BOARD MEETING DATE: October 4, 2024 AGENDA NO. 22

PROPOSAL: Certify the Final Subsequent Environmental Assessment for Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities; and Amend Rule 1135

SYNOPSIS: Rule 1135 establishes NOx emission limits for electric generating facilities. During the 2022 Amendment to Rule 1135, issues were raised regarding the NOx Best Available Retrofit Control Technology limit for electric generating units on Santa Catalina Island. Proposed Amended Rule 1135 (PAR 1135) establishes NOx emission limits for electric generating units located on Santa Catalina Island. PAR 1135 includes monitoring, reporting, and recordkeeping requirements for electric generating units located on Santa Catalina Island.

COMMITTEE: Stationary Source, August 16, 2024, Reviewed

RECOMMENDED ACTIONS:
Adopt the attached Resolution:
1. Certifying the Final Subsequent Environmental Assessment for Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities; and
2. Amending Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities.

Wayne Nastri
Executive Officer

SR:MK:MM

Background

Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities (Rule 1135), is an source-specific rule which establishes NOx and CO emission limits for electric generating units (i.e., boilers, turbines, engines, etc.) at investor-owned electric utilities, at publicly owned electric utilities, or which have a generation capacity

of at least 50 Megawatts of electrical power for distribution in the state or local electrical grid system.

During the 2022 amendment of Rule 1135, stakeholders urged staff to conduct a BARCT analysis of electric generating units located on Santa Catalina Island emphasizing zero-emission (ZE) technologies. The one facility generating electricity on Santa Catalina Island currently operates six diesel internal combustion engines and 23 microturbines to generate power that range in age from 29 to 60 years old and emits an average of 71 tons of NOx per year. The electricity generating facility on Santa Catalina Island produces more than 10 percent of the NOx emissions from all electricity generating facilities in South Coast AQMD while providing less than 0.06 percent of the power. In response to stakeholder comments, staff performed a BARCT analysis with a focus on ZE and near-zero emission (NZE) technologies to repower Santa Catalina Island.

Proposed Amended Rule

Proposed Amended Rule 1135 PAR 1135 will establish a NOx mass emission cap, that declines over time, for electric generating units located on Santa Catalina Island. The NOx mass emission caps are as follows:

Compliance Date	NOx (tons per year)
January 1, 2027	45
January 1, 2028	30
January 1, 2030	13
January 1, 2035	6

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The proposed final NOx limit of six tons per year (tpy) can be achieved using a combination of Tier 4 Final diesel engines, NZE electric generating units, and ZE electric generating units. Staff assumed a combination of 30 percent ZE, 50 percent NZE, and 20 percent Tier 4 Final diesel internal combustion engines repower scenario for the purposes of the cost-effectiveness analysis. PAR 1135 requires the removal of legacy engines, limits the amount and size of new diesel engines, and requires any equipment installed after 2028 to meet Santa Catalina Island NZE or ZE emission standards.

PAR 1135 allows feasibility studies and time extensions to address power reliability, transmission, grid stability, space limitations, fuel delivery and storage, and challenges for the deployment of new ZE/NZE technologies. PAR 1135 also includes monitoring, reporting, and recordkeeping requirements.

Public Process
PAR 1135 was developed through a public process. Six Working Group Meetings were held on May 5, 2022, August 4, 2022, November 8, 2022, January 19, 2023, March 27 and June 13, 2024. Staff also reported on the progress of the BARCT assessment to the Stationary Source Committee on August 19, 2022. In addition, Public Workshops were held on February 22, 2023 and July 31, 2024. Staff also conducted multiple site visits as part of this rule development process and has met numerous times with facility operators, technology vendors, and interested stakeholders.

Emission Reductions
The proposed final NOx limit is estimated to reduce NOx emissions at the electricity generation facility located on Santa Catalina Island by 65.3 tpy, or 0.18 ton per day by 2035. Estimated emission reductions were calculated by taking the difference between the baseline emissions from the electricity generating facility located on Santa Catalina Island and the estimated NOx emissions from the repower scenario. There will be approximately 172 tons of NOx emission reductions foregone between 2024 to 2029 when comparing PAR 1135 to current Rule 1135.

Key Issues
Throughout the rule development process, staff worked with stakeholders and revised PAR 1135 to address key issues. There are two remaining issues: results of the BARCT assessment; and the implementation dates for the NOx limits.

Results of BARCT Assessment
Stakeholders have questioned why the final BARCT emission limit of six tons per year was modified from the initial BARCT emission limit of 1.8 tons per year. BARCT emission limits take into consideration environmental impacts, energy impacts, and economic impacts. The electric generating plant on Santa Catalina Island is very unique being on an island and the only source of power including electricity, water movement, and waste systems, providing reliable and sufficient power is crucial in avoiding blackouts and other public health and safety issues. Other limitations are space constraints as the facility is near a hillside and other structures, providing challenges to physically expand the footprint of the facility. When taking into consideration the various factors affecting a reliable energy supply, the final BARCT determination is a NOx emissions cap of six tons per year. In addition to energy demand, other considerations such as power reliability, transmission, grid stability, space