements |
| $L_{max}$ | Maximum Sound Level |
| LNG | Liquefied Natural Gas |
| LTS | Less Than Significant |
| MTY | Metric Tons Per Year |
| MW | Megawatts |
| MY | Model Year |
| $N_2O$ | Nitrous Oxide |
| NAAQS | National Ambient Air Quality Standards |
| NI | No Impact |
| NOx | Oxides of Nitrogen |
| NPDES | National Pollution Discharge Elimination System |
| PERP | Portable Equipment Registration Program |
| PGM | Platinum-group Metal |
| Portable Engine ATCM | Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater |
| PM | Particulate Matter |
| $PM_{2.5}$ | Particulate Matter Equal to and Less Than 2.5 Micrometers |
| $PM_{10}$ | Particulate Matter Equal to and Less Than 10 Micrometers |
| PPD | Pounds Per Day |
| PPV | Peak Particle Velocity |
| PRC | Public Resources Code |
| Program | Community Air Protection Program |
| Proposed Amendments | Proposed Amendments to the Airborne Toxic Control Measure for Commercial Harbor Craft |
| PSU | Potentially Significant and Unavoidable |
| R99 | At Least 99 Percent Renewable Diesel |
| R100 | 100 Percent Renewable Diesel |
| RPS | Renewable Portfolio Standard |
| ROG | Reactive Organic Gas |
| $SO_2$ | Sulfur Dioxide |
| $SO_X$ | Oxides of Sulfur |
| SB | Senate Bill |
| SCR | Selective Catalytic Reduction |
| SIP | State Implementation Plan |

| | |
|---|---|
| SWPPP | Stormwater Pollution Prevention Plan |
| TAC | Toxic Air Contaminant |
| TCR | Tribal Cultural Resources |
| TPY | Tons Per Year |
| U.S. EPA | U.S. Environmental Protection Agency |
| VdB | Vibration Decibels |
| VOC | Volatile Organic Compound |
| VMT | Vehicle Miles Traveled |
| VIN | Vehicle Identification Number |
| WSA | Water Supply Assessment |
| ZEAT | Zero-Emission and Advanced Technologies |
| ZEV | Zero-Emission Vehicle |

# Preface

The California Air Resources Board (CARB or Board) released a Draft Environmental Analysis (Draft EA) for Proposed Amendments to the Commercial Harbor Craft (CHC) Regulation, herein referred to as the Proposed Amendments (i.e., the proposed project under the California Environmental Quality Act [CEQA]) on September 21, 2021, for a 45-day public review and comment period that was originally scheduled to close at the end of November 8, 2021. On October 1, 2021, CARB incorporated an Errata for the Proposed Amendments into the public record, which reflects corrections to the methodology for implementing existing cost inputs and assumptions and references to subsection numbers of the Proposed Regulation Order associated with three documents (i.e., Staff Report: Initial Statement of Reasons; Appendix D-1, Draft EA; and Appendix E, Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies for Commercial Harbor Craft). With the addition of this Errata document to the rulemaking record, CARB extended the comment period until November 15, 2021 for written comments on the Proposed Amendments and Errata document. In addition, verbal comments received at the public hearing on November 19, 2021 were included in the rulemaking record. Staff hosted a public workshop on January 12, 2022; verbal comments related to the Draft EA are responded to in the Response to Comments on the Draft Environmental Analysis. In all, a total of 3,279 comment letters were received. 283 of the comment letters were determined to raise significant environmental issues related to the analysis in the Draft EA and are responded to in the Response to Comments on the Draft Environment.

CARB staff made modifications to the Draft EA to create the Final EA. To facilitate identifying modifications to the document, modified text is presented in the Final EA with strike-through for deletions and underline for additions. None of the modifications alter any of the types of foreseeable compliance responses evaluated or conclusions reached in the Draft EA, introduce new significant effects on the environment, or provide new information of substantial importance relative to the proposed project. As a result, these revisions do not require recirculation of the draft document pursuant to the CEQA Guidelines, California Code of Regulations, Title 14, Section 15088.5, before consideration by the Board. In addition, there have been some formatting updates to headings throughout the Final EA for ease of navigating the document.

# I. Introduction and Background

## A. Introduction

This ~~Draft~~Final Environmental Analysis (~~Draft~~Final EA) ~~is included as Appendix D of the California Air Resources Board (CARB or Board) Initial Statement of Reasons (ISOR or Staff Report) for the "Proposed Amendments to the Airborne Toxic Control Measure for Commercial Harbor Craft" (Proposed Amendments). The Project Description section of this Draft~~Final ~~EA~~ presents a summary of the Proposed Amendments. A

detailed description of the Proposed Amendments is available in the Staff Report released September 21, 2021, which is hereby incorporated by reference and available at https://ww2.arb.ca.gov/rulemaking/2021/chc2021.

Resource areas discussed in this Final EA are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Based on CARB's review, staff determined that implementing the Proposed Amendments may result in adverse environmental impacts. For each significant or potentially significant impact, CARB is required to identify potentially feasible mitigation measures. This Final EA also includes an analysis of potentially feasible alternatives to the Proposed Amendments that could avoid or substantially lessen the identified impacts while meeting most of the basic project objectives. The Final EA also discusses environmental benefits expected from implementing the Proposed Amendments to the CHC Regulation.

## B. Background

Commercial harbor craft (CHC) include a wide range of vessel categories, including but not limited to ferries, excursion vessels[1], tugboats, crew and supply vessels[2], work boats, fishing boats, barges, and dredge vessels. For a complete list and definitions of each type of CHC, refer to the Proposed Regulation Order, which is Appendix A to the ISOR. There are approximately 3,159 commercial harbor craft vessels with 7,240 diesel-fueled engines operating in Regulated California Waters.

CARB adopted the original CHC Regulation in September 2008, and it became effective in November 2008.[3] The CHC Regulation was originally developed pursuant to several action plans and standards aimed at reducing risk for people and the environment from emissions created from goods movement. Consistent with the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles, the CHC Regulation reduces PM emissions from diesel fueled engines in CHC. Consistent with the Goods Movement Action Plan, the CHC Regulation addresses the air quality impacts of moving freight throughout California. The CHC Regulation also assists the state in meeting attainment goals under the Clean Air Act. Marine emission standards are divided into increasingly stringent levels or tiers; the allowable emission level and effective dates vary with horsepower of the CHC. The original CHC Regulation requires engines on all new CHC to meet applicable U.S.

[1] Excursion Vessels transport passengers for purposes including, but not limited to, dinner cruises; harbor, lake, river tours; scuba diving expeditions; parasailing expeditions; any type of for-hire charters for pleasure purposes; and whale watching tours.

[2] Crew and Supply vessels are used for carrying personnel and/or supplies to and from off-shore and harbor locations such as off-shore work platforms, construction sites, islands, and other vessels.

[3] CARB, Final Regulation Order: Airborne Toxic Control Measure for Diesel Engines on Commercial Harbor Craft Operated within California Waters and 24 Nautical Miles of the California Baseline, Title 17 section 93118.5, 2008, last accessed August 15, 2021, *https://ww2.arb.ca.gov/sites/default/files/classic/regact/2007/chc07/rev93118.pdf*.

Environmental Protection Agency (U.S. EPA) marine engine emission standards at the time the vessel was acquired for use in California.

Amendments to the CHC Regulation were necessary to further support emissions reductions from commercial harbor craft specifically by adding new vessel categories to the regulation (crew and supply, barge, and dredge vessels). The first amendments to the CHC Regulation were proposed in 2010 and adopted June 2011.[4] Pursuant to the 2011 amendments, existing or in-use engines must meet U.S. EPA Tier 2 or Tier 3 standards based on a phased-in compliance schedule. The amendments required that crew and supply vessels previously subject to the new engine provisions also meet in-use engine emission limits. Prior to these amendments, some barges and dredges were subject to the Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater (Portable Engine ATCM) and others were subject to the CHC Regulation. CARB modified the Portable Equipment Registration Program[5] (PERP) and the CHC Regulation to clarify that regardless of whether auxiliary engines are permitted by a local air district or registered in PERP, if they are permanently affixed to a vessel, they are subject to the CHC Regulation instead of the Portable Engine ATCM.

The Staff Reports for both the original and amended regulations adopted by the Board did not identify any significant adverse environmental impacts.

### C. Requirements Under CARB's Certified Regulatory Program

CARB is the lead agency for the Proposed Amendments and has prepared this ~~Draft~~ Final EA pursuant to its CEQA certified regulatory program. Public Resources Code (PRC) Section 21080.5 allows public agencies with regulatory programs to prepare a "functionally equivalent" or substitute document in lieu of an environmental impact report (EIR) or negative declaration, once the regulatory program has been certified by the Secretary for Natural Resources as meeting the requirements of CEQA. CARB's regulatory program was certified by the Secretary of the Resources Agency in 1978 (14 California Code of Regulations [CCR] Section 15251(d)). As required by CARB's certified regulatory program, and the policy and substantive requirements of CEQA, CARB prepared this ~~Draft~~ Final EA to assess the potential for significant adverse and beneficial environmental impacts associated with the proposed actions and to provide a succinct analysis of those impacts (14 CCR section 60004.2). The resource areas from the CEQA Guidelines (14 CCR Section 15000 et. seq) Environmental Checklist

[4] CARB, Final Regulation Order: Amendments to the Regulations to Reduce Emissions from Diesel Engines on Commercial Harbor Craft Operated within California Waters and 24 Nautical Miles of the California Baseline, Title 17 section 93118.5, 2010, last accessed August 15, 2021, *https://ww2.arb.ca.gov/sites/default/files/classic/regact/2010/chc10/frochc931185.pdf*.

[5] PERP is a voluntary program allowing owners and operators of portable equipment to use their equipment throughout California without needing to obtain individual permits from local air districts.

(Appendix G of the Guidelines) were used as a framework for assessing potentially significant impacts.

CARB has determined that approval of the Proposed Amendments is a "project" as defined by CEQA. CEQA defines a project as "the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and that is an activity directly undertaken by any public agency (14 CCR Section 15378(a))." Although the policy aspects of the Proposed Amendments do not directly change the physical environment, indirect physical changes to the environment could result from reasonably foreseeable compliance responses taken in response to implementation actions identified in the Proposed Amendments.

The requirements of PRC Section 21159 apply when CARB adopts a rule or regulation requiring the installation of pollution control equipment, or a performance standard or treatment requirement. Thus, as required by CEQA, this ~~Draft~~ Final EA contains "an environmental analysis of the reasonably foreseeable methods by which compliance with that rule or regulation will be achieved (14 CCR Section 15378)." The analysis shall include reasonably foreseeable environmental impacts of the methods of compliance, reasonably foreseeable feasible mitigation measures related to significant impacts, and reasonably foreseeable alternative means of compliance that would avoid or eliminate significant impacts.

### D. Scope of Analysis and Assumptions

The degree of specificity required in a CEQA document corresponds to the degree of specificity inherent in the underlying activity it evaluates. An environmental analysis for broad programs cannot be as detailed as for specific projects (14 CCR Section 15146). For example, the assessment of a construction project would be naturally more detailed than one concerning the adoption of a local general plan because construction-related effects can be predicted with more accuracy (14 CCR Section 15146(a)). Because this analysis addresses a broad regulatory program, a general level of detail is appropriate. However, this ~~Draft~~Final EA makes a diligent effort to evaluate significant adverse impacts and beneficial impacts of the reasonably foreseeable compliance responses that could result from implementation of the Proposed Amendments and contains as much information about those impacts as is currently available, without being unduly speculative.

The scope of analysis in this ~~Draft~~Final EA is intended to help focus public review and comments on the Proposed Amendments, and ultimately to inform the Board of the environmental benefits and adverse impacts of the proposal. This analysis specifically focuses on potentially significant adverse and beneficial impacts on the physical environment resulting from reasonably foreseeable compliance responses resulting from implementation of the Proposed Amendments.

The analysis of potentially significant adverse environmental impacts of the Proposed Amendments is based on the following assumptions:

1) This analysis addresses the potentially significant adverse environmental impacts resulting from implementing the Proposed Amendments compared to existing conditions.

2) The analysis of environmental impacts and determinations of significance are based on reasonably foreseeable compliance responses taken in response to implementation of the Proposed Amendments.

3) The analysis addresses environmental impacts within California and outside the State to the extent they are reasonably foreseeable and do not require speculation.

4) The level of detail of impact analysis is necessarily and appropriately general because the Proposed Amendments are programmatic. The general locations of harbors and marinas in California that may be covered under the Proposed Amendments are known. Additionally, CARB has conducted statewide estimates as needed to evaluate economic impacts of the Proposed Amendments based on anticipated decisions by the regulated entities regarding compliance options. However, these are statewide estimates and not tied to specific locations (e.g., marinas, harbors) or vessels. The precise locations of the many components covered in the Proposed Amendments are unknown. Furthermore, attempting to predict decisions by entities regarding the specific location and design of infrastructure undertaken in response to implementation of the Proposed Amendments would be speculative (if not impossible) at this early stage, given the influence of many business and market considerations in those decisions. As a result, there is some inherent uncertainty in the degree of potential impacts, as well as the mitigation that would ultimately need to be implemented to reduce any potentially significant impacts identified in this ~~Draft~~Final EA. Consequently, this Final EA takes the conservative approach in its post-mitigation significance conclusions (i.e., tending to overstate the environmental impacts and the potential that feasible mitigation may not be implemented by the agency with authority to do so, or may not be sufficient) and discloses, for CEQA compliance purposes, that potentially significant environmental impacts may be unavoidable, where appropriate. It is also possible that the amount of mitigation necessary to reduce environmental impacts to less-than-significant levels may be less than disclosed in this ~~Draft~~Final EA on a case-by-case basis. Specific actions undertaken to implement the Proposed Amendments would undergo project-level environmental review and compliance processes as required at the time they are proposed. It is expected that many individual development projects would be able to feasibly avoid or mitigate potentially significant impacts to less-than-significant levels, at the time when they undergo specific local land use agency review.

## E. Organization of the ~~Draft~~Final EA

The ~~Draft~~Final EA is organized into the following chapters to assist the reader in obtaining information about the Proposed Amendments and their specific environmental issues.

**Chapter 1, Introduction and Background,** provides a project overview and background information, and other introductory material.

**Chapter 2, Project Description,** summarizes the Proposed Amendments, the potential reasonably foreseeable compliance responses, and implementation assumptions.

**Chapter 3, Environmental and Regulatory Setting,** contains the environmental setting and regulatory framework relevant to the environmental analysis of the Proposed Amendments.

**Chapter 4, Impact Analysis and Mitigation Measures,** identifies the potential environmental impacts associated with the Proposed Amendments and mitigation measures for each resource impact area.

**Chapter 5, Cumulative and Growth-Inducing Impacts,** analyzes the potential for cumulative effects of implementing the Proposed Amendments against a backdrop of past, present, and reasonably foreseeable future projects.

**Chapter 6, Mandatory Findings of Significance,** discusses the potential for adverse impacts on human beings, cumulatively considerable environmental impacts, and whether the Proposed Amendments would have the potential to degrade the quality of the environment.

**Chapter 7, Alternatives Analysis,** discusses a reasonable range of potentially feasible alternatives that could reduce or eliminate adverse environmental impacts associated with the Proposed Amendments.

## F. Public Review Process for the Draft EA

On September 17, 2020, CARB issued a Notice of Preparation for the Proposed Amendments, announcing that it would prepare an EA.

At a public workshop held on September 30, 2020, CARB staff discussed proposed regulatory activities for drafting the Proposed Amendments. Staff also described plans to prepare a Draft EA for the Proposed Amendments and invited public feedback on the scope of environmental analysis. In accordance with CARB's certified regulatory program, and consistent with CARB's commitment to public review and input on regulatory actions, ~~this~~the Draft EA ~~is~~was subject to a public review process. The Staff Report, which ~~includes~~included ~~this~~the Draft EA, ~~is~~was posted for a public review period that began on September ~~24~~21, 2021, ~~and ends on~~ for a 45-day public review

and comment period that was originally scheduled to close at the end of November 8, 2021. This period complies with requirements for a minimum of 45 days of public review. On October 1, 2021, CARB incorporated an Errata for the Proposed Amendments into the public record, which reflect corrections to the methodology for implementing existing cost inputs and assumptions, and references to subsection numbers of the Proposed Regulation Order associated with three documents, including the Draft EA. With the addition of the Errata document to the rulemaking record, CARB extended the comment period until November 15, 2021.

At the conclusion of the public review period for the Draft EA, the Board ~~will hold~~held a public hearing~~s~~ on the Proposed Amendments. At the first hearing~~, currently scheduled for~~on November 19, 2021, the Board ~~will~~ received public input regarding the proposal, and provided direction to staff on ~~modifications to~~ the Proposed Amendments.

~~Staff would address any proposed changes in a notice that would be issued with modified regulatory language and supporting documentation for one or more 15-day review and comment periods as required under the Administrative Procedure Act.~~

~~At the conclusion of all review periods, staff will~~Staff has compiled public comments and responses, including comments on the Draft EA made during the noticed 45-day comment period for the ~~(or during any further comment period if CARB determines recirculation of the Draft EA is necessary)~~, November 19, 2021 Board Hearing, and January 12, 2022 Public Workshop, and prepared a final hearing package, which ~~will~~ includes the Final EA and responses to environmental comments, for the Board's consideration at a second public hearing. This second public hearing is currently planned for March 24, 2022. If the Proposed ~~final~~ Amendments are adopted by the Board at that time, a Notice of Decision will be posted on CARB's regulatory webpage and will be filed with the Secretary of the Natural Resources Agency. The Final Statement of Reasons (FSOR) for the Proposed Amendments would be prepared by staff and the completed regulatory package would be filed with the Office of Administrative Law.

## G. Summary of Impacts

Attachment B provides a summary of impacts and proposed mitigation measures. Significance determinations are also provided in Table D-1a, for the impacts that are fully discussed in Section 4.0, Impact Analysis and Mitigation Measures.

**Table D-1a. Summary of Impacts**

| Impact | Significance | Mitigation | Significance after Mitigation |
|---|---|---|---|
| Impact 1-1: Short-Term Construction-Related Impacts on Aesthetics | Potentially significant | Mitigation Measure 1-1 | Potentially significant and unavoidable |
| Impact 1-2: Long-Term Operational Impacts on Aesthetics | Potentially significant | Mitigation Measure 1-2 | Potentially significant and unavoidable |

| Impact | Significance | Mitigation | Significance after Mitigation |
|---|---|---|---|
| Impact 2-1: Short-Term Construction-Related and Long-Term Operation-Related Effects to Agriculture and Forestry Resources | Potentially significant | Mitigation Measure 2-1 | Potentially significant and unavoidable |
| Impact 3-1: Short-Term Construction-Related Impacts on Air Quality | Potentially significant | Mitigation Measure 3-1 | Potentially significant and unavoidable |
| Impact 3-2: Long-Term Operational-Related Impacts on Air Quality | Less than significant | N/A | N/A |
| Impact 4-1: Short-Term Construction-Related Impacts on Biological Resources | Potentially significant | Mitigation Measure 4-1 | Potentially significant and unavoidable |
| Impact 4-2: Long-Term Operational Impacts on Biological Resources | Potentially significant | Mitigation Measure 4-2 | Potentially significant and unavoidable |
| Impact 5-1: Short-Term Construction-Related and Long-Term Operational Impacts on Cultural Resources | Potentially significant | Mitigation Measure 5-1 | Potentially significant and unavoidable |
| Impact 6-1: Short-Term Construction-Related Effects on Energy Demand | Less than significant | N/A | N/A |
| Impact 6-2: Long-Term Operation-Related Effects on Energy Demand | Less than significant | N/A | N/A |
| Impact 7-1: Short-Term Construction-Related and Long-term Operation-Related Impacts on Geology and Soils | Potentially significant | Mitigation Measure 7-1 | Potentially significant and unavoidable |
| Impact 8-1: Short-Term Construction-Related Impacts on Greenhouse Gases | Less than significant | N/A | N/A |
| Impact 8-2: Operational Impacts on Greenhouse Gases | Less than significant | N/A | N/A |
| Impact 9-1: Short-Term Construction-Related Impacts to Hazards and Hazardous Materials | Potentially significant | Mitigation Measure 9-1 | Potentially significant and unavoidable |
| Impact 9-2: Long-Term Operational Impacts to Hazards and Hazardous Materials | Potentially significant | Mitigation Measure 9-2 | Potentially significant and unavoidable |
| Impact 10-1: Short-Term Construction-Related Impacts to Hydrology and Water Quality | Potentially significant | Mitigation Measure 10-1 | Potentially significant and unavoidable |
| Impact 10-2: Long-Term Operational Impacts to Hydrology and Water Quality | Potentially significant | Mitigation Measure 10-2 | Potentially significant and unavoidable |
| Impact 11-1: Short-Term Construction-Related and Long-Term Operation-Related Impacts on Land Use and Planning | Less than significant | N/A | N/A |
| Impact 12-1: Short-Term Construction-Related and Long-Term Operation-Related Impacts on Mineral Resources | Less than significant | N/A | N/A |
| Impact 13-1: Short-Term Construction Related Impacts to Noise | Potentially significant | Mitigation Measure 13-1 | Potentially significant and unavoidable |
| Impact 13-2: Long-Term Operational Impacts on Noise | Potentially significant | Mitigation Measure 13-2 | Potentially significant and unavoidable |
| Impact 14-1: Short-Term Construction-Related and Long-Term Operation-Related Effects to Population and Housing | Less than significant | N/A | N/A |

| Impact | Significance | Mitigation | Significance after Mitigation |
|---|---|---|---|
| Impact 15-1: Short-Term Construction-Related and Long-Term Operation-Related Effects to Public Services | Less than significant | N/A | N/A |
| Impact 16-1: Short-Term Construction-Related and Long-Term Operation-Related Effects to Recreation | Less than significant | N/A | N/A |
| Impact 17-1: Short-Term Construction-Related Effects to Transportation and Traffic | Potentially significant | Mitigation Measure 17-1 | Potentially significant and unavoidable |
| Impact 17-2: Long-Term Operation-Related Effects to Transportation | Potentially significant | Mitigation Measure 17-2 | Potentially significant and unavoidable |
| Impact 18-1: Short-Term Construction-Related and Long-Term Operational Impacts on Tribal Cultural Resources | Potentially significant | Mitigation Measure 18-1 | Potentially significant and unavoidable |
| Impact 19-1: Short-Term Construction-Related and Long-Term Operational Impacts on Utilities and Service Systems | Potentially significant | Mitigation Measure 19-1 | Potentially significant and unavoidable |
| Impact 20-1: Short-Term Construction-Related and Long-Term Operation-Related Effects on Wildfire | Less than significant | N/A | N/A |

# II. Project Description

## A. Objectives

The CHC Regulation is included in CARB's Community Air Protection Blueprint,[6] as well as the associated Environmental Analysis prepared for the Blueprint.[7] The Blueprint identifies statewide strategies for delivering emission reductions in communities heavily affected by freight sources, as required by Assembly Bill (AB) 617. The Proposed Amendments to the CHC Regulation are also one of several actions CARB is undertaking in addition to the State Implementation Plan (SIP) commitments intended to collectively reduce community health risk, attain regional air quality standards, and mitigate climate change, while pushing forward the adoption of Zero Emission and Advanced Technologies (ZEAT). The following objectives are presented for the Proposed Amendments:

1) Provide additional public health benefits for communities near ports and marine terminals that are heavily burdened by freight pollution, and for workers and passengers on harbor craft;

2) Assist in achieving CARB's proposed strategy to attain health-based federal air quality standards as part of nonattainment area State Implementation Plans;

3) Incorporate additional CHC vessel categories into the CHC Regulation, including but not limited to all tank barges and additional types of commercial passenger fishing vessels;

4) Establish more stringent requirements than are currently required by the existing CHC Regulation, and expand the requirements in the existing CHC Regulation;

5) Expand in-use engine standards to CHC engines of all sizes and power displacements;

6) Reduce dependence on petroleum as an energy resource by requiring the adoption of ZEAT, such as battery electric and hydrogen fuel cell electric drivetrains, on all short-run ferries and new excursion vessels;

7) Require use of renewable and low carbon diesel fuel in support of statewide greenhouse gas (GHG) reduction goals in all diesel engines;

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[6] CARB, Community Air Protection Blueprint, October 2018, last accessed August 9, 2021, *https://ww2.arb.ca.gov/sites/default/files/2020-10/Blueprint_Complete_Oct2018.pdf*.
[7] Ibid.

8) Advance zero-emission and clean combustion marine technologies in California, which would create additional for cleaner marine engines meeting these standards in other jurisdictions worldwide; and,

9) Further the goals of Executive Order N-79-20 by driving further implementation of ZEAT in California's off-road sector.

### B. Overview of Proposed Amendments

The Proposed Amendments require more stringent in-use and new vessel requirements and expand regulatory requirements to vessel categories that did not previously need to upgrade engines, such as certain types of barges, research vessels, work boats, and commercial passenger fishing vessels. The in-use regulatory amendments would require that the majority of regulated in-use and new vessels meet a performance standard equivalent to the cleanest available engine standards: Tier 3 (or 4 if certified for the horsepower range) plus a diesel particulate filter (DPF). An exception is that commercial fishing vessels have separate requirements than all other regulated vessels.

The Proposed Amendments would also include engines below 50 horsepower in the CHC Regulation, which are currently excluded from the CHC Regulation's in-use performance standards. However, the Proposed Amendments still provide a low-use compliance exception for vessel engines with infrequent operation. The Proposed Amendments include requirements for the adoption of ZEAT where feasible for all operations in California. CARB staff has identified two areas that are technologically feasible and cost effective for zero emission- operations: new and in-use short run ferries, and new excursion vessels. The Proposed Amendments include additional pathways for adopting ZEAT for any CHC operation where a given operation is feasible but not required.

The Proposed Amendments' implementation timeline consists of compliance deadlines between 2023 and 2032. If eligible and approved, compliance dates can be extended to as late as 2034. See Table D-1b for the detailed compliance schedule. The Proposed Amendments are described in more detail in Chapter III of the Staff Report/ISOR. The following figure is provided to facilitate understanding of the compliance requirements and regulatory timeline, and does not take the place of the requirements in the Proposed Amendments.

**Table D-1b. Regulation Timeline: Major Compliance Requirements of Existing and Proposed Amendments Based on Engine Model Year**

| Current Regulation | | Proposed Amendments (Implementation Dates) – December 31st of compliance year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **2021 & Earlier** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | **2032** |
| IN-USE VESSEL REQUIREMENTS | | | | | | | | | | | |
| Tier 2 or 3 (Tugs, Ferries, Excursion, Crew & Supply, Barge, Dredge) | | **Any Pre-Tier 1 and 1 → Tier 4*** (generally Workboats, Research, Pilot, Tank Barges, and CPFV) | | | | | | | | | |
| | | ≤ MY 1993 | MY 1994-2001 | MY 2002-2006 | | | | | | | |
| | | | Tier 2, 3, 4 → Tier 4*+DPF** Ferries (Except Short Run), Pilot***, All Tugs | | | | | | | | |
| | | | MY 2007-2009 | MY 2010-2012 | MY 2013-2015 | MY 2016-2019 | MY 2020-2021 | MY 2022+ | | | |
| | | | | | Tier 2, 3, 4 → Tier 4*+DPF** Research, CPFV, Excursion | | | | | | |
| | | | | | MY 2007-2010 | MY 2011-2012 | MY 2013-2014 | MY 2015-2017 | MY 2018+ | | |
| | | | | | | | Tier 2, 3, 4 → Tier 4*+DPF** Dredges, Barges, Crew & Supply, Workboats | | | | |
| | | | | | | | MY 2007-2009 | MY 2010-2013 | MY 2014-2017 | MY 2018+ | |
| | | | | | | | | | Any Pre-Tier 1 and 1 → Tier 2 or Cleaner *Commercial Fishing* | | |
| | | | | | | | | | ≤ MY 1987 | MY 1988-1997 | MY 1998+ |
| Other VESSEL REQUIREMENTS | | | | | | | | | | | |
| Tier 2, 3, or 4 All New Vessels Tier 3 + BACT New Ferries Carrying 75+ Passengers | | | New Excursion: Zero-Emission Capable (e.g., Plug-in Hybrid) 30% or more of power must be derived from a zero-emission tailpipe source | | | | | | | | |
| | | | | New and In-Use Short-Run Ferries: Zero-Emission | | | | | | | |

**Retrofit DPF requirements would apply to all Tier 3 and Tier 4 engines.
***Pilot vessels at Tier 2, 3, or 4 with MY 2007-2009 would not need to comply until December 31, 2025

## C. Reasonably Foreseeable Compliance Responses

### 1. Vessel or Engine Replacement

The more-stringent in-use requirements would require repowering if engines do not meet the performance standards equivalent to the cleanest available marine standards plus a DPF; this would involve repowering CHC with engines that meet a performance standard equivalent to the cleanest available marine standards (Tier 3 or Tier 4 below 600 kilowatts [kW], Tier 4 above 600 kW) plus a DPF. For repower of engines below 600 kW, if there is a suitable engine model certified to Tier 4 marine standards available at the time the engine order is placed, then a Tier 4 engine must be used.

Up to ~~14~~12 percent of all CHC subject to the Proposed Amendments (approximately ~~269~~368 out of 3,159 vessels) are expected to cease operations in Regulated California Waters[8] or be replaced between the years 2023 and 2034. Some of these vessels would be replaced with new vessels, but most are expected to be rebuilt or retrofitted with newer engines and/or with DPFs. It is assumed not all vessels removed from service would be replaced, however, from this prediction, there could be up to ~~269~~368 new vessels built in the 12-year timeframe as a result of the Proposed Amendments. CARB staff assumes new vessels will steadily penetrate the CHC inventory from 2024 through 2034. However, more vessel modifications and turnover may occur in the years 2029 through 2034 because of the end of compliance extensions and due to compliance deadlines.

Construction and modification of vessels would likely occur both inside and outside of California. As outlined in Section IV.E of Appendix E to the ISOR, CARB staff performed a survey of existing shipyards in California, Oregon, and Washington, which confirmed there is sufficient capacity to repower, retrofit, and build new vessels in response to the Proposed Amendments. The survey identified capacity for 23 percent of repowers and retrofits (82 out of 353 repowers per year), and capacity for 73 percent of new ship builds (72 out of 98 new builds per year) in either Oregon or Washington. Therefore, the majority of new vessel builds are expected to occur outside of California. This may be particularly likely because labor can be cheaper in other states. Given the identified shipbuilding capacities, there would be no

[8] As defined in the Revised Draft Regulatory Language, "Regulated California Waters," or "RCW," means all of the following: (A) all California internal waters; (B) all California estuarine waters; (C) all California ports, roadsteads, and terminal facilities (collectively "ports"); (D) all waters within 3 nautical miles of the California baseline, starting at the California-Oregon border and ending at the California-Mexico border at the Pacific Ocean, inclusive (E) all waters within 12 nautical miles of the California baseline, starting at the California-Oregon border and ending at the California-Mexico border at the Pacific Ocean, inclusive; (F) all waters within 24 nautical miles of the California baseline, starting at the California-Oregon border to 34.43 degrees North, 121.12 degrees West; inclusive; and (G) all waters within the area, not including any islands, between the California baseline and a line starting at 34.43 degrees North, 121.12 degrees West; thence to 33.50 degrees North, 118.58 degrees West; thence to 32.65 degrees North, 117.81 degrees West; and ending at the California-Mexico border at the Pacific Ocean, inclusive.

foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments.

CARB staff predicts most retired vessels would be sold out of state, not scrapped. Based on preliminary conversations with industry leaders, CARB staff expects many vessels to be sold or moved to other states or countries on the North American West Coast. Larger, more costly, or other specialty vessels could be sold and transferred to regions around the globe.

Newly built engines certified to Tier 4 marine emission standards generally include selective catalytic reduction (SCR) systems to meet applicable oxides of nitrogen (NOx) limits. These systems can take up additional amounts of space onboard vessels, and each engine (i.e., main and auxiliary) has to have its own SCR system. Therefore, many new engines sold to replace existing engines are currently allowed to meet Tier 3 standards, which do not require SCR systems, pursuant to a U.S. EPA replacement engine exemption; this practice would remain the same under the Proposed Amendments. SCR retrofits on marine vessels are also uncommon, because this is not the primary compliance pathway used or required by CARB's existing CHC Regulation, and there is no other in-use regulation for CHC elsewhere in the United States.

### 2. Zero-Emission Capable Hybrid Vessels

New excursion vessels, such as vessels used for whale watching, could utilize Zero-Emission Capable Hybrid technologies. As defined, a Zero-Emission Capable Hybrid Vessel uses two or more on-board power sources, one of which provides at least 30 percent of vessel power, when averaged over a calendar year, with zero-exhaust-emissions. New vessels equipped with this technology would require a hybrid power train with an engine meeting the Tier 4 + DPF performance standards.[9]

For all Zero-Emission Capable Hybrid vessels, on-board zero-emission power sources would be needed, such as hydrogen fuel cells or batteries. CARB staff estimates that by 2031, there would be ~~11~~14 new excursion vessels that are zero-emission capable and would derive 30 percent or more of their power from a zero-emission source, such as on-board batteries or hydrogen.

At the time of this ~~Draft~~Final EA's preparation, the most reasonably foreseeable compliance response for Zero-Emission Capable Hybrid vessels is to use battery-electric technology. At this time, battery-electric technology is more commonly used on marine vessels, and CARB staff expects this technology to be used the most in response to the Proposed Amendments. Whereas every excursion vessel operation varies, one Zero-Emission Capable Hybrid, the Red and White Fleet's Enhydra, which operates in the San Francisco Bay is equipped with a 160-kW

[9] DPF performance standards are defined in Tables 7 through 9 of the Revised Draft Regulatory Language.

lithium-ion battery. For comparison, this battery size is approximately equivalent to size that would come installed in three light-duty passenger cars capable of driving 200 miles each on a full charge.[10] Whereas demand for lithium-ion based batteries could result in an increase in manufacturing and recycling facilities as a result of the Zero-Emission Capable Hybrid requirement in the Proposed Amendments, the demand relative to the supply of lithium-ion based batteries is negligible relative to the demand resulting from Governor Brown's EO B-48-18 that called for 1.5 million zero-emission vehicles (ZEVs) on the road by 2025, and 5 million ZEVs on the road by 2030. As a result, the magnitude of demand increases for lithium-ion batteries and facilities to manufacture them from the Proposed Amendments is inconsequential relative to demand from existing sectors.

Notwithstanding the trivial increase in demand of lithium-ion batteries resulting from the Zero-Emission Capable Hybrid requirements of the Proposed Amendments, there could be, both domestically and abroad, extremely small increases in lithium mining and exports from countries with raw mineral supplies (e.g., Chile, Argentina, and China) to produce the equivalent of 3 light-duty batteries each for ~~11~~14 vessels. Though there is uncertainty and variation in the amount of lithium in batteries, one estimate is that there is approximately 160 grams of lithium in a battery per kWh of battery.[11] About 25.6 kilograms (kg) of lithium would be in a battery like the 160-kW lithium-ion battery used in the Red and White Fleet's Enhydra. For ~~11~~14 vessels, this would require about ~~281.6~~358.4 kg of lithium. For context, Australia alone exported 51,000 tons of lithium in 2018, with several other countries also exporting thousands of tons of lithium.[12] The United States is also a source for lithium (e.g., a mining operation currently exists in Nevada). Disposal of batteries would be subject to, and comply with, existing laws and regulations governing solid waste and hazardous waste, such as California's Universal Waste Rule (22 CCR Chapter 23). That is, disposal of used batteries into solid waste landfills is prohibited; however, batteries could be refurbished or re-used, recycled, or disposed of as hazardous waste. To meet an increased demand for refurbishing or reusing batteries, CARB staff anticipates an extremely small increase in use of facilities for these purposes because the demand for batteries is anticipated to be limited to those needed for ~~11~~14 new excursion vehicles. To meet an increased demand of refurbishing or reusing batteries, CARB staff does not anticipate that new facilities or modifications to existing facilities would be needed as a result of the Proposed Amendments given the small magnitude of increased lithium battery use from the Proposed Amendments against the backdrop of broader increased demand.

[10] Assuming an energy consumption economy of 3.8 miles/kW-hr.

[11] Martin, Paul, How Much Lithium is in a Li-Ion Vehicle Battery? November 29, 2017, last accessed August 9, 2021, *https://www.linkedin.com/pulse/how-much-lithium-li-ion-vehicle-battery-paul-martin/*.

[12] Jaskula, Brian, Lithium, Mineral Commodity Summaries, USGS, January 2020, last accessed August 11, 2021, *https://pubs.usgs.gov/periodicals/mcs2020/mcs2020-lithium.pdf*.

Fuel cells are not thought to be a likely option as a compliance pathway at this time because that technology is not as developed, although it shows promise as a potential technology and is therefore considered as reasonably foreseeable in this EA, although it is not the compliance response expected for most vessels. CARB is funding the construction of a new passenger ferry that will be powered by hydrogen fuel cells, but unlike vessels with battery-electric propulsion, to CARB staff's knowledge, no fuel cell vessel is operating in normal revenue service in the United States as of July 2021. Even if hydrogen fuel cell technology begins to comprise a substantial fraction of the marine zero-emission powertrain market, it is not anticipated that additional facilities would be needed for fuel cell technology because the number of vessels expected to go zero-emission as a result of the Proposed Amendments would be relatively small relative to the number of zero-emission trucks, buses, and other on-road equipment that would also be manufactured in response to other clean air incentives, regulations, and policies within California and beyond. It is possible that compliance responses may contribute at some level to demand for fuel cells as more sectors respond to Executive Order (EO) N-79-20,[13] which broadly directs the state's on- and off-road vehicle fleets to transition to zero-emission technology by certain dates. An increase in demand for fuel cells could result in an extremely small increase in platinum mining and exports from source countries or other states and increased recycling, refurbishment, or disposal of hydrogen fuel cells at existing facilities. The number of vessels with fuel cells that might be ultimately used in response to the Proposed Amendments is not known at this time given the early stages of the technology. Variables include number of fuel cells and type of fuel cell. For context, a typical electric vehicle requires about 30 grams of platinum. Presuming that, as for lithium, a vessel battery would be larger than a typical electric vehicle, more platinum would be needed. For comparison, world production of platinum in 2020 was 186,000 metric tons.[14] Any increased rates of disposal of hydrogen fuel cells would need to comply with California law, including but not limited to California's Hazardous Waste Control Law and implementing regulations. Use of hydrogen fuel cells would also require installation of fueling infrastructure.

As mentioned, Zero-Emission Capable Hybrid vessels would likely require land based electrical power (i.e., charging infrastructure and shore power infrastructure) and CARB staff analyses predict up to one megawatt of power may be used to charge their batteries. This compliance option could result in charging infrastructure and equipment installation and modifications to marinas, docks, and harbors to allow for vessels to access electricity. Modifications to land to include shore power or Zero-Emission Capable Hybrid vessel charging equipment could include trenching for conduit lines, adding connection and electrical panels and vessel specific charging connectors, electrical cables, or other systems. Although unlikely, there is a possibility that docks and marinas could require pile driving for structural reinforcement or

[13] Executive Order N-79-20, September 23, 2020, last accessed August 15, 2021, *https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf*.
[14] Schulte, Ruth, Mineral Commodity Summaries, Platinum Group Metals, January 2021, last accessed August 11, 2021, *https://pubs.usgs.gov/periodicals/mcs2020/mcs2020-platinum.pdf*.

additions to accommodate increased weight associated with charging equipment. CARB staff estimate that each new excursion vessel will likely result in charging infrastructure for each of the ~~11~~14 new vessels deployed. The Proposed Amendments do not include an in-use excursion vessel zero-emission requirement, thus the number of excursion vessels using the plug-in hybrid option for compliance would be limited to new-build vessels, and any other vessels deployed by fleets as part of an Alternative Control of Emissions (ACE) plan or to receive a ZEAT compliance credit of three years as outlined in subsection (e)(10) of the Proposed Amendments.

Similar to other compliance responses for the Proposed Amendments, the majority of vessel new builds would be conducted at drydocks outside of California. In addition, as outlined in Section IV.E of Appendix E to the ISOR, CARB staff performed a survey of existing shipyards in California, Oregon, and Washington State, which confirmed there is sufficient capacity to repower, retrofit, and build new vessels in response to the Proposed Amendments. Therefore, there would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments.

### 3. Fully Electric Vessels (Lithium-ion, Fuel cell)

The Proposed Amendments include zero-emission requirement for short run ferries and new excursion vessels, which could use fully electric technologies. The expected compliance pathways are most likely battery technology, although some hydrogen fuel cells may be used for the same reasons as discussed in the previous section for Zero-Emission Capable Hybrids. As documented the ISOR and supporting appendices, CARB staff estimates that by 2031, there would be an estimated 95 vessels operating with full zero-emission power systems.

CARB staff assumes most, if not all, electric ferries would be retrofitted and not newly built as most zero-emission ferries in operation today have been converted from diesel to battery electric power.[15] In the case where new build vessels are required to meet full zero-emission requirements, aside from the increased demand from lithium-ion battery systems (which is analyzed in this EA), the design and build process of a new zero-emission vessel would not be significantly different than for a conventional diesel-powered vessel. Therefore, no additional impacts from all-electric CHC production are expected, regardless of whether in-use vessels are retrofitted with zero-emission power systems, or newly designed and built.

Basing assumptions regarding future all-electric vessels on ones currently in operation, the vessels typically would utilize high power lithium-ion batteries. As analyzed and presented in Chapter VIII of Appendix E to the ISOR, the average short-run ferry is estimated to have a battery storage capacity of 248 kWh (minimum 44 kWh, maximum 569 kWh). Using the example discussed in Section 2 above for Zero-Emission Capable

[15] For example, the Gee's Bend Ferry and James V. Glynn excursion vessel as discussed in Section VII of Appendix E to the ISOR.

Hybrids, one short-run ferry may require an average of 4.7 times the battery capacity of a single passenger car (with a range of less than one car to approximately 11 cars) capable of driving 200 miles on a charge. CARB staff has identified 16 short-run ferries that will need to transition to zero-emission operations by 2026; therefore, the requirement for short-run ferries to transition to zero-emission, with all complying using battery-electric technology, is expected to require an amount of lithium equivalent to deploying approximately 74 new zero-emission passenger cars. Due to the growing interest in zero-emission operations where feasible, CARB staff projects that up to 79 additional zero-emission vessels may be deployed by 2031 in response to the Proposed Amendments that are not short-run ferries. Because there is no requirement, CARB staff is unable to predict the demand for lithium-ion batteries from the additional vessels because they may vary by vessel category, use case and other parameters. When considering the collective demand from all CHC that may go zero-emission and comply by using high-power lithium-ion battery systems, relative to Statewide targets of 5 million ZEVs by 2030, the demand for lithium-ion batteries resulting from the Proposed Amendments is insubstantial. The increases in demand for lithium-ion based batteries from the Proposed Amendments could result in an extremely small increase in use of manufacturing and recycling facilities both domestically and abroad as well as associated increases in lithium mining and exports from countries with raw mineral supplies (e.g., Chile, Argentina, and China). The United States is also a source for lithium (e.g., a mining operation currently exists in Nevada). As described above in this paragraph, battery size is approximately equivalent to size what would come installed in 4.7 light-duty passenger cars. Though there is uncertainty and variation in the amount of lithium in batteries, one estimate is that there is approximately 160 grams of lithium in a battery per kWh of battery.[16] About 39.7 kg of lithium would be in the battery for the average short-run ferry operating in California as of July 2021. Assuming the other 79 vessels have the same amount of on-board battery storage per vessel as a short-run ferry, this would require about 3,770 kg of lithium for the combined 95 full zero-emission vessels. For context, Australia alone exported 51,000 tons (about 46 million kg) of lithium in 2018, with several other countries also exporting thousands of tons of lithium.[17]

Disposal of batteries would be subject to, and comply with, existing laws and regulations governing solid waste and hazardous waste, such as California's Universal Waste Rule (22 CCR Chapter 23). That is, disposal of used batteries into solid waste landfills is prohibited; however, batteries could be refurbished or re-used, recycled, or disposed of as hazardous waste. To meet an increased demand of refurbishing or reusing batteries, CARB staff does not anticipate that new facilities or modifications to existing facilities would be needed as a result of the Proposed Amendments given the

[16] Martin, Paul, How Much Lithium is in a Li-Ion Vehicle Battery? November 29, 2017, last accessed August 9, 2021, *https://www.linkedin.com/pulse/how-much-lithium-li-ion-vehicle-battery-paul-martin/*.
[17] Jaskula, Brian, Lithium, Mineral Commodity Summaries, USGS, January 2020, last accessed August 11, 2021, *https://pubs.usgs.gov/periodicals/mcs2020/mcs2020-lithium.pdf*.

small magnitude of increased lithium battery use from the Proposed Amendments against the backdrop of broader increased demand.

However, hydrogen fuel cell technology has been shown as a promising technology for use in CHC vessels and is therefore considered as reasonably foreseeable in this EA, although it is not the compliance response expected for most vessels. It is not anticipated that additional facilities would be needed for fuel cell technology because the number of vessels expected to go zero-emission as a result of the Proposed Amendments would be relatively small relative to the number of zero-emission trucks, buses, and other on-road equipment that would also be manufactured. It is possible that compliance responses may contribute at some level to demand for fuel cells as more sectors respond to Executive Order N-79-20. An increase in demand for fuel cells could result in an extremely small increase in platinum mining and exports from source countries or other states and increased recycling, refurbishment, or disposal of hydrogen fuel cells. However, any increased rates of disposal of lithium-ion batteries and hydrogen fuel cells would need to comply with California law, including but not limited to California's Hazardous Waste Control Law and implementing regulations. Use of hydrogen fuel cells would also require installation of fueling infrastructure.

All-electric CHC would require high-power charging at one or both sides of their routes. CARB staff estimates the power load to range between 30 to 853 kW for the 16 short-run ferries as analyzed and discussed in Chapter VIII of Appendix E to the ISOR. Additional dock support structures, trenching for cables, power substations, electrical panels, cables, and cable housing may be required. CARB staff also estimate that infrastructure would be needed in approximately 8 to 10 locations throughout the state for short-run ferry vessels.

### 4. Alternative Fuels and Diesel Exhaust Fluid (DEF)

At the time of writing this ~~Draft EA~~Draft~~Draft~~Final EA, CARB staff is proposing to require the use of at least 99 percent renewable diesel or 100 percent renewable diesel (R99 or R100) for all CHC operating in Regulated California Waters. CARB does not expect the Proposed Amendments would substantially increase demand of R100, and thus the Proposed Amendments are not expected to lead to increased cultivation and transport of feedstock. Demand is already increasing due to increased targets for lower GHG fuels through CARB's Low Carbon Fuel Standard program. This rule would direct R99 or R100 to marine applications where it would achieve a large magnitude of criteria pollutant reductions. Although staff believes infrastructure for R99 or R100 is currently robust enough to allow for use across California, it is possible the use of alternative fuels could require new and separate infrastructure in and near ports, harbors, and marinas across the State, and in other areas, to support the alternative fuel supply chain. This includes infrastructure and equipment such holding tanks, fueling stations, and different fuel delivery trucks.

The requirement for using Tier 4 diesel engines is also anticipated to result in increased demand for diesel exhaust fluid (DEF), which is a consumable liquid

reductant required for proper performance of SCR systems to control NOx emissions. Tier 4 engines already operate using DEF under the Current Regulation; however, accelerated turnover to Tier 4 engines is anticipated to substantially increase this demand. CARB staff anticipates DEF to be dispensed at the location where fuel is already being purchased. Therefore, it is possible that increased demand for DEF could result in modification of existing infrastructure in and near ports, harbors, and marinas across the State.

Additionally, although CARB staff considers it unlikely, some vessels may operate on liquefied natural gas (LNG). To enable use of alternative fuels, substantial new and improved infrastructure would be required in and near ports across the state, and in other areas to support the alternative fuel supply chain. This includes equipment such as natural gas pipelines, holding tanks, distribution centers, and fueling stations.

CARB staff assumes that deployment of alternative fuels and associated infrastructure would be dependent upon a variety of factors that are not under the control or authority of CARB and not within its purview. There are many different programs, agencies and regulatory entities that cover California's energy and fueling infrastructure. Agencies such as the Federal Energy Regulatory Commission, North American Electric Reliability Corporation, California Energy Commission, the California Public Utilities Commission, California Department of Water Resources, and local Air Districts may all have different requirements for infrastructure. Each project may have one or many requirements of which CARB staff is not fully aware that limits the detail provided for the impact analysis; therefore, CARB has quantified the potential air quality and GHG emissions impacts of alternative fuel use emissions benefits of R99 and R100, as it is likely to be used for compliance with the Proposed Amendments. However, LNG and other fuel alternatives, as well as the infrastructure that may be potentially needed to facilitate alternative fuels have not been specifically identified and are therefore discussed at a programmatic level.

### 5. Shore to Vessel Power (Shore Power)

To comply with the Proposed Amendments' requirement for idling limits, CHC vessels would be required to shut down their engines while at dock and, if they still require power, would need to plug in and operate on grid-based electricity. Many CHC vessels already have this capability; however, some may require retrofitting to allow for vessels to be plugged into shore-based power (generally 120 or 240 volts). The proposed idling requirement could also lead to infrastructure modifications or the installation of new infrastructure to allow electricity for CHC use while at dock. Approximately 75 percent of the 276 affected CHC facilities already use shore power in at least some capacity. CARB staff anticipates that approximately half of the remaining 25 percent of facilities (ports, marinas and harbors) across California (35 facilities total) would install new shore power infrastructure in response to the Proposed Amendments. CARB staff further anticipates that the other approximately 241 facilities that are currently equipped for at least some level of shore power capacity would undertake some level of further shore power capacity expansions. This

could involve installation of new electrical lines, outlets, power vaults and cables. CARB staff do not anticipate that these improvements would require structural modifications to docks or terminals, as most of these improvements are small. Furthermore, most docks, even comparatively light ones that float on the water and may not be attached to solid ground, are generally able to support electrical connections.

### D. Summary of Reasonably Foreseeable Compliance Responses

Reasonably foreseeable compliance responses to the Proposed Amendments include vessel replacement, vessel engine replacement, modifications to vessel engines (e.g., addition of diesel particulate filters), and vessel retirement. Production of the majority of new vessels is expected to occur outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments.

Excursion vessels would use either Zero-Emission Capable Hybrid vessels or fully electric vessels. Short-run ferries could also use fully electric vessels. For both vessel types, the most likely technology to be used is battery electric. Battery-electric technology could result in an extremely small increase demand for lithium-ion based batteries, similarly increasing manufacturing and recycling activities at existing facilities domestically and abroad as well as increasing lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. CARB staff does not anticipate new facilities or modifications to existing facilities would be needed to meet an increased demand of refurbishing or reusing batteries.

Fuel cells, as a promising technology, may also be used for Zero-Emission Capable Hybrid vessels or fully electric vessels. It is possible that compliance responses may contribute at some level to demand for fuel cells. An increase in demand for fuel cells could result in an extremely small increase in platinum mining and exports from source countries or other states and increased recycling, refurbishment, or disposal of hydrogen fuel cells. CARB staff does not anticipate new facilities or modifications to existing facilities would be needed to meet an increased demand of producing, refurbishing, or reusing fuel cells.

Use of Zero-Emission Capable Hybrid vessels would likely require land-based electrical power. All-electric vessels would require high power charging at one or both sides of their routes. This could result in construction of new infrastructure or modification of existing infrastructure (e.g., high voltage cable lines, power meters, and circuit breaker main cabinets, pile driving to reinforce docks) to facilitate shore power.

Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., pipelines, compressor stations, export terminals, fueling stations) to support the use of alternative fuels, Tier 4 engines, and fuel cells. In addition, the Proposed Amendments could result in new construction or modification of existing infrastructure to support vessel shore power requirements; however, these

activities are not anticipated to include structural modification to docks or terminals. The majority (74 percent) of harbor craft already use shore power on a regular basis.

# III. Environmental and Regulatory Setting

CEQA Guidelines require an EIR to include an environmental setting section that discusses the current environmental conditions in the vicinity of the project. This environmental setting normally constitutes the baseline physical conditions against which an impact is compared to determine whether it is significant (14 CCR Section 15125). For this ~~Draft EA~~ Final EA, CARB is using a 2020 baseline, as that is the year in which the environmental analysis commenced (the Notice of Preparation was posted on September 17, 2020).[18] The baseline therefore includes the existing Commercial Harbor Craft Regulation, as it applies in 2020.

As discussed in Chapter 1 of this ~~Draft EA~~ Final EA, CARB has a CEQA certified regulatory program and prepares an EA in lieu of an EIR. This ~~Draft~~Final EA is a functional equivalent to an EIR under CEQA; therefore, in an effort to comply with the policy objectives of CEQA, an environmental setting and a regulatory setting with environmental laws and regulations relevant to the Proposed Amendments have been included as Attachment A to this ~~Draft~~Final EA/ISOR.

[18] CARB, Notice of Preparation of a Draft Substitute Environmental Document, September 17, 2020, last accessed August 15, 2021, *https://files.ceqanet.opr.ca.gov/264733-2/attachment/a7vNh7BpkzrLHQscEmu2ZKxDbqf8grk0lYO4j_F516CSkrE0hmrIFNShkNwpXufW4PqupOHDGegBmfEt0*.

# IV. Impact Analysis and Mitigation Measures

## A. Approach to Environmental Impact Analysis and Significance Determinations

This chapter contains an analysis of mitigation measures that could result from the Proposed Amendments. The baseline for the evaluation of impacts, as previously explained, is the environment as it existed in 2020 at the release of the Notice of Preparation.

### 1. Adverse Environmental Impacts

The potentially significant adverse impacts on the environment discussed in this ~~Draft~~Final EA, and significance determinations for those effects, reflect the programmatic nature of the reasonably foreseeable compliance responses of the regulated entities. These reasonably foreseeable compliance responses are described in more detail in Chapter 2 (Project Description) of this ~~Draft~~Final EA. The ~~Draft~~Final EA addresses broadly defined types of impacts or actions that may be taken by others in the future as a result of implementation of the Proposed Amendments.

This ~~Draft~~Final EA takes a conservative approach and considers some environmental impacts as potentially significant because of the inherent uncertainties in the relationship between physical actions that are reasonably foreseeable under the Proposed Amendments and environmentally sensitive resources or conditions that may be affected. This conservative approach tends to overstate environmental impacts in light of these uncertainties and is intended to satisfy the good-faith, full-disclosure intention of CEQA. If and when specific projects are proposed and subjected to project-level environmental review, it is expected that many of the impacts recognized as potentially significant in this ~~Draft~~Final EA can actually be avoided or reduced to less-than-significant levels.

Where applicable, consistent with CARB's certified regulatory program requirements (17 CCR Section 60004.2), this ~~Draft~~Final EA also acknowledges potential beneficial effects on the environment in each resource area that may result from implementation of the Proposed Amendments. Any beneficial impacts associated with the Proposed Amendments are included in the impact analysis for each resource area listed below.

### 2. Mitigation Measures

The ~~Draft~~Final EA contains a degree of uncertainty regarding implementation of feasible mitigation for potentially significant impacts. "'Feasible' means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." (Cal. Public Resources Code, section 21061.1) While CARB is responsible for adopting the Proposed Amendments, it does not have authority over all the potential infrastructure and development projects that could be carried out in response to the Proposed Amendments. Other agencies are responsible for the review and approval, including

any required environmental analysis, of any facilities and infrastructure that are reasonably foreseeable, including any definition and adoption of feasible project-specific mitigation measures, and any monitoring of mitigation implementation. Because CARB cannot predict the location, design, or setting of specific projects that may result and does not have authority over implementation of specific infrastructure projects that may occur, the programmatic analysis in the ~~Draft~~Final EA does not allow for identification of the precise details of project-specific mitigation. As a result, there is inherent uncertainty in the degree of feasible mitigation that would ultimately need to be implemented to reduce any potentially significant impacts identified in the ~~Draft~~Final EA.

Given the foregoing, and due to legal factors affecting the feasibility of CARB's proposed mitigation for several of the identified potential significant indirect impacts associated with the Proposed Amendments, CARB's implementation of the identified mitigation measures is infeasible, based on the following: 1) the lack of certainty of the scope, siting and specific design details of compliance-response development projects, which prevents CARB from being able to determine the projects' significant environmental impacts; and 2) even if there was certainty with respect to compliance-response development projects and associated significant environmental impacts, CARB lacks the legal authority and jurisdiction to permit these projects, which, inherently, prevents CARB from legally imposing any enforceable mitigation measures on the projects. Therefore, CARB's implementation of the mitigation measures suggested, below, in this EA are legally infeasible to implement and enforce.

Consequently, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusions (i.e., tending to overstate the risk that feasible mitigation may not be sufficient to mitigate an impact to less than significant) and discloses, for CEQA compliance purposes, that potentially significant environmental impacts may be unavoidable, where appropriate. It is also possible that the amount of mitigation necessary to reduce environmental impacts to below a significant level may be far less than disclosed in this ~~Draft~~Final EA on a case-by-case basis. It is expected that many potentially significant impacts of facility and infrastructure projects would be avoidable or mitigatable to a less-than-significant level as an outcome of their project-specific environmental review processes, conducted by the appropriate permitting agency with jurisdiction as the lead agency under CEQA.

### B. Resource Areas with Adverse Impacts

The following discussion provides a programmatic analysis of the reasonably foreseeable compliance responses that could result from implementation of the Proposed Amendments, described in Chapter 2 of this ~~Draft~~Final EA.

#### 1. Aesthetics

Landscape character can be defined as the visual and cultural image of a geographic area. It consists of the combination of physical, biological, and cultural attributes that

make each landscape identifiable or unique. Visual character may range from predominately natural to heavily influenced by human development. Its value is related, in part, to the importance of a site to those who view it. Viewer groups typically include residents, motorists, and recreation users.

***Impact 1-1: Short-Term Construction-Related Impacts on Aesthetics***

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. An extremely small increase in demand for lithium-ion based batteries could increase the use of manufacturing, refurbishing, and recycling facilities domestically and abroad. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 diesel engines, and fuel cells.

Vessel production and repowering would occur at shipyards and drydocks, and repowering would be performed while the vessel is dry docked. In other cases, it could occur at a marina. Dry docks are used for the construction, maintenance, and repair of vessels. As such, they have an industrial visual character. Dry docks typically contain earthen berms and concrete, rigs, metal cables, and other industrial equipment required to perform maintenance or repair to vessels. Vessels undergoing retrofits would require equipment of similar visual appearance to existing equipment. In the rare cases when modifications are made at the marina, they may be visible to the public, but would consist of equipment and personnel typical for normal marina operations.

Short-term construction-related activities associated with compliance with the Proposed Amendments may require construction projects, which include the installation of additional infrastructure to allow shore-power-capable vessels to obtain power shore side through flexible electrical cables as well as charging infrastructure for vessels with ZEAT. In response to the Proposed Amendments, energy providers could install several hundred to thousands of feet of new conduit from existing overhead poles or underground lines located adjacent to marinas. Modifying an existing marina for shore power capabilities may include activities such as trenching to

install new cable lines, installing new power meters and circuit breaker main cabinets, all of which would be installed in the approximate vicinity of existing service areas. Shore power generally has a small infrastructural footprint, often only needing 2x2x4 feet of space and a mobile conduit line running on top of a pier. Power substations may require construction of an enclosed concrete pad, which houses equipment such as transformers, power circuit breakers, and high voltage load break interrupters. Power outlet vaults could be located above or below ground. These activities could introduce tall equipment on various project sites. Construction of compliance responses could also result in pile driving activities. These activities would introduce tall equipment on various project sites.

Construction activities associated with the Proposed Amendments would be of similar scale and size to current maintenance and associated upgrades that occur occasionally within marinas. In general, marinas are sites that are, or have been, subjected to disturbance including grading, trenching, paving, and construction of roads and structures. Existing daily activities at marinas include human activity and the presence of heavy machinery. While construction or installation of shore power could potentially alter the appearance of some existing visual settings, the presence of construction equipment would not substantially affect the visual character of a marina because a variety of operation and maintenance activity is typical within marinas.

Increased nighttime lighting may occur for nighttime construction during installation of shore power infrastructure. However, ports and terminals are generally already well-lit due to nighttime operations at surrounding sites. Therefore, nighttime lighting would be consistent with existing lighting and would not add a new substantial source of nighttime lighting.

To meet increased demand for LNG and other alternative fuels, Tier 4 engines, fuel cells, and substantial new and improved infrastructure (e.g., pipelines, compressor stations, export terminals) could be required across the state and could be located in areas that support landscapes of high visual character. There is uncertainty as to the exact location of this new infrastructure and its location in relation to viewers. Construction and modification of these facilities, though likely to occur in areas with consistent zoning where other similar facilities may already be under construction or modification, could introduce or increase the presence of artificial elements (e.g., heavy-duty equipment, removal of existing vegetation, grading) in areas with national-, State-, or county-designated scenic vistas and/or scenic resources visible from State scenic highways. The visual impact of such development would depend on several variables, including sensitivity of viewers, size of facilities, viewer distance, and angle of view, visual absorption capacities, and equipment placement in the landscape. However, temporary introduction of construction in a highly sensitive and natural area, for example, could substantially degrade the area's visual quality. Additionally, construction may require nighttime lighting for security or to accommodate nighttime work. In areas with minimal existing lighting, construction lighting may be a substantial new source of nighttime lighting.

Therefore, short-term construction-related aesthetic impacts associated with the proposed Amendments could be potentially significant.

***Mitigation Measure 1-1***

The Regulatory Setting in Attachment A includes applicable laws and regulations that relate to aesthetics. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices routinely required to avoid and/or minimize impacts to aesthetic resources include:

- Proponents of new or modified facilities or infrastructure constructed as a result of reasonably foreseeable compliance responses would coordinate with State or local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must follow all applicable environmental regulations as part of approval of a project for development.
- Based on the results of the environmental review, proponents would implement all feasible mitigation to reduce or substantially lessen the potentially significant scenic or aesthetic impacts of the project.
- The project proponent would color and finish the surfaces of all project structures and buildings visible to the public to: (1) minimize visual intrusion and contrast by blending with the landscape; (2) minimize glare; and (3) comply with local design policies and ordinances. The project proponent would submit a surface treatment plan to the lead agency for review and approval.
- To the extent feasible, the sites selected for use as construction staging and laydown areas would be areas that are already disturbed and/or are in locations of low visual sensitivity. Where feasible, construction staging and laydown areas for equipment, personal vehicles, and material storage would be sited to take advantage of natural screening opportunities provided by existing structures, topography, and/or vegetation. Temporary visual screens would be used where needed if existing landscape features did not screen views of the areas.
- All construction, operation, and maintenance areas would be kept clean and tidy, including the re-vegetation of disturbed soil and storage of construction materials and equipment would be screened from view and/or are generally not visible to the public, where feasible.
- Siting projects and their associated elements next to important scenic landscape features or in a setting for observation from State scenic highways,

national historic sites, national trails, and cultural resources would be avoided to the greatest extent feasible.
- The project proponent would contact the lead agency to discuss the documentation required in a lighting mitigation plan, submit to the lead agency a plan describing the measures that demonstrate compliance with lighting requirements, and notify the lead agency that the lighting has been completed and is ready for inspection.

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects.

Consequently, while impacts could likely be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related and long-term operational impacts to aesthetics associated with the Proposed Amendments would remain **potentially significant and unavoidable.**

***Impact 1-2: Long-Term Operational Impacts on Aesthetics***

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased demand for lithium-ion based batteries is not expected to increase the need for manufacturing, refurbishing, and recycling facilities domestically and abroad, and there is no foreseeable impact of modifications to or construction of new facilities. An extremely small increase in demand for lithium-ion based batteries could increase the use of manufacturing, refurbishing, and recycling facilities domestically and abroad. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cable connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the

Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 diesel engines, and fuel cells.

Implementation of the Proposed Amendments could result in vessel repowering and retrofitting such as, shore power connection cables, charging infrastructure, and vessel cables. While installation of some of these features could potentially alter the appearance of the vessel, the modifications would be consistent with the visual character of existing vessels. New vessels would likewise be consistent with the visual character of existing vessels.

Increased demand for lithium-ion storage batteries and fuel cells could also produce incremental added demand for lithium and platinum. Worldwide, the majority (80 to 90 percent) of raw lithium is currently mined and exported from Australia, Chile, China, and Argentina, and China.[19] Lithium is typically derived from hard rock mining practices or from brine extraction. Hard rock mining, which is typical in Australia and, at the timing of writing this ~~Draft~~Final EA, is not practiced within the United States or California, requires the use of heavy-duty equipment (e.g., crushers, rigs, loaders, cutting equipment, cranes) and could result in harmful visual changes to the natural environment such as hillside erosion, contamination of surface waters, artificial drainage patterns, subsidence, nighttime lighting, and deforestation. In contrast, brine extraction, which occurs in Chile, Argentina, Bolivia, and the United States, involves vertical pumping of brine, which evaporates to form brown and white cones of salt minerals. Increased demand for lithium-ion batteries could cause additional lithium extraction resulting in these types of adverse visual effects in areas where hard rock mining (Australia) and brine extraction activities (Chile, Argentina, Bolivia, and United States) occur; however, the additional mining needed is expected to be extremely small and therefore most likely to occur at existing extraction facilities that are already visually disturbed.

Platinum mining is typically conducted in South Africa, Russia, Canada, Zimbabwe, and the United States.[20] Mining is typically done in underground or open pit mines where platinum-containing ore is extracted and could result in harmful visual changes to the natural environment such as hillside erosion, contamination of surface waters, artificial drainage patterns, subsidence, night-time lighting, and deforestation. The platinum-containing substance is then ground down and separated. From there, the ore is smelted into matte (metal contained in sulfur) and the platinum-containing matte is purified at a precious metals refinery.[21] It is reasonably foreseeable that increased

[19] Jaskula, Brian, Lithium, Mineral Commodity Summaries, USGS, January 2020, last accessed August 11, 2021, *https://pubs.usgs.gov/periodicals/mcs2020/mcs2020-lithium.pdf*.
[20] Mineral Education Coalition, Platinum, Periodic Table of the Elements, last accessed August 11, 2021, *https://mineralseducationcoalition.org/elements/platinum/*.
[21] Glaister, Mudd, The Environment Costs of Platinum-PGM Mining and Sustainability: Is the Glass Half-Full or Half-Empty?, 2009, last accessed August 11, 2021, *https://www.sciencedirect.com/science/article/abs/pii/S0892687509003045*.

demand for fuel cells could cause additional platinum extraction resulting in these types of adverse visual effects in areas platinum mining extraction occurs (Russia, Canada, Zimbabwe, and the United States); however, the additional mining needed is expected to be extremely small due to the minimal potential use of fuel cells and therefore most likely to occur at existing extraction facilities that are already visually disturbed.

Modifications to marinas, terminals or ports may require additional structures such as power vaults, and fuel pipelines, but outward appearance of such modifications would not significantly degrade the visual character or quality of the surrounding area as they are similar to the commercial and industrial equipment already present in the marina. New vessels would likewise be visually consistent with other vessels already present in the marina.

Increased use of alternative fuels (e.g., renewable diesel, LNG), fuel cells, and lithium-ion batteries, could require a substantial infrastructure that may be outside of ports and marinas in areas of high visual quality. New facilities for the manufacture and distribution of alternative fuels would be expected to occur in areas appropriately zoned; however, such facilities could conceivably introduce or increase the presence of visible artificial elements (e.g., heavy-duty equipment, new or expanded buildings) in areas of scenic importance, such as landscapes from State scenic highways. The visual impact of such development would depend on several variables, including the type and size of infrastructure, distance and angle of view, visual prominence, and placement in the landscape. In addition, operation may introduce substantial sources of glare and nighttime lighting for safety and security purposes. These types of impacts could result in significant effects on aesthetic resources.

Therefore, long-term operational-related aesthetics effects could be potentially significant.

***Mitigation Measure 1-2***

The Regulatory Setting in Attachment A includes applicable laws and regulations that relate to aesthetics. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices routinely required to avoid and/or minimize impacts to aesthetic resources include:

- Proponents of new or modified facilities or infrastructure constructed as a result of reasonably foreseeable compliance responses would coordinate with State or

local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must follow all applicable environmental regulations as part of approval of a project for development.

- Based on the results of the environmental review, proponents would implement all feasible mitigation to reduce or substantially lessen the potentially significant scenic or aesthetic impacts of the project.
- The project proponent would color and finish the surfaces of all project structures and buildings visible to the public to: (1) minimize visual intrusion and contrast by blending with the landscape; (2) minimize glare; and (3) comply with local design policies and ordinances. The project proponent would submit a surface treatment plan to the lead agency for review and approval.
- To the extent feasible, the sites selected for use as construction staging and laydown areas would be areas that are already disturbed and/or are in locations of low visual sensitivity. Where feasible, construction staging and laydown areas for equipment, personal vehicles, and material storage would be sited to take advantage of natural screening opportunities provided by existing structures, topography, and/or vegetation. Temporary visual screens would be used where needed if existing landscape features did not screen views of the areas.
- All construction, operation, and maintenance areas would be kept clean and tidy, including the re-vegetation of disturbed soil and storage of construction materials and equipment would be screened from view and/or are generally not visible to the public, where feasible.
- Siting projects and their associated elements next to important scenic landscape features or in a setting for observation from State scenic highways, national historic sites, national trails, and cultural resources would be avoided to the greatest extent feasible.
- The project proponent would contact the lead agency to discuss the documentation required in a lighting mitigation plan, submit to the lead agency a plan describing the measures that demonstrate compliance with lighting requirements, and notify the lead agency that the lighting has been completed and is ready for inspection.

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects.

Consequently, while impacts could likely be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA

takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related and long-term operational impacts to aesthetics associated with the Proposed Amendments would remain **potentially significant and unavoidable**.

### 2. Agriculture and Forestry Resources

#### *Impact 2-1: Short-Term Construction-Related and Long-Term Operation-Related Effects to Agriculture and Forestry Resources*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. An extremely small increase in demand for lithium-ion based batteries could increase the use of manufacturing, refurbishing, and recycling facilities domestically and abroad. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 diesel engines, and fuel cells.

Vessel construction is anticipated to occur outside of California, primarily in Oregon and Washington. Affected harbors and marinas would be in areas zoned for industrial uses and are environments that are developed and disturbed and are unlikely to contain agricultural and forestry resources. Shore power and fueling infrastructure would be installed in existing harbors and marinas already zoned for such uses, where agriculture and forestry resources would not be present. These activities would not affect agriculture and forestry resources.

Increased demand for lithium-ion batteries could place additional demand on lithium ore extraction internationally. Lithium ore derived from brines typically occurs within desert areas, which are generally not considered valuable land for agricultural or forestry practices; however, lithium ore extracted from hard rock mining could result in the loss of agricultural and forest lands of importance if resources are identified on land used for agriculture or forestry. Similar to lithium-ion batteries, an increase in demand for fuel cells could result in platinum mining and exports from source countries or other states. However, given the minimal additional demand created by

the Proposed Amendments, it is most likely that these activities would occur at existing extraction facilities. As such, these activities are unlikely to occur within agricultural or forestry lands. Therefore, short-term construction-related and long-term operational-related agricultural and forest resources impacts to ports and other lands associated with implementation of the Proposed Amendments would be less than significant.

Increased use of alternative fuels (e.g., LNG), fuel cells, and lithium-ion batteries, could require substantial infrastructure that may be outside of ports and marinas in areas with agriculture or forestry resources. New facilities for the manufacture and distribution of alternative fuels would be expected to occur in areas appropriately zoned; however, such facilities could conceivably be introduced in areas of with agricultural uses or in forested areas and may require either temporary or permanent conversion of these resources. These types of impacts could result in significant effects on agriculture and forestry resources.

***Mitigation Measure 2-1***

The Regulatory Setting in Attachment A includes applicable laws and regulations that relate to agriculture and forestry resources. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices routinely required to avoid and/or minimize impacts to agriculture and forestry resources include:

- Proponents of new or modified facilities constructed because of reasonably foreseeable compliance responses would coordinate with local or State land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.
- Based on the results of the environmental review, proponents would implement all mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project because CARB has no land use authority, mitigation is not within its purview to reduce potentially significant impacts to less-than-significant levels. Any mitigation specifically required for a new or modified facility would be determined by the local lead agency and future environmental documents by local and State lead agencies should include analysis of the following:

- Avoid lands designated as Important Farmland (State defined Prime Farmland, Farmland of Statewide Importance, and Unique Farmland) as defined by the Farmland Mapping and Monitoring Program. Before converting Important Farmland to non-agricultural use, analyze the feasibility of using farmland that is not designated as Important Farmland (e.g., through clustering or design change to avoid Farmland) prior to deciding on the conversion of Important Farmland.
- Avoid lands designated as forest land or timberland before converting forestland or timberland to non-forest use, analyze the feasibility of using other lands prior to deciding on the conversion of forest land or timberland.
- Any mitigation for permanent conversion of Important Farmland caused by facility construction or modification shall be completed prior to the issuance of a grading or building permit by providing the permitting agency with written evidence of completion of the mitigation. Mitigation may include but is not limited to:

    - Restore agricultural land to productive use through removal of equipment or structures or other means, such that the land can be designated as Farmland.
    - If restoration is not feasible, permanently preserve off-site Important Farmland of equal or better agricultural quality, at a ratio of at least 1:1. Preservation may include the purchase of agricultural conservation easement(s); purchase of credits from an established agricultural farmland mitigation bank; contribution of agricultural land or equivalent funding to an organization that provides for the preservation of Important Farmland.

    - Participate in any agricultural land mitigation program, including local government maintained or administered, that provides equal or more effective mitigation than the measures listed.

- Any mitigation for permanent conversion of forest land or timberland caused by facility construction or modification shall be completed prior to the issuance of a grading or building permit by providing the permitting agency with written evidence of completion of the mitigation. Mitigation may include but is not limited to permanent preservation of forest land or timberland of equal or better quality at a ratio of 1:1 or 1.5:1 because some lost ecological value may not be replaceable. Preservation may include purchase of easements or contribution of funds to a land trust or other agency.

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the

degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects.

Consequently, while impacts could likely be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft EA~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related and long-term operational impacts to agriculture and forestry resources associated with the Proposed Amendments would remain **potentially significant and unavoidable**.

### 3. Air Quality

The main purpose of the Proposed Amendments is to reduce emissions from CHC to improve air quality. The Proposed Amendments are an action in addition to existing commitments in the State Implementation Plan that would help further CARB's federal obligations to attain the National Ambient Air Quality Standards. As can be seen in Table D-1c, relative to the Current CHC Regulation, the Proposed Amendments are projected to reduce a cumulative total of 34,340 tons of NOx from 2023 to 2038. In 2038, when comparing the Proposed Amendments to the projected emissions occurring from the CHC sector under the Current CHC Regulation, NOx emissions would be reduced by about 52 percent, from 5,120 tons per year (TPY) to 2,470 TPY. From 2023 to 2038, the Proposed Amendments would reduce approximately 1,680 tons of DPM. In 2038, when comparing the Proposed Amendments to the projected emissions occurring with the Current CHC Regulation, DPM emissions would be reduced about 89 percent, from 149 TPY to 17 TPY as shown in Table D-1d. For more details regarding quantified emission reductions from CHC operations associated with the Proposed Amendments, see Chapter VI of the ISOR.

**Table D-1c. Total Criteria Pollutant Emission Reductions 2023 to 2038 in Tons**

| NOx Reduction | PM2.5 Reduction | DPM | ROG Reduction |
|---|---|---|---|
| 34,340 | 1,610 | 1,680 | 2,460 |

**Table D-1d. Percent in Emission Reductions from Projected Business-as-Usual Levels in the Year 2038**

| NOx Reduction | PM2.5 Reduction | DPM Reduction | ROG Reduction |
|---|---|---|---|
| 52% | 89% | 89% | 60% |

The following charts show visually the overall air quality reductions anticipated from the Proposed Amendments, year over year. Staff have estimated CHC emission inventory under Current Regulation and Proposed Amendments from 2018 to 2050. Figure AQ-1 to Figure AQ-3 show anticipated NOx, DPM and ROG emissions under the Current Regulation and Proposed Amendments, respectively. For full details of the

CHC emission inventory methodology, see Appendix H, Update to the Emission Inventory for Commercial Harbor Craft: Methodology and Results.

**Figure AQ-1: Current Regulation NOx Emissions vs. Proposed Amendments NOx Emissions**

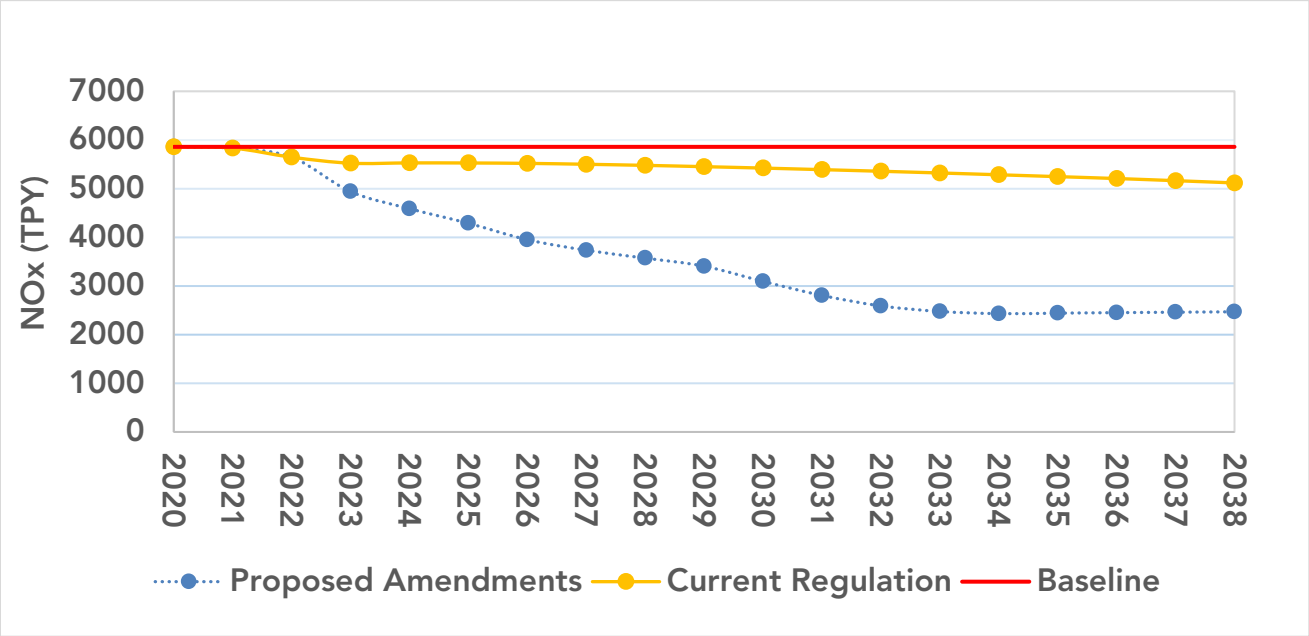



**Figure AQ-2: Current Regulation DPM Emissions vs. Proposed Amendments DPM Emissions**

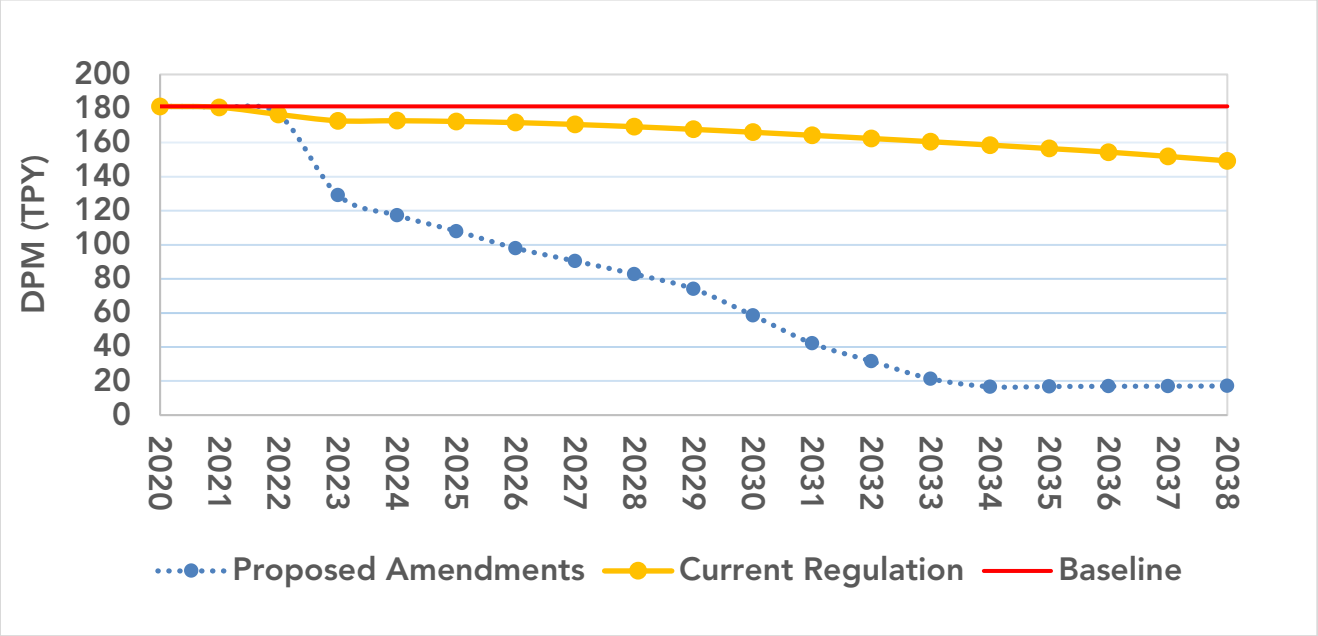
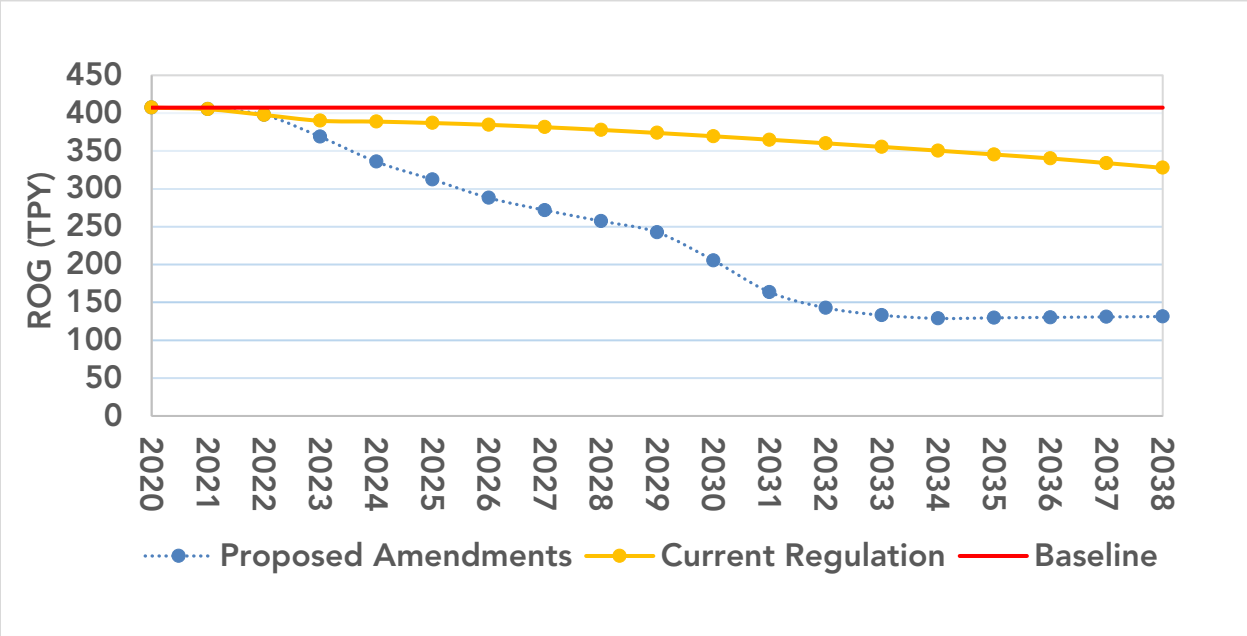


**Figure AQ-3: Current Regulation ROG Emissions vs. Proposed Amendments ROG Emissions**




In addition to the reductions in NOx, PM, and ROG, there may be other air quality impacts associated with the Proposed Amendments. To more accurately assess these impacts, the net short-term construction-related and long-term operational-related air quality impacts of Proposed Amendments are discussed in on the next page.

***Impact 3-1: Short-Term Construction-Related Impacts on Air Quality***

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur outside of California, and most retired vessels are expected to be sold out of state. Increased demand for lithium-ion based batteries could increase the need for manufacturing, refurbishing, and recycling facilities domestically and abroad, which may require modifications to or construction of new facilities. Increased use of lithium batteries could also increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in platinum mining and exports from source countries or other states and increased recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to

support the use of alternative fuels, Tier 4 engines, and fuel cells. Compliance responses associated with the Proposed Amendments would result in construction and installation of similar features already associated with ports, marinas and docks. As part of the compliance responses, electricity companies (e.g., Pacific Gas and Electric, San Diego Gas & Electric, etc.) could install several hundred to thousands of feet of new conduit from existing transformer stations, overhead poles, or underground power lines.

It is not possible to predict exactly where project related improvements would occur or what each project would involve. Modifying an existing marina or harbor for new or expanded shore power capabilities may include trenching to install new power cable lines, and installation of power meters and power pedestals, all of which would be installed near existing service areas. Charging equipment may require construction of an enclosed concrete pad which houses equipment (e.g., transformers, cables, power circuit breakers).

Depending on the size and scope of the modifications to facilities, construction equipment could range from earth-moving equipment such as backhoes and excavators to hand and power tools to install smaller devices such as valves and flanges. Construction activities might include demolition and excavation, backfilling, compacting, paving, and equipment deliveries. Construction may last up to a year at each location when considering development, permitting and construction phases. However, due to their small size and scope CARB staff assumes actual construction activities to occur for less than six months at each given project site (see Appendix D-4).

Based on the anticipated types of activities and equipment needed to comply with the Proposed Amendments, it would be expected that the primary sources of construction-related emissions would occur from soil disturbance and use of construction equipment. It is expected that during the construction phase for any new project, criteria air pollutants (e.g., NOx, SOx and PM) and toxic air contaminants (TACs) could be generated from a variety of activities and emission sources including equipment use and worker commute trips. These emissions would be temporary and occur intermittently depending on the intensity of construction on any given day. Levels and characteristics of emissions fluctuate depending on the particular type, number, duration and use of various equipment. CARB, in addition to many local air districts, implements many regulations with the purpose of reducing NOx and PM, and limits idling from in-use vehicles and equipment.

Site grading and excavation activities would generate fugitive PM dust emissions. Fugitive PM dust emissions (e.g., respirable PM of a diameter of 10 micrometers [PM10] or less and fine PM of a diameter of 2.5 micrometers [PM2.5] or less) vary as a function of several parameters, such as soil silt content and moisture, wind speed, acreage of disturbance area, and the intensity of activity performed with construction equipment.

Charging infrastructure site preparation is expected to generate the most substantial emission levels because of the on-site equipment and ground-disturbing activities associated with grading, compacting, and excavation (if necessary). Site upgrades and modifications to all affected California port, harbors, and marinas could result in significant air quality impacts depending on the location of the project, current attainment status in the air basin, the intensity of construction activities, and the duration of construction activities. As a result, short-term construction-related impacts on air quality associated with compliance responses could be potentially significant.

As previously discussed, the Proposed Amendments would require the repower and new build of vessels in shipyards located in California, Oregon, and Washington. As documented in Appendix E to the ISOR, the majority of new builds are assumed to be conducted outside of California, in Oregon and Washington. Repowers are expected to occur primarily in California, but are also expected to occur in Oregon and Washington.

Understanding construction impacts of vessel repower and new builds requires identifying the specifics of each project. To quantify the increased emissions in response to the Proposed Amendments would require knowledge of each shipyard's current and projected activities, types of vessels made, timeframe for each vessel repower or build, materials needed and where materials are transported, among other specificities. The ability for CARB staff to correctly estimate the location, amount, and types of projects which could occur in response to increased vessel repowers and new builds, has been determined to be too speculative for a thorough evaluation. Furthermore, since air quality impacts are largely regional in nature, such an analysis would also need to know where and when these projects are to be undertaken.

Generally, emissions from construction activities within California are estimated using CalEEMod. CalEEMod is a land-use air quality modeling program that quantifies direct emissions from construction and operation activities (including vehicle use), and indirect emissions.[22] To use CalEEMod, the user must specify the project's land use type and location (e.g. County, Air District or Air Basin). The user must also specify if the project is located in a rural or urban setting. To create appropriate outputs in CalEEMod, one must indicate the first year when full project operation is expected to begin and select the utility company servicing the project. Although CalEEMod has default assumptions (e.g., trip generation rates, energy consumption rates, etc.) that could be substituted for different types of land uses when project-specific information is not available, the model does not contain any construction or operational default assumptions that could be applied to a shipyard for new vessel manufacturing. Additionally, CalEEMod construction phase defaults are based on the total lot acreage of the project and do not reflect actual marine vessel construction phasing durations.[23] Since CalEEMod specifically models emissions from land-use projects, the model does

[22] CalEEMod, Download Model: CalEEMod Version 2020.4.0, *http://www.caleemod.com/*.

[23] CalEEMod, User's Guide for CalEEMod Version 2020.4.0, May 2021, last accessed August 9, 2021, *http://www.caleemod.com/*.

not have the capability to model emissions from the construction of marine vessels. To model emissions associated with the manufacturing and delivery of newly modified or manufactured marine vessels, one would need to know specific information such as the number of truck trips to deliver materials, vessel type and size, and transport emissions of transiting the vessel from the ship yard to its homebase, or first location of intended service. This information is not available to CARB, since it is not possible to determine the various factors that go into this information, including how many vessels may be needed in a given year for each fleet, where those vessels may be constructed, what differences in production methods/equipment are needed for each vessel type, each new or repowered vessel's ultimate delivery destination, etc. Therefore, modeling emissions associated with the manufacturing and delivery of marine vessels is not possible. For calculating increased emissions associated with vessel repowers and new builds, the industry standard CalEEMod is thus not a viable modeling option.

However, it is possible to provide data regarding the number of new vessels and repowers associated with the Proposed Amendments, which helps give a sense as to the relative change in shipbuilding activity. As can be seen in Appendix E of the ISOR, CARB staff contacted shipyards throughout the states of California, Oregon and Washington to determine which yards conducted repowers and vessel new builds. Of the 187 shipyards contacted, 80 responded with their repower and new build yearly activities. From the responses given and applying a methodology to account for non-responsive shipyards, it was estimated that across all three states there were roughly 543 repowers and 151 new builds yearly. As can be seen in Table D-1e below, the Proposed Amendments would require ~~269~~368 new build vessels and ~~1,552~~1,584 repowers between the years 2023 and 2034.

**Updated Table D-1e. Yearly Repower and New Vessel Needs for the Proposed Amendments**

| Activity | 2023 | '24 | '25 | '26 | '27 | '28 | '29 | '30 | '31 | '32 | '33 | '34 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Repower | 195 | 234 | 200 | 64 | 61 | 76 | ~~16~~ 46 | 215 | 248 | 223 | 7 | ~~13~~ 16 | ~~1,552~~ 1,584 |
| New Build | 5 | 7 | 6 | 10 | 13 | 13 | 35 | ~~37~~ 40 | 22 | ~~31~~ 50 | 38 | ~~53~~ 130 | ~~269~~ 368 |

Conservatively, CARB staff estimates an increase of construction emissions resulting from Proposed Amendments vessel repowers could be up to 46 percent higher than business as usual for certain years (e.g., 2031). Vessel construction emissions would be spread across several months and be produced in various states as vessel repower materials are delivered and installed. At the height of new vessel building, as estimated by CARB staff to be in the year 2034, vessel construction related emissions could increase by ~~36 precent~~ 86 percent. Again, the construction related emissions will occur in various states and emissions will be dependent on the construction and material delivery schedules.

CARB staff modeled construction criteria pollutants for two of the most reasonably foreseeable compliance responses that were able to be modeled using CalEEMod:

1) Projected construction emissions for the addition of a shore power system to a marina/harbor; and
2) Projected construction emissions for the addition of a 1-2 MW charging system at a California ferry operation.

Note that Tables D-1f and D-1g show emissions from one representative installation scenario (i.e. additional shore power at a marina/harbor or a new 1-2 MW charging system installation) compared against the most stringent air quality district's construction emissions significance threshold in California. A list of the air quality districts considered and references to their construction emissions significance thresholds are provided in Table D-1h. While it is possible multiple installations could occur within a given district, it is not reasonably foreseeable at this time whether multiple installations would occur, specifically in which air district they would occur, or whether they would overlap in time. CARB has provided these tables to disclose the potential emissions from representative construction projects that could be a result from implementation of the Proposed Amendments. For complete construction air quality calculations, see Attachment C.

**Table D-1f. Construction Criteria Emission Rates for Marina/Harbor Shore Power Scenario**

| Category | ROG | NOx | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| Average Daily (appd) | 1 | 10 | 10 | < 1 | < 1 | < 1 |
| Peak Daily (ppd) | 2 | 17 | 17 | < 1 | 1 | < 1 |
| Annual (tpy) | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Most Stringent Significance Threshold | 54 appd<br>25 ppd<br>10 tpy | 54 appd<br>25 ppd<br>10 tpy | 550 ppd<br>25 tpy | 150 ppd<br>25 tpy | 7 ppd<br>15 tpy | 7 ppd<br>15 tpy |
| Exceed Threshold (Yes or No)? | No | No | No | No | No | No |

i) appd = Average Pounds Per Day
ii) ppd = Pounds Per Day
iii) tpy = Tons Per Year
iv) ROG = Reactive Organic Gases
v) NOx = Nitrogen Oxides
vi) CO = Carbon Monoxide
vii) SO2 = Sulfur Dioxide
viii) PM10 = Particulate Matter 10 micrometers or less in diameter
ix) PM2.5 = Particulate Matter 2.5 micrometers or less in diameter

**Table D-1g. Construction Criteria Emission Rates for New Construction of 1-2MW Charging Infrastructure Scenario**

| Category | ROG | NOx | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| Average Daily (appd) | 1 | 11 | 12 | < 1 | < 1 | < 1 |
| Peak Daily (ppd) | 2 | 17 | 18 | < 1 | 1 | 1 |
| Annual (tpy) | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Most Stringent Significance Threshold | 54 appd, 25 ppd, 10 tpy | 54 appd, 25 ppd, 10 tpy | 550 ppd, 25 tpy | 150 ppd, 25 tpy | 7 ppd, 15 tpy | 7 ppd, 15 tpy |
| Exceed Threshold (Yes or No)? | No | No | No | No | No | No |

i) appd = Average Pounds Per Day
ii) ppd = Pounds Per Day
iii) tpy = Tons Per Year
iv) ROG = Reactive Organic Gases
v) NOx = Nitrogen Oxides
vi) CO = Carbon Monoxide
vii) $SO_2$ = Sulfur Dioxide
viii) $PM_{10}$ = Particulate Matter 10 micrometers or less in diameter
ix) $PM_{2.5}$ = Particulate Matter 2.5 micrometers or less in diameter

**Table D-1h. Criteria Pollutant and Greenhouse Gas Significance Thresholds**

| Air District | ROG | NOx | CO | SO2 | PM10 | PM2.5 | $CO_2e$ |
|---|---|---|---|---|---|---|---|
| Placer County APCD[1] | 82 ppd | 82 ppd | None | None | 82 ppd | None | None |
| El Dorado County AQMD[2] | 82 ppd | 82 ppd | None | None | 82 ppd | None | None |
| Mendocino County AQMD[3] | 54 appd | 54 appd | None | None | 82 ppd | 54 ppd | none |
| Sacramento Metropolitan AQMD[4] | None | 85 ppd | None | None | 80 ppd, 15 tpy | 82 ppd, 15 tpy | 1,100 mtpy |
| San Diego APCD[5] | None | 250 ppd | 550 ppd | 250 ppd | 100 ppd | 67 ppd | none |
| Bay Area AQMD[6] | 54 appd | 54 appd | None | None | 82 ppd | 54 ppd | None |
| San Joaquin Valley APCD[7] | 10 tpy | 10 tpy | 100 tpy | 27 tpy | 15 tpy | 15 tpy | None |
| Monterey Bay Unified APCD[8] | None | 137 ppd | 550 ppd | 150 ppd | 82 ppd | none | None |
| San Luis Obispo County APCD[9] | 137 ppd | 137 ppd | None | None | 7 ppd | 7 ppd | None |
| Santa Barbara County APCD[10] | 25 tpy | 25 tpy | 25 tpy | 25 tpy | 25 tpy | 25 tpy | None |
| Ventura County APCD[11] | 25 ppd | 25 ppd | None | None | None | None | None |
| South Coast AQMD[12] | 75 ppd | 100 ppd | 550 ppd | 150 ppd | 150 ppd | 55 ppd | 10,000 mtpy |

i) appd = Average Pounds Per Day
ii) ppd = Pounds Per Day
iii) tpy = Tons Per Day
iv) mtpy = Metric Tons Per Year
v) ROG = Reactive Organic Gases
vi) NOx = Nitrogen Oxides
vii) CO = Carbon Monoxide
viii) $SO_2$ = Sulfur Dioxide
ix) $PM_{10}$ = Particulate Matter 10 micrometers and smaller in diameter
x) $PM_{2.5}$ = Particulate Matter 2.5 micrometers and smaller in diameter

**References for Table D-1h.**

[1] Placer County APCD. 2017 CEQA Hand Book. Chapter 2 Thresholds of Significance. 2017, Accessed on July 28, 2021, Accessible at: *https://www.placer.ca.gov/DocumentCenter/View/2047/Chapter-2-Thresholds-of-Significance-PDF*.

[2] El Dorado County APCD. CEQA Guidance First Edition. Chapter 3 Thresholds of Significance. 2002, Accessed on July 28, 202, Accessible at: *https://www.edcgov.us/Government/AirQualityManagement/documents/Chapter3_RF6.pdf*.

[3] Mendocino County AQMD. Adopted Air Quality CEQA Thresholds of Significance. June 2, 2010, Accessed on July 28, 2021, Accessible at: *http://www.co.mendocino.ca.us/aqmd/pdf_files/MCAQMDCEQARecomendations.pdf* .

[4] Sacramento Metropolitan AQMD. SMAQMD Thresholds of Significance Table, April 2020. Accessible at: *http://www.airquality.org/LandUseTransportation/Documents/CH2ThresholdsTable4-2020.pdf*.

[5] San Diego AQMD. Rule 20.2 New Source Review Non-Major Stationary Sources, Accessed on July 28, 2021, Accessible at: *https://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Permits/APCD_R20.2.pdf*.

[6] Bay Area AQMD. CEQA Air Quality Guidelines, May 2017, Accessed on July 28, 2021, Accessible at: *https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en&rev=0d2d971e661d41f28a56953f1776bdde*.

[7] San Joaquin Valley APCD. Air Quality Thresholds of Significance, March 19, 2015, Accessed on July 28, 2021, Accessible at: *http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf*.

[8] Monterey Bay Unified APCD. CEQA Air Quality Guidelines 2008, Accessed on July 28, 2021, Accessible at: *https://www.mbard.org/files/f665829d1/CEQA_full+%281%29.pdf*.

[9] San Luis Obispo County APCD. CEQA Air Quality Handbook, Accessed on July 28, 2021, Accessible at: *https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/CEQA_Handbook_2012_v2%20%28Updated%20MemoTable1-1_July2021%29_LinkedwithMemo.pdf*.

[10] Santa Barbara County APCD. Scope and Content of Air Quality Sections in Environmental Documents, Accessed on July 28, 2021, Accessible at: *https://www.ourair.org/wp-content/uploads/ScopeContentJune2017-LimitedUpdate.pdf*.

[11] Ventura County APCD. Ventura County Air Quality Assessment Guidelines, October 2003, Accessed on July 28, 2021.Accessed at: *http://www.vcapcd.org/pubs/Planning/VCAQGuidelines.pdf*.

[12] South Coast AQMD. South Coast AQMD Air Quality Significance Thresholds, April 2019, Accessed on July 28, 2021, Accessible at: *http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2*.

Air pollutant emissions from material delivery trips and additional construction worker-commute trips may also contribute to short-term increases in NOx, SOx, ROG, and PM emissions. Levels and characteristics of emission fluctuate depending on the type, number, and use duration of equipment. CARB implements many regulations with the purpose of reducing NOx, SOx, ROG, and PM, and limits idling from in-use vehicles and equipment, which will serve to reduce these emissions from the construction activities described in this EA.

Any addition of criteria pollutants, including ozone precursors, could result in an increase in ambient concentrations of these pollutants in air basis across the state and increase the likelihood that ambient concentrations exceed the CAAQS and NAAQS. Human exposure to pollutants can result in health impacts; for example, ozone may cause acute and chronic health impacts including coughing, pulmonary distress, lung inflammation, shortness of breath, and permanent lung impairment. However, as discussed further in the paragraph below, it would be misleading to correlate the levels of criteria air pollutant and precursor emissions associated with compliance options to specific health outcomes to sensitive receptors. While the description of effects noted above could manifest in the recipient receptors, actual effects on individuals depend on both local pollutant concentrations and individual factors, such as life stage (e.g., older adults are more sensitive), preexisting cardiovascular or respiratory diseases, and genetic polymorphisms. Even armed with this type of specific medical information (which is specific to the individual), there are wide ranges of potential outcomes from exposure to pollutants.

Regarding potential pollutant concentrations, areas surrounding drydocks, marinas, harbors or ports may experience high levels of construction-related emissions, and the emissions generated could exacerbate existing conditions to unhealthy pollutant concentrations. The addition of criteria pollutants, including ozone precursors, could result in an increase in ambient concentrations of these pollutants in air basins containing harbors and ports regulated by the Proposed Amendments, as well as downwind air districts. However, the exact location and magnitude of specific health impacts that could occur as a result of project-level construction-related emissions in specific air basins is infeasible to model with any degree of accuracy with the level of information known about the Proposed Amendments. CARB estimates premature death and other health effects related to PM and NOx exposure based on peer-reviewed methodology developed by U.S. EPA and quantifies health benefits of regulations and programs using an incidence-per-ton methodology. There is an approximate linear relationship between premature deaths and other health outcomes and emission concentrations.[24] This modeling requires characterizing a change in air

[24] See Estimating Health Benefits Associated with Reductions in PM and NOx Emissions: Detailed Description, CARB (2019), available at *https://ww2.arb.ca.gov/sites/default/files/2019-08/Estimating%20the%20Health%20Benefits%20Associated%20with%20Reductions%20in%20PM%20and%20NOX%20Emissions%20-%20Detailed%20Description.pdf*. See also *https://ww2.arb.ca.gov/resources/documents/estimating-health-benefits-reductions-emissions-pm25-or-its-precursors-short*.

quality occurring under a policy or other change. There is substantial uncertainty regarding the construction details about compliance responses that would be needed to evaluate health effects related to construction emissions. For example, it is not known if a certain kind of compliance response would be clustered in one area or another, or the degree of grading that would be needed for each project (which affects PM emissions), or the timing of the various potential improvements, or the kind of construction equipment that would be used (which affects PM and NOx emissions) so that a total amount of emissions across the State can be obtained that could be used in the incidence-per-ton methodology. As a result, it is not feasible to associate specific health impacts with compliance response construction emissions for the Proposed Amendments. This contrasts with operational emissions, which represent the air quality benefits of the Proposed Amendments. The net emissions reductions resulting from operation of the compliance responses can be modeled and demonstrate a net decrease in emissions, as discussed under Impact 3-2, and therefore conclusions about operational health benefits can be and are made on a broader scale.

Even though it is not possible to model the location and magnitude of specific anticipated construction-related adverse health effects in this case, by evaluating emissions of air pollutants against construction-related significance thresholds, it is foreseeable that health complications associated with ozone and PM10 exposure could be exacerbated to nearby sensitive receptors by construction-generated emissions. Overall, short-term construction-related impacts associated with implementation of the Proposed Amendments could be potentially significant. However, note that overall, across all years beginning with 2023, the Proposed Amendments would result in overall emissions reductions, even accounting for a worst-case scenario in which all construction activities occur in the first single year (2023).[25]

***Mitigation Measure 3-1***

The Environmental and Regulatory Setting in Attachment A includes applicable laws and regulations that provide protection of air quality. CARB does not have authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is within the purview of jurisdictions with local or State land use approval and/or permitting authority. New or modified facilities in the State would likely qualify as a "project" under CEQA, because they would generally need a discretionary public agency approval and could affect the physical environment. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA. Project-specific impacts and mitigation measures may be identified during the environmental review by agencies

[25] See CARB, Comparison of Construction Emissions to CHC Reductions (2021).

with project-approval authority. Recognized practices routinely required to avoid and/or minimize impacts to air quality include, but are not limited to, the following:

- Proponents of new or modified facilities or infrastructure constructed as a result of a compliance response would coordinate with State or local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must follow all applicable environmental regulations as part of the approval process for project development.
- Based on the results of the environmental review, proponents will implement all feasible mitigation to reduce or substantially lessen the potentially significant air quality impacts of the project.
- Project proponents will apply for, secure, and comply with all appropriate air quality permits for project construction from the local agencies with air quality jurisdiction and form other applicable agencies, if appropriate, prior to construction mobilization.
- Project proponents will comply with the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA) (e.g., New Source Review and Best Available Control Technology criteria), if applicable.
- Project proponents will comply with local plans, policies, ordinances, rules and regulations regarding air quality-related emissions and associated exposure (e.g., construction-related fugitive PM dust regulations, indirect source review, and payment into offsite mitigation funds).
    - For projects located in PM10 nonattainment areas, prepare, and comply with a dust abatement plan that addresses emission of fugitive dust during construction and operation of the project.
    - Ensure the cleanest possible construction practices and equipment are used. This includes eliminating idling of diesel-powered equipment and providing the necessary infrastructure (e.g., electric plugs) to support zero and near-zero equipment and tools.

- Implement, and plan accordingly for the necessary infrastructure to support the zero and near-zero emission technology vehicles and equipment that will be operating on-site. Necessary infrastructure may include the physical (e.g., needed footprint), energy, and fueling infrastructure for construction equipment, on-site vehicles and equipment, and medium-heavy and heavy-heavy duty trucks.
- In construction contracts, include language that requires all off-road diesel-powered equipment used during construction to be zero-emission if commercially available. If not commercially available, include language that requires such equipment to be equipped with Tier 4 Final or cleaner engines, except for specialized construction equipment in which Tier 4 Final engines are not available. In place of Tier 4 Final engines, off-road equipment can incorporate retrofits such that emissions reductions achieved equal or exceed that of a Tier 4 Final engine.

- In construction contracts, include language that requires all off-road equipment with a power rating below 19 kilowatts (e.g., pressure washers, plate compactors) used during project construction be battery-powered.
- In construction contracts, include language that requires all heavy-duty trucks entering the construction site, during the grading and building construction phases be zero-emission if commercially available. If not commercially available, include language that requires such equipment to be model year 2014 or later. All heavy-duty haul trucks should also meet CARB's lowest optional low-NOx standard starting in the year 2022.
- In construction contracts, include language that requires all construction equipment and fleets to be in compliance with all current air quality regulations. CARB staff is available to assist in implementing this recommendation.

Short-term construction-related air quality effects could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but is beyond the authority of CARB. The authority to determine project-level impacts and required project-level mitigation lies with land use and/or permitting agencies for individual projects, and the programmatic levels of analysis associated with this ~~Draft~~Final EA does not attempt to address project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts. With mitigation, construction emissions could still exceed local air district threshold levels of significance, depending on the intensity, location, and duration of construction.

Consequently, while impacts could and should be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purpose, that short-term construction-related air quality effects resulting from compliance response associated with the Proposed Amendments could be **potentially significant and unavoidable.**

***Impact 3-2: Long-Term Operational-Related Impacts on Air Quality***

Production of new vessels would occur in response to the Proposed Amendments and is expected to occur outside of California. If vessels cannot be modified to meet the performance standards, they would likely be sold into an out-of-State market, such as Oregon, Washington, or the gulf coast region. California is the only state that has an existing requirement for regulated in-use vessels to meet Tier 2 or 3 standards and has invested a substantial amount of air quality incentive funding to upgrade engines to those standards to achieve surplus emission reductions. As discussed in Appendix H, a typical practice in the marine industry is to rebuild engines to their original standards rather than repowering engines to the newer standards. Therefore, Tier 2 and 3 engines leaving California would likely be displacing engines certified to the Tier 1 standards or engines not certified at all in out-of-State markets. It is possible that new-build vessels operating in other states and surrounding regions may already be certified to the Tier 2 or 3 standards, in which case the relocation of the California fleet

would likely be emissions-neutral for those surrounding regions. CARB staff is not aware of widespread adoption of Tier 4 engines in other regions, as there are still only a handful of Tier 4 vessels operating in California today. The Proposed Amendments would also be subjecting new categories of vessels to the performance standards, which may currently operate with Tier 1 or older engines in the California. Whereas some of these vessels may also be transferred to out-of-State markets, the average age of the fleet can be quite old. For example, the commercial passenger fishing vessel fleet is newly subject to regulatory requirements, and is expected to have low feasibility for modifying in-use vessels. However, the average age of vessels in this category is 45 years, and vessels in this category have a useful life of 53 years. Therefore, the oldest, highest-emitting vessels may also be permanently scrapped, retired, and not introduced into surrounding markets.

Increased demand for lithium-ion based batteries could increase the need for manufacturing, refurbishing, and recycling facilities domestically and abroad, which may require modifications to or construction of new facilities. Increased use of lithium batteries could also increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in platinum mining and exports from source countries or other states and increased recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Despite the dramatic emission reductions and air quality improvements achieved to date, areas of California, including the South Coast Air Basin in Southern California and the San Joaquin Valley, continue to exceed the NAAQS and the California Ambient Air Quality Standards (CAAQS) for PM10, PM2.5, and ozone. The Proposed Amendments would introduce a new main engine idling and auxiliary engine operating requirement while vessels are at dock. All vessels would then have to either to shut down their diesel engines or plug in to shore power systems while at dock. Zero-emission vessels are expected to mostly be battery-electric, and therefore charging capabilities are expected to occur while at dock. Shore power can be provided by California's electricity grid or a compliant distributed generation power source. A shore power system's energy is generally supplied by the regional electricity grid. Air pollutant emissions associated with producing electricity for shore power will vary depending on the relative shares of zero/low-emission sources (e.g., hydro, wind, solar) and higher emission sources (e.g., coal- and natural gas -fired power plants) that are used. The relative shares of fuel sources will change over time (and even vary hour-to-hour depending on electricity demand).

California's Renewable Portfolio Standard (RPS), which was established by legislation enacted in 2002 and its most recent targets were set by Senate Bill (SB) 100, requires that California's load-serving entities to procure 60 percent of their retail electricity from eligible renewable sources by 2030. The RPS also established interim targets for utilities as shown below.

- 33 percent of retail sales by December 31, 2020;
- 44 percent of retail sales by December 31, 2024;
- 52 percent of retail sales by December 31, 2027; and
- 60 percent of retail sales by December 31, 2030.[26]

As mentioned in Section 1 of SB 100, "The 100 Percent Clean Energy Act of 2018" California aims for 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045.[27]

According to the California Energy Commission, in 2020, 36 percent of all California consumed electricity was sourced from renewable power.[28] As grid power electricity becomes cleaner over time to meet the RPS targets, emission reductions from use of electricity compared to diesel engines will grow accordingly. As such, the shift to shore power from on-vessel fuel combustion would yield increasing operational air quality benefits over time as the State's electrical grid becomes more renewable pursuant to the RPS. Over the time the Proposed Amendments are in effect, emissions would continue to decrease, relative to both the existing conditions baseline and the projected emissions under the Current Regulation.

Emissions associated with the generation of electricity used for shore power (i.e., emissions from power plants that supply electricity to the grid) are not considered in the reduction benefits of the Proposed Amendments. If the marginal load results in an increase in generation, there could be increased criteria pollutant emissions in the same or other air basins, inside or outside of California. However, the Proposed Amendments are only likely to lead to a relatively small incremental generation-related emissions increase, since the marginal load increase is expected to be minimal. The Proposed Amendments are anticipated to increase overall grid demand in California by just 0.013% by 2035.[29] Furthermore, this increase in demand would be spread across the different harbors and ports in the state, rather than concentrated in one

[26] California Energy Commission, Renewables Portfolio Standard- Verification and Compliance, last accessed August 9, 2021, *https://www.energy.ca.gov/programs-and-topics/programs/renewables-portfolio-standard/renewables-portfolio-standard*.
[27] Senate Bill No. 100, California Renewables Portfolio Standard Program: emissions of greenhouse gases, 2018, last accessed August 9, 2021, *https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB100*.
[28] California Energy Commission, Tracking Progress, February 2020, last accessed August 9, 2021, *https://www.energy.ca.gov/sites/default/files/2019-12/renewable_ada.pdf*.
[29] See CARB table of CHC Amendments Electricity Demand.

particular service area. The discussion under Impact 3-1, above, explains the inherent difficulties that make health-specific modeling infeasible for the potential minor emissions increases associated with construction of various project components across the state. Those same considerations apply to modeling potential effects from aspects such as increased electricity generation, as it is not possible to know when and where those increases would occur given the range of potential compliance responses to meet the requirements of the Proposed Amendments. Overall, the Proposed Amendments are expected to considerably reduce emissions across the state, as set forth in detail in the Staff Report and in this EA. These emissions reductions would lead to substantial net improved health outcomes across the state, as described in the Staff Report.

The Proposed Regulation could also result in an extremely small increase in lithium and platinum mining activities and use of facilities for recycling, refurbishing, and manufacturing of lithium-ion batteries and hydrogen fuel cells. Mining would require the use of heavy equipment, which would likely be powered by diesel fuel. However, these materials would ultimately offset the combustion of gasoline, diesel, and other fossil fuels, reducing associated emissions.

Implementation of the Proposed Amendments would minimize emissions associated with operation of CHC and would assist the State in meeting the NAAQS and CAAQS both regionally and statewide. As discussed in detail in the Staff Report, emission reductions resulting from the implementation of the Proposed Amendments are expected to far outweigh any long-term operational-related emissions increases, and would result in high net positive overall health benefits over the life of the Proposed Amendments.

For these reasons, long-term operational-related air quality impacts would be **less than significant.**

### 4. Biological Resources

***Impact 4-1: Short-Term Construction-Related Impacts on Biological Resources***

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. An extremely small increase in demand for lithium-ion based batteries could increase the use of manufacturing, refurbishing, and recycling facilities domestically and abroad. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen

fuel cells. lithium-ion batteries. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Implementation of the Proposed Amendments would result in CHC repowering, retrofitting, and new vessel construction. These activities would occur at existing facilities, similar to current maintenance and vessel construction activities. Areas in which CHC are built and repowered, like dry docks, generally do not support special-status species or sensitive habitats because they are maintained to facilitate industrial uses. As such, implementation of the Proposed Amendments would not be expected to have an impact on biological resources as they pertain to CHC construction and repowering.

Shore power could require trenching for conduit lines, the construction of new pilings for modifications to marinas, docks, and harbors, and loss or shading of aquatic bed surface area. Offshore rocks are present in numerous areas along California's coastlines, which provide habitat for marine mammals (e.g., seals and sea lions) and seabirds. Several seabird species occur and nest in colonies on rocky features along the California coast, and numerous special-status and common birds may nest along shore, including in developed areas. Nesting native bird species are protected under the Migratory Bird Treaty Act and California bird protection statutes (Fish and Game Code sections 3503, 3503.5, 3513). For example, special-status or common native birds that may nest along or near shore include double-crested cormorant, western gull, snowy egret, black-crowned night heron, common murre, California least tern, and California brown pelican. Several marine mammal species, which are protected under the federal Marine Mammal Protection Act, are known to occur within the nearshore environment along the California coast. Gray whales undertake the longest migration of any mammal along the California coastline, utilizing inshore areas and protected coves during the spring-time northbound migration to Alaska with their calves. Other cetaceans (i.e., whales, dolphins, porpoises) utilize nearshore habitat, including harbors, such as harbor porpoise and bottlenose dolphin. Several pinniped species breed or rest on California beaches, bays, offshore rocks, and harbors, including harbor seal and California sea lion.

Pile driving can cause impacts on aquatic species, including acoustic impacts and individual mortality. Although temporary, construction activities related to the implementation of the Proposed Amendments could result in disturbance of protected nesting birds or marine mammals, direct loss of special-status species, disruption of nesting or other behavior due to noise (e.g., during pile-driving) or visual disturbance sources (e.g., construction equipment, construction personnel), loss of wildlife habitat, or removal of sensitive habitats if present within proposed construction areas. In general, however, harbors and marinas exist in areas that are, or have been, subjected

to substantial disturbance including grading, trenching, paving, and construction of roads and structures. This existing disturbance would reduce the potential for species to be affected because wildlife in these areas are likely acclimated to a baseline level of disturbance and disturbed areas are less likely to support a diverse assemblage of sensitive species and habitats.

There are, however, some plant and animal species that occur in industrially developed areas. For example, birds may nest in built infrastructure on coastlines. However, most shore birds prefer open, sparsely vegetated nesting cover near shallow water.[30] Furthermore, alternative fuel-related infrastructure constructed as a result of implementation of the Proposed Amendments could occur on undeveloped areas that support species and habitat of special consideration. Construction of new infrastructure could require disturbance of undeveloped areas, such as clearing of vegetation, earth movement and grading, trenching for fuel lines, and paving of delivery areas and roadways. Construction noise may also disturb birds nesting nearby.

An increase in demand for lithium-ion batteries and fuel cells could result in increased recycling, refurbishment, or disposal of lithium-ion batteries and hydrogen fuel cells, but not enough to require new or modified facilities. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., pipelines, compressor stations, export terminals, fueling stations) to support the use of alternative fuels, Tier 4 engines, and fuel cells. Similar to impacts described above, direct mortality of individual plants and animals could result from destruction of dens, burrows, or nests through ground compaction, ground disturbance, debris, or vegetation removal within harbors and marinas. Indirect impacts to species could result from construction noise disturbance that might cause nest or den abandonment and loss of reproductive or foraging potential around the site during construction, transportation, or destruction of equipment and existing structures.

In summary, implementation and compliance with the Proposed Amendments could result in potentially significant impacts to biological resources. Depending on the regulatory status of the species (e.g., listed as endangered under the federal or state Endangered Species Acts), and the nature of the habitat disturbance, compliance with permitting requirements under the National Environmental Policy Act, the federal or state Endangered Species Act, Migratory Bird Treaty Act, Clean Water Act Section 404, or related state or local laws would be required. It is expected that potential impacts to special-status species and sensitive habitats would be minimized through compliance with the aforementioned protective regulations; however, the terms of permits obtained under these regulations are unknown as are the precise locations at which construction work would occur. Moreover, it is beyond the authority

[30] U.S, Department of Agriculture, Natural Resources Conservation Service, Shorebirds, Fish and Wildlife Habitat Management Leaflet, July 2000, last accessed August 11, 2021, *https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=18480.wba*.

of CARB to enforce such compliance. Therefore, short-term construction-related biological resources impacts could be potentially significant.

***Mitigation Measure 4-1***

The Regulatory Setting in Attachment A includes applicable laws and regulations that relate to biological resources. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices routinely required to avoid and/or minimize impacts to biological resources include:

- Proponents of construction activities implemented as a result of reasonably foreseeable compliance responses associated with the Proposed Amendments would coordinate with State or local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must follow all applicable environmental regulations as part of approval of a project for development.
- Based on the results of the environmental review, proponents would implement all feasible mitigation to reduce or substantially lessen the potentially significant impacts on biological resources associated with the project.
- Actions required to mitigate potentially significant biological impacts may include the following; however, any mitigation specifically required for a new or modified port/terminal facility or other lands would be determined by the local lead agency:
- Retain a qualified biologist to prepare a biological inventory of site resources prior to ground disturbance or construction. If protected species or their habitats are present, comply with applicable federal and State endangered species acts and regulations. Construction and operational planning would require that important fish or wildlife movement corridors or nursery sites are not impaired by project activities.
- Retain a qualified biologist to prepare a wetland survey of onsite resources. This survey shall be used to establish setbacks and prohibit disturbance of riparian habitats, streams, intermittent and ephemeral drainages, and other wetlands. Wetland delineation is required by Section 404 of the Clean Water Act and is administered by the U.S. Army Corps of Engineers.
- Prohibit construction activities during the rainy season with requirements for seasonal weatherization and implementation of erosion prevention practices.

- Require acoustic mitigation, such as a bubble curtain, for noise impacts.
- Prohibit construction activities in the vicinity of raptor nests during nesting season or establish protective buffers and provide monitoring, as needed, to address project activities that could cause an active nest to fail.
- Prepare site design and development plans that avoid or minimize disturbance of habitat and wildlife resources and prevent storm water discharge that could contribute to sedimentation and degradation of local waterways. Depending on disturbance size and location, a National Pollution Discharge Elimination System (NPDES) construction permit may be required from the California State Water Resources Control Board.
- Prepare spill prevention and emergency response plans, and hazardous waste disposal plans as appropriate to protect against the inadvertent release of potentially toxic materials.
- Plant replacement trees and establish permanent protection suitable habitat at ratios considered acceptable to comply with "no net loss" requirements.
- Contractor will keep the site and materials organized and store them in a way to discourage wildlife through reducing potential places for wildlife to hide or nest (e.g., capping pipes, covering trashcans, and emptying trash receptacles consistently and promptly when full).

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects.

Consequently, while impacts could likely be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related impacts to biological resources associated with the Proposed Amendments would remain **potentially significant and unavoidable**.

### *Impact 4-2: Long-Term Operational Impacts on Biological Resources*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. An extremely small increase in demand for lithium-ion based batteries could increase the use of manufacturing, refurbishing, and recycling facilities domestically and abroad. Increased use of lithium-ion batteries

could also increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically, in particular as the United States explores more options for domestic supplies of lithium (see section IV.B.12). It is possible that compliance responses may contribute at an extremely low level to demand for fuel cells, which could result in very small increases in platinum mining and exports from source countries or other states and increased recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Repowered and new vessels would operate the same as existing vessels and therefore would not result in impacts to biological resources. Similarly, use of shore power and charging infrastructure would require occasional inspection and maintenance that is like existing inspection and maintenance activities. As a result, it would not result in operational biological resources impacts.

Implementation of the Proposed Amendments could require operation of alternative fuel and DEF fueling infrastructure such as compressor stations, storage tanks, pipelines, and export terminals, as well as lithium-ion battery and fuel cell infrastructure such as recycling or refurbishment facilities. Long-term operation of these facilities would often include the presence of workers; movement of automobiles, trucks, and heavy-duty equipment; and operation of stationary equipment. This environment would generally not be conducive to the presence of biological resources located on-site or nearby. For example, operation of a new facility could deter wildlife from the surrounding habitat or could impede wildlife movement through the area. As is already the case with these facilities, this impact would be substantial if there is not adequate habitat nearby. Vegetation management may be necessary to comply with fire codes and defensible space requirements, which may require tree trimming and other habitat modification that could, for example, result in species mortality or nest failure. Furthermore, operation of facilities could result in the accidental introduction of hazardous substances to the environment which could adversely affect biological resources.

Increased demand in lithium-ion batteries and fuel cells could result in an extremely small increase in mining-related activities, including hard rock and continental brines for the procurement of lithium ore. Mining of hard rock would require the use of conventional mining practices including the creation of underground mines and open pits, which would result in the removal of organic material (e.g., bedrock, vegetation). Lithium may also be collected from lake brines and clays. This process involves the pumping of salty groundwater into lagoons where it undergoes evaporation producing salts containing lithium compounds. An increase in demand for fuel cells could result in an extremely small increase in mining and exports from source countries or other

states and increase recycling, refurbishment, or disposal of hydrogen fuel cells at existing facilities. If mining activities occur on or near biological resources, which is probable, they could result in loss or degradation of these resources. For example, brine extraction can result in a decline of bird populations that utilize hypersaline lagoons.[31] However, given the minimal additional demand created by the Proposed Amendments, it is most likely that these activities would occur at existing extraction facilities that are already disturbed, limiting the kinds of impacts that could occur. For example, noise disturbance may occur that may interfere with nesting birds, and the use of heavy equipment could result in loss of special-status species or conflicts with a habitat conservation plan or natural community conservation plan.

Long-term operational impacts to biological resources associated with the Proposed Amendments could be potentially significant.

***Mitigation Measure 4-2***

The Regulatory Setting in Attachment A includes applicable laws and regulations that relate to biological resources. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices routinely required to avoid and/or minimize impacts to biological resources include:

- Proponents of construction activities implemented as a result of reasonably foreseeable compliance responses associated with the proposed Amendments would coordinate with State or local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must follow all applicable environmental regulations as part of approval of a project for development.
- Based on the results of the environmental review, proponents would implement all feasible mitigation to reduce or substantially lessen the potentially significant impacts on biological resources associated with the project. The definition of actions required to mitigate potentially significant biological impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.

[31] Fox, Kayla, Environmental Impacts of Lithium Extraction, November 6, 2020, last accessed August 11, 2021, *https://storymaps.arcgis.com/stories/0898df4b1f7e475ab49a4ae23aaed426/print*.

- Prohibit vegetation management activities in the vicinity of raptor nests during nesting season or establish protective buffers and provide monitoring as needed to ensure that project activity does not cause an active nest to fail.
- Maintain site design and development plan features that avoid or minimize disturbance of habitat and wildlife resources and prevent stormwater discharge that could contribute to sedimentation and degradation of local waterways during project operation.
- Maintain and replace, as needed, trees and permanently protected suitable habitat identified during the construction phase of the project.
- The impacts to biological resources could be reduced to a less-than-significant level by mitigation that can and should be implemented by federal, state, and local lead agencies, but is beyond the authority of CARB. The authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and the programmatic level of analysis associated with this ~~Draft~~Final EA does not attempt to address project-specific details of mitigation. Thus, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts.

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects.

Consequently, while impacts could likely be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that long-term operational impacts to biological resources associated with the Proposed Amendments would remain **potentially significant and unavoidable**.

### 5. Cultural Resources

#### *Impact 5-1: Short-Term Construction-Related and Long-Term Operational Impacts on Cultural Resources*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could

also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Vessel repowering and construction would take place at existing facilities as it currently takes place. Therefore, these activities would not affect culturally, historically, archaeologically, or paleontologically significant resources.

The Proposed Amendments could result in construction of a variety of facilities. Shore power would require construction and ground disturbance. Use of hydrogen fuel cells could require installation of fueling stations, and other infrastructure such as pipelines could be required for use of alternatives fuels. In general, harbors and marinas are in industrial, previously disturbed locations. Regardless, there is a possibility that they may be in or adjacent to a region consisting of significant prehistoric and/or historic-era cultural resources or resources that are considered tribal cultural resources. Facilities outside of harbors and marinas, such as infrastructure to facilitate use of alternative fuels, may be in areas that have not been disturbed and therefore may contain these resources. As such, it is foreseeable that undocumented cultural or paleontological resources could be unearthed or otherwise discovered during ground-disturbing and construction activities. Unique archaeological or historical resources might include stone tools, tool-making debris, stone milling tools, shell or bone items, and fire-affected rock or soil darkened by cultural activities. Paleontological resources include fossils. Historic materials might include metal, glass, or ceramic artifacts.

Operation of the CHC equipment and facilities would not result in additional ground disturbance beyond that which occurred during construction and modification because operation activities would occur within the footprint of the constructed or modified facility. Therefore, most operational activities would not have the potential to affect archaeological, paleontological, or historical resources. Presence of new infrastructure may, however, change the visual setting of the surrounding area, which could adversely affect historic and cultural resources and districts with an important visual component. For example, although it is unlikely such a facility would be sited in a historic district, a new control system may not be consistent with the visual character of a historic district. As a result, operation impacts could be potentially significant.

The increased demand for lithium-ion battery storage and fuel cells could result in an extremely small increase in lithium and platinum mining at existing extraction facilities.

Ground disturbing activities from hard rock and continual brine mining activities could affect areas and artifacts of cultural, historical, and/or paleontological significance. Although these activities would most likely take place at existing extraction facilities due to the small increase in demand, facilities may be located in culturally sensitive areas.

Therefore, short-term construction-related and long-term operational-related impacts to cultural resources associated with implementation of the proposed Amendments could be potentially significant.

***Mitigation Measure 5-1***

The Regulatory Setting in Attachment A includes applicable laws and regulations that relate to cultural resources. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices routinely required to avoid and/or minimize impacts to cultural resources include:

- Proponents of construction activities implemented as a result of reasonably foreseeable compliance responses associated with the proposed Amendments would coordinate with State or local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must follow all applicable environmental regulations as part of approval of a project for development.
- Based on the results of the environmental review, proponents would implement all feasible mitigation to avoid, reduce or substantially lessen the potentially significant impacts on cultural resources associated with the project.
- Actions required to mitigate potentially significant cultural resources impacts may include the following; however, any mitigation specifically required for a modified facility would be determined by the local lead agency.
    - Retain the services of cultural resources specialists with training and background that conforms to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61.
    - In the event that cultural resources are discovered during project activities, all work in the immediate vicinity of the find shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be

hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period.

- Seek guidance from the State and federal lead agencies, as appropriate, for coordination of Nation-to-Nation consultations with the Native American Tribes.
- Regulated entities shall consult with lead agencies early in the planning process to identify the potential presence of cultural properties. The agencies shall provide the project developers with specific instruction on policies for compliance with the various laws and regulations governing cultural resources management, including coordination with regulatory agencies and Native American Tribes.
- If a resource determined to be significant by the qualified archaeologist (i.e., because the find is determined to constitute either an historical resource, cultural resource, or a unique archaeological resource), the archaeologist shall work with the project applicant to avoid disturbance to the resource, and if complete avoidance is not possible, follow accepted professional standards in recording any find Preservation in place is the preferred manner of mitigating impacts to archaeological sites.
- Regulated entities shall define the area of potential effect (APE) for each project, which is the area where project construction and operation may directly or indirectly cause alterations in the character or use of historic properties. The APE shall include a reasonable construction buffer zone and laydown areas, access roads, and borrow areas, as well as a reasonable assessment of areas subject to effects from visual, auditory, or atmospheric impacts, or impacts from increased access.
- Regulated entities shall retain the services of a paleontological resources specialist with training and background that conforms with the minimum qualifications for a vertebrate paleontologist as described in Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontological Resources: Standard Procedures, Society of Vertebrate Paleontology.[32]
- Regulated entities shall conduct initial scoping assessments to determine whether proposed construction activities, if any, could disturb formations that may contain important paleontological resources. Whenever possible, potential impacts to paleontological resources should be avoided by moving the site of construction or removing or reducing the need for surface disturbance. The scoping assessment shall be conducted by the qualified paleontological resources specialist in accordance with applicable agency requirements.

[32] Society of Vertebrate Paleontology, Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources, 2010, last accessed August 11, 2021, *https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines.pdf*.

- If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity and within a reasonable buffer zone, shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code section 7050.5 and that code enforced for the duration of the project.
- The regulated entity's qualified paleontological resources specialist shall determine whether paleontological resources would likely be disturbed in a project area on the basis of the sedimentary context of the area and a records search for past paleontological finds in the area. The assessment may suggest areas of high known potential for containing resources. If the assessment is inconclusive a surface survey is recommended to determine the fossiliferous potential and extent of the pertinent sedimentary units within the project site. If the site contains areas of high potential for significant paleontological resources and avoidance is not possible, prepare a paleontological resources management and mitigation plan that addresses the following steps:
  - A preliminary survey (if not conducted earlier) and surface salvage prior to construction.
  - Physical and administrative protective measures and protocols such as halting work, to be implemented in the event of fossil discoveries.
  - Monitoring and salvage during excavation.
  - Specimen preparation.
  - Identification, cataloging, curation, and storage.
  - A final report of the findings and their significance.
  - Choose sites that avoid areas of special scientific value.

- Should any cultural resources be found within the boundaries of the San Manuel Band of Mission Indians territory, the following shall occur:[33]
  - The San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted regarding any pre-contact and/or historic-era cultural resources finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

[33] The San Manuel Band of Mission Indians (SMBMI) requested specific language be included in response to the AB 52 consultation notice that CARB sent to SMBMI pursuant to Public Resources Code section 21080.3.1. CARB included the measures in this EA. While It is not certain whether any compliance response development will occur in the SMBMI territory given the uncertainty of the siting and specifics of future development that may occur in response to the Proposed Amendments, should any development occur in SMBMI territory, CARB includes the SMBMI-requested mitigation to inform permitting agencies that may be responsible for the future permitting of such development. SMBMI's communication concludes SMBMI's input on this project, and no additional consultation pursuant to CEQA is required unless there is an unanticipated discovery of cultural resources during project implementation.

- Should the find be deemed significant, as defined by CEQA (as amended, 2015), and avoidance cannot be ensured, a cultural resources Monitoring and Treatment Plan shall be created by the archaeologist, in coordination with SMBMI, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents SMBMI for the remainder of the project, should SMBMI elect to place a monitor on-site.
- Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the Lead Agency for dissemination to SMBMI.
- The Lead Agency and/or applicant shall, in good faith, consult with SMBMI throughout the life of the project should the SMBMI request consultation.

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects.

Consequently, while impacts could likely be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related and long-term operational impacts to cultural resources associated with the Proposed Amendments would remain **potentially significant and unavoidable**.

### 6. Energy Demand

***Impact 6-1: Short-Term Construction-Related Effects on Energy Demand***

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source

countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Short-term energy expenditures would be required to facilitate manufacturing of new vessels, vessel engines, and lithium-ion batteries. Energy would also be consumed to construct supportive land-based electrical power infrastructure to accommodate increases in shore power and zero-emission vessel charging equipment, such as trenching for conduit lines, adding connection and electrical panels and vessel specific charging connectors, electrical cables, or other systems. An increase in demand for lithium-ion batteries and fuel cells could result in an extremely small increase in recycling, refurbishment, or disposal of lithium-ion batteries and hydrogen fuel cells, but new facilities are not anticipated. Energy would be expended to construct new infrastructure to support fuel cells, Tier 4 engines, and alternative fueling infrastructure. Energy for these construction projects would be supplied by an appropriate utility service provider; however, this energy would be inherently short-term and would be deemed necessary to enable vessel access to shore power, which would result in decreased emissions of criteria air pollutants and toxic air contaminants; thus, minimizing potentially adverse environmental effects.

Short-term construction-related activities associated with implementation of the Proposed Amendments would be similar to the construction and maintenance activities already occurring within port facilities. Thus, the temporary increase in energy demand for the construction of shore power and zero-emission vessel charging equipment would not present a new or substantial increase to total energy consumed within a port. Nor would it be considered unnecessary, wasteful, or inefficient given the long-term benefits of the Proposed Amendments.

While all aforementioned compliance responses would require the consumption of energy resources, these actions would enable vessels and ports to comply with the provisions of the Proposed Amendments and would not involve the wasteful or inefficient use of energy. A major objective of the Proposed Amendments is to reduce air pollution, toxic air contaminants, and GHG emissions in the long-term and would require some energy to construct the necessary infrastructure and technical components to support this objective. Therefore, short-term energy consumption would not be considered wasteful, unnecessary, or inefficient. Moreover, energy needed to power necessary equipment would not be anticipated to generate high electrical demand beyond baseline energy load. Short-term construction-related energy impacts associated with the Proposed Amendments would be **less than significant**.

### *Impact 6-2: Long-Term Operation-Related Effects on Energy Demand*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Utility service providers would provide shore power to CHC. Use of shore power and ZEAT would divert energy demand from on-board CHC diesel-powered generators to California's energy grid, which could increase local and regional energy use. CHC have varying levels of energy demands, and the potential for a change in energy demand would be site-specific and dependent on the type of CHC and the facility's operations (e.g., how many vessels are using shore power at once). Where there are situations with substantial electrical loads, distributed generation resources, or lithium-ion storage batteries could be relied on during periods when total demand is high, and the energy grid is experiencing peak levels of demand.

The State's energy capacity is expected to increase as a result of a menu of GHG reducing regulations and policies. To meet the statewide targets of 1990 levels of GHG emissions by 2020 (i.e., AB 32) and 40 percent below 1990 levels of GHG emissions by 2030 (i.e., SB 32), reductions will need to be made from several sectors including the energy and mobile source sectors. Statewide regulations such as the ZEV Mandate, Advanced Clean Fleet Regulation, Advanced Clean Transit Regulation, and the Innovative Clean Transit (ICT) Regulation aim to achieve GHG reductions from the mobile source sector through the deployment of electric and zero and near-zero emission vehicles, which would replace vehicles powered by internal combustion engines. Utilities are working in coordination with the CPUC to fund infrastructure expansion projects to meet this future demand. CPUC is also responsible for regulating Electric Power Procurement and Generation and evaluates the necessity for additional power generation by California utilities in both the short and long term.

Additional energy capacity in the State would be achieved through improved energy efficiency, energy storage, demand response, and generation of renewable resources.

The efficiency of new homes is continually improving through triennial updates to the Parts 6 and 11 of the Title 24 Building Standards Code (California Energy Code and California Green Building Standards Code), which achieve energy reductions through use of mandatory and prescriptive energy efficiency design features and green building practices. The California Energy Code is anticipated to trend towards decarbonization, or the elimination of on-site natural gas combustion to power stoves and water heaters consistent with the findings of the 2018 Integrated Energy Policy Report, which identifies carbonization of the building sector as a major policy shift that will assist the State in meeting its long-term GHG reduction goals (i.e., reducing GHG emissions by 80 percent of 1990 levels by 2050).

Moreover, as mandated by SB 100, the State's electrical utilities are legislatively required to procure 60 percent and 100 percent of their total energy supply from eligible renewable energy sources (i.e., solar, wind, geothermal, small-scale hydroelectric, and biomass) by 2030 and 2045, respectively.

The abovementioned factors combine to expand the State's energy capacity as compared to previous years. For example, in-state energy capacity rose from 55,530 megawatts (MW) in 2001 to 82,323 MW in 2020. In 2020 California's total system electricity generation was 192,942 gigawatts per hour.[34] CARB has made some general assumptions about energy usage; staff assume that about 30 to 35 percent of energy for excursion vessels would be from the grid instead of diesel and that shore power. The Proposed Amendments would require that at minimum, 30 percent of a vessel's onboard power, whether for main propulsion or auxiliary, would need to be derived from a zero-emission tailpipe source when averaged over a year. Therefore, because some operators may target operating with a higher percentage of zero-emission power to avoid going under the 30 percent target, CARB staff provides the range of 30 to 35 percent of power originating from the electric grid. For shore power, CARB staff has outlined in Appendix C-1 to the ISOR that approximately three-quarters of CHC already use shore power. CARB staff assumed that half of the remaining vessels would comply by installing and using shore power while at dock, and the other half of the vessels would cease operations of auxiliary engines while at dock Therefore, approximately 12.2 percent of auxiliary engine work while at dock, which was previously fueled by diesel, would be coming from the electric grid. Considering auxiliary engine activity (hp-hr) is approximately 17 percent of overall CHC activity (when including main propulsion and auxiliary engine activity), this suggests 2 percent of auxiliary engine activity would be transitioned to shore power. Because vessels only are required to use shore power while at dock and not while underway within open waters, the actual impact to the electric grid is significantly less than **2** percent because vessels typically operate their engines while not at dock. As noted in the Project Description Section, CARB staff expect that the maximum power

[34] Nyberg, Michael, Electric Generation Capacity and Energy, California Energy Commission, 2021, last accessed August 15, 2021, *https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/electric-generation-capacity-and-energy*.

load attributable to the Proposed Amendments would be 853 kW. As such, due to this increased capacity as a result of statewide regulations and policies and the minimal energy demand shore power would require, it would not be expected that operation of new land-based electrical infrastructure under the Proposed Amendments would be substantial such that local utilities would be required to expand their capacity.

Shore power and ZEAT could require repairs and replacements, which could increase vehicle mileage of workers and result in an increase in gasoline and diesel fuel consumption associated with worker commute trips. However, any additional mileage above that already occurring to service existing vessels and equipment would be minimal and/or infrequent and would not amount to a substantial increase in fuel consumption that is a wasteful or unnecessary use of energy. Similarly, energy consumption would be necessary for the extremely small increase in use of lithium-ion battery facilities, hydrogen fuel cell facilities, and mining, but would not be considered wasteful, unnecessary, or inefficient given the long-term benefits associated with the Proposed Amendments.

Implementation of the Proposed Amendments could result in the increased use of alternative fuels such as LNG, which would displace diesel fuel currently used to power on-board generators. Appendix F of the CEQA Guidelines identifies the use of alternative fuels as a measure to reduce energy demand. Moreover, Appendix F also lists increased use of renewable energy as an appropriate strategy to mitigate energy impacts. Use of zero and near-zero land-based electrical systems, as discussed above, would divert energy from diesel-powered generators to land-based energy systems, which, as mandated by the renewable portfolio standard, will become increasingly more renewable in the coming years. Furthermore, the diversion of this energy would not result in the wasteful or inefficient use of energy as compared to existing conditions. Arguably, through the use of alternative fuels and an increasingly more renewable energy grid, implementation of the Proposed Amendments would improve the efficiency of energy usage associated with CHC.

As such, implementation of the Proposed Amendments would not result in the wasteful, unnecessary, or inefficient use of energy. Thus, long-term operation-related energy impacts to vessels would be **less than significant.**

### 7. Geology and Soils

#### *Impact 7-1: Short-Term Construction-Related and Long-term Operation-Related Impacts on Geology and Soils*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral

supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

CHC vessel modifications and new builds would not affect geology or soils because they would occur at existing facilities. Additionally, vessels do not affect soils, nor would they cause or exacerbate seismic activity or hazards.

Shore power and charging infrastructure construction could require ground-disturbing activities such as pile driving and trenching. Construction of new infrastructure and facilities to accommodate use of alternative fuels and DEF as well as activities such as lithium battery and fuel cell recycling could cause adverse geologic impacts such as erosion from vegetation grubbing and grading. However, there is uncertainty as to the exact location of new facilities and, as a result, there is uncertainty as to geologic conditions at project sites. Furthermore, it is not known what kinds of modifications to existing facilities would occur and whether any ground disturbance would be needed. Nonetheless, it is probable construction activities for new facilities would require disturbance of undeveloped areas, such as clearing of vegetation, earth movement and grading, trenching for utility lines, erection of new buildings, and paving of parking lots, delivery areas, and roadways. These activities would have the potential to adversely affect soil and geologic resources in construction areas. Construction and operation of these facilities would not exacerbate seismicity due to the nature of construction activities (e.g., no groundwater injection is anticipated). The level of susceptibility to seismic related geologic hazards like erosion and landslides varies by location and geologic conditions. The specific design details, siting locations, and soil compaction details for manufacturing facilities are not known at this time. However, there is potential for these facilities to be sited in a seismically hazardous area due to the general seismic conditions in California.

In unusual cases that facilities are sited in areas without sewer systems, it would be expected that new facilities would be sited on lands capable of supporting septic tanks or alternative wastewater disposal. However, there is inherent uncertainty surrounding the location and magnitude of such facilities, which could also be located outside of California. As such, it is conceivable that a facility could be located on soils incapable of supporting facility-generated wastewater.

Implementation of the proposed Amendments could result in increased demand for storage lithium-ion batteries and fuel cells, which could cause a surge in lithium and

platinum mining activity within the United States as well as internationally. Mining would have adverse effects to erosion from potential loss of forests and soil disturbance.[35] Therefore, short-term construction-related and long-term operational impacts to geology and soils associated with the Proposed Amendments could be potentially significant.

***Mitigation Measure 7-1***

The Regulatory Setting in Attachment A includes applicable laws and regulations that relate to geology and soils. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices routinely required to avoid and/or minimize impacts to geology and soils include:

- Proponents of new or modified facilities constructed as a compliance response to the Proposed Amendments would coordinate with local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local land use agency or governing body would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.
- Based on the results of the environmental review, proponents would implement all mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. The definition of actions required to mitigate potentially significant geology and soil impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.
- Prior to the issuance of any development permits, proponents of new manufacturing plants and hydrogen fueling stations would prepare a geotechnical investigation/study, which would include an evaluation of the depth to the water table, liquefaction potential, physical properties of subsurface soils including shrink-swell potential (expansion), soil resistivity, slope stability, minerals resources and the presence of hazardous materials.
- Proponents of new manufacturing plants and hydrogen fueling stations would provide a complete site grading plan, and drainage, erosion, and sediment

[35] Kinhal, How Does Mining Impact the Environment?, last accessed August 11, 2021, *https://greenliving.lovetoknow.com/How_Does_Mining_Affect_the_Environment*.

control plan with applications to applicable lead agencies. Proponents would avoid locating facilities on steep slopes, on alluvial fans and other areas prone to landslides or flash floods, or within gullies or washes, as much as possible.

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects.

Consequently, while impacts could likely be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related and long-term operational impacts to geology and soils associated with the Proposed Amendments would remain **potentially significant and unavoidable**.

### 8. Greenhouse Gas Emissions

Climate change impacts associated with the Proposed Amendments would overlap between harbors, marinas, ports, land areas and vessels. To more accurately assess short-term construction-related and long-term operational-related GHG impacts related to the Proposed Amendments, land-and vessel-based impacts are discussed together below. For more detail regarding quantified emission reductions associated with the Proposed Amendments, see Chapters V and VI of the ISOR.

#### *Impact 8-1: Short-Term Construction-Related Impacts on Greenhouse Gases*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed

Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

It is not possible to predict exactly where project related improvements would occur or what each project would involve. Modifying an existing marina or harbor for new or expanded shore power capabilities may include trenching to install new power cable lines, power meters and power pedestals, all of which would be installed near existing service areas. Charging equipment may require construction of an enclosed concrete pad which houses equipment (e.g., transformers, cables, power circuit breakers).

Depending on the size and scope of the modifications to facilities, construction equipment could range from earth-moving equipment such as backhoes and excavators to hand and power tools to install smaller devices such as valves and flanges. Construction activities might include demolition and excavation, backfilling, compacting, paving, and equipment deliveries. Construction may last up to a year at each location when considering development, permitting and construction phases. However, due to their small size and scope CARB staff assumes actual construction activities to occur for less than 6 months at each given project site (see Appendix D-4).

Construction of compliance responses could result in temporary increases in GHG emissions associated with the manufacturing and delivery of necessary equipment, trenching for piping, installation of new features and increased vehicle traffic. However, many air pollution control districts do not recommend or require the quantification of short-term construction generated GHG for typical construction projects because these only occur for a temporary period of time (e.g., South Coast Air Quality Management District). The Sacramento Metropolitan Air Quality Management District recommends the quantification of construction emissions to be measured against an adopted threshold. With respect to the Sacramento Metropolitan Air Quality Management District, construction emissions are considered to be potentially significant if annual emissions exceed 1,100 metric tons of CO2e. This threshold is typically applied to land use development projects that entail the prolonged use of heavy-duty equipment under multiple years.

As previously discussed, the Proposed Amendments would require the repower and new build of vessels in shipyards located in California, Oregon, and Washington State. The majority of new builds are assumed to be conducted outside of California in Oregon and Washington. Repowers are expected to occur among all three states. Understanding construction impacts of vessel repower and new builds requires identifying the specifics of each project. To quantify the increased emissions in response to the Proposed Amendments would require knowledge of each shipyard's current and projected activities, types of vessels made, timeframe for each vessel repower or build, materials needed and where materials are transported, among other specificities. The ability for CARB staff to correctly estimate the location, amount, and types of projects which could occur in response to increased vessel repowers and new

builds, has been determined to be too speculative for a thorough evaluation. Furthermore, since climate change impacts are global in nature, such an analysis would also need to know when these projects are to be undertaken.

Generally, construction calculations for projects within California are estimated using CalEEMod. CalEEMod is a modeling program that quantifies direct emissions from construction and operation activities (including vehicle use), and indirect emissions.[36] To use CalEEMod a specific project location is necessary (e.g. Air District). It must be known if a project is located in a rural or urban setting. To create appropriate outputs in CalEEMod one must indicate the first year when full project operation is expected to begin and select the utility company servicing the project. Additionally, CalEEMod construction phase defaults are based on the total lot acreage of the project.[37] For calculating increased emissions associated with vessel repowers and new builds the industry standard CalEEMod is not a viable modeling option.

However, it is feasible to approximate the relative change in emissions-generating activity. As can be seen in Appendix E of the ISOR, CARB staff contacted shipyards throughout the states of California, Oregon and Washington to determine which yards conducted repowers and vessel new builds. Of the approximately 187 shipyards contacted, 80 responded with their repower and new build yearly activities. From the responses given and applying a methodology to account for non-responsive shipyards, it was estimated that across all three states there were roughly 543 repowers and 151 new builds yearly. As can be seen in Table D-1i below, the Proposed Amendments would require about ~~269~~368 new build vessels and ~~1,522~~1,584 repowers done between the years 2023 and 2034.

**Table D-1i. Yearly Repower and New Vessel Needs for Proposed Amendments**

| | 2023 | '24 | '25 | '26 | '27 | '28 | '29 | '30 | '31 | '32 | '33 | '34 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Repower | 195 | 234 | 200 | 64 | 61 | 76 | ~~16~~ 46 | 215 | 248 | 223 | 7 | ~~13~~ 16 | ~~1,552~~ 1,584 |
| New | 5 | 7 | 6 | 10 | 13 | 13 | 35 | ~~37~~ 40 | 22 | ~~31~~ 50 | 38 | ~~53~~ 130 | ~~269~~ 368 |

Conservatively, CARB staff estimates an increase of construction emissions resulting from Proposed Amendments vessel repowers could be up to 46 percent higher than business as usual for certain years (e.g. 2031). Vessel construction emissions would be spread across several months and be produced in various states as vessel repower materials are delivered and installed. At the height of new vessel building, as estimated by CARB staff to be in the year 2034, vessel construction related emissions could increase by ~~36 precent~~ 86 percent. Again, all construction related emissions will

[36] CalEEMod, Download Model: CalEEMod Version 2020.4.0, *http://www.caleemod.com/*.
[37] CalEEMod, User's Guide for CalEEMod Version 2020.4.0, May 2021, last accessed August 9, 2021, *http://www.caleemod.com/*.

occur in various states, and emissions will be dependent on the construction and material delivery schedules.

CARB staff modeled construction GHG emissions for two of the most reasonably foreseeable compliance responses that were able to be modeled using CalEEMod:

1) Projected construction emissions for the addition of a shore power system to a marina/harbor; and
2) Projected construction emissions for the addition of a 1-2 MW charging system at a California ferry operation.

CalEEMod is a statewide land use emissions computer model designed to provide a reliable way to quantify potential criteria and GHG emissions associated with both construction and operations from a variety of land use projects. CalEEMod was developed in collaboration with California's air districts to account for local requirements and conditions. The models are considered by CARB to be an accurate and comprehensive tool for quantifying air quality and GHG impacts from construction projects throughout California. Details of the modeling assumptions and emission factors are provided in Attachment C of this ~~Draft~~Final EA.

Construction air quality modeling includes GHG emissions generated by mobile sources (e.g., heavy truck and worker traffic), and construction activities that reflect the types and quantities of construction equipment that would be used in removing pavement from existing facilities, grading, and excavating new sites, construction and building of shore side equipment housing etc. The tables below show the potential unmitigated construction GHG emissions resulting from implementation of the Proposed Amendments compared to the most stringent significance threshold in California.

**Table D-1j. Construction Greenhouse Gas Emission Rates for Marina/Harbor Shore Power Scenario**

| Category | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Construction GHG in Metric Tons Per Year (MTY) | 56 | < 1 | < 1 | 56 |
| Amortized Emissions in MTY | 2 | < 1 | < 1 | 2 |
| Most Stringent Significance Threshold in MTY | | | | 1,100 |
| Exceed Threshold (Yes or No)? | | | | No |

i) CO2 = Carbon Dioxide
ii) CH4 = Methane
iii) N2O = Nitrous Oxide

**Table D-1k. Construction Greenhouse Gas Emission Rates for New Construction of 1-2 MW Charging Infrastructure Scenario**

| Category | CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Construction GHG (MTY) | 88 | < 1 | < 1 | 88 |
| Amortized Emissions (MTY) | 3 | < 1 | < 1 | 3 |
| Most Stringent Significance Threshold (MTY) | | | | 1,100 |
| Exceed Threshold (Yes or No)? | | | | No |

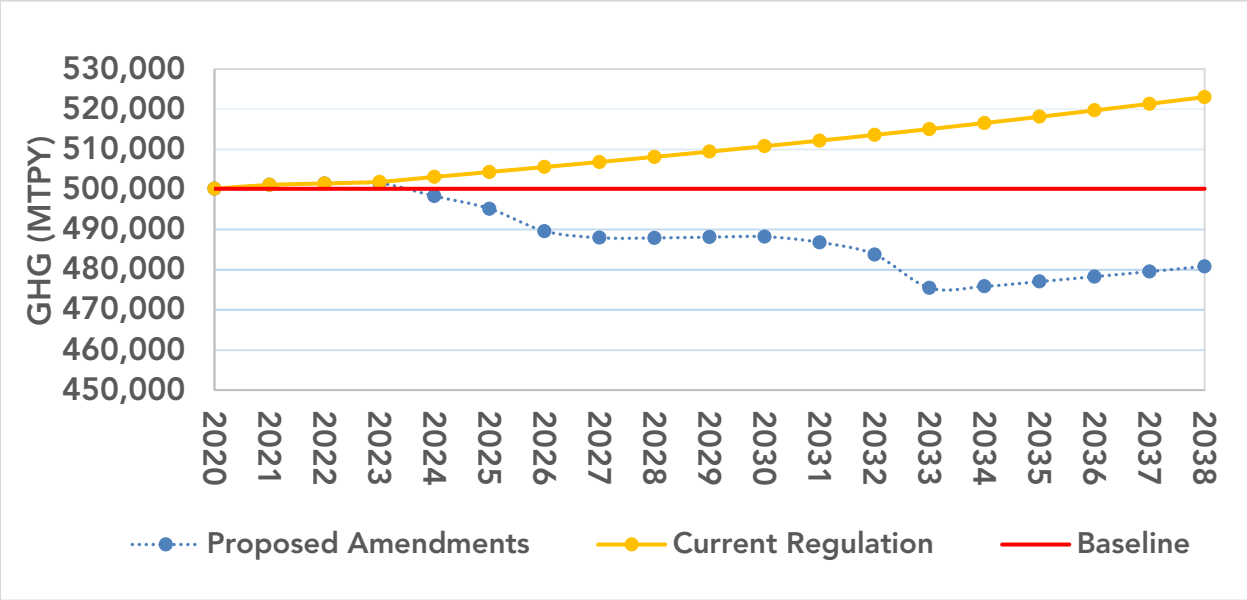
CalEEMod calculates emissions from off-road equipment usage as well as on-road vehicle travel associated with haul, delivery and construction worker trips. GHG emissions during construction were forecasted based on estimated representative project schedules developed by CARB staff. The calculations include emissions generated from fugitive dust, mobile sources, and construction activities that reflect the types and quantities of construction equipment that would be used in removing pavement from existing facilities, grading, and excavating new sites, construction and building of shore-side equipment housing, etc.

The types of upgrades and modifications to harbors, marinas, and port facilities that could be required under the Proposed Amendments may consist of construction projects such as installation of piping, cables, and vaults, which would be expected to emit GHGs well below the aforementioned threshold. Thus, short-term construction related GHG impacts associated with the Proposed Amendments would be **less than significant** and would be more than offset by substantial operational GHG reduction benefits achieved by the Proposed Amendments seen in Table D-1b.

***Impact 8-2: Operational Impacts on Greenhouse Gases***

The Proposed Amendments would achieve GHG benefits to the State of California relative to both the Current Regulation as well as GHG emissions in 2020. Relative to the Current Regulation, the Proposed Amendments are projected to reduce approximately ~~480,800~~415,060 metric tons of GHG from 2023 to 2038 (quantified as CO2e as defined above). In 2038, when comparing the Proposed Amendments to the Current Regulation, GHG emissions would be reduced about 8 percent, from 523,000 MTY to 480,800 MTY. Overall, the GHG emission reductions achieved by the Proposed Amendments over the Current Regulation would amount to about 6 percent of the total GHG emissions, from 2023 to 2038. This is mainly achieved by reducing fuel consumption through the use of shore power, requirements and pathways anticipated to result in the use of ZEAT, and use of newer engines that are more fuel efficient. Projected GHG emissions from vessels complying with the Current Regulation (business-as-usual scenario), GHG emissions in 2020, and the forecasted emissions of the Proposed Amendments can be seen in Figure D-1a, which is presented in Chapter VI of the ISOR and discussed in Emission Inventory methodology in Appendix H.

**Figure D-1a: Current Regulation GHG Emissions vs. Proposed Amendments GHG Emissions**




* Figure D-1a Note: Staff have estimated CHC emission inventory under Current Regulation and Proposed Amendments from 2018 to 2050. This figure shows anticipated CHC GHG emissions under the Current Regulation and Proposed Amendments, respectively. For full details of the CHC emission inventory methodology, see Appendix H, Update to the Emission Inventory for Commercial Harbor Craft: Methodology and Results.

Implementation of the Proposed Amendments could result in new infrastructure or modifications to existing infrastructure (power meters, circuit breaker main cabinets, and high voltage cable lines) to accommodate increased or new shore power. Although unlikely, implementation of the Proposed Amendments could require substantial new and improved infrastructure (e.g., pipelines, export terminals, fueling stations, compressor stations, distribution centers) to support the use of alternative fuels, Tier 4 engines, and hydrogen fuel cells. For a complete discussion of the physical changes that may result from the Proposed Amendments, as described in Section 2.0 of this ~~Draft~~Final EA.

Post-combustion technologies such DPFs tend to slightly increase GHG emissions due to increased fuel or power use. The impact of increased fuel consumption has been quantified and included in the scenario for the Proposed Amendments GHG shown in Figure D-1a. However, DPFs also remove black carbon, a component of DPM and a short-lived climate pollutant.

The Proposed Regulation could also result in an extremely small increase in lithium and platinum mining activities and use of facilities for recycling, refurbishing, and manufacturing of lithium-ion batteries and hydrogen fuel cells. Mining would require the use of heavy equipment, which would likely be powered by diesel fuel. Loss of carbon sequestering vegetation could also occur during hard-rock mining activities.

However, these materials would ultimately offset the combustion of gasoline, diesel, and other fossil fuels, reducing associated emissions.

As discussed in the Air Quality section (Section IV.B.3) of this ~~Draft~~Final EA, vessels that elect to supply their electrical load with shore power would use electricity from public utility companies. California's electrical grid will become increasingly cleaner by utilizing more renewable energy over the coming years to comply with the targets mandated by the RPS. Implementation of the Proposed Amendments would minimize emissions associated with CHC operation and would assist the State in meeting greenhouse gas emissions goals. Therefore, long-term operational-related GHG impacts associated with implementation of the Proposed Amendments would be **less than significant**.

### 9. Hazards and Hazardous Materials

#### *Impact 9-1: Short-Term Construction-Related Impacts to Hazards and Hazardous Materials*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Production of new and rebuilding or retrofitting existing CHC vessels is expected to occur while dry docked. Dry docks support a high level of hazardous equipment and materials. It would be expected that implementation of the modifications required to comply with the Proposed Amendments could be accomplished using heavy-duty equipment currently used at dry docks that would not appreciably change the risk of hazards and hazardous materials impacts. As such, short-term construction-related hazardous impacts from production of new vessels or vessel engine replacement would be less than significant.

The Proposed Amendments could require the construction of shore power and charging infrastructure or other facility upgrades, such as pilings to reinforce docks, and could increase the use of lithium-ion storage batteries or fuel cells. An increase in demand for lithium-ion batteries and fuel cells would require an extremely small increase in use of facilities that manufacture, recycle, and refurbish batteries and fuel cells, but would not require new construction or modification to existing facilities. Implementation of the proposed Amendments could also require construction of substantial new and improved infrastructure (e.g., pipelines, holding tanks, fueling stations, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Construction activities associated with shore power and other facilities may require the transport, use, and disposal of hazardous materials. Construction activities generally use heavy-duty equipment requiring periodic refueling and lubricating fluids. Large pieces of construction equipment (e.g., backhoes, graders) are typically fueled and maintained at the construction site as they are not designed for use on public roadways. Thus, such maintenance uses a service vehicle that mobilizes to the location of the construction equipment. It is during the transfer of fuel that the potential for an accidental release is most likely. Although precautions would be taken to ensure that any spilled fuel is properly contained and disposed, and such spills are typically minor and localized to the immediate area of the fueling (or maintenance), the potential remains for a substantial release of hazardous materials into the environment. Therefore, short-term construction-related impacts to hazards and hazardous materials associated with the Proposed Amendments could be potentially significant.

***Mitigation Measure 9-1***

The Regulatory Setting in Attachment A includes, but is not limited to, applicable laws, regulations, and policies related to hazards and hazardous materials. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with discretionary local land use and/or permitting authority. New or modified facilities in California could qualify as a "project" under CEQA. The jurisdiction with primary permitting authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation may be identified during the environmental review by agencies with discretionary project approval authority. Recognized practices that are routinely required to avoid upset and accident-related impacts include:

- Proponents of new or modified facilities constructed as a compliance response to the Proposed Amendments would coordinate with local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local land use agency or governing body would certify that the environmental document was prepared

in compliance with applicable regulations and would approve the project for development.

- Based on the results of the environmental review, proponents would implement all mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. The definition of actions required to mitigate potentially significant upset and accident-related hazard impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.
- Handling of potentially hazardous materials/wastes shall be performed by or under the direction of a licensed professional with the necessary experience and knowledge to oversee the proper identification, characterization, handling and disposal or recycling of the materials generated as a result of the project. As wastes are generated, they shall be placed, at the direction of the licensed professional, in designated areas that offer secure, secondary containment and/or protection from storm water runoff. Other forms of containment may include placing waste on plastic sheeting (and/or covering with same) or in steel bins or other suitable containers pending profiling and disposal or recycling.
- The temporary storage and handling of potentially hazardous materials/wastes shall be in areas away from sensitive receptors such as schools or residential areas. These areas shall be secured with chain-link fencing or similar barrier with controlled access to restrict casual contact from non-Project personnel. All project personnel that may encounter potentially hazardous materials/wastes shall have the appropriate health and safety training commensurate with the anticipated level of exposure.

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects.

Consequently, while impacts could likely be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that the potential short-term construction-related impacts regarding hazards and hazardous materials associated with the proposed Amendments could be **potentially significant and unavoidable**.

### *Impact 9-2: Long-Term Operational Impacts to Hazards and Hazardous Materials*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Proposed Amendments related to operation of charging infrastructure and shore power infrastructure could use potentially hazardous equipment such as electrical cables and high voltage systems. However, vessels comply with appropriate safety procedures to minimize harmful exposure to hazardous equipment or materials. Vessels based in the United States would be required to comply with standards established by the Occupational Safety and Health Administration, including 29 C.F.R. 1915.83(c) – *Utilities: Electric Shore Power*. These regulations require precautions before energizing vessel circuits.

The long-term operation of new infrastructure and facilities associated with alternative fuels and DEF would result in the routine transport, use, and disposal of hazardous materials (i.e., fuels). Harmful substances can enter the environment in several ways throughout the entire cycle of fuel production, manufacturing, transportation, storage, distribution, and usage. Most commonly, they come out the tailpipes of vehicles as exhaust or unburned fuel. Fuel vapors escape directly from automobile engines and gas tanks. They can also escape into the air during refueling, or when liquid fuel evaporates from a spill. Fuels can enter lakes, reservoirs, and harbor waters through accidental spills or from motorized commercial harbor craft. Fuels spilled on the ground or leaking from fuel storage tanks can contaminate groundwater. Substances in airborne engine exhaust settle directly onto water, soil and vegetation, or they can be washed down onto these surfaces when it rains. Also, fuel components (e.g., natural gas) can be released into the environment during oil drilling, refining and transportation.

There could be an extremely small increase in use of facilities that manufacture, recycle, and refurbish batteries and fuel cells due to increased demand. Hazardous

materials are used during and created by operations of such facilities. For example, smelting is used to recycle batteries and creates hazardous emissions, although those are generally treated. Chemical leaching processes uses chemicals such as hydrochloric acid and sulfuric acid.[38] These activities would be more likely to occur indoors in a contained area and with proper equipment, limiting the potential effects of spills and accidents as activities involving the use of hazardous materials would occur within the confines of facilities. Risk of outdoor release of hazardous materials would be highest during the movement of raw goods to manufacturing facilities or the export of finished goods containing hazardous materials following the manufacturing process. The transport, use, and disposal of hazardous materials would be required to comply with all applicable federal, State, and local laws that would reduce the potential for accidents and require certain actions should a spill or release occur; however, the potential remains for the release of hazardous materials into the environment.

SCR may be used on-board in some Tier 4 engines to reduce NOx. Ammonia or urea is necessary for the chemical reactions in SCR. Use of SCR for NOx reductions requires storage of liquid urea that is converted to ammonia only after it is injected into the SCR system to react and reduce NOx emissions. Urea is less expensive and less hazardous than gaseous ammonia, so almost all SCR systems use urea. Therefore, there are limited risks associated with the use and handling of urea since the majority of ammonia formed is consumed in the SCR reaction process. Although some of the ammonia will not react and will be emitted in the exhaust, it is not anticipated to pose a significant adverse health risk. Urea is not a hazardous material, and its transport, use, and storage are not covered by federal or California regulations that address the transport of hazardous materials.

In the unlikely event that ammonia is used in place of urea, there could be some environmental impacts. Ammonia is on the U.S. EPA's list of extremely hazardous substances under Title III, Section 302 of the Superfund Amendments and Reauthorization Act of 1986. Exposure to ammonia causes eye, nose, and throat irritation, and it will burn the skin. However, there are limited risks associated with the use and handling of ammonia since the majority of ammonia formed is consumed in the SCR reaction process. Although some of the ammonia will not react and will be emitted in the SCR exhaust, it is not anticipated to pose a significant adverse health risk.

Additionally, many SCR catalyst materials contain heavy metal oxides that are hazardous to human health. The catalyst vanadium pentoxide, for example, is on the U.S. EPA's Extremely Hazardous Substances list. In California, spent catalyst from an SCR system is considered hazardous waste.

[38] Jacoby, It's Time to Get Serious About Recycling Lithium-Ion Batteries, July 14, 2019, last accessed August 11, 2021, *https://cen.acs.org/materials/energy-storage/time-serious-recycling-lithium/97/i28*.

Implementation of the Proposed Amendments could result in an extremely small increase in demand for lithium mining. Lithium is currently sourced in two ways: from hardrock, and from the evaporation of salt brines. Lithium from rock sources is primarily produced from spodumene, a lithium/aluminum/silicate mineral. Salt brine sources include salt lakes, which are currently the main source of lithium, and geothermal brines and salt brines associated with oil deposits. Lithium is the lightest solid metal. It can be absorbed into the body by inhalation of its aerosol and by ingestion and is corrosive to the eyes, the skin, and the respiratory tract. Lithium reacts violently with strong oxidants, acids, and many compounds (hydrocarbons, halogens, halons, concrete, sand and asbestos) causing a fire and explosion hazard. In addition, lithium reacts with water, forming highly flammable hydrogen gas and corrosive fumes of lithium hydroxide. Lithium hydroxide represents a potentially substantial environmental hazard, particularly to water organisms. Implementation of the Proposed Amendments may also increase demand for platinum mining. Platinum mining can expose workers to excessive dust that can result in respiratory ailments.[39]

Lithium metal batteries contain potentially toxic metals, such as copper and nickel, and organic chemicals, like toxic and flammable electrolytes.[40] Improper management of lithium-ion batteries could pose an environmental hazard and be of concern to public safety. There have been some cases with consumer products containing lithium-ion batteries catching fire after or during transportation to disposal facilities. Once ignited, the resulting fires can be especially difficult to extinguish as temperatures can rapidly increase to up to 500 degrees Celsius (932 degrees Fahrenheit) as a result of interactions between a battery's cathodes and anodes, and water is an ineffective extinguisher.[41] The likelihood to overheat or ignite is increased if the batteries are poorly packaged, damaged or exposed to a fire or a heat source. However, when packaged and handled properly, lithium-ion batteries pose no environmental hazard (79 Fed. Reg. 46011, 46032), and therefore no increased demand on public services related to emergency responders is anticipated. Further, these impacts are largely associated with the use and production of lithium-ion batteries used in consumer products as compared to lithium-ion storage batteries.

There are inherent risks associated with the installation and use of hydrogen fuel cells including fire and explosion, electric shock, and exposure to toxic materials. Hydrogen possesses several hazardous properties such as a very wide flammability range, very low ignition energy, low viscosity, high diffusivity, and is chemically lighter than air.[42] However, fuel cell manufacturers developed and extensively safety-tested carbon-fiber

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[39] Sepadi et al., Platinum Mine Workers' Exposure to Dust Particles Emitted at Mine Waste Rock Crusher Plants in Limpopo, South Africa, 2020, last accessed August 11, 2021, *https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7014327/*.

[40] Zeng et al., Solving Spent Lithium-Ion Battery Problems in China: Opportunities and Challenges, 2015, last accessed August 11, 2021, *https://www.sciencedirect.com/science/article/abs/pii/S136403211500859X*.

[41] Battery University, BU-304a: Safety Concerns with Li-Ion, April 23, 2019, last accessed August 11, 2021, *https://batteryuniversity.com/article/bu-304a-safety-concerns-with-li-ion*.

[42] Health and Safety Executive, Fuel Cells: Understand the Hazards, Control the Risks, 2004.

hydrogen tanks, which can withstand environmental and man-made damage, including crash testing and ballistics. Hydrogen tanks are designed with multiple safety enhancements to prevent leaks in both routine use and extreme circumstances. Should a leak and subsequent ignition happen, the low radiant heat of a hydrogen fire and high diffusivity of hydrogen would reduce any potential damage, especially when compared to a gasoline fire.

The design of lithium-ion batteries and hydrogen fuel cells and the compliance with regulations are sufficient to reduce adverse impacts associated with hazards and hazardous materials. An increase in demand for lithium-ion batteries and fuel cells could result in increased recycling, refurbishment, or disposal of lithium-ion batteries and hydrogen fuel cells. However, any increased rates of disposal of lithium-ion batteries and hydrogen fuel cells would need to comply with California law, including but not limited to California's Hazardous Waste Control Law and implementing regulations. Compliance with the appropriate federal and state laws governing the handling of potentially hazardous materials would be sufficient to minimize the risks from lithium-ion batteries and fuel cells because they ensure adequate handling and disposal safeguards to address these risks.

For the reasons described above, long-term operational impacts to hazards and hazardous materials associated with the Proposed Amendments could be potentially significant.

***Mitigation Measure 9-2: Implement Mitigation Measure 9-1***

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately by implemented to reduce potentially significant impacts if it approves these potential projects.

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

## 10. Hydrology and Water Quality

### *Impact 10-1: Short-Term Construction-Related Impacts to Hydrology and Water Quality*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Implementation of the Proposed Amendments could result in production of new vessels and infrastructure modifications to existing vessels to accommodate hybrid and battery capable vessels and increased on-board shore power usage. Vessel retrofitting is typically done while the vessel is on its regular dry dock schedule. Dry docks support an industrial environment and would be subject to applicable laws and regulations aimed at reducing impacts to water quality from industrial activities. Activities associated with modifying existing vessels to accommodate on-board shore power use would likewise occur on the vessel and would not result in ground disturbance or any impacts to hydrology. Modifications to vessels would not affect on-board stores of drinking water for vessel staff or patrons. Vessel modifications for the Proposed Amendments could require the use of electrical equipment, which would not have the potential to leak toxicants to water systems.

Implementation of the Proposed Amendments could entail pile driving to reinforce docks to accommodate shore power systems, thereby resulting in fill of navigable waters. Charging infrastructure may also be installed. Depending on the environmental characteristics of the port, magnitude of activity, and equipment type used, pile driving could produce substantial hydrologic effects. These could include the upset of sedimentation leading to increased turbidity, a reduction in water quality, and alterations to coastal or estuary morphology. Landside pile driving could also occur, thereby resulting in erosion.

The Proposed Amendments would result in an extremely small increase in manufacturing, recycling, and refurbishing batteries and fuel cells, but new facilities are not anticipated to be needed. New alternate fuel- and DEF-related infrastructure and facilities could be located in locations with a range of hydrologic conditions. For example, some places may be vulnerable to flooding and mudflow. Construction of fueling stations and other facilities may exacerbate hydrologic hazards because grading and excavation for fueling systems may alter drainage in a way that would increase potential flood risk on and around the project site. Grading and vegetation removal could also increase erosion, which could result in sedimentation in nearby waterways. Site leveling may also require fill of regulated water bodies. Precise impacts cannot be determined because specific construction details, siting locations, and associated hydrology and water quality conditions are not known at this time.

Construction activities could require disturbance of undeveloped areas, such as clearing of vegetation, earth movement and grading, trenching for utility lines, erection of new buildings, and paving of parking lots, delivery areas, and roadways. Specific construction projects would be required to comply with applicable erosion, water quality standards, and waste discharge requirements (e.g., NPDES, stormwater pollution prevention plan [SWPPP]). With respect to depleting groundwater supplies, impairing water quality, and polluted runoff issues, construction of new facilities would not be anticipated to result in substantial groundwater demands, water quality, or run-off due to the nature of associated activities. Depending on the location of construction activities, there could be adverse effects on drainage patterns and exposure of people or structures to areas susceptible to flood, seiche, tsunami, or mudflow.

Short-term construction-related effects to hydrologic resources associated with the Proposed Amendments could be potentially significant.

***Mitigation Measure 10-1***

The Regulatory Setting in Attachment A includes, but is not limited to, applicable laws, regulations, and policies in regard to hydrology and water quality. CARB does not have the authority to require implementation of mitigation related to new or modified infrastructure that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local discretionary land use and/or permitting authority. New or modified infrastructure in California could qualify as a "project" under CEQA. The jurisdiction with primary permitting authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation may be identified during the environmental review by agencies with discretionary project approval authority. Recognized practices that are routinely required to avoid and/or mitigate hydrology and water quality-related impacts include:

- Proponents of new or modified infrastructure constructed as a compliance response to the Proposed Amendments would coordinate with local land use

agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local land use agency or governing body would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.

- Based on the results of the environmental review, proponents would implement all mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. The definition of actions required to mitigate potentially significant hydrology and water quality impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.
- Implement Best Management Practices to reduce sedimentation and pollution of surface waters, such as installation of silt fencing around the perimeter of active construction areas.
- Train construction workers for proper response to hazardous materials spills as well as responsibilities for maintaining BMPs on site.
- Drainage plans for runoff shall be designed to contain adequate capacity for projected flows on site.
- Avoid filling of waters of the United States and waters of the State to the extent feasible. If activities require a waste discharge requirement or Section 401 Water Quality Certification, comply with all avoidance, reduction, and compensatory measures.

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately by implemented to reduce potentially significant impacts if it approves these potential projects.

Consequently, while impacts could be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that the potential short-term construction-related impacts to hydrology and water quality associated with the proposed Amendments could be **potentially significant and unavoidable**.

### *Impact 10-2: Long-Term Operational Impacts to Hydrology and Water Quality*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards

in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels (e.g., R99, R100 and LNG), Tier 4 engines, and fuel cells.

The need for land-based electrical power could result in operation of new or modified infrastructure to facilitate shore power; however, these operations would not result in impacts to hydrology and water quality because they would not involve new land disturbance or changes to drainage.

Operation of facilities to support battery production and production and distribution of alternative fuels would be required to comply with applicable erosion, water quality standards, and waste discharge requirements (e.g., NPDES, SWPPP). Operation of these facilities would not require additional ground disturbance beyond that already disturbed during construction. With respect to depleting groundwater supplies, new facilities are not anticipated to result in substantial demands due to the nature of associated activities.

Under the Proposed Amendments, the demand for oil and gas extraction activities could decrease. Oil and gas extraction can produce substantial adverse effects to hydrology. For instance, fracking requires the use of millions of liters of water and consequently millions of liters of wastewater, which can contaminate groundwater with toxic chemical compounds.[43] As on June 2015, U.S. EPA had identified 1,173 known chemicals used in the fracking industry. Additionally, accidental release of oil or gas and related wastewater (e.g., spills from pipelines or trucks, leakage from wastewater ponds or tanks) can introduce toxicants, radionuclides, and dissolved metals, and affect the salinity of local drinking water supplies.[44] Through implementation of the Proposed Amendments, the aforementioned effects to hydrologic resources would be reduced as zero-emission and hybrid harbor craft displace internal combustion engine-

[43] European Parliament, Impact of Shale Gas and Shale Oil Extraction on the Environment and on Human Health, 2012, *https://www.europarl.europa.eu/document/activities/cont/201312/20131205ATT75545/20131205ATT75545EN.pdf*.

[44] Environmental Health Perspectives, Salting the Earth: The Environmental Impact of Oil and Gas Wastewater Spills, December 2016, last accessed August 11, 2021, *https://www.researchgate.net/publication/311243994_Salting_the_Earth_The_Environmental_Impact_of_Oil_and_Gas_Wastewater_Spills*.

powered vessels. As a result, adverse hydrologic effects associated with oil and gas extraction could be decreased through implementation of the Proposed Amendments.

An increased demand for lithium-ion batteries would result in an extremely small increase the demand for mined lithium. Mining of hard rock would require the use of conventional mining practices including the creation of underground mines and open pits, which would result in the removal of organic material (e.g., bedrock, vegetation). Additionally, lithium can be collected from continental brines found in basins. Salty groundwater is pumped into lagoons where it undergoes evaporation producing salts containing lithium compounds. This process could result in groundwater overdraft as well as impacts to surface water should the concentrated water spill into adjacent areas. Due to its high reactivity, lithium is found bound to other elements. To process brine, toxic chemicals must be used which can cause water pollution through leaching and spills. Further, lithium mining from continental brines is a water-intensive process, which, as mining typically occurs in arid landscapes, could result in the depletion of available water resources.[45]

Mineral extraction and mining activities within the United States would be required to comply with the provisions of the Clean Water Act and the natural resource protection and land reclamation requirements of the appropriate State and federal land managers. For instance, the U.S. Bureau of Land Management (BLM) and U.S. Forest Service mining permit conditions contain protections for hydrologic resources and require mining reclamation standards. However, lithium and platinum are also obtained from areas outside of the United States, where State and U.S. federal laws and regulations are not applicable. Thus, water quality impacts related to mining could occur because of implementation of the reasonably foreseeable compliance responses associated with the proposed Amendments.

As discussed under "Long-Term Operational-Related Impacts to Hazards and Hazardous Materials," fuel production, manufacturing, transportation, storage, distribution, and usage may also result in the accidental release of harmful substances to the environment. With respect to the proposed Amendments, alternative fuels (e.g., R99 or R100 diesel and LNG) could enter estuaries and marine waters from accidental release during fueling activities, which could adversely affect water quality in those aquatic systems.

The retrofits made to vessels to comply with the Proposed Amendments would not entail the use of infrastructure that would affect on-board water resources. Vessels currently support similar infrastructure as compared to what would be required to comply with the Proposed Amendments. However, vessels could require the use of alternative fuels and inherently pose a risk of accidentally releasing those fuels into

[45] Friends of the Earth, Lithium, 2013, last accessed August 11, 2021, *https://www.foeeurope.org/sites/default/files/publications/13_factsheet-lithium-gb.pdf*.

water systems. Therefore, the vessel modifications could adversely affect water quality.

Long-term operational-related effects to hydrology and water quality associated with the Proposed Amendments could be potentially significant.

***Mitigation Measure 10-2: Implement Mitigation Measure 10-1***

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately by implemented to reduce potentially significant impacts if it approves these potential projects.

Consequently, while impacts could be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that the potential long-term operational-related impacts to hydrology and water quality associated with the proposed Amendments could be **potentially significant and unavoidable**.

### 11. Land Use and Planning

***Impact 11-1: Short-Term Construction-Related and Long-Term Operation-Related Impacts on Land Use and Planning***

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. An extremely small increase in demand for lithium-ion based batteries could increase the use of manufacturing, refurbishing, and recycling facilities domestically and abroad. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power but are not anticipated to include structural

modification to docks or terminals. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

A conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect is not on its own considered an impact on the environment. Rather, a land use impact occurs when such a conflict causes in an impact on the environment.

No new facilities for battery manufacture, recycling, and refurbishing are anticipated. Facilities for vessel modification and construction and shore power and vessel charging improvements within ports, marinas, docks, and harbors are likely to occur in existing footprints, within areas with consistent zoning (i.e., industrial, light industrial, or heavy industrial), or would undergo the appropriate process per the requirements by the local jurisdictions for a variance or conditional use through the local jurisdiction of subsequent project sites. Construction and operation of new or expanded alternative fuel-related facilities could occur and may require the conversion of non-industrial land uses to industrial land uses. These impacts would also be subject to zoning and land use regulations of the appropriate local jurisdictions and regulations and may be within the purview of natural resource agencies other than CARB. Project areas under the purview of existing land use plans, zoning codes, or other regulatory requirements of other agencies are not likely to place industrial land uses amongst incompatible or sensitive land uses, such as residential uses. Compliance responses could result in environmental impacts, as discussed throughout this EA, which might conflict with a land use policy, warranting additional actions that might result in environmental impacts. For example, this infrastructure might result in impacts to habitat, in conflict with a local general plan policy protecting that habitat and requiring restoration of temporarily disturbed habitat. Habitat restoration can result emissions of criteria air pollutants if, for example, heavy equipment is needed to recontour areas. Emissions of criteria air pollutants would be considered an environmental impact. However, as stated, it is anticipated most compliance responses would be in areas already zoned or designated for such uses, reducing the potential for conflicts with plans and resultant environmental impacts. Additionally, projects are often designed to comply with applicable plans in anticipation of environmental review. Therefore, the Proposed Amendments are not anticipated to conflict with land use plans, policies, or regulations designed to avoid or mitigate an environmental impact.

Additionally, compliance responses identified for the Proposed Amendments tend to be located in industrial areas rather than residential areas, so that they would not divide an existing community. Linear facilities such as interconnections would generally be located within harbor and marina areas and would be small enough that they would not require displacing existing dissimilar uses (e.g., housing).

Potential environmental effects associated with land use changes, which would occur regardless of conflicts with adopted land use policies, plans, and regulations, are

discussed in further detail under their respective impact discussions. These include impacts to agriculture and forestry, biological resources, geology and soils, and hydrology and water quality.

Thus, implementation of the Proposed Amendments is not anticipated to divide an established community or conflict with a land use policy. Land use impacts would be **less than significant**.

### 12. Mineral Resources

***Impact 12-1: Short-Term Construction-Related and Long-Term Operation-Related Impacts on Mineral Resources***

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Shore power other compliance-related modifications would occur within the boundaries of existing marine facilities, which would be appropriately zoned. As an existing marina or dock, it would not be expected that mineral resources of economic significance would be present or recoverable, nor would a port be a designated mineral resource recovery site. Likewise, vessel manufacturing and repowering would take place at dry docks and would not affect mineral resources.

Implementation of the Proposed Amendments could also require construction and operation of substantial new and improved infrastructure (e.g., pipelines, compressor stations, export terminals, fueling stations, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells. New facilities for lithium battery and fuel cell refurbishing, manufacturing, and recycling, however, are not anticipated. Construction and operation of new and modified infrastructure could occur in areas that might have mineral resources, but it is more likely they would be located in areas zoned appropriately for such industrial uses rather than in areas with recoverable

mineral resources that are zoned for mineral recovery. Similarly, these facilities are also more likely to be in already disturbed areas (e.g., fueling stations would be in areas already used by vessels for fueling or maintenance activities) that are not conducive to mineral recovery. Therefore, it is not expected these activities would impede recovery of mineral resources.

Increased use of shore power or vessels with ZEAT to comply with the Proposed Amendments may require the use lithium-ion batteries or fuel cells to provide electricity to CHC vessels. An extremely small increase in demand for lithium-ion batteries and fuel cells could result in lithium and platinum mining and exports from source countries or other states.

As discussed in detail in Chapter 2.0 above, the amount of lithium needed for compliance responses to the Proposed Amendments is expected to be very low given the small number of vessels anticipated to use lithium-ion batteries. Implementation of the Proposed Amendments could have a negligible effect on the availability of known materials because it would involve mining lithium. Owing to continued exploration, identified lithium resources have increased substantially worldwide and total about 86 million tons. In 2021, the total amount of lithium ore available in the United States was 7.9 million tons in the form of continental brines, geothermal brines, hectorite, oilfield brines, and pegmatites. Lithium consumption for batteries has increased substantially in recent years due to increased demand for rechargeable lithium-ion batteries, which use approximately 71 percent of the world's lithium resources. As of January 2020, the only domestic lithium mine in operation in the United States is a brine operation in Nevada. Two companies produced a large array of downstream lithium compounds in the United States from domestic or South American lithium carbonate, lithium chloride, and lithium hydroxide. From 2016 through 2019, the United States imported lithium from Argentina (55 percent), Chile (36 percent), China (5 percent), Russia (2 percent)

, and others (2 percent).[46] However, there are current initiatives at the State and federal level that are likely to influence lithium mining domestically, which includes efforts in California. Table D-1l details lithium mine production and reserves by country.

**Table D-1l. Lithium Mine Production and Reserves by Country[47]**

| Country | Mine Production in 2019 (Tons) | Mine Production in 2020 (Tons) (estimated) | Reserve Amount (Tons) |
|---|---|---|---|
| United States | Withheld | Withheld | 750,000 |
| Argentina | 6,300 | 6,200 | 1,900,000 |

[46] Jaskula, Brian, Lithium, Mineral Commodity Summaries, USGS, January 2020, last accessed August 11, 2021, *https://pubs.usgs.gov/periodicals/mcs2020/mcs2020-lithium.pdf*.
[47] Ibid.

| Country | Mine Production in 2019 (Tons) | Mine Production in 2020 (Tons) (estimated) | Reserve Amount (Tons) |
|---|---|---|---|
| Australia | 45,000 | 40,000 | 4,700,000 |
| Brazil | 2,400 | 1,900 | 95,000 |
| Canada | 200 | — | 530,000 |
| Chile | 19,300 | 18,000 | 9,200,000 |
| China | 10,800 | 14,000 | 1,500,000 |
| Portugal | 900 | 900 | 60,000 |
| Zimbabwe | 1,200 | 1,200 | 220,000 |
| Other Countries | — | — | 2,100,000 |
| Worldwide Total (rounded and excluding U.S. production) | 86,000 | 82,000 | 21,000,000 |

The magnitude of reserves, shown above, is necessarily limited by many considerations, including cost of drilling, taxes, price of the mineral commodity being mined and the associated demand. In addition to the reserves described above, deposits of mineral resources are also important to consider in assessing future supplies. Furthermore, owing to continuing exploration, identified lithium resources have increased substantially worldwide. Worldwide in 2021, lithium resources are currently estimated to be approximately 86 million tons, including 7.9 million tons in the United States, 21 million tons in Bolivia, 19.3 million tons in Argentina, 9.6 million tons in Chile, 6.4 million tons in Australia, 5.1 million tons in China, 3 million tons in the Congo, 2.9 million tons in Canada, 1.7 million tons in Mexico, 1.3 million tons in Czechia, and 1.2 million tons in Serbia. In addition, Peru, Mali, Zimbabwe, Brazil, Spain, Portugal, Ghana, Austria, Finland, Kazakhstan, and Namibia have resources of less than one million tons each. Further, due to steadily increasing demand for lithium, domestic recycling of lithium has also increased.[48]

As mentioned, there are efforts to increase domestic supply of lithium. Efforts to address supply chains of mineral commodities has gained substantial interest from the State and federal government, both of which have sought to address mineral independence and security. Examples of efforts include California Assembly Bill 1657 (Garcia), Chapter 271, 2020 (AB 1657), which requires the California Energy Commission (CEC) to convene a Blue-Ribbon Commission on Lithium Extraction in California (Lithium Valley Commission). The Lithium Valley Commission is charged with reviewing, investigating, and analyzing issues and potential incentives regarding lithium extraction and use in California. At the federal level, EO 14017 directed federal agencies to perform a 100-day review of "supply chain risks" for four classes of products, including semiconductors, high-capacity batteries (including for electric vehicles), critical and strategic minerals (including rare earths), and pharmaceuticals.[49] The EO additionally directs agencies to perform year-long reviews of supply chains in

[48] Ibid.

[49] 86 FR 11849, EO 14017, America's Supply Chains, February 24, 2021, last accessed August 15, 2021, *https://www.govinfo.gov/content/pkg/FR-2021-03-01/pdf/2021-04280.pdf*.

six critical sectors, which includes transportation and energy. The reviews will seek to identify supply chain risks that leave the United States vulnerable to reductions in the availability and integrity of critical goods, products, and services, and will include policy recommendations for address such risks. The EO indicates that, among other approaches, the current administration will explore how trade policies and agreements can be used to strengthen the resilience of U.S. supply chains.

In summary, while substantial research has been done and there is a clear commitment to increasing domestic supply of lithium, exact actions that will be taken in response to this goal of increasing domestic supply of lithium are yet to be identified with certainty. However, the extremely small increase in demand that could be associated with the Proposed Amendments suggests existing extraction facilities would be used rather than requiring development of new extraction facilities.

An increased demand for hydrogen fuel cell-powered vessels and a related extremely small increase in demand for mining of platinum-group metals (PGMs) could occur. The leading domestic use for PGMs is in catalytic converters to decrease harmful emissions from automobiles. Platinum-group metals are also used in catalysts for bulk-chemical production and petroleum refining; dental and medical devices; electronic applications, such as in computer hard disks, hybridized integrated circuits, and multilayer ceramic capacitors; glass manufacturing; investment; jewelry; and laboratory equipment.[50] Table D-1m summarizes world platinum and palladium production and reserves. The United States has some platinum production and reserves, and internationally South Africa has the highest volume of platinum production and reserves.[51]

**Table D-1m. Platinum and Palladium Mine Production and Reserves[52]**

| Country | 2019 (metric tons Platinum) | 2020 (metric tons Platinum) (estimated) | 2019 (metric tons Palladium) | 2019 (metric tons Palladium) (estimated) | Reserves (metric tons) |
|---|---|---|---|---|---|
| U.S. | 4,150 | 4,000 | 14,300 | 14,000 | 900,000 |
| Canada | 7,800 | 7,800 | 20,000 | 20,000 | 310,000 |
| Russia | 24,000 | 21,000 | 98,000 | 91,000 | 3,900,000 |
| South Africa | 133,000 | 120,000 | 80,700 | 70,000 | 63,000,000 |
| Zimbabwe | 13,500 | 14,000 | 11,400 | 12,000 | 1,200,000 |
| Other Countries | 3,730 | 3,800 | 2,600 | 2,600 | Not Available |
| World total (rounded) | 186,000 | 170,000 | 227,000 | 210,000 | 69,000,000 |

iv) Reserves data are dynamic. They may be considered a working inventory of mining companies' supply of an economically extractable mineral commodity. Inventory is limited by many

[50] Schulte, Ruth, Mineral Commodity Summaries, Platinum Group Metals, January 2021, last accessed August 11, 2021, *https://pubs.usgs.gov/periodicals/mcs2020/mcs2020-platinum.pdf*.
[51] Ibid.
[52] Ibid.

considerations, including cost of drilling, taxes, price of the mineral commodity being mined, and the demand for it.

Palladium has been substituted for platinum in most gasoline-engine catalytic converters because of the historically lower price for palladium relative to that of platinum. About 25 percent of palladium can routinely be substituted for platinum in diesel catalytic converters; the proportion can be as much as 50 percent in some applications. For some industrial end uses, one PGM can substitute for another, but with losses in efficiency. From 2016 through 2019, the United States imported platinum from South Africa (43 percent), Germany (21 percent), Italy (7 percent), Switzerland (6 percent), and other countries (23 percent). During the same period, the United States imported palladium from Russia (38 percent), South Africa (33 percent), Germany (8 percent), the United Kingdom (5 percent), and other countries (16 percent).[53]

Appendix G of the CEQA Guidelines considers an impact on mineral resources to be the loss of availability of a known mineral resource that would be of value to a local entity, a region, or the State. As discussed above, facilities developed in response to implementation of the Proposed Amendments would be located in areas within existing footprints or in areas with consistent zoning where original permitting and analyses considered these issues. Implementation of the Proposed Amendments and associated compliance responses could result in an extremely small increase in mining for lithium and PGMs but would not affect the economic potential related to known mineral resources or substantially affect supply. Thus, long-term operation-related mineral resources effects associated with the Proposed Project Amendments would be **less than significant**.

### 13. Noise

***Impact 13-1: Short-Term Construction Related Impacts to Noise***

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to

[53] Ibid.

reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Implementation of the Proposed Amendments could result in new vessel builds and modifications to existing vessels to accommodate increased on-board shore power usage. Vessel production and retrofitting is typically done while the vessel is on its regular dry dock schedule. These activities would require the use of heavy-duty equipment which would generate high volumes of short-term noise. As such, use of equipment to would be consistent with the existing noise characteristics of a dry dock. Moreover, it would be expected that dry docks would not be located close to sensitive receptors.

Shore power and charging systems could require the construction of new pilings and marina surface area. An increase in demand for lithium-ion batteries and fuel cells could result in construction of and modification to electric facilities as well as facilities that manufacture, recycle, and refurbish batteries and fuel cells. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., pipelines, fueling stations, holding tanks, distribution centers) to support the use of Tier 4 engines, fuel cells, and alternative fuels, such as renewable diesel, and LNG facilities.

Construction and modification of harbor and marina facilities could require the use of heavy-duty equipment that could generate substantial levels of noise (and vibration). These activities would be consistent with typical port and marina activities associated with structure improvements and construction not relevant to the Proposed Amendments. According to the California Department of Transportation (Caltrans) Technical Supplemental document, a doubling of sound energy (i.e., two sources of the same loudness each producing sound) would result in a three decibel (3 dB) increase in sound. Also, a 3 dB increase in sound is considered as barely perceptible to the normal person (also see Caltrans Technical Supplement). If the Proposed Amendments are not going to double the intensity of off-road construction equipment within the port or marina area, the Proposed Amendments would not result in a noise increase during construction that would be perceptible to the nearest sensitive receptor.[54] Furthermore, marinas and harbors generally do not support substantial numbers of sensitive land uses such as residences, hospitals, day care facilities, and hotels. As such, construction of compliance response to ports would not likely produce adverse noise levels as compared to existing port conditions.

Construction of new facilities for battery refurbishing, manufacturing, and recycling is not expected. However, implementation of the Proposed Amendments could result in

[54] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, last accessed August 11, 2021, *https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf*.

the construction of alternative fuel- and DEF-related infrastructure and outside of harbors and marinas, which would involve activities such as earth moving, grading, demolition, and building construction. Construction activities may occur during the day or night. These activities would generate noise through the use of heavy-duty equipment such as bulldozers, pile drivers, excavators, cranes, and vehicles. The effects of construction noise would depend on the type of construction activities occurring on any given day, noise levels generated by those activities, distances to noise sensitive receptors, and whether the equipment is mobile or stationary. Additionally, the perception of changes in noise would depend on the existing ambient noise environment, as exterior ambient noise levels typically decrease during the late evening and nighttime hours as traffic volumes and commercial activities decrease. Construction activities performed during these more noise-sensitive periods of the day can result in increased annoyance and potential sleep disruption for occupants of nearby residential uses.

During any construction project the site preparation phase typically generates the most substantial noise levels. This is because the site preparation generally requires the largest and noisiest types of construction equipment. A detailed construction equipment list is not known for each project because no final harbor- or marina-specific engineering has been completed for any compliance responses in response to the Proposed Amendments. However, it is expected that the primary sources of noise would include backhoes, bulldozers, excavators, cranes, and pile driving equipment, based on the anticipated compliance responses.

Noise levels from typical types of construction equipment can range from approximately 74 to 94 A-weighted decibels (dBA) at 50 feet. Based on this information and accounting for typical usage characteristics of individual pieces of equipment and activity types, on-site construction could result in hourly average noise levels of 87 dBA equivalent level measurements (Leq) at 50 feet and maximum noise levels of 90 dBA maximum sound level (Lmax) at 50 feet from the simultaneous operation of heavy-duty equipment. The noisiest sole activity would be pile driving; one study of waterfront infrastructure pile-driving (underwater) found airborne measurements ranging from 69 to 113 Lmax dBA. Based on these and general attenuation rates, exterior noise levels at noise-sensitive receptors located within thousands of feet from project sites could exceed typical local noise standards (e.g., 50/60 dBA Leq/Lmax during daytime hours and 40/50 dBA Leq/Lmax during nighttime hours) and could be considered a substantial increase in ambient noise. Construction may also take place outside of hours allowed for by local jurisdictions.

Additionally, construction activities may result in varying degrees of temporary groundborne noise and vibration, depending on the specific construction equipment used and activities involved. Groundborne noise and vibration levels caused by various types of construction equipment and activities (e.g., bulldozers, blasting) range from 58 to 109 vibration decibels (VdB) and from 0.003 to 0.089 inches per second (in/sec) peak particle velocity (PPV) at 25 feet. Based on this project type, it is expected that the primary sources of groundborne vibration and noise would include bulldozers and

trucks. According to the Federal Transit Administration (FTA), levels associated with the use of a large bulldozer and trucks are 0.089 and 0.076 in/sec PPV (87 and 86 VdB), respectively, at 25 feet. With respect to the prevention of structural damage in newer buildings, construction-related activities would not exceed FTA vibration damage criteria (e.g., 0.2 in/sec PPV for non-engineered timber and masonry buildings). However, based on FTA's recommended procedure for applying a propagation adjustment to these reference levels, bulldozing and truck activities could exceed recommended levels with respect to the prevention of human disturbance (e.g., 80 VdB) within 275 feet.

Implementation of the Proposed Amendments could result in short-term construction noise levels in excess of applicable standards or that result in a substantial increase in ambient levels at nearby sensitive receptors, and exposure to excessive vibration levels. Therefore, short-term construction-related noise impacts (including vibration) associated with the Proposed Amendments could be potentially significant.

***Mitigation Measure 13-1***

The Regulatory Setting in Attachment A includes, but is not limited to, applicable laws, regulations, and policies related to noise and vibration. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with discretionary local land use and/or permitting authority. New or modified facilities in California could qualify as a "project" under CEQA. The jurisdiction with primary permitting authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation may be identified during the environmental review by agencies with discretionary project approval authority. Recognized practices that are routinely required to avoid upset and accident-related impacts include:

- Proponents of new or modified infrastructure constructed as a compliance response to the Proposed Amendments would coordinate with local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local land use agency or governing body would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.
- Based on the results of the environmental review, proponents would implement all mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. The definition of actions required to mitigate potentially significant noise impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.
- Equip all emergency pressure relief valves and steam blow-down lines with silencers to limit noise levels.

- Contain facilities within buildings or other types of effective noise enclosures.
- Employ engineering controls, including sound-insulated equipment and control rooms, to reduce the average noise level in normal work areas.
- Ensure noise-generating construction activities (including truck deliveries, and blasting) are limited to the least noise-sensitive times of day (e.g., weekdays during the daytime hours) for projects near sensitive receptors.
- Consider use of noise barriers, such as berms, to limit ambient noise at property lines, especially where sensitive receptors may be present.
- Ensure all project equipment has sound-control devices no less effective than those provided on the original equipment.
- All construction equipment used would be adequately muffled and maintained.
- Ensure all stationary construction equipment (i.e., compressors and generators) is located as far as practicable from nearby sensitive receptors or shielded.
- Properly maintain mufflers, brakes and all loose items on construction and operational-related vehicles to minimize noise and ensure safe operations.
- Keep truck operations to the quietest operating speeds. Advise about downshifting and vehicle operations in sensitive communities to keep truck noise to a minimum.
- Use noise controls on standard construction equipment; shield impact tools.
- Consider use of flashing lights instead of audible back-up alarms on mobile equipment.
- Install mufflers on air coolers and exhaust stacks of all diesel and gas-driven engines.

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately by implemented to reduce potentially significant impacts if it approves these potential projects.

Consequently, while impacts could be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that the potential short-term construction-related noise impacts (including vibration) associated with the proposed Amendments could be **potentially significant and unavoidable**.

***Impact 13-2: Long-Term Operational Impacts on Noise***

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and

outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Implementation of the Proposed Amendments could result in increased shore power usage. Connection to shore power would eliminate a vessel's need to run an external generator at berth as electricity would be supplied by on land generated electricity provided by a local public utility. As such, generator-related stationary noise from vessels would be reduced. A typical noise level for a generator is 82 dBA at 50 feet from the source;[55] generators can be louder depending on size and installation. Sustained noise levels of 85 dBA can cause hearing damage.[56] Note, however, that these generators tend to be located in engine rooms, and exhaust travels through a muffler which reduces noise levels. Furthermore, implementation of the Proposed Amendments would result in less generator-use in response to connections to shore power. Similarly, use of ZEAT would result in substantially quieter on-vessel operations when vessels are not berthed.

New sources of noise associated with implementation of Proposed Amendments could also include operation of electrical infrastructure at ports, harbors, and marinas. Given the existing industrial character of and noise levels at CHC facilities, additional noise from operation of such equipment would not exacerbate noise impacts above existing noise levels. Increased mining could also occur; however, such sites are usually isolated away from sensitive receptors in appropriately zoned areas due to the nature of mining activities. Therefore, it is unlikely that substantial numbers of receptors would be exposed to increased noise levels.

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[55] FTA, Transit Noise and Vibration Impact Assessment Manual, September 2018, last accessed August 11, 2021, *https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf*.

[56] Centers for Disease Control and Prevention, What Noises Cause Hearing Loss?, October 7, 2019, last accessed August 11, 2021, *https://www.cdc.gov/nceh/hearing_loss/what_noises_cause_hearing_loss.html*.

Additionally, implementation of the Proposed Amendments could result in the operation of alternative fuel- and DEF-related infrastructure (e.g., pipelines, compressor stations, fueling stations, distribution centers) outside the boundaries of a CHC facility. Operation of these facilities could include on-site noise sources, including fuel-delivery and other hauling-related activities (e.g., truck loading/unloading), fuel-handling and processing activities (e.g., conveyor system, wheeled loader, dozer), and mechanical equipment (e.g., boiler, turbine, fans, pumps). Depending on the proximity to existing noise-sensitive receptors, stationary source noise levels could exceed applicable noise standards and result in a substantial increase in ambient noise levels. Vibration may occur during maintenance activities that require jackhammering or use of heavy equipment, which could result in a substantial though likely short-term increase in vibration.

Therefore, long-term operational-related noise impacts (including vibration) associated with the Proposed Amendments could be potentially significant.

***Mitigation Measure 13-2: Implement Mitigation Measure 13-1***

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts if potential projects are approved.

Consequently, while impacts could be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that the potential long-term operation-related noise impacts (including vibration) associated with the proposed Amendments could be **potentially significant and unavoidable**.

### 14. Population and Housing

***Impact 14-1: Short-Term Construction-Related and Long-Term Operation-Related Effects to Population and Housing***

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral

supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Construction, modification, and maintenance activities occurring within harbors, marinas, and other facilities would be expected to be served by construction workers currently serving them. Likewise, it is expected that vessel construction and repowering would be completed by firms that conduct such activities already. The existing employment base at a dry dock is expected to be sufficient to implement the necessary CHC modifications to achieve compliance with the Proposed Amendments. It is conceivable that additional employment could be needed to execute such modifications; however, such a rise in employment opportunities would not be substantial enough to increase a community's population or require the construction of housing.

Alternative fuel- and DEF-related infrastructure constructed and maintained as a compliance response to the Proposed Amendments are anticipated to require relatively small crews and demand for crews would be temporary and short-term (e.g., six to 12 months per project). Therefore, a sufficient construction employment base would likely be available, and substantial construction worker migration would not be likely to occur.

Operation of new or modified infrastructure would generate varying levels of employment opportunities. The number of jobs produced would be directly related to the maintenance needs of infrastructure. There in inherent uncertainty surrounding the exact locations of the new infrastructure. For mining, it is likely that existing crews would be used because the extremely small increase in lithium and platinum mining is expected to occur at existing facilities. Similarly, other infrastructure is also likely to use existing staff or only a limited number of new staff. As such, no additional housing would be required to implement the reasonably foreseeable compliance response to the Proposed Amendments.

Additionally, it is unlikely that any new facilities would be constructed in areas with existing housing because of the nature of the facilities. That is, industrial facilities would be sited in areas zoned for them. Therefore, it is unlikely the Proposed Amendments would displace existing housing.

Any additional employment needed to support the compliance response to these Proposed Amendments, including a rise in employment opportunities, would not be substantial enough to substantially increase a community's population, require the construction of housing, or displace housing. Impacts would be **less than significant**.

### 15. Public Services

#### *Impact 15-1: Short-Term Construction-Related and Long-Term Operation-Related Effects to Public Services*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

An increased need for public services is generally associated with growth in population. As discussed under Impact 14-1, the Proposed Amendments are not expected to result in a rise in employment opportunities that is great enough to substantially increase a community's population. Similarly, because vessel repowering and manufacturing is expected to take place at existing facilities, existing public services would be sufficient to serve these operations. Other activities, such as those for battery recycling, are expected to occur at existing facilities. As a result, short-term construction-related and long-term operational-related effects, associated with the Proposed Amendments on response time for fire protection, police protection, schools, parks, and other facilities would be **less than significant**.

### 16. Recreation

#### *Impact 16-1: Short-Term Construction-Related and Long-Term Operation-Related Effects to Recreation*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and

outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Construction and operation activities as well as new or modified facilities would likely occur within footprints of existing manufacturing facilities, or in areas with appropriate zoning that permit such uses and activities. Therefore, compliance responses would not displace any recreational facilities. An increased need for recreational facilities and the accelerated degradation of existing recreational facilities is associated with growth in population. As discussed under Impact 14-1, the Proposed Amendments are not expected to result in a rise in employment opportunities that is great enough to substantially increase a community's population. Therefore, new or expanded recreational facilities would not be needed, and existing facilities would not experience accelerated degradation. As a result, short-term construction-related and long-term operational-related effects, associated with the Proposed Amendments on recreational facilities would be **less than significant**.

## 17. Transportation

### *Impact 17-1: Short-Term Construction-Related Effects to Transportation and Traffic*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to

reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

State CEQA Guidelines Section 15064.3(b) identifies criteria for analyzing the transportation impacts of a project, including land use projects (Section 15064.3[b][1]) and transportation projects (Section 15064.3[b][2]). As discussed under Impact 14-1, construction activities would be anticipated to require relatively small crews, and demand for these crews would be temporary (e.g., 6 to 12 months per project) and would not result in construction worker migration. Therefore, while implementation of the Proposed Amendments includes development and operation of new facilities, short-term construction would not drive development of urban areas, residential development, major employment generation, or transportation projects. As discussed throughout this EA, including in Impact 3-1 above, predicting the precise location, timing, duration and intensity of individual projects undertaken as compliance responses to the Proposed Amendments is not possible, given the performance standard-based nature of the requirements and given that the responses depend on individual business decisions. Therefore, modeling changes to VMT during construction of the various projects undertaken in response to the Proposed Amendments is not possible at this high-level planning stage.

There is a possibility that construction in harbors and marinas may temporarily displace CHC so that they would not be available for transportation. However, it is more likely that CHC would use a temporary operating location given government oversight related to providing regular service. Furthermore, such an impact would be temporary and there could be alternative transit for those who would otherwise use CHC. Thus, increased vehicle miles traveled (VMT) from construction-related activities would not be substantial and would be short-term.

The existing employment base at a dry dock is expected to be sufficient to implement the necessary CHC modifications to achieve compliance with the Proposed Amendments. It is conceivable that additional employment could be needed to execute such modifications; however, such a rise in employment opportunities would not be substantial enough to result in increased traffic that would result in hazards, conflict with local transportation policies, or impede emergency access.

Implementation of the Proposed Amendments could result in the construction of new or modified infrastructure, such as for use of alternative fuels and DEF. Construction of infrastructure could result in short-term construction traffic (primarily motorized) in the form of worker commute and material delivery trips. The amount of construction activity would fluctuate depending on the particular type, number, and duration of usage of equipment, as well as the phase of construction. These variations would affect the amount of project-generated traffic for both worker commute trips and material deliveries. Depending on the amount of trip generation and the location of facilities and construction, implementation could conflict with applicable programs,

plans, ordinances, or policies (e.g., performance standards, congestion management); and/or result in hazardous design features and emergency access issues from road closures, detours, and obstruction of emergency vehicle movement, especially due to project-generated heavy-duty truck trips. Construction, modification, and maintenance activities occurring within harbors, marinas, and other such facilities would be expected to be served by construction workers currently serving them. Likewise, it is expected that vessel construction and repowering would be completed by firms that conduct such activities at existing facilities, limiting trip generation and the transportation impacts that may result due to construction activities at harbors, marinas, and other such facilities.

As such, short-term construction-related impacts to transportation and traffic associated with the Proposed Amendments could be potentially significant.

***Mitigation Measure 17-1***

The Regulatory Setting in Attachment A includes, but is not limited to, applicable laws, regulations, and policies related to transportation. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with discretionary land use and/or permitting authority. New or modified facilities in California could qualify as a "project" under CEQA. The jurisdiction with primary permitting authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation may be identified during the environmental review by agencies with discretionary project-approval authority. Recognized practices that are routinely required to avoid and/or minimize construction traffic impacts include:

- Proponents of new or modified facilities constructed as a compliance response to the Proposed Amendments would coordinate with local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local land use agency or governing body would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.
- Based on the results of the environmental review, proponents would implement all mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. The definition of actions required to mitigate potentially significant traffic impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.
- Minimize the number and length of access, internal, service and maintenance roads and use existing roads when feasible.
- Provide for safe ingress and egress to/from a proposed project site. Utilize flaggers where necessary to control traffic at site entrances during construction.

- Prepare a Construction Traffic Control Plan and a Traffic Management Plan.
- Encourage carpooling to the site.
- Avoid materials deliveries during peak traffic periods.

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects.

Consequently, while impacts could likely be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related and long-term operational impacts to transportation associated with the Proposed Amendments would remain **potentially significant and unavoidable**.

***Impact 17-2: Long-Term Operation-Related Effects to Transportation***

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

The use of new or repowered vessels and shore power would not affect transportation in terms of VMT, emergency access, or hazards because vessel construction, repowering, and use would be similar to current activities and locations. For example, construction and maintenance that already occurs at dry docks would continue to

occur at dry docks, and start and end points for short run ferries are anticipated to say the same.

Implementation of the Proposed Amendments could require the operation of new infrastructure to distribute alternate fuels (such as electricity and hydrogen) and DEF. Additionally, increased demand for lithium-ion storage batteries and fuel cells could result in an extremely small increase in lithium and platinum mining. As discussed in Impact 14-1, it is not anticipated that substantial amount of new personnel would be needed to operate new facilities because a sufficient employment base would be available, indicating that VMT associated with employees may not substantially increase depending on their location. Pursuant to SB 375, CARB established GHG reduction targets for metropolitan planning organizations that range from 13 to 19 percent by 2035. These are based on land use patterns and transportation systems specified in Regional Transportation Plans and Sustainable Community Strategies. Locations of facilities with newly installed infrastructure to distribute and dispense alternative fuels and DEF cannot currently be known; therefore, the total change in VMT cannot be assessed. Many activities, such as lithium battery manufacturing, recycling, and refurbishing, would take place at existing facilities; however, long-term operational-related activities associated with deliveries and distribution of goods (e.g., alternative fuels) could result in the addition of new trips, which could increase VMT.

The Proposed Amendments would require use of R99 beginning on January 1, 2023, increasing demand of R99 by approximately 55 million gallons per year. Whereas this is a small fraction of overall current production (see discussion in Appendix E to the ISOR, Chapter V.B.4), there may be new facilities created for production and distribution of R99. New capacity and facilities for producing R99 appear to mostly be conversion or expansion of existing facilities where petroleum-based diesel is currently manufactured; however, there could be expanded operations at these existing facilities. Such expansion may result in additional egress/ingress points or increased traffic that would result in hazardous conditions on local roadways. Inadequate access may impede emergency vehicle access to new facilities. As a result, long-term operational-related impacts associated with the Proposed Amendments could be potentially significant.

***Mitigation Measure 17-2***

The Regulatory Setting in Attachment A includes, but is not limited to, applicable laws, regulations, and policies related to transportation. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with discretionary land use and/or permitting authority. New or modified facilities in California could qualify as a "project" under CEQA. The jurisdiction with primary permitting authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation may be identified during the

environmental review by agencies with discretionary project-approval authority. Recognized practices that are routinely required to avoid and/or minimize construction traffic impacts include:

- Identify and implement road and intersection design requirements or improvements for any proposed or significantly impact roads and intersections.
- Consult with and implement recommendations from local fire protection services regarding emergency access requirements.
- Encourage alternative transportation and carpooling to the project site.

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects.

Consequently, while impacts could likely be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related and long-term operational impacts to transportation associated with the Proposed Amendments would remain **potentially significant and unavoidable**.

### 18. Tribal Cultural Resources

#### *Impact 18-1: Short-Term Construction-Related and Long-Term Operational Impacts on Tribal Cultural Resources*

The Proposed Amendments are a statewide regulation designed to improve the quality of California's environment for all Californians. As described throughout this EA, even environmentally protective regulations have the potential to cause changes to the environment, since they seek to change emissions-causing activities in the state. Chapter 2, above, describes in more detail the scope of potential changes the Proposed Amendments could bring. Note that the Proposed Amendments themselves would not directly authorize or cause any actions that affect the environment, since CARB lacks general land use authority; rather, the Proposed Amendments create new regulatory requirements that may be satisfied through subsequent actions by other entities. These actions tend to involve minor construction-type effects such as modifying existing facilities to operate differently or to be equipped with emissions-reducing technology. As described in this EA, these changes tend to occur in areas and facilities that are already industrialized and heavily disturbed.

The following discussion explains whether these changes would have the potential to adversely affect tribal cultural resources. Note that because the Proposed Amendments are a performance standard-based regulation that would apply statewide, it is impossible to predict specific development activities with precision. Therefore, this analysis errs on the side of caution and disclosure in describing the full range of potential impacts that could reasonably foreseeably result from the Proposed Amendments.

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and are expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. An extremely small increase in demand for lithium-ion based batteries could increase the use of manufacturing, refurbishing, and recycling facilities domestically and abroad. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., high voltage cable lines, power meters, and circuit breaker main cabinets) to facilitate shore power but are not anticipated to include structural modification to docks or terminals. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Tribal cultural resources include sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe. Vessel repowering and construction would take place at existing facilities as it currently takes place. Therefore, these activities would not affect tribal cultural resources. The Proposed Amendments could result in construction of a variety of facilities, including for use of alternative fuels, which would require ground disturbance. Shore power would also require construction and ground disturbance. In general, harbors and marinas are in industrial, previously disturbed locations. Regardless, there is a possibility that they may be in or adjacent to a region that is a tribal cultural resource or that contains a tribal cultural resource. Facilities outside of harbors and marinas may also be in areas that are or contain these resources.

Operation of the CHC equipment and facilities would not result in additional ground disturbance beyond that which occurred during construction and modification because operation activities would occur within the footprint of the constructed or modified facility. Therefore, most operational activities would not have the potential to affect tribal cultural resources. Presence of new infrastructure may, however, change the

setting or other attributes of the surrounding area, which could adversely affect trial cultural resources, as determined by a California Native American Tribe. As a result, operation impacts could be potentially significant.

The increased demand for lithium-ion battery storage and fuel cells could result in an extremely small increase in lithium and platinum mining. Ground disturbing activities from hard rock and continual brine mining activities could affect areas and resources that are considered tribal cultural resources, particularly if that location is considered a sacred place of cultural value to a Tribe.

Therefore, short-term construction-related and long-term operational-related impacts to cultural resources associated with implementation of the proposed Amendments could be potentially significant.

***Mitigation Measure 18-1***

The Regulatory Setting in Attachment A includes applicable laws and regulations that relate to cultural resources. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices routinely required to avoid and/or minimize impacts to cultural resources include:

- Proponents of construction activities implemented as a result of reasonably foreseeable compliance responses associated with the proposed Amendments would coordinate with State or local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must follow all applicable environmental regulations as part of approval of a project for development.
- Based on the results of the environmental review, proponents would implement all feasible mitigation to reduce or substantially lessen the potentially significant impacts on tribal cultural resources associated with the project.
- Actions required to mitigate potentially significant tribal cultural resources impacts may include the following; however, any mitigation specifically required for a modified facility would be determined by the local lead agency.
- Retain the services of cultural resources specialists with training and background that conforms to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61.

- Seek guidance from the State and federal lead agencies, as appropriate, for coordination of Nation-to-Nation consultations with the Native American Tribes.
- Follow notification procedures and conduct consultation as required with California Native American Tribes under Assembly Bill (AB) 52 (including Public Resources Code § 21080.3.1 and 21080.3.2.). Provide notice to Native American Tribes of project details to identify potential tribal cultural resources (TCRs). In the case that a TCR is identified, consistent with Public Resources Code § 21084.3(b), prepare mitigation measures that:
    - Avoid and preserve the resource in place.
    - Treat the resource with culturally appropriate dignity.
    - Employ permanent conservation easements.
    - Protect the resource.
- Regulated entities shall consult with lead agencies early in the planning process to identify the potential presence of cultural properties. The agencies shall provide the project developers with specific instruction on policies for compliance with the various laws and regulations governing cultural resources management, including coordination with regulatory agencies and Native American Tribes.

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, and because CARB lacks the authority to impose this project-level mitigation for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow for review of project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects.

Consequently, while impacts could likely be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related and long-term operational impacts to cultural resources associated with the Proposed Amendments would remain **potentially significant and unavoidable**.

## 19. Utilities and Service Systems

### *Impact 19-1: Short-Term Construction-Related and Long-Term Operational Impacts on Utilities and Service Systems*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state.

There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

Because vessel repowering and manufacturing is expected to take place at existing facilities and use similar methods, existing utilities would be sufficient to serve these operations.

The electricity required to support shore power would be supplied by local utility companies. It is not expected that increased usage of shore power would be large enough such that utility companies would have insufficient energy supply due to the size of CHC vessels; however, in rare cases where there are situations with substantial electrical loads, distributed generation resources, or lithium-ion storage batteries could be relied on during periods where total demand is high and the energy grid is experiencing peak levels of demand. Use of shore power would divert energy demand from the direct burning of fossil fuels to the electricity grid. Pursuant to State law (i.e., SB 350, SB 100), public utilities mu~~ch~~st incrementally increase their portion of renewable energy to their energy portfolio. As discussed in greater detail under Impact 6-2, public utilities are continually modifying their infrastructure and developing strategies to diversify the grid. This is due in large part to increasing demand for use of electric vehicles in an effort to reduce the State's GHG emissions.

New facilities, such as those associated with the production and distribution of alternative fuels could result in an extremely small increase the demand for water, wastewater treatment, storm water drainage, energy, and solid waste services in their local areas because of the small demand on these resources expected as a result of the Proposed Amendments. New facilities may require new utility service lines and connections. At this time, the specific location, type, and number of new facilities associated with the production and distribution of renewable diesel (R99) that would be developed is not known and would be dependent upon a variety of market factors that are not within the control of CARB including: economic costs, product demands, and environmental constraints. Therefore, the ultimate magnitude and location of demand for utilities such as water and wastewater cannot be known. These facilities are unlikely to cause exceedances in wastewater treatment requirements of the applicable Regional Water Quality Control Board that require the construction of new

wastewater treatment infrastructure and/or plants or generate levels of solid waste that exceeds an existing landfill's capacity because of the size and nature of these facilities. However, they may require new or expanded stormwater drainage facilities or produce water demand in exceedance of available water supplies. Therefore, there could be significant environmental impacts associated with utilities.

Reasonably foreseeable compliance responses to the Proposed Amendments could result in an extremely small increase in demand for lithium-ion storage batteries and fuel cells, which could generate waste. For example, spent lithium-ion may be recycled, and due to increasing demand for other lithium-ion based batteries (e.g., ZEVs and ZEAT), rates of lithium-ion battery recycling have increased. In California, disposal of lithium-ion batteries within the State would be required to comply with California's Universal Waste Rule (22 CCR Chapter 23) which contains regulations to prohibit the disposal of used batteries to landfills, which would ensure that lithium-ion batteries would be properly disposed of. However, lithium-ion batteries may be sold out of state as turnover increases. In the United States overall, there are limited regulations for the disposal of lithium-ion batteries; however, due to value of rarer metals (e.g., cobalt) there is incentive to collect and recycle batteries. When applied, typical recycling procedures (i.e., hydrometallurgical recovery, high-temperature or pyrometallurgical, and direct recycling) recover an average of approximately 97 percent of the battery material, redirecting only about 3 percent of battery waste to landfills. Notably, these figures pertain to batteries subject to recycling, not of which all batteries are. As such, battery disposal occurring outside of California could be directed to a landfill. However, the reasonably foreseeable compliance responses are expected to generate only an extremely small increase in demand for lithium-ion batteries and fuel cells such that the amount of waste generated would be negligible.

Thus, long-term operational-related effects to utilities and services systems, associated with the Proposed Amendments could be potentially significant.

### *Mitigation Measure 19-1*

The Regulatory Setting in Attachment A includes, but is not limited to, applicable laws, regulations, and policies related to utilities and service systems. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be subject to approval by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with discretionary land use and/or permitting authority. New or modified facilities in California could qualify as a "project" under CEQA. The jurisdiction with primary permitting authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation may be identified during the environmental review by agencies with discretionary project -approval authority. Recognized practices that are routinely required to avoid and/or minimize utility and service-related impacts include:

- Proponents of new or modified facilities constructed as a compliance response to the Proposed Amendments would coordinate with local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local land use agency or governing body would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.
- Based on the results of the environmental review, proponents would implement all mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. The definition of actions required to mitigate potentially significant utility or service-related impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.
- Comply with local plans and policies regarding the provision of water supply, wastewater treatment, and storm water drainage utilities, and solid waste services.
- Where an on-site wastewater system is proposed, submit a permit application to the appropriate local jurisdiction and include the application with applications to appropriate lead agencies.
- Where appropriate, prepare a Water Supply Assessment (WSA) consistent with the requirements of Section 21151.9 of the Public Resources Code/Section 10910 et seq. of the Water Code. The WSA would be approved by the local water agency/purveyor prior construction of the project.
- Comply with local plans and policies regarding the provision of wastewater treatment services.

Because the authority to determine project-level impacts and require project-level mitigation lies with local land use and/or permitting agencies for individual projects, CARB finds it legally infeasible to implement and enforce this measure. Moreover, due to the programmatic analysis of this EA, which does not allow project-specific details of potential impacts and associated mitigation, there is inherent uncertainty in the degree of mitigation that lead agencies may ultimately implement to reduce the potentially significant impacts if they approve these potential projects.

Consequently, while impacts could likely be reduced to a less-than-significant level with mitigation measures imposed by the land use and/or permitting agencies acting as lead agencies for these individual projects under CEQA, if and when a project applicant seeks a permit for compliance-response related project, this ~~Draft~~Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related and long-term operational impacts to utilities and service systems associated with the Proposed Amendments would remain **potentially significant and unavoidable**.

## 20. Wildfire

### *Impact 20-1: Short-Term Construction-Related and Long-Term Operation-Related Effects on Wildfire*

Production of new vessels and vessel engine replacement work would occur in response to the Proposed Amendments and is expected to occur both inside and outside of California, and most retired vessels are expected to be sold out of state. There would be no foreseeable new construction or modification of existing shipyards in response to the Proposed Amendments. Increased use of lithium-ion batteries could also incrementally increase lithium mining and exports from countries with raw mineral supplies. Some lithium demand may be met domestically. It is possible that compliance responses may contribute at some level to demand for fuel cells, which could result in an extremely small increase in platinum mining and exports from source countries or other states and a related increase in recycling, refurbishment, or disposal of hydrogen fuel cells. The need for land-based electrical power could result in construction of new infrastructure or modification of existing infrastructure (e.g., conduit lines, cables connections, electrical panels, power vaults, pile driving to reinforce docks) to facilitate shore power. Implementation of the Proposed Amendments could also require substantial new and improved infrastructure (e.g., holding tanks, fueling stations, natural gas pipelines, distribution centers) to support the use of alternative fuels, Tier 4 engines, and fuel cells.

In the event of an emergency, such as a wildfire, evacuation coordination is dealt with at various levels of government through State, federal, or local agencies as appropriate. The California Department of Forestry and Fire Protection (CAL FIRE) is responsible for coordinating wildfire response and protection within State Responsibility Areas. CAL FIRE does not have responsibility for fire response in Local Responsibility Areas or Federal Responsibility Areas, which are defined based on land ownership, population density, and land use. These areas include densely populated areas, such as cities and towns; agricultural lands; and lands administered by the federal government. In densely populated areas, local fire departments respond to fires and emergencies. Fire response on federal lands is coordinated by the appropriate federal agency. For example, on National Forest System lands, the U.S. Forest Service coordinates fire response; on lands administered by the federal BLM, the BLM coordinates fire response.

Because vessel repowering and manufacturing is expected to take place at existing facilities, these activities would not increase wildfire risk. Operation of these vessels would occur in water, and their maintenance would occur in water or at drydocks, which would not increase the risk of wildfire. Other facilities and associated infrastructure, such as facilities for the use of alternative fuels and DEF, would be constructed and operated within response areas for various jurisdictions and would be dealt with in the same manner as existing infrastructure. Construction and operation activities as well as new or modified facilities would likely occur within footprints of existing manufacturing facilities, or in areas with appropriate zoning that permit such

uses and activities; therefore, changes or modifications to existing fire response and evacuation plans would not be necessary. Likewise, the extremely small increase in use at battery or fuel cell manufacturing, refurbishing, and recycling facilities would occur at existing facilities that are already under an assigned jurisdiction for fire safety. As discussed under Impact 14-1, compliance responses implemented under the Proposed Amendments would not create growth substantial enough to impede emergency response or affect evacuation route capacity.

Overhead powerlines associated with new infrastructure, including shore power, could increase the risk of wildfire ignition; however, new safety initiatives, development standards, and regulatory oversight for electric utilities have been implemented in response to numerous devastating wildfires in California in recent years. These efforts aim to reduce the risk of wildfire ignition associated with such facilities and include implementation of wildfire mitigation plans, collaboration between utilities and CAL FIRE, and retention by CPUC of independent evaluators that can assess the safety of electrical infrastructure. Additionally, new facilities would be subject to the applicable chapters of the California Fire Code and any additional local provisions identified in local fire safety codes. These factors—adherence to local plans, policies, codes, and ordinances; adherence to the California Fire Code and the provisions of wildfire prevention plans; and oversight by CPUC—would substantially reduce the risk of wildfire ignitions caused by infrastructure development.

As discussed above in Impact 9-2, lithium-ion batteries have caused large explosions due to vehicular accidents. These explosions could be a source of ignition for wildland fires. The likelihood to overheat or ignite is increased if the batteries are poorly packaged, damaged or exposed to a fire or a heat source. However, when packaged and handled properly, lithium-ion batteries pose no environmental hazard (79 Fed. Reg. 46011, 46032). Thus, the increased use of lithium-based batteries in vehicles would not substantially increase the risk of wildland fire.

Thus, implementation of the Proposed Amendments would have a **less than significant** short-term construction-related and long-term operational impact on wildfire.

# V. Cumulative and Growth-Inducing Impacts

## A. Approach to Cumulative Analysis

This section satisfies requirements of CEQA to discuss how the project being analyzed would contribute to cumulative impacts. CARB's certified regulatory program (Title 17 CCR Sections 60000–60008) does not provide specific direction on a cumulative impacts analysis, and while CARB is exempt from Chapters 3 and 4 of CEQA and corresponding sections of the CEQA Guidelines by virtue of its certified program, the Guidelines nevertheless contain useful guidance for preparation of a thorough and meaningful cumulative analysis. The CEQA Guidelines require a lead agency to discuss a cumulative impact if the project's incremental effect combined with the effects of other projects is "cumulatively considerable" (CEQA Guidelines Section 15130(a)). The discussion of cumulative impacts need not provide as much detail as the discussion of effects attributable to the project alone (CEQA Guidelines Section 15130). Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant but must briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

In considering cumulative impacts, an agency may choose from two approaches: it can prepare a list of past, present, and probable future projects that will produce related or cumulative impacts; or, it can rely on a summary of projections contained in an adopted planning document or an adopted or certified environmental document for the planning document (CEQA Guidelines Section 15130(b)). Further, the CEQA Guidelines state that the pertinent discussion of cumulative impacts contained in one or more previously certified EIRs may be incorporated by reference pursuant to provisions for tiering and program EIRs, and that no future cumulative analysis is required when the lead agency determines the regional and area wide impacts have already been addressed in the prior certified EIR for that plan (CEQA Guidelines Section 15130).

The CEQA Guidelines state that a previously approved plan for the reduction of criteria and other air pollutant emissions may be used in cumulative impacts analysis; that the pertinent discussion of cumulative impacts contained in one or more previously certified EIRs may be incorporated by reference (Title 14 CCR Section 15130(d)). Furthermore, no further cumulative impacts analysis is required when a project is consistent with a general, specific, master or comparable programmatic plan where the lead agency determines that the regional or area wide cumulative impacts of the proposed project have already been adequately addressed, as defined in section 15152(f), in a certified EIR for that plan (14 CCR Section 15130(d)). CEQA further directs that a tiered EIR focus on significant environmental effects that were not already analyzed in the previous environmental analysis. (PRC Sections 21068.5; 21093; see also 21094(c).)

For the purposes of this analysis, CARB is relying on the summary of projections contained in CARB's Community Air Protection Blueprint.[57] CARB prepared the Community Air Protection Blueprint to meet the requirements of AB 617 and provide the structure for the Community Air Protection Program (Program). The Community Air Protection Blueprint is not a regulation but provides commitments from CARB, lays the foundation for the Program, and serves as a guidance document for local air districts, the public, and other stakeholders. In terms of air quality, the Blueprint identifies a suite of strategies that would reduce emissions and exposure of TACs in pollution-burdened communities – in other words, the Blueprint includes other measures similar to the Proposed Amendments. For the Community Air Protection Blueprint EA, CARB identified reasonably foreseeable compliance responses, which included the Proposed Amendments as well as many other emission reduction strategies (e.g., Cargo Handling Equipment Amendment, Drayage Trucks at Seaports and Rail Yards Amendment). The Community Air Protection Blueprint EA provided a program-level review of significant adverse impacts associated with the reasonably foreseeable compliance responses that appeared most likely to occur. The impact discussion includes, where relevant, construction-related effects, operational effects of new or modified facilities, and influences of the recommended actions on GHG and air pollutant emissions. The Community Air Protection Blueprint EA considered cumulative impacts of a full range of reasonably foreseeable compliance responses to all the recommendations, including the Proposed Amendments and considered the cumulative effect of other "closely related" past, present, and future reasonably foreseeable activities undertaken to address air quality at the State level, as well as other activities with "related impacts" (CEQA Guidelines 15355(b); 15130(a)(1)).

Consistent with CEQA Guidelines section 15130(b)(1)(B), CARB has decided to use the "summary of projections" approach, using information from the Community Air Protection Blueprint EA supplemented with other major non-CARB coastal projects that are representative of the types of projects that may contribute to the cumulative scenario. The list of projects may not be exhaustive, consistent with CEQA Guidelines section 15130(b), which states that "[t]he [cumulative impact] discussion should be guided by the standards of practicality and reasonableness…." Given the wide applicability of the Proposed Amendments and the uncertainty about precise locations of compliance responses, it is most practical and reasonable to supplement the Community Air Protection Blueprint EA with a list of representative projects. CARB has determined that the cumulative effects of the Proposed Amendments have been examined at a sufficient level of detail in the Community Air Protection Blueprint EA. Therefore, CARB has determined that for a cumulative analysis of the Proposed Amendments, it is appropriate to rely on the cumulative analysis contained in the Community Air Protection Blueprint EA when they are supplemented with major coastal projects. The analysis of the Community Air Protection Blueprint EA is hereby incorporated by reference. The portions of the Community Air Protection Blueprint EA

[57] CARB, Community Air Protection Blueprint, October 2018, last accessed August 9, 2021, *https://ww2.arb.ca.gov/sites/default/files/2020-10/Blueprint_Complete_Oct2018.pdf*.

relevant to this discussion are also summarized below. The significance conclusions in the Community Air Protection Blueprint EA are given substantial weight in determining whether there would be a cumulative impact because the Community Protection Blueprint consists of a broad and comprehensive suite of strategies that could result in environmental impacts when compared to representative coastal and waterfront projects.

The analysis of cumulative impacts includes the following:

1) A summary of the cumulative impacts found for each resource area in the Community Air Protection Blueprint EA (certified by the Board in September 2018).

2) A description of other major CARB and non-CARB coastal projects that may substantially contribute to the cumulative scenario.

3) A discussion of the types of compliance responses associated with the Proposed Amendments, pertinent to each resource area.

4) Significance conclusions that determine whether the Proposed Amendments could result in a significant cumulative effect or a considerable contribution to an existing significant cumulative impact.

This approach to cumulative impacts analysis is "guided by the standards of practicality and reasonableness" (Title 14 CCR Section 15130(b)) and serves the purpose of providing "a context for considering whether the incremental effects of the project at issue are considerable" when judged "against the backdrop of the environmental effects of other projects." (CBE v. Cal. Res. Agency (2002) 103 Cal.App.4th 98, 119).

### 1. Summary of Community Air Protection Blueprint and Reasonably Foreseeable Compliance Responses

The objectives of the Community Air Protection Blueprint are to:

1) Provide core elements for the Program;

2) Provide a process and criteria for the identification, assessment and selection of communities for community emissions reduction programs and air monitoring;

3) Describe the tools and resources to be used in future planning to identify strategies to reduce exposure and emissions in pollution-burdened communities;

4) Provide the criteria necessary for community air monitoring;

5) Provide the criteria necessary for community emissions reduction programs to achieve the requirements of AB 617 as set out in the Health and Safety Code (*See* Health & Saf. Code Section 44391.2);

6) Provide other measures to ensure the success of the Program, which include regulatory measures that CARB could undertake using its authorities, funding programs, a statewide emission reporting system, a technology clearinghouse, and other resources as described in Section C below;

7) Further the objectives set forth in AB 617 to support a reduction of emissions of TACs and criteria air pollutants in communities affected by a high cumulative exposure burden; and

8) Develop a strategy that is consistent with and meets the goals of AB 617.

9) In addition to supporting tools and resources, identification and recommendation of communities, criteria for community air monitoring, and criteria for community emissions reduction programs, the Community Air Protection Blueprint reduces emissions and exposure to TACs through eleven emission reduction strategies: evaluation and potential development of regulation to reduce idling for all railyard sources, evaluation and potential development of regulation to reduce emissions from locomotives not preempted under the Clean Air Act, drayage trucks at seaports and rail yards amendment, cargo handling equipment amendment, catalytic converter theft reduction, chrome plating control measures amendment, composite wood products control measure amendments, commercial cooking suggested control measure, heavy-duty on-road and off-road engine in-use testing, incentive funding to support immediate emission reductions, and the Proposed Amendments.

#### a) Evaluation and Potential Development of Regulation to Reduce Idling for All Railyard Sources

This strategy would evaluate and potentially develop a regulation that requires operators to limit idling of all combustion-powered vehicles and mobile equipment operating at rail yards and other locations, as well as reducing emissions from stationary locomotive operations (e.g., maintenance and testing). The scope could include both freight and passenger rail activities, in and around intermodal, classification, and maintenance railyards; at seaports, at warehouses, on sidings, at passenger rail stations; and at maintenance and service locations. Reasonably foreseeable compliance responses could include:

1) Changing operational practices at facilities, installation of idle-limiting devices or idle-restricting devices, installation of capture and control technology, and replacing equipment with near-zero technology or ZEAT.

2) Temporary increased demand for associated equipment and incentives funds for equipment updates.

3) Construction and operation of infrastructure such as new hydrogen fueling stations and EV charging stations

4) Increased demand for lead acid and lithium ion batteries, which could require an increase in manufacturing and recycling facilities and associated increases in lithium mining and exports from countries with raw mineral supplies.

5) Construction and operation of new facilities or modifications to existing facilities to accommodate battery recycling activities.

### b) Evaluation and Potential Development of Regulation to Reduce Emissions from Locomotives not Preempted Under the Clean Air Act

This strategy would evaluate and potentially develop a regulation that requires the retrofit, repower, remanufacture, or replacement of freight and passenger locomotives not preempted under the Clean Air Act, beginning in 2025. As an alternative, CARB could also consider a voluntary agreement with the major railroads to secure greater community health benefits by reducing emissions from interstate locomotives (the dominant source of emissions and community health risk at rail yards). Reasonably foreseeable compliance responses could include:

1) Temporary increased replacement rate of locomotives and locomotive engines, requiring that older models are sold outside of California, scrapped, or recycled.

2) Construction of new or modifications to existing manufacturing facilities.

3) Temporary increased demand for incentive funds to assist in replacement, repower, or retrofit of associated equipment.

### c) Drayage Trucks at Seaports and Rail Yards Amendment

This strategy would amend the existing Drayage Truck Regulation, or adopt a new regulation, to direct a transition to zero-emission operations, beginning 2026–2028. Options to be considered include, but are not limited to, requirements for ZEAT (e.g., a battery or fuel-cell electric short-haul truck) and zero-emission mile capability (e.g., a natural gas-electric hybrid that could drive interstate but switch to zero-emission electric mode while operating near pollution-burdened communities):

1) Reasonably foreseeable compliance responses could include:

2) Construction and operation of equipment to support ZEAT and near-zero emission technologies, such as new hydrogen fueling stations and EV charging stations as well as new or modified roadway infrastructure.

3) Increased demand for lithium-ion batteries, including an increased demand for refurbishing or reusing batteries as well as new facilities, or modifications to existing facilities to accommodate battery recycling activities.

4) Construction and operation of new facilities or modifications to existing facilities to accommodate battery recycling activities.

5) Disposal or sale of non-compliant equipment to areas outside of California.

### d) Cargo Handling Equipment Amendment

This strategy would amend the existing Cargo Handling Equipment regulation. This regulation applies to equipment including yard trucks, rubber-tired gantry cranes, container handlers, and forklifts. The strategy would propose an implementation schedule for new equipment and infrastructure requirements, with a focus on the transition to zero-emission operation and may include provisions for efficiency improvements. Reasonably foreseeable compliance responses could include:

1) Manufacturing and use of zero and near-zero emission cargo handling equipment for use within seaports and railyards.

2) Construction and operation of infrastructure such as new hydrogen fueling stations and EV charging stations.

3) Increased demand for lead acid and lithium-ion batteries, which could require an increase in manufacturing and recycling facilities and associated increases in lithium mining and exports from countries with raw mineral supplies.

4) Construction and operation of new facilities or modifications to existing facilities to accommodate battery recycling activities.

5) Recycling, scrapping, and/or disposing of non-compliant equipment, or selling equipment to areas outside of California.

### e) Catalytic Converter Theft Reduction

A regulation would require manufacturers to stamp catalytic converters with a vehicle identification number. Compliance assistance would offer free vehicle identification number stamping on converters in communities selected through the community identification and selection process. The strategy would make it easier for the recycler to identify stolen catalytic converters.

Reasonably foreseeable compliance responses could include:

1) Updating the car manufacturing process to etch Vehicle Identification Numbers (VINs) into catalytic converters and/or install VIN etching equipment within communities selected through the community assessment process.

The Community Air Protection Blueprint EA concluded that this strategy would not result in a physical change in the environment and therefore it was not further evaluated in the EA.

### f) Chrome Plating Control Measures Amendment

This strategy would amend the existing chrome plating regulation to incorporate provisions to align with the federal chrome plating regulation and consider additional measures to further reduce emissions from chrome plating operations. The amendments would include the prohibition of perfluorooctane sulfonate containing fume suppressants (as required by federal regulation), changes to the surface tension requirements, and other actions to reduce uncontrolled emissions. Additionally, staff would evaluate less toxic alternatives to hexavalent chromium and options to phase out perfluorinated chemicals used in fume suppressants.

Reasonably foreseeable compliance responses could include:

1) Installation of add-on control equipment for hexavalent chromium containing tanks currently unregulated ~~d~~in the Chrome Plating Airborne Toxic Control Measure

2) Installation of building enclosures and associated ventilation systems, enhanced housekeeping and best management practices, periodic source testing, parametric monitoring to test the performance of add-on control equipment, and a change to alternative less-hazardous chemical fume suppressants.

3) Construction activities to facilitate installation of add-on control equipment and building enclosures.

### g) Composite Wood Products Control Measure Amendments

This strategy would amend the existing ATCM to Reduce Formaldehyde Emissions from Composite Wood Products (Composite Wood Products ATCM), to obtain additional formaldehyde emission reductions, clarify requirements and applicability, improve enforceability, and align with U.S. EPA formaldehyde regulation, where appropriate. The Composite Wood Products ATCM, approved in 2007, established formaldehyde emission standards for three types of composite wood products (e.g., hardwood plywood, particleboard, and medium density fiberboard) and requires that all consumer goods that contain such materials (e.g., flooring, cabinets, furniture) destined for sale in California must comply with the Composite Wood Products ATCM.

Reasonably foreseeable compliance responses could include:

1) Development of manufacturing systems or alternative, lower-emitting glues that achieve the same curing rates and strength characteristics as current urea formaldehyde glues.

2) Installation of new manufacturing systems that could result in construction activities.

### h) Commercial Cooking Suggested Control Measure

This strategy involves evaluating California's current emission reduction requirements for commercial cooking operations that prepare food for human consumption, and if necessary, making improvements to achieve additional reductions in respirable and fine particulate matter (PM10 and PM2.5, respectively) and volatile organic compound (VOC) emissions that contribute to ozone formation. In the first of two phases, CARB would conduct a technical assessment to evaluate the stringency of existing local air district (e.g., air pollution control and air quality management districts) commercial cooking rules and assess the commercial availability, effectiveness, and cost of more advanced emission control devices or methods, to determine the potential for additional PM10, PM2.5, and VOC emission reductions. In the second phase, CARB would use the results of the technical assessment to develop a path forward for additional emission reductions from commercial cooking operations that could include adoption of a Suggested Control Measure, or a combination of up-front incentives to install advanced emission controls with a recommended regulatory backstop.

Reasonably foreseeable compliance responses could include:

1) Installation of proven control technologies and applied technologies from other industry sectors that are transferable; typical emissions controls include catalytic oxidizers, self-cleaning ceramic filters, filter-bed filters, thermal incinerators, electrostatic precipitators, wet scrubbers, and carbon absorbers.

2) Improved maintenance and control device certification requirements.

### i) Heavy-Duty On-Road and Off-Road Engine In-Use Testing

This strategy involves real world screening of heavy-duty trucks and off-road engines operating in selected communities to target heavy-duty in-use compliance testing. Engines that are found to be emitting above expected levels would be brought into CARB's in-use compliance program. Engines found to be in noncompliance would be recalled and emission mitigation projects could include deployment of ZEAT in selected communities.

Reasonably foreseeable compliance responses could include:

1) Real world testing of heavy-duty and off-road engines.

2) Reconstruction and operation of equipment to support ZEAT and near-zero emission technologies, such as new hydrogen fueling stations and EV charging stations.

3) Increased demand for lead acid and lithium-ion batteries, which could require an increase in manufacturing and recycling facilities and associated increases in lithium mining and exports from countries with raw mineral supplies.

4) Construction of new and modifications to existing facilities to accommodate battery recycling activities.

### j) Incentive Funding to Support Immediate Emission Reductions

This strategy involves using incentive funding for projects to support early action to reduce emissions through the deployment of cleaner mobile source technologies in pollution-burdened communities. The Governor's Fiscal Year 2017-2018 budget included $250 million for this purpose. As directed by the Legislature, these funds were administered through the Carl Moyer Memorial Air Quality Standards Attainment Program, except that at its discretion, an air district may allocate up to 40 percent of the funds it receives to incentivize clean trucks in accordance with CARB's Proposition 1B Goods Movement Emission Reduction Program Guidelines.

Reasonably foreseeable compliance responses evaluated in the Community Air Protection Blueprint EA included:

1) CARB and air districts holding community and stakeholder meetings to determine funding needs, CARB updating or creating funding program guidelines, and CARB interfacing with community groups to provide community funding.

### k) Commercial Harbor Craft Amendment (Proposed Amendments)

The Commercial Harbor Craft Amendment as described in the Community Air Protection Blueprint was, at the time, the anticipated Proposed Amendments. As described in the Community Air Protection Blueprint EA, the strategy would amend the existing Commercial Harbor Craft regulation to include more stringent in-use and new vessel requirements for both freight-related and passenger vessels. The amendments would take into consideration the feasibility of Tier 4 engine technology in Commercial Harbor Craft applications, the performance of advanced retrofit emission control devices, and the availability of ZEAT and near-zero emission technologies for the sector.

Reasonably foreseeable compliance responses as identified in the Community Air Protection Blueprint EA, could include:

1) Increase in manufacturing and use of Tier 4 engine technology, advanced retrofit emission control devices, and new vessels containing such technologies.

2) Potential acceleration of turnover of engines, vessels, and their components, which may increase recycling, scrapping, and/or disposing of these materials within or outside of California or selling these materials outside of California.

3) Potential acceleration of adoption of ZEAT and near-zero emission technologies, which could require construction and operation of equipment to support ZEAT and near-zero emission technologies, such as new hydrogen fueling stations and electric vehicle charging stations.

4) Increased demand for lead acid and lithium-ion batteries, which could require an increase in manufacturing and recycling facilities and associated increases in lithium mining and exports from countries with raw mineral supplies.

5) Construction of new or modifications to existing battery recycling facilities to meet an increased demand for refurbishing or reusing batteries.

6) Potential effects on electricity demand, which would depend on factors such as timing of charging demand and diurnal supply patterns associated with new renewable electricity sources.

The compliance responses anticipated from the Proposed Amendments are largely consistent with the compliance responses described for the CHC measure in the Community Air Protection Blueprint.

### 2. Summary of the Community Air Protection Blueprint Environmental Impacts

The Community Air Protection Blueprint EA evaluated the environmental impacts related to the reasonably foreseeable compliance responses described above. Table D-1n provides a summary of the conclusions of these impacts.

**Table D-1n. Summary of the Community Air Protection Blueprint Environmental Analysis by Resource**

| Resource Areas and Impact Categories | Significance Determination |
|---|---|
| Aesthetics | |
| Construction and Operational Impacts | Potentially Significant and Avoidable (PSU) |
| Agriculture and Forest Resources | |
| Construction and Operational Impacts | PSU |
| Air Quality | |
| Air Quality Construction Impacts | PSU |
| Air Quality Operational Impacts | Beneficial (B) |

| Resource Areas and Impact Categories | Significance Determination |
|---|---|
| Odor Construction and Operational Impacts | Less Than Significant (LTS) |
| Biological Resources | |
| Construction Impacts | PSU |
| Operational Impacts | PSU |
| Cultural Resources | |
| Construction and Operational Impacts | PSU |
| Energy Demand | |
| Construction Impacts | LTS |
| Operational Impacts | LTS |
| Geology, Soils, and Minerals | |
| Construction and Operational Impacts | PSU |
| Greenhouse Gas | |
| Construction and Operational Impacts | B |
| Hazards and Hazardous Materials | |
| Construction Impacts | PSU |
| Operational Impacts | LTS |
| Hydrology and Water Quality | |
| Construction Impacts | PSU |
| Operational Impacts | PSU |
| Land Use and Planning | |
| Construction and Operational Impacts | PSU |
| Mineral Resources | |
| Construction Impacts | LTS |
| Operational Impacts | PSU |
| Noise | |
| Construction Impacts | PSU |
| Operational Impacts | PSU |
| Population and Housing | |
| Construction and Operational Impacts | LTS |
| Public Services | |
| Construction and Operational Impacts | LTS |
| Recreation | |
| Construction and Operational Impacts | LTS |
| Transportation and Traffic | |
| Construction Impacts | PSU |
| Operational Impacts | PSU |
| Utilities and Service Systems | |
| Operational Impacts | PSU |
| Wildfire | |
| Operational Impacts | PSU |

v) PSU = Potentially Significant and Unavoidable
vi) LTS = Less Than Significant
vii) B = Beneficial

## 3. Other Major CARB and Non-CARB Coastal Projects

### a) Other Major CARB Coastal Projects

In December 2007, CARB approved the "Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At-Berth in a California Port" Regulation which was meant to reduce emissions from diesel auxiliary engines on container vessels, refrigerated cargo (reefer) vessels, and passenger (cruise) vessels while berthing (also known as hoteling) at a California Port. At berth, auxiliary engines are used by vessels to run power for lighting, ventilation, pumps, communication, heating, and other onboard equipment while a vessel is docked. CARB adopted the Control Measure for Ocean-Going Vessels At Berth in 2020, and the regulation became effective on January 1, 2021, superseding the regulation approved in 2007 as specified in the 2020 Control Measure. It expands on the 2007 regulation by increasing the number of vessel visits required to reduce emissions at berth (i.e., small fleets that are currently excluded) from the currently regulated vessel categories (i.e., container, cruise, reefer), improving transparency and enforceability, and achieving more emissions reductions with the inclusion of new vessel categories, ports and terminals. The overall strategy of the regulation adopted in 2020 relies on shore power and other existing technologies and the development of promising stationary emissions control technologies in the process of being adapted for use in a marine environment.

The EA prepared for the Control Measure for Ocean-Going Vessels At Berth defined and analyzed a suite of reasonably foreseeable compliance responses. The EA described that implementation of the regulation could result in new infrastructure or modifications to existing infrastructure (e.g., high voltage cable lines, power meters, and circuit breaker main cabinets) to accommodate increased shore power, as well as modifications to berths to provide shore-side capture and control devices and barge-based systems. Barge-based systems would be located in port waterways. Increased use of shore power could also require the use of peaker plants and lithium-ion storage batteries or fuel cells to provide alternative or additional electricity to vessels with large electrical loads. An increase in demand for lithium-ion batteries and fuel cells could result in lithium and platinum mining and exports from source countries or other states and increased recycling, refurbishment, or disposal of lithium-ion batteries and hydrogen fuel cells. Implementation of the Proposed Amendments could also result in infrastructure modifications (e.g., shore power connection cables, high voltage cables, and cable drums/reel systems) to existing vessels to accommodate increased on-board shore power usage. To enable the use of alternative fuels (e.g., LNG), Tier 4 engines, and fuel cells and provide adequate lithium-ion batteries for storage, substantial new and improvement infrastructure may be required outside of ports. Development of new facilities for the manufacture and distribution of alternative fuels would be expected to occur. For vessels, the EA described vessel retrofitting, such as, shore power connection cables, high voltage cables, and cable drums/reel systems, frequency converters, switchgear, transformers, and vessel cables.

Table D-1o lists the impact conclusions for each impact evaluated in the EA.

**Table D-1o. CARB Ocean-Going Vessels At Berth EA Conclusions[58]**

| Resource Area Impact | Significance Determination |
|---|---|
| Aesthetics | |
| Short-Term Construction Related Impacts (Land-based) | PSU |
| Long-Term Operational Impacts (Land-Based) | PSU |
| Short-Term Construction Related Impacts (Vessel-Related) | LTS |
| Long-Term Operational-Related Impacts (Vessel-Related) | LTS |
| Agricultural and Forest Resources | |
| Short-Term Construction-Related and Long-Term Operational-Related Impacts (Land-Based) | PSU |
| Short-Term Construction-Related and Long-Term Operational-Related Impacts (Vessel-Related) | NI |
| Air Quality | |
| Short-Term Construction Related impacts | PSU |
| Long-Term Operational-Related Impacts | LTS |
| Biological Resources | |
| Short-Term Construction Related Impacts (Land-Based) | PSU |
| Long-Term Operational-Related Impacts (Land-Based) | PSU |
| Short-Term Construction-Related and Long-Term Operational Related Impacts (Vessel-Related) | NI |
| Cultural Resources and Tribal Cultural Resources | |
| Short-Term Construction-Related Effects and Long-Term Operational-Related Impacts (Land-Based) | PSU |
| Short-Term Construction-Related Effects and Long-Term Operational-Related Impacts (Vessel-Related) | NI |
| Energy Demand | |
| Short-Term Construction Related Impacts | LTS |
| Long-Term Operational Impacts | LTS |
| Geology and Soils | |
| Short-Term Construction-Related and Long-Term Operational-Related impacts (Land-Based) | PSU |
| Short-Term Construction-Related and Long-Term Operational-Related Impacts (Vessel-Related) | NI |
| Greenhouse Gas Emissions | |
| Short-Term Construction-Related Impacts | LTS |
| Long-Term Operational Impacts | LTS |
| Hazards and Hazardous Materials | |
| Short-Term Construction-Related Impacts (Land-Based) | PSU |
| Long-Term Operational-Related Impacts (Land-Based) | PSU |
| Short-Term Construction-Related Impacts (Vessel-Related) | LTS |

[58] CARB, Appendix D – Final Environmental Analysis Prepared for the Proposed Control Measure for Ocean-Going Vessels At Berth in California, August 25, 2020, last accessed August 15, 2021, *https://ww2.arb.ca.gov/sites/default/files/classic/regact/2019/ogvatberth2019/finalea.pdf*.

| Resource Area Impact | Significance Determination |
|---|---|
| Long-Term Operational-Related Impacts (Vessel-Related) | LTS |
| Hydrology and Water Quality | |
| Short-Term Construction Related Impacts (Land-Based) | PSU |
| Long-Term Operational-Related Impacts (Land-Based) | PSU |
| Short-Term Construction Related Impacts (Vessel-Related) | LTS |
| Long-Term Operational-Related Impacts (Vessel-Related) | LTS |
| Land Use and Planning | |
| Short-Term Construction-Related and Long-Term Operational-Related Impacts (Land-Based) | NI |
| Short-Term Construction-Related and Long-Term Operational-Related Impacts (Vessel-Related) | NI |
| Mineral Resources | |
| Short-Term Construction-Related and Long-Term Operational-Related Impacts (Land-Based) | PSU |
| Short-Term Construction-Related and Long-Term Operational-Related Impacts (Vessel-Related) | NI |
| Noise | |
| Short-Term Construction-Related Impacts (Land-Based) | PSU |
| Long-Term Operational-Related Impacts (Land-Based) | PSU |
| Short-Term Construction-Related Impacts (Vessel-Related) | LTS |
| Long-Term Operational-Related Impacts (Vessel-Related) | LTS |
| Population and Housing | |
| Short-Term Construction-Related and Long-Term Operational-Related Impacts (Land-Based) | LTS |
| Short-Term Construction-Related and Long-Term Operational-Related Impacts (Vessel-Related) | LTS |
| Public Services | |
| Short-Term Construction-Related and Long-Term Operational-Related Impacts (Land-Based) | LTS |
| Short-Term Construction-Related and Long-Term Operational-Related Impacts (Vessel-Related) | LTS |
| Recreation | |
| Short-Term Construction-Related and Long-Term Operational-Related Impacts (Land-Based) | LTS |
| Operational-Related Impacts (Vessel-Related) | LTS |
| Transportation and Traffic | |
| Short-Term Construction-Related Impacts (Land-Based) | PSU |
| Long-Term Operational-Related Impacts (Land-Based) | PSU |
| Short-Term Construction-Related Impacts (Vessel-Related) | LTS |
| Long-Term Operational-Related Impacts (Vessel-Related) | LTS |
| Utilities and Service Systems | |
| Long-Term Operational-Related Impacts (Land-Based) | PSU |
| Long-Term Operational-Related Impacts (Vessel-Related) | LTS |

### b) Other Major Non-CARB Coastal Projects

Non-CARB California coastal projects supplementing the cumulative scenario outlined in the Community Air Protection Blueprint EA are listed in Table D-1p.

**Table D-1p. Representative Coastal Projects Supplementing the Cumulative Scenario[59,60,61,62]**

| Project | Description | Impacts |
|---|---|---|
| Clipper Yacht Harbor Marina Dock Replacement Project (City of Sausalito) | This project involves removal and replacement of existing boat docks in Sausalito, California. Construction would take approximately 16 months. | The project could result in significant adverse effects to biological resources, cultural resources, geology and soils, and tribal cultural resources, but mitigation measures would reduce those impacts to less than significant. |
| Berth 163-164 (NuStar-Valero) Marine Oil Terminal Wharf Improvements Project (Port of Los Angeles) | This project involves demolition of existing timber wharf structures and construction of a new loading/unloading platform, piping to a terminal, fire pump platform, access/pipeline trestle, mooring and breasting dolphins, catwalks, a hose tower, and an onshore valve vault. Construction would take up to 36 months. | The project could result in significant impacts to biological resources, but mitigation measures would reduce those impacts to less than significant. |
| Lower Newport Bay Confined Aquatic Disposal Construction Project (City of Newport Beach) | This project involves constructing a confined aquatic disposal facility in the central portion of the lower harbor for containment of dredged sediment that is unsuitable for ocean disposal or nearshore placement. | The project could result in significant impacts to air quality, biological resources, cultural resources, geology and soils, greenhouse gases, hydrology and water quality, recreation, and tribal cultural resources, but mitigation measures would reduce those impacts to less than significant. |
| Lockheed Martin Harbor Island Facilities Demolition and Sediment | This project involves landside demotion of the Marine Terminal Building; waterside demolition of an existing pier and marine railway, dredging, and sediment remediation; and post- | The project could result in significant impacts to biological resources and cultural resources. Mitigation would reduce biological resources impacts to less than significant but impacts to |

[59] City of Sausalito, Clipper Yacht Harbor Marina Dock Replacement Project, May 2021, last accessed August 11, 2021, *https://files.ceqanet.opr.ca.gov/270142-1/attachment/VViQk3kLy0wFxsPT8iXFgvXWBagLcYpvBCjVdNoOn7gCHTqqmLJdwZLVL56GQQlzs36EPvhZLuPNIY5R0*.
[60] POLA, Draft Initial Study/ Mitigated Negative Declaration, Berth 163-164 [NuStar-Valero] Marine Oil Terminal Wharf Improvements Project, May 2021, last accessed August 11, 2021, *https://kentico.portoflosangeles.org/getmedia/d2ea2caf-a0bc-4acc-b8f4-620c60c63d14/Valero-NuStar-Draft-IS-MND*.
[61] City of Newport Beach, Draft Environmental Impact Report, December 4, 2020, last accessed August 11, 2021, *https://www.newportbeachca.gov/home/showpublisheddocument?id=69371*.
[62] San Diego Unified Port District, Draft Environmental Impact Report, July 2020, last accessed August 11, 2021, *https://pantheonstorage.blob.core.windows.net/ceqa/Lockheed_Martin_Harbor_Island_Facilities_Demolition_and_Sediment_Remediation_Project-DEIR_and_Appendices.pdf*.

| Project | Description | Impacts |
|---|---|---|
| Remediation Project (San Diego Unified Port District) | remediation activities, including demolition of paved areas. | cultural resources would remain significant and unavoidable. |

### B. Significance Determinations and Mitigation

Implementation of the Proposed Amendments was determined to potentially result in cumulatively considerable contributions to significant cumulative impacts to certain resource areas, as discussed below. While suggested mitigation is provided for each potentially cumulatively considerable impact, the mitigation needs to be implemented by lead agencies responsible for permitting compliance-response projects. Where impacts cannot be feasibly mitigated, the ~~Draft~~Final EA recognizes the impact as significant and unavoidable. The Board will need to adopt Findings and a Statement of Overriding Considerations for any significant and unavoidable environmental effects of the project as part of the approval process.

### C. Cumulative Impacts by Resource Area

#### 1. Aesthetics

The Community Air Protection Blueprint EA found that implementation of the reasonably foreseeable compliance responses for the various measures, which includes the Proposed Amendments, could result in a significant impact to aesthetic resources from construction and operational activities associated with new or modified facilities or infrastructure and increased lithium consumption. As discussed in the Community Air Protection Blueprint EA, the exact location or character of these new facilities or the modification of existing facilities is uncertain. Depending on hours of construction, sources of glare or light may also be present. Construction activities would introduce typical off-road construction equipment and on-road heavy duty vehicles, as well as staging areas and other typical construction activities. Development of new facilities is expected to occur in areas that are appropriately zoned; however, new facilities can also introduce or increase presence of visible artificial elements (e.g., heavy-duty equipment, new or expanded buildings) in areas of scenic importance, such as visibility from State scenic highways. Facilities may also introduce substantial sources of glare, exhaust plumes, and nighttime lighting for safety and security. The increase in demand for lithium could cause adverse visual effects due to increases in mining.

CARB cannot determine with certainty that implementing mitigation measures would reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, implementation of the Community Air Protection Blueprint, which includes the Proposed Amendments, could result in a significant cumulative impact. Representative non-CARB coastal projects supplementing the cumulative scenario did not have a significant impact on aesthetics but could contribute to this significant cumulative impact on aesthetics because they

would result in visual changes during construction and operation. Land-based compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a potentially significant impact on aesthetics. Therefore, the cumulative impact to aesthetics would be significant.

The Proposed Amendments' contribution to this significant impact would be cumulatively considerable due to the development of new facilities and infrastructure, nighttime lighting, and lithium mining that could affect the visual quality and character of a landscape or scenic vista. Implementation of the project-level mitigation identified in Chapter 4 could effectively reduce the incremental contribution from the Proposed Amendments to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with CARB. Therefore, the Proposed Amendments could result in a **cumulatively considerable contribution to a significant cumulative impact on aesthetic resources**.

### 4. Agriculture and Forestry Resources

The Community Air Protection Blueprint EA found that implementation of the reasonably foreseeable compliance responses for the various measures, which includes the Proposed Amendments, could result in a significant impact to agriculture and forestry resources from construction and operational activities associated with new or modified facilities or infrastructure and increased lithium consumption. As discussed in the Community Air Protection Blueprint EA, the exact location or character of these new facilities or modification of existing facilities is uncertain. However, new facilities could be located on Important Farmland, forest land, or timberland. Land use policies could generally avoid conversion of agricultural and forest lands, but the potential remains for conversion. Lithium extraction from brines occurs in desert areas that are generally not valuable for agriculture or forestry, but hard rock mining could result in the loss of agricultural or forest lands.

CARB cannot determine with certainty that implementing mitigation measures would reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, implementation of the Community Air Protection Blueprint, which includes the Proposed Amendments, could result in a significant cumulative impact. Representative non-CARB coastal projects supplementing the cumulative scenario did not have a significant impact on agriculture and forestry; coastal projects are generally unlikely to substantially contribute to this significant cumulative impact on agriculture and forestry resources because ports, marinas, and harbors are unlikely to contain agriculture and forestry. Land-based compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a potentially significant impact on agriculture and forestry resources. Therefore, the cumulative impact on agriculture and forestry resources would be significant.

The Proposed Amendments' contribution to this significant impact would be cumulatively considerable due to an increased need for alternative fuels, DEF, and lithium-ion batteries which could require the construction and operation of new or expanded infrastructure in areas currently zoned for or supporting agriculture and forest resources. Implementation of the project-level mitigation identified in Chapter 4 could effectively reduce the incremental contribution from the Proposed Amendments to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with CARB. Thus, the Proposed Amendments could result in a **cumulatively considerable contribution to a significant cumulative impact on agriculture and forest resources**.

### 5. Air Quality

The Community Air Protection Blueprint EA found that implementation of the reasonably foreseeable compliance responses for the various measures, which includes the Proposed Amendments, could result in significant impacts to air quality from construction activities associated with new or modified facilities or infrastructure. As discussed in the Community Air Protection Blueprint EA, the exact location or character of these new facilities or modification of existing facilities is uncertain. However, construction and modification of facilities would emit criteria air pollutants and toxic air contaminants from a variety of activities, such as grading and excavation, operation of off-road construction equipment, and construction worker-commute trips. Based on typical emission rates and other parameters for above mentioned equipment and activities, construction activities could result in hundreds of pounds of daily NOx and PM emissions (amount generated from two to four pieces of heavy-duty equipment working eight hours per day), which may exceed general mass emissions limits of a local or regional air quality management district depending on the location of the emissions. Thus, implementation of new, or amended, regulations and/or incentives could generate levels that conflict with applicable air quality plans, exceed or contribute substantially to an existing or projected exceedance of State or national ambient air quality standards, or expose sensitive receptors to substantial pollutant concentrations.

Implementation of mitigation measures may not reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, implementation of the Community Air Protection Blueprint, which includes the Proposed Amendments, could result in a significant cumulative impact. A representative non-CARB coastal project supplementing the cumulative scenario had a significant impact on air quality, but mitigation reduced that impact to less than significant. However, these projects could contribute to the significant cumulative impact. Construction of land-based compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a potentially significant impact on air quality. Therefore, the cumulative impact on air quality during construction would be significant.

The Proposed Amendments' contribution to this significant impact during construction would be cumulatively considerable, as concluded in Chapter 4, due to air pollutant emissions caused by heavy-duty equipment, worker commute, and truck trips during construction. Implementation of the project-level mitigation identified in Chapter 4 could effectively reduce the incremental contribution from the Proposed Amendments to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with CARB. Thus, the Proposed Amendments could result in a **cumulatively considerable contribution to a significant cumulative impact on air quality** during construction.

The Community Air Protection Blueprint EA found that implementation of the reasonably foreseeable compliance responses for the various measures, which includes the Proposed Amendments, could cause some increases in odors related to use of diesel equipment for construction as well as odors related to increased mining that can disturb odiferous compounds. However, these odors would be short term or generated in areas away from sensitive receptors. The Community Air Protection Blueprint EA concluded this impact would be less than significant. Additionally, none of the representative coastal projects supplementing the cumulative scenario disclosed a significant odor impact, indicating that they would not make a substantial contribution to a cumulative odor impact. Therefore, cumulative odor impacts would be less than significant. The Proposed amendments **would not contribute to a significant cumulative odor impact**.

The Community Air Protection Blueprint EA found that implementation of the reasonably foreseeable compliance responses for the various measures, which includes the Proposed Amendments, could result in beneficial impacts to air quality from operational activities associated with the Proposed Amendments. The purpose of the proposed Draft Blueprint is to improve air quality conditions in pollution-burdened communities, thus decreasing adverse air quality-related health effects. The measures within the proposed Draft Blueprint are designed to result in substantial long-term reductions in criteria air pollutants and TACs. Although it is possible that certain aspects of the proposed Draft Blueprint may cause comparatively small emission increases, these potential incremental increases would be offset by the overall substantial long-term reductions in criteria air pollutants and TACs. As a result, long-term operational impacts related to air quality as a result of the Community Air Protection Blueprint would be beneficial. While the Community Air Protection Blueprint's intent is to result in air quality benefits, the same cannot be said of representative non-CARB coastal projects supplementing the cumulative scenario. The representative projects indicate that some coastal projects do not have an operational phase (e.g., dock replacement), while some would result in operational emissions (e.g., wharf improvements project). Emissions during operations are low, however. Additionally, compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a less than significant operational impact on air quality because the regulation would assist the state in meeting NAAQS and CAAQS. This indicates that **the Proposed Amendments would not present a cumulatively considerable impact on air quality**.

### 6. Biological Resources

The Community Air Protection Blueprint EA found that implementation of the reasonably foreseeable compliance responses for the various measures, which includes the Proposed Amendments, could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. The exact location of these new facilities or the modification of existing facilities is uncertain. Construction could require disturbance of undeveloped area, such as clearing of vegetation, earth movement and grading, trenching for utility lines, erection of new buildings, and paving of parking lots, delivery areas, and roadways. These activities would have the potential to adversely affect biological resources (e.g., species, habitat) that may reside or be present in those areas. Because there are biological species that occur, or even thrive, in developed settings, resources could also be adversely affected by construction and operations within disturbed areas at existing manufacturing facilities or at other sites in areas with zoning that would permit the development of manufacturing or industrial uses. Additionally, increased demand for biofuel feedstock production could result in expansion of agricultural lands into undeveloped areas, or areas that otherwise support biological resources.

CARB cannot determine with certainty that implementing mitigation measures would reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, implementation of the Community Air Protection Blueprint, which includes the Proposed Amendments, could result in a significant cumulative impact. Representative non-CARB coastal projects supplementing the cumulative scenario would have impacts that are less than significant with mitigation, indicating they would contribute to the significant cumulative impact. Land-based compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a potentially significant impact on biological resources. Therefore, the cumulative impact on biological resources would be significant.

The Proposed Amendments' contribution to this significant impact would be cumulatively considerable due to the development of new facilities and infrastructure, which would include vegetation removal and noise impacts, as well as mining could adversely affect biological resources such as special-status species. Implementation of the project-level mitigation identified in Chapter 4 could effectively reduce the incremental contribution from the Proposed Amendments to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with CARB. Therefore, the Proposed Amendments could result in a **cumulatively considerable contribution to a significant cumulative impact** on biological resources.

### 7. Cultural Resources

The Community Air Protection Blueprint EA found that implementation of the reasonably foreseeable compliance responses associated with the recommended actions could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. The exact location of these new facilities or the modification of existing facilities is uncertain. Construction activities could require disturbance of undeveloped area, such as clearing of vegetation, earth movement and grading, trenching for utility lines, erection of new buildings, and paving of parking lots, delivery areas, and roadways. Demolition of existing structures may also occur before the construction of new buildings and structures. The cultural resources that could potentially be affected by ground disturbance activities could include, but are not limited to, prehistoric and historical archaeological sites, paleontological resources, historic buildings, structures, or archaeological sites associated with agriculture and mining, and heritage landscapes. Properties important to Native American communities and other ethnic groups, including tangible properties possessing intangible traditional cultural values, also may exist. Historic buildings and structures may also be adversely affected by demolition-related activities.

CARB cannot determine with certainty that implementing mitigation measures would reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, implementation of the Community Air Protection Blueprint, which includes the Proposed Amendments, could result in a significant cumulative impact. Representative non-CARB coastal projects supplementing the cumulative scenario have a range of impacts, with one resulting in no impact because it would not disturb undisturbed soils, while another project resulting in significant and unavoidable impacts on cultural resources. This indicates that representative non-CARB coastal projects would contribute to the significant cumulative impact. Land-based compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a potentially significant impact on cultural resources. Therefore, the cumulative impact on cultural resources would be significant.

The Proposed Amendments' contribution to this significant impact would be cumulatively considerable, as concluded in Chapter 4, due to ground disturbance activities and the potential for new facilities to be sited within a historic district. Implementation of the project-level mitigation identified in Chapter 4 could effectively reduce the incremental contribution from the Proposed Amendments to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with CARB. Thus, the Proposed Amendments could result in a **cumulatively considerable contribution to a significant cumulative impact** on cultural resources.

### 8. Energy Demand

The Community Air Protection Blueprint EA found that implementation of the recommended measures within the various source categories, which includes the Proposed Amendments, would result in less-than-significant construction and operational impacts. Temporary increases in energy demand associated with new facilities would include fuels used during construction, and gas and electric operational demands. Typical earth-moving equipment that may be necessary for construction includes graders, scrapers, backhoes, jackhammers, front-end loaders, generators, water trucks, and dump trucks. While energy would be required to complete construction for any new or modified facilities or infrastructure projects, it would be temporary and limited in magnitude such that a reasonable amount of energy would be expended. In the long term, the Community Air Protection Blueprint would increase the amount of renewable energy supplies because vehicular fuels would increase the use of electricity (50 percent of which would be renewable by 2030) and decrease the use of petroleum through increased use of plug-in hybrid electric vehicles, ZEVs, and low-emission diesel fuels. Therefore, the Community Air Protection Blueprint, which includes the Proposed Amendments, would not have a cumulatively significant impact on energy. Similarly, representative non-CARB coastal projects supplementing the cumulative scenario were found to have either no impact or a less-than-significant impact on energy. Compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a less-than-significant impact on energy. Therefore, energy demands **would not result in a significant cumulative impact**.

### 9. Geology and Soils

Implementation of the reasonably foreseeable compliance responses associated with the recommended measures in the proposed Community Air Protection Blueprint could result in a significant cumulative impact related to geology and soils from construction and operational activities associated with new or modified facilities or infrastructure. New facilities and infrastructure, and expansion of agricultural lands to support low-emission diesel fuel feedstock, could be located in a variety of geologic, soil, and slope conditions with varying amounts of vegetation that would be susceptible to soil compaction, soil erosion, and loss of topsoil during construction. The exact location of these new facilities or the modification of existing facilities is uncertain. Construction and operation could be located in a variety of relatively high-risk geologic and soil conditions that are considered to be potentially hazardous. For instance, the seismic conditions at the site of a new facility may have high to extremely high seismic-related fault rupture and ground shaking potential associated with earthquake activity. New facilities could also be subject to seismic-related ground failure, including liquefaction and landslides. Construction and operational activities could be located in a variety of geologic, soil, and slope conditions with varying amounts of vegetation that would be susceptible to soil erosion. Strong ground shaking could also trigger landslides in areas where the natural slope is naturally unstable or is over-steepened by the construction of access roads and structures.

Construction and operation could also occur in locations that would expose facilities and structures to expansive soil conditions. Development of new facilities could be susceptible to the presence of expansive soils particularly in areas of fine-grained sediment accumulation typically associated with playas, valley bottoms, and local low-lying areas.

CARB cannot determine with certainty that implementing mitigation measures would reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, implementation of the Community Air Protection Blueprint, which includes the Proposed Amendments, could result in a significant cumulative impact. Representative non-CARB coastal projects supplementing the cumulative scenario would result in impacts that are less than significant or less than significant with mitigation, indicating they would contribute to the significant cumulative impact. Land-based compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a potentially significant impact on geology and soils. Therefore, the cumulative impact on geology and soils would be significant.

The Proposed Amendments contribution to this significant impact would be cumulatively considerable due to potential for ground disturbance activities, such as pile driving and dredging to cause erosion and for new facilities and infrastructure to be located in areas with a variety of seismic conditions. Implementation of the project-level mitigation identified in Chapter 4 could effectively reduce the incremental contribution from the Proposed Amendments to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with CARB. Thus, the Proposed Amendments could result in a **cumulatively considerable contribution to a significant cumulative impact** on geology and soils.

### 10. Greenhouse Gases

The Community Air Protection Blueprint EA found that implementation of the recommended measures within the various source categories, which includes the Proposed Amendments could require construction and operational activities associated with new manufacturing facilities to support increased market penetration of electric, battery, hydrogen fuel cell, renewable diesel and hybrid vessels. Increased low-emission diesel demand may increase processing of low-emission diesel fuels, and shipment of finished low-emission diesel fuels and/or their feedstocks. Infrastructure to support collection, processing, and distribution of low-emission diesel fuels, including biomethane, and associated feedstocks may also increase. Overall, the proposed Blueprint would result in substantial long-term GHG reductions, although certain aspects of the Blueprint would cause comparatively small short-term GHG emission increases. When these short-term construction-related GHG emissions associated with construction activities are considered in relation to the overall long-term operational GHG benefits, they are not considered substantial. Therefore, the Blueprint, which

includes the Proposed Amendments, would not have a cumulatively significant impact on GHG emissions. Most representative non-CARB coastal projects supplementing the cumulative scenario have less-than-significant impacts on greenhouse gases, with one project resulting in less-than-significant impacts after mitigation. Compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a less than significant impact related to greenhouse gases. Given the long-term benefits of the Blueprint, **cumulative impacts would be less than significant**.

### 11.Hazards and Hazardous Materials

The Community Air Protection Blueprint EA found that implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. Construction activities generally use heavy-duty equipment requiring periodic refueling and lubricating. Large pieces of construction equipment (e.g., backhoes, graders) are typically fueled and maintained at the construction site. There would be a potential risk of accidental release during fuel transfer activities. Although precautions would be taken to ensure that any spilled fuel is properly contained and disposed, and such spills are typically minor and localized to the immediate area of the fueling (or maintenance), the potential still remains for a substantial release of hazardous materials into the environment.

CARB cannot determine with certainty that implementing mitigation measures would reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, implementation of the Blueprint, which includes the Proposed Amendments, could result in a significant cumulative impact during construction. Similarly, representative coastal projects supplementing the cumulative scenario have potentially significant impacts related to hazards and hazardous materials because they would use heavy duty equipment that could result in potential impacts from spills. Thus, construction impacts related to hazards and hazardous materials would be cumulatively significant. The representative coastal projects supplementing the cumulative scenario were found to have less-than-significant impacts related to hazards, which would contribute to this significant cumulative construction impact.

The Blueprint EA concludes that operational impacts would be less than significant, due to performance-based requirements and standards for lithium-ion batteries and hydrogen fueling stations. However, the risk of accidental release of hazardous materials still exists during the movement of raw goods to manufacturing facilities or the export of finished goods containing hazardous materials following the manufacturing process. The representative non-CARB coastal projects supplementing the cumulative scenario were found to have less-than-significant impacts related to hazards and would therefore contribute to the cumulative impact to some degree.

Land-based compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a potentially significant impact on hazards and hazardous materials. Therefore, the cumulative impact on hazards and hazardous materials would be significant.

The Proposed Amendments contribution to this significant impact would be cumulatively considerable, as concluded in Chapter 4, due to potential for accidental release of hazardous materials into the environment during the movement of raw goods during the operational phase. Implementation of the project-level mitigation identified in Chapter 4 could effectively reduce the incremental contribution from the Proposed Amendments to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with CARB. Thus, the Proposed Amendments could result in a **cumulatively considerable contribution to a significant cumulative impact** regarding hazards and hazardous materials during operation and construction.

### 12. Hydrology and Water Quality

The Community Air Protection Blueprint EA found that implementation of the reasonably foreseeable compliance responses associated with the recommended actions could result construction and operation activities, such as those associated with new or modified facilities or infrastructure and increased mining activities. Specific construction projects would be required to comply with applicable erosion, water quality standards, and waste discharge requirements. Depending on the location of construction activities, there could be adverse effects on drainage patterns and exposure of people or structures to areas susceptible to flood, seiche, tsunami, or mudflow. In addition, increased demand for low-emission diesel feedstocks, such as oilseed crops or tallow, could result in adverse effects on water quality from farming practices result from polluted runoff that contains sediment, nutrients, pathogens, pesticides, metals, and salts.

CARB cannot determine with certainty that implementing mitigation measures would reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, implementation of the Blueprint, which includes the Proposed Amendments, could result in a significant cumulative impact. Representative non-CARB coastal projects supplementing the cumulative scenario would result in less-than-significant impacts related to hydrology and water quality and would therefore contribute to this significant cumulative impact to some degree. Land-based compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a potentially significant impact on hydrology and water quality. Thus, cumulative impacts related to hydrology and water quality would be significant.

The Proposed Amendments' contribution to this significant impact would be cumulatively considerable, as concluded in Chapter 4, due to a possibility for pile

driving and dredging to occur, the potential location of new facilities and infrastructure in locations subject to mudflow or flooding, the potential for erosion and sedimentation during construction, lithium mining, and the potential for accidental release during fueling activities. Implementation of the project-level mitigation identified in Chapter 4 could effectively reduce the incremental contribution from the Proposed Amendments to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with CARB. Thus, the Proposed Amendments could result in a **cumulatively considerable contribution to a significant cumulative impact** on hydrology and water quality.

### 13. Land Use and Planning

The Community Air Protection Blueprint EA found that implementation of the recommended measures within the various source categories, which includes the Proposed Amendments, would result in the construction and operation of new or modified facilities or infrastructure (i.e., natural gas and hydrogen refueling stations, lithium battery manufacturing facilities, lithium mines, battery recycling and disposal centers, vehicle emission testing centers, near-zero-technology and ZEAT manufacturing facilities, infrastructure associated with low-emission diesel production). Planning efforts associated with the implementation of compliance responses associated with the Blueprint would be made in coordination with local, State, or federal jurisdictions. Thus, reasonably foreseeable compliance responses would not be anticipated to divide an established community or conflict with a land use or conservation plan. Therefore, the Blueprint, which includes the Proposed Amendments, would not have a cumulatively significant impact on land use and planning. Similarly, representative non-CARB coastal projects supplementing the cumulative scenario were found to have no impacts. Compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have no impact on land use and planning. Thus, impacts related to land use and planning **would not be cumulatively significant**.

### 14. Mineral Resources

The Community Air Protection Blueprint EA found that implementation of the recommended measures within the various source categories, which includes the Proposed Amendments, would result in the construction and operation of new or modified facilities or infrastructure. Reasonably foreseeable compliance responses would likely occur within existing footprints or in areas with consistent zoning where original permitting and analyses considered the availability of mineral resources within specific project sites. In addition, increased manufacturing and use of electric, battery, hydrogen fuel cell, and hybrid vessels would require increased battery production and increased lithium mining. In the case that new lithium mines are required, they would go through independent environmental review at the appropriate federal, state, or local level, and it is assumed that any new mines would be located in areas with appropriate zoning, and subject to Federal, State, and/or local requirements.

Worldwide demand of global lithium is estimated to be below 20 million metric tons for the period of 2010 through 2100, which is well-below the estimated worldwide reserves and resources currently known to exist worldwide. In addition, lithium-ion battery recycling potential could supplement future increased demands. Appendix G of the CEQA Guidelines considers an impact on mineral resources to be the result in the loss of availability of a known mineral resource that would be of value to a local entity, a region, or the state. This type of impact could result from actions such as building a structure over an area that contains mineral resources, thereby prohibiting access to mining activities or the consumption of a mineral resource. Because compliance responses could result in an increased development where mining for lithium and cobalt is feasible, they could conceivably affect the availability of these mineral resources if access to resources becomes impeded, and impacts would be significant. Representative non-CARB coastal projects supplementing the cumulative scenario would not have potentially significant impacts related to mineral resources as they do not involve mining or increase the demand for minerals, and the projects would result in no impact. Land-based compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a potentially significant impact on mineral resources. Therefore, there would be a significant cumulative impact to mineral resources.

The Proposed Amendments' contribution to this significant impact would be negligible, because the increased demand for lithium and the potential for increased development where mining for lithium is feasible would be extremely small compared to the overall increased demand for lithium for other uses, as described in Chapter 4. Thus, the Proposed Amendments would **not result in a cumulatively considerable contribution to a significant cumulative impact** on mineral resources.

### 15. Noise

The Community Air Protection Blueprint EA found that implementation of the reasonably foreseeable compliance responses associated with the recommended actions could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. Implementation of reasonably foreseeable compliance responses could result in the generation of short-term construction noise from use of heavy-duty equipment and vehicle trips. New long-term operational sources of noise could be associated with low-emission diesel feedstock processing facilities, manufacturing plants, and mining activities. Depending on the proximity to existing noise-sensitive receptors, construction and operational noise levels could exceed applicable noise standards and result in a substantial increase in ambient noise levels, resulting in a significant noise impact.

CARB cannot determine with certainty that implementing mitigation measures would reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, implementation of the Blueprint, which includes the Proposed Amendments, could result in a significant

cumulative impact. Representative non-CARB coastal projects supplementing the cumulative scenario were found to have less-than-significant impacts or no impact on noise, which means representative projects could also contribute to this significant cumulative impact to some degree. Land-based compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a potentially significant impact on noise. Therefore, the cumulative impact on noise would be significant.

The Proposed Amendments' contribution to this significant impact would be cumulatively considerable due to potential noise impacts associated with implementation of Control Measures which would cause additional demand for ZEAT and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures has the potential to reduce these impacts to a less-than-significant level however the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. As a result, noise impacts may be substantial. Thus, the Proposed Amendments could result in a **cumulatively considerable contribution to a significant cumulative impact** on noise.

### 16. Population and Housing

The Community Air Protection Blueprint EA found that implementation of the reasonably foreseeable compliance responses associated with the recommended actions could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. There is uncertainty as to the specific location of new facilities or the modification of existing facilities. Construction and operation of these facilities could result in increased job opportunities in the communities surrounding a project site. However, it would be expected that locations of these facilities would be selected such that an appropriate employment base existed to support construction and operation or where local jurisdictions have planned for increased population and employment growth. Therefore, the Blueprint, which includes the Proposed Amendments, would not have a cumulatively significant impact on population and housing. Representative non-CARB coastal projects supplementing the cumulative scenario were found to have no impact on population and housing. Compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a less-than-significant impact on population and housing. Given the small magnitude and limited nature of impacts, **cumulative impacts would be less than significant**.

### 17. Public Services

The Community Air Protection Blueprint EA found that implementation of the reasonably foreseeable compliance responses associated with the recommended actions could require construction and operational activities associated with new or

modified facilities or infrastructure and increased mining activities. There is uncertainty as to the specific location of new facilities or the modification of existing facilities. Construction and operation of the reasonably foreseeable compliance responses would not require a substantial amount of new additional housing to accommodate new populations or generate changes in land use and, therefore, would not be expected to increase population levels such that the provisions of public services would be substantially affected. Therefore, the Blueprint, which includes the Proposed Amendments, would not have a cumulatively significant impact on public services. Similarly, representative non-CARB coastal projects supplementing the cumulative scenario either would have no impact or would result in a less-than-significant impact on public services. For example, one project would temporarily increase use of another dock. Compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a less-than-significant impact on public services. Given the small magnitude and limited nature of these impacts, **cumulative impacts would be less than significant**.

### 18. Recreation

The Community Air Protection Blueprint EA found that implementation of the recommended measures within the various source categories, which includes the Proposed Amendments, would result in the construction and operation of new or modified facilities or infrastructure (i.e., natural gas and hydrogen refueling stations, DEF storage, lithium battery manufacturing facilities, lithium mines, battery recycling and disposal centers, vehicle emission testing centers, ZEAT and near-zero-emission technology manufacturing facilities, infrastructure associated with low-emission diesel production). There is uncertainty as to the specific location of new facilities or the modification of existing facilities. While implementation of Blueprint would produce long-term employment, it would be anticipated that a sufficient employment base would be available. The minimal increase in employment opportunity would not create an increased demand on recreational facilities within communities containing new plants and facilities. Therefore, the Blueprint, which includes the Proposed Amendments, would not have a cumulatively significant impact on recreation. Representative non-CARB coastal projects supplementing the cumulative scenario either had no impact on recreation or had impacts on recreation that were less than significant with mitigation. Mitigation included coordination to reduce temporary impacts on recreational sailing as well as to address environmental impacts from construction of a recreational facility, which were addressed under other resource sections. Compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a less-than-significant impact on recreation. These impacts are temporary and limited in scope, and the Proposed Amendments' impacts would be similarly low. Thus, **cumulative impacts would be less than significant**.

### 19. Transportation

The Community Air Protection Blueprint EA found that implementation of the recommended measures within the various source categories, which includes the Proposed Amendments, could result in a significant cumulative traffic impact from construction and operational activities associated with new or modified facilities or infrastructure. Although detailed information about potential specific construction activities is not currently available, it would be anticipated to result in short-term construction traffic (primarily motorized) from worker commute- and material delivery-related trips. Implementation of the Blueprint could result in increased demand for Low-Emission Diesel fuels such as R99, R100, or biomethane, and increased demand for feedstocks and inputs used to produce Low-Emission Diesel. While the total volume of fuel demanded in California is not anticipated to be affected by the proposed Low-Emission Diesel measure, it is anticipated to change the types of fuels consumed, which could result in substantial long-term effects on local routes' traffic patterns due to differences in where feedstocks are sourced, and how the finished fuels are transported. In addition, transportation patterns may change in relation to the location and operational shipping needs of new facilities. Depending on the number of trips generated and the location of new facilities, implementation could conflict with applicable programs, plans, ordinances, or policies (e.g., performance standards, congestion management); and/or result in hazardous design features and emergency access issues from road closures, detours, and obstruction of emergency vehicle movement, especially due to project-generated heavy-duty truck trips.

CARB cannot determine with certainty that implementing mitigation measures would reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, implementation of the Blueprint, which includes the Proposed Amendments, could result in a significant cumulative impact. Representative non-CARB coastal projects supplementing the cumulative scenario have either no impact or less-than-significant impacts on transportation, indicating that some projects would contribute to this cumulative impact to some degree. Land-based compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a potentially significant impact on transportation. Therefore, the cumulative impact on transportation would be significant.

The Proposed Amendments' contribution to this significant impact would be cumulatively considerable due to potential transportation and traffic impacts associated with additional demand for ZEAT and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these impacts to a less-than-significant level however the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. As a result, transportation and

traffic impacts may be substantial. Thus, the Proposed Amendments could result in a **cumulatively considerable contribution to a significant cumulative impact** on transportation and traffic.

### 20. Tribal Cultural Resources

The Community Air Protection Blueprint EA found that implementation of the reasonably foreseeable compliance responses associated with the recommended actions could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. The exact location of these new facilities or the modification of existing facilities is uncertain. Construction activities could require disturbance of undeveloped area, such as clearing of vegetation, earth movement and grading, trenching for utility lines, erection of new buildings, and paving of parking lots, delivery areas, and roadways. Demolition of existing structures may also occur before the construction of new buildings and structures. The cultural resources that could potentially be affected by ground disturbance activities could include prehistoric archaeological sites. Properties important to Native American communities and other ethnic groups, including tangible properties possessing intangible traditional cultural values, also may exist.

CARB cannot determine with certainty that implementing mitigation measures would reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, implementation of the Community Air Protection Blueprint, which includes the Proposed Amendments, could result in a significant cumulative impact.

Representative non-CARB coastal projects supplementing the cumulative scenario have a range of impacts, with one project having a less-than-significant impact on tribal cultural resources, and two projects having a less-than-significant impact after mitigation is incorporated, and one having no impact. This indicates that representative non-CARB coastal projects would contribute to the significant cumulative impact. Land-based compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a potentially significant impact on tribal cultural resources. Therefore, the cumulative impact on cultural resources would be significant.

The Proposed Amendments' contribution to this significant impact would be cumulatively considerable, as concluded in Chapter 4, due to ground disturbance activities and the potential to be sited in or near a tribal cultural resource. Implementation of the project-level mitigation identified in Chapter 4 could effectively reduce the incremental contribution from the Proposed Amendments to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with CARB. Thus, the Proposed Amendments could result in a **cumulatively considerable contribution to a significant cumulative impact** on tribal cultural resources.

### 21. Utilities and Service Systems

The Community Air Protection Blueprint EA found that implementation of the recommended measures within the various source categories, which includes the Proposed Amendments, could result in a significant cumulative impact to utilities and service systems from construction and operational activities associated with new or modified facilities or infrastructure (i.e., natural gas and hydrogen refueling stations, DEF storage, lithium battery manufacturing facilities, lithium mines, battery recycling and disposal centers, vehicle emission testing centers, ZEAT and near-zero-emission technology manufacturing facilities, infrastructure associated with low-emission diesel production). Projects associated with the Blueprint could result in new demand for water, wastewater, electricity, and gas services for new manufacturing facilities. Changes in land use, associated with biofuel feedstock production are likely to change water demand to support new crop types, depending on the size, location, and existing uses. This could result in an increase or decrease in water demand and would be subject to availability and regulatory requirements. The specific location and type of construction needs is not known and would be dependent upon a variety of market factors that are not within the control of CARB including: economic costs, product demands, environmental constraints, and other market constraints. Thus, the specific impacts from construction on utility and service systems cannot be identified with any certainty, and individual compliance responses could potentially result in significant environmental impacts.

CARB cannot determine with certainty that implementing mitigation measures would reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, implementation of the Blueprint, which includes the Proposed Amendments, could result in a significant cumulative impact. Representative non-CARB coastal projects supplementing the cumulative scenario either have no impact or less-than-significant impacts related to utilities and service systems, indicating some projects would contribute to the cumulative impact to some degree. Land-based compliance responses implemented in response to the Ocean-Going Vessels At Berth regulation were also found to have a potentially significant impact on utilities and service systems. Therefore, the cumulative impact on utilities and service systems would be significant.

The Proposed Amendments' contribution to this significant impact would be cumulatively considerable due to utilities impacts associated with implementation of Control Measures which would cause additional demand for ZEAT and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these impacts to a less-than-significant level however the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. As a result, utilities impacts may be substantial. Thus, the Proposed Amendments could result in a **cumulatively**

**considerable contribution to a significant cumulative impact** on utilities and service systems.

#### 22. Wildfire

Appendix G of the State CEQA Guidelines was amended in late 2018, after certification of the Community Air Protection Blueprint EA, to include several questions related to wildfire. The CEQA Guidelines Appendix G questions address: impairment of an adopted emergency response plan or emergency evaluation plan; the potential to exacerbate wildfire risks and associated pollutants and uncontrolled spread of wildfire; the requirement to install or maintain infrastructure that could exacerbate fire risk; and the exposure of people or structure to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

The Community Air Protection Blueprint EA evaluated some fire risks in its discussion of hazards. The Community Air Protection Blueprint EA discussed the potential for lithium-ion batteries to overheat and ignite, but also concluded that the risk is increased in the case of poor packaging, damage, or exposure to fire or a heat source. When packaged and handled properly, lithium-ion batteries pose no environmental hazard. Additionally, existing methods and recommendations exist for battery system performance to assure that a single point fault will not result in fire or explosion. The Community Air Protection Blueprint, including the Proposed Amendments, would result in less-than-significant cumulative impacts related to wildfire. Representative non-CARB coastal projects supplementing the cumulative scenario were found to have no impact on wildfire. The Ocean-Going Vessels At Berth regulation would not exacerbate wildfire conditions at ports due to the coastal location of compliance responses. Therefore, **cumulative impacts would be less than significant**.

### D. Growth Inducing Impacts

A project would be considered growth-inducing if it removes an obstacle to growth, includes construction of new housing, or establishes major new employment opportunities. The reasonably foreseeable compliance responses associated with the Proposed Amendments would not directly result in any growth in population or housing, as the Proposed Amendments are meant to spur emissions-reducing changes in the existing fleet of vessels and at existing harbors and marinas, which would not require substantial relocation of employees.

# VI. Mandatory Findings of Significance

Consistent with the requirements of the California Environmental Quality Act (CEQA) Guidelines Section 15065 and Section 18 of the Environmental Checklist, this ~~Draft~~Final Environmental Analysis (~~Draft~~Final EA) addresses the mandatory findings of significance for the Proposed Amendments.

**A. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat for a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?**

A finding of significance is required if a project "has the potential to substantially degrade the quality of the environment (14 CCR Section 15065(a))." In practice, this is the same standard as a significant effect on the environment, which is defined as "a substantial or potentially substantial adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance (14 CCR Section 15382.)." As with all of the environmental effects and issue areas, the precise nature and magnitude of impacts would depend on the types of projects authorized, their locations, their aerial extent, and a variety of site-specific factors that are not known at this time but that would be addressed by environmental reviews at the project-specific level. For projects within California, all of these issues would be addressed through project-specific environmental reviews that would be conducted by local land use agencies or other regulatory bodies at such time the projects are proposed for implementation. Outside of California, other state and local agencies would consider the proposed projects in accordance with their laws and regulations. CARB would not be the agency responsible for conducting the project-specific environmental or approval reviews because it is not the agency with authority for making land use or project implementation decisions.

This ~~Draft~~Final EA addresses and discloses potential environmental effects associated with implementation of the Proposed Amendments, including direct, indirect, and cumulative impacts. As described in Chapter 4, this ~~Draft~~Final EA discloses potential environmental impacts, the level of significance prior to mitigation, mitigation measures, and the level of significance after the incorporation of mitigation measures.

**B. Does the project have impacts that are individually limited, but cumulatively considerable?**

A lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has potential environmental effects that are individually limited, but cumulatively considerable (14 CCR Section 15065). Cumulatively considerable means "that the incremental

effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (14 CCR Section 15065(a)(3)).” Cumulative impacts are discussed in Chapter 5 in the ~~Draft~~Final EA.

**C. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?**

A lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to cause substantial adverse effects on human beings, either directly or indirectly (14 CCR Section 15065(a)(4)). Under this standard, a change to the physical environment that might otherwise be minor must be treated as significant if people would be significantly affected. This factor relates to adverse changes to the environment of human beings generally, and not to effects on particular individuals. While changes to the environment that could indirectly affect human beings would be represented by all of the designated CEQA issue areas, those that could directly affect human beings include air quality, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, population and housing, public services, transportation/traffic, and utilities, which are all addressed in Chapter 4, “Impact Analysis” of this ~~Draft~~Final EA.

# VII. Alternatives Analysis

This chapter of the ~~Draft~~Final EA provides an overview of the regulatory requirements and guidance for alternatives analyses under CEQA; a description of each of the alternatives to the Proposed Amendments; a discussion of whether and how each alternative meets the objectives of the Proposed Amendments, and an analysis of each alternative's environmental impacts.

## A. Approach to the Alternative Analysis

CARB's certified regulatory program (title 17 CCR Sections 60000–60008) requires that, where a contemplated action may have a significant effect on the environment, a staff report shall be prepared in a manner consistent with the environmental protection purposes of CARB's regulatory program and with the goals and policies of CEQA. Among other things, the staff reports must address feasible alternatives to the proposed action that would substantially reduce any significant adverse impact identified.

The certified regulatory program provides general guidance that any action or proposal for which significant adverse environmental impacts have been identified during the review process shall not be approved or adopted as proposed if there are feasible mitigation measures or feasible alternatives available which would substantially reduce such an adverse impact. For purposes of this section, "feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors, and consistent with CARB's legislatively mandated responsibilities and duties (Title 14 CCR Section 15364).

While CARB, by virtue of its certified program, is exempt from Chapters 3 and 4 of CEQA and corresponding sections of the State CEQA Guidelines, the Guidelines nevertheless contain useful information for preparation of a thorough and meaningful alternatives analysis. CEQA Guidelines section 15126.6(a) speaks to evaluation of "a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic project objectives but would avoid or substantially lessen any of the significant effects and evaluate the comparative merits of the alternatives." The purpose of the alternatives analysis is to determine whether different approaches to, or variations of, the project would reduce or eliminate significant project impacts, within the basic framework of the objectives, a principle that is consistent with CARB's regulatory requirements.

Alternatives considered in an environmental document should be potentially feasible and should attain most of the basic project objectives. It is, therefore, critical that the alternatives analysis define the project's objectives. The project objectives are listed below in Section C of this Chapter.

The range of alternatives is governed by the "rule of reason," which requires evaluation of only those alternatives "necessary to permit a reasoned choice" (Title 14 CCR Section 15126.6(f)). Further, an agency "need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative" (Title 14 CCR Section 15126.6(f)(3)). The analysis should focus on alternatives that are feasible and that take economic, environmental, social, and technological factors into account. Alternatives that are remote or speculative need not be discussed. Furthermore, the alternatives analyzed for a project should focus on reducing or avoiding significant environmental impacts associated with the project as proposed.

### B. Selection of Alternatives

This chapter evaluates a range of alternatives to the Proposed Amendments that could reduce or eliminate significant effects on the environment, while still meeting basic project objectives (Title 14 CCR Section 15126.6(a)). Pursuant to CARB's certified regulatory program, this chapter also contains an analysis of each alternative's feasibility and the likelihood that it would substantially reduce any significant adverse environmental impacts identified in the impact analysis contained in Chapter 4 of this ~~Draft~~Final EA (Title 17 CCR section 60004.2(a)(5)).

CARB has identified alternatives that allow the public and Board to contemplate the differences between different approaches. CARB has made a good faith effort to identify potentially feasible project alternatives. For the purposes of this analysis, three alternatives are considered:

1) Alternative 1: No-Project Alternative;

2) Alternative 2: CHC Amendments without a vessel owner/operator idling limits and facility shore power infrastructure requirements; or

3) Alternative 3: CHC Amendments without requiring ZEAT for Short-Run Ferries and New Excursion Vessels.

Descriptions of these alternatives, their ability to meet the project objectives, and a brief consideration of their environmental impacts, compared to the Proposed Amendments, are described in section D below.

### C. Objectives of the Proposed Amendments

The primary objectives of the Proposed Amendments include the following:

1) Provide additional public health benefits for communities near ports and marine terminals that are heavily burdened by freight pollution, and for workers and passengers on harbor craft;

2) Assist in achieving CARB's proposed strategy to attain health-based federal air quality standards as part of nonattainment area State Implementation Plans;

3) Incorporate additional CHC vessel categories into the CHC Regulation, including but not limited to all tank barges and additional types of commercial passenger fishing vessels;

4) Establish more stringent requirements than are currently required by the existing CHC Regulation, and expand the requirements in the Existing CHC Regulation;

5) Expand in-use engine standards to CHC engines of all sizes and power displacements;

6) Reduce dependence on petroleum as an energy resource by requiring the adoption of ZEAT, such as battery electric and hydrogen fuel cell electric drivetrains, on all short-run ferries and new excursion vessels;

7) Require use of renewable and low-carbon diesel fuel in support of statewide GHG reduction goals in all diesel engines;

8) Advance zero-emission and clean combustion marine technologies in California, and a framework for harmonizing standards and supporting technology deployment in other jurisdictions worldwide; and

9) Further the goals of Executive Order N-79-20 by driving further implementation of ZEAT in California's off-road sector.

## D. Description and Analysis of Alternatives

Detailed descriptions of each alternative are presented below. The analysis that follows the descriptions of the alternatives includes a discussion of the degree to which each alternative meets the basic project objectives, the degree to which each alternative avoids potentially significant impacts identified in Chapter 4, and any environmental impacts that may result from the alternative.

### 1. Alternative 1: No-Project Alternative

#### a) Alternative 1 Description

Alternative 1, the "No-Project Alternative," is included by CARB to provide a good faith effort to disclose environmental information that is important for considering the Proposed Amendments. The No-Project Alternative has also been included by CARB to assist in the analysis and consideration of the Proposed Amendments. As noted in the State CEQA Guidelines, "the purpose of describing and analyzing a no-project alternative is to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project"

(Title 14 CCR Section 15126.6(e)(1)). The No-Project Alternative provides an important point of comparison to understand the potential environmental benefits and impacts of other alternatives.

Under Alternative 1, the Proposed Amendments would not be implemented. Owners and operators of vessels subject to the Existing CHC Regulation would maintain their operations, business as usual, without addressing the additional emissions reductions needed to reduce health and environmental burdens of CHC operation Statewide. No additional set of actions would be required to reduce emissions from CHC while operating in and around ports, marinas, or docks, or in Regulated California Waters. There would be no requirements for owners and operators of additional vessel categories to reduce emissions or requirements for owners and operators of CHC to upgrade engines to meet more stringent Tier 3 or 4 + DPF performance standards or adopt ZEAT on their vessels.

### b) Alternative 1 Discussion

#### i) Objectives

The No-Project Alternative would fail to meet many of the project objectives listed in Chapter 2 (and reproduced above). No additional CHC vessel categories would be required to reduce emissions (Objective 3) and there would not be more stringent requirements for the vessel categories already included in the existing CHC Regulation (Objective 4). Alternative 1 would fail to expand in-use engine standards for CHC (Objective 5) and would not help to reduce California's dependence on petroleum (Objective 6). This alternative would not support additional CHC GHG emission reductions by requiring use of renewable and low carbon diesel fuels (Objective 7). Under the No-Project Alternative, heavily burdened communities near ports, harbors, and marinas would not receive the much-needed health benefits of further reducing emissions from CHC as is achieved with the Proposed Amendments (Objective 1). Additionally, Alternative 1 would not assist in attaining SIP requirements (Objective 2). Finally, by not amending the existing CHC Regulation, there would be limited advancement in zero-emission and clean combustion marine technologies in California, including goals of Executive Order N-79-20 (Objectives 8 and 9). In summary, the No-Project Alternative would not meet any of the basic project objectives.

#### ii) Environmental Impacts

There would be no new environmental impacts under the No-Project Alternative compared to baseline because no compliance responses would occur. The baseline and the No-Project Alternative would include the same actions that already exist or would continue to occur under the current regulatory environment and would not result in, for example, construction of new manufacturing facilities or installation of shore power. Implementation of Alternative 1 would avoid all of the additional environmental impacts described in Chapter 4 of this ~~Draft~~Final EA, which are

primarily associated with construction and operation of new or modified vessels, facilities, and infrastructure as well as increased mining activities.

Without implementation of the Proposed Amendments, the beneficial long-term reduction of air pollution in pollution-burdened communities would not occur. Alternative 1 could prevent California from achieving its emission reductions goals. The State's ability to further combat the adverse health effects and environmental impacts related to air quality and climate change would be limited to benefits achieved from other programs. Therefore, as described above, the No-Project Alternative would fail to meet the basic project objectives associated with reductions in air pollution and GHG emissions.

### 2. Alternative 2: CHC Amendments Without Vessel Owner/Operator Idling Limits and Facility Shore Power Infrastructure Requirements

#### a) Alternative 2 Description

As with the Proposed Amendments, Alternative 2 would result in implementation of amendments like the Proposed Amendments except they would not have vessel owner/operator idling limits or facility shore power infrastructure requirements. Most, if not all, CHC that require operation of auxiliary engines while at a dock would comply by the use of shore power. By removing idling requirements, an incentive to install shore power at ports, harbors, and marinas throughout the state would be removed. Additionally, removing idling requirements would eliminate the estimated 12.2 percent of all CHC vessels expected to use shore power statewide as a compliance response.

#### b) Alternative 2 Discussion

##### i) Objectives

Alternative 2 would incorporate additional vessel categories and would expand the current CHC Regulation to include more stringent emissions requirements (Objectives 3 and 4). It would also expand in-use standards of all sizes and power displacements (Objective 5). Alternative 2 would reduce dependence on petroleum as an energy resource, as it would still include ZEAT for ferries and new excursion vessels and would still require renewable and low carbon diesel fuels to be used to help reach GHG reduction goals though to a lesser amount than would the Proposed Amendments (Objectives 6 and 7).

Alternative 2 would help advance zero-emissions and clean combustion marine technologies and further the goals of Executive Order N-79-20, as shore power is a ZEAT, but would not do so to the extent of the Proposed Amendments because shore power is a ZEAT (Objectives 8 and 9). Removing idling requirements and associated shore power requirements would marginally decrease the additional public health benefits to communities near where CHC vessels operate compared to the Proposed Amendments (Objective 1).

Additionally, Alternative 2 would not result in as many of the near-source exposure benefits to travelers, workers and other residents as the Proposed Amendments because emissions at marinas would not be reduced as much as under the Proposed Amendments due to lack of shore power. Because of the reduced benefits, Alternative 2 would not meet the objective to assist in achieving SIP requirements as much as the Proposed Amendments (Objective 2).

In summary, Alternative 2 would meet most of the basic project objectives, although it would not meet some of the objectives to the extent of the Proposed Amendments.

#### ii) Environmental Impacts

Under Alternative 2, impacts associated with construction and operation of shore power would not occur. This alternative would avoid installation of new shore power infrastructure at 35 facilities (ports, marinas, and harbors) across California, and potential shore power capacity expansions at the other approximately 241 facilities that are currently equipped for at least some level of shore power capacity. A shore power requirement would involve some new construction of infrastructure, and/ or the installation of new infrastructure to allow electricity for CHC use. Construction activities associated with shore power could consist of activities and equipment such as installation of new electrical lines, outlets, power vaults and cables. Alternative 2 would therefore reduce construction and earth-moving activities that could result from the Proposed Amendments requirement for shore power. This Alternative may avoid some, but not all, of the construction-related activities that could result from the Proposed Amendments because other construction (e.g., modified manufacturing facilities) would still occur.

The significant short-term construction and/or significant long-term operational related impacts for several resources would be reduced under this alternative. Short-term significant construction impacts on aesthetics, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise and vibration, and tribal cultural resources would be reduced because shore power would not be installed under Alternative 2. Long-term significant operational impacts would be reduced for cultural resources, geology and soils, and tribal cultural resources because shore power infrastructure would not be present over the long term. Therefore, this alternative substantially reduces at least one significant impact of the Proposed Amendments. For similar reasons as described above, Alternative 2 may also reduce several less than significant long-term impacts to resources such as energy, hazards and hazardous materials, mineral resources, and noise in addition to reducing several less than significant short-term impacts to resources such as energy.

Beneficial air quality, GHG, and energy effects would be less than those that would be likely to occur with implementation of the Proposed Amendments, as discussed above under "Objectives." As discussed extensively in the Staff Report and in this EA, a fundamental purpose of the Proposed Amendments is to provide further air quality

and climate benefits to California. While removing idling requirements (and thereby reducing the ensuing anticipated use of shore power) could help reduce or avoid the impacts identified in this EA that are associated with shore power, it also involves substantial environmental trade-offs in the form of reducing the Proposed Amendments' air quality and climate change benefits. As discussed in this EA, the impacts related to adding shore power, while identified as significant in this EA in an abundance of caution, tend to be comparatively minor, largely involving infrastructure installation in already-industrialized areas and a marginal incremental increase in electricity demand. CARB believes the Proposed Amendments' corresponding benefits to air quality clearly outweigh the impacts in this case.

### 3. Alternative 3: CHC Amendments Without Requiring Zero Emission Technology for Short-Run Ferries and New Excursion Vessels

#### a) Alternative 3 Description

Alternative 3 would result in implementation of amendments like the Proposed Amendments, except they would not require ZEAT for short-run ferries and new excursion vessels. Removing the ZEAT requirement for short-run ferries and new excursion vessels would remove an incentive to install related infrastructure at ports, harbors, and marinas throughout the state. Additionally, 16 short-run ferries, 79 other vessels, and ~~11~~14 new excursion vessels would no longer be required or expected to be built or modified to use zero-emission powertrains.

#### b) Alternative 3 Discussion

##### i) Objectives

Alternative 3 removes the requirement of ZEAT for short-run ferries and new excursion vessels. In this alternative, those vessels would be subject to the same in-use standards as other CHC vessels. Therefore, this Alternative would still achieve the Proposed Amendments objective to incorporate additional vessel categories in additional to those in the existing CHC Regulation (Objective 3). The requirements would still be more stringent than currently required and would expand the in-use engine standard to engines of all sizes and power displacements. However, requiring ZEAT for ferries and new excursion vessels would provide significantly more stringent requirements than would Alternative 3, so that Alternative 3 would meet certain objectives to a lesser extent than the Proposed Amendments (Objectives 4 and 5).

This alternative would have the same requirement of the Proposed Amendments that all CHC must use low-carbon and renewable fuels helps to achieve GHG reduction goals (Objective 7). Alternative 3 would provide much needed public health benefits on communities near where CHC are operated, such as near ports and marinas (Objective 1), and assist in achieving the goals outlined in CARB's SIP (Objective 2).

However, by removing the requirements of ZEAT for short-run ferries and new excursion vessels, the CHC industry would continue to rely heavily on petroleum or other biological feedstock-based energy sources (i.e., diesel) (Objective 6). This alternative would also fail to advance zero-emission and clean combustion marine technologies in California (Objective 8). Additionally, Executive Order N-79-20 directs CARB to develop strategies to achieve 100 percent zero-emission off-road vehicles and equipment by 2035 (e.g., CHC) where feasible and cost effective. Removing the zero emissions technology requirements of the CHC Amendments would fail to achieve the goals of the Executive Order (Objective 9).

#### ii) Environmental Impacts

Under Alternative 3, impacts associated with the installation ZEAT infrastructure such as vessel charging equipment and from materials mining and disposal as required by ZEAT (e.g., batteries) would not occur. This Alternative would reduce the construction and earth-moving activities that could result from the Proposed Amendments requirement for ZEAT for short-run ferries, new excursion vessels, and the regulatory pathways to encourage the adoption of other full zero-emission vessels. Construction related to ZEAT could include activities such as grading, trenching, pile driving, and materials transport associated for installing cables, power meters and conduit lines for power for charging systems. Alternative 3 would avoid installation of charging infrastructure at approximately 19 to 21 locations at various ports, marinas, and harbors across California and would avoid or alleviate some of the construction and operational related impacts that may result from the Proposed Amendments. Using the statistic of 0.160 kg of lithium per kWh of lithium-ion battery storage,[63] there would be ~~4,050~~4,128 kg less of lithium mined as a result of there being ~~11~~14 fewer new excursion vessels, 16 fewer short-run ferries, and 79 other vessels not adopting ZEAT in response to Alternative 3 versus the Proposed Amendments. This figure of ~~4,050~~4,128 kg lithium represents about half of a hundredth of a percent of total global lithium production in 2020. Alternative 3 would also reduce the extremely small increase in lithium and platinum mining associated with the increased use of ZEAT.

The significant short-term construction and/or long-term operational related impacts for several resources would be reduced under this alternative.

Short-term significant construction impacts on aesthetics, biological resources, cultural resources, geology and soils, hazards and hazardous materials, noise, and tribal cultural resources would be reduced because charging infrastructure would not be constructed under Alternative 3. Long-term significant operational impacts would be reduced for cultural resources and tribal cultural resources because this infrastructure would not be present over the long term. Therefore, this alternative substantially reduces at least one significant impact of the Proposed Amendments. For similar reasons as described above, Alternative 3 may also reduce several less than significant

[63] Martin, Paul, How Much Lithium is in a Li-Ion Vehicle Battery? November 29, 2017, last accessed August 9, 2021, *https://www.linkedin.com/pulse/how-much-lithium-li-ion-vehicle-battery-paul-martin/*

long-term impacts to resources such as energy, hazards and hazardous materials, mineral resources, noise, and utilities and service systems in addition to reducing several less than significant short-term impacts to resources such as energy.

It is expected that beneficial air quality, GHG, and energy effects would be less than those that would be likely to occur with implementation of the Proposed Amendments due to continued reliance on petroleum and biological feedstock-based energy sources, as discussed above under "Objectives." As discussed extensively in the Staff Report and in this EA, a fundamental purpose of the Proposed Amendments is to provide further air quality and climate benefits to California. While removing electrification requirements as described above (and thereby reducing the ensuing anticipated impacts associated with zero-emission vessel construction and modification and charging infrastructure) could help reduce or avoid the impacts involved in adapting to these technologies, it also involves substantial environmental trade-offs in the form of reducing the Proposed Amendments' air quality and climate change benefits. As discussed in this EA, the impacts related to electrification, while identified as significant in this EA in an abundance of caution, tend to be comparatively minor, including infrastructure installation in already-industrialized areas. CARB believes the Proposed Amendments' corresponding benefits to air quality clearly outweigh the impacts in this case.

### E. Environmentally Superior Alternative

If the no project alternative is the environmentally superior alternative, CEQA requires that the EIR "…shall also identify an environmentally superior alternative among the other alternatives." (CCR Section 15126[e][2]). The No Project Alternative (Alternative 1) would be environmentally superior for all environmental resource areas other than greenhouse gases and air quality. Because an environmental objective of the Proposed Amendments is to ultimately reduce air pollution and because the No Project Alternative does not deliver that substantial environmental benefit, it is not considered the environmentally superior alternative.

Alternative 2 would remove idling limits and dock infrastructure requirements. CARB estimates that this means about 386 shore power facilities would not be installed. Alternative 2 would result in additional use of fossil fuels compared to the Proposed Amendments because it would not meet Objectives 4 and 5 as much as the Proposed Amendments, which would increase air quality and greenhouse gas emissions compared to the Proposed Amendments. Health benefits would also be reduced because Alternative 2 would not meet Objective 7 as much as the Proposed Amendments.

Alternative 3 would remove the ZEAT requirement and would mean that harbors and marinas would not have ZEAT infrastructure installed and vessels would not be built. CARB estimates this means that about 8 to 10 locations for ferries and 10 to 12 locations for excursion vessels would not be modified for ZEAT vessels. Additionally, CARB estimates that about 16 zero-emission ferries, 79 other zero-emission vessels,

and 11 zero-emission capable excursion vessels would not be built. Alternative 3 would result in additional use of fossil fuels compared to the Proposed Amendments because it would not meet Objective 4 as much as the Proposed Amendments, which would increase air quality and greenhouse gas emissions compared to the Proposed Amendments.

Given that they key environmental goals of the Proposed Amendments are related to achieving emissions reductions and health benefits, Alternative 3 is considered the environmentally superior alternative. Although Alternative 3 would not achieve as many benefits as the Proposed Amendments, it meets more of the environmental-related benefits than Alternative 2. It also substantially reduces many of the significant impacts associated with construction and operation of compliance responses. With additional weighting of the environmental benefits, which are a cornerstone of the Proposed Amendments, Alternative 3 is the environmentally superior alternative of the alternatives considered.

# VIII. List of Attachments

Attachment A. Environmental and Regulatory Setting

Attachment B. Summary of Environmental Impacts and Mitigation Measures

Attachment C. Air Quality Calculations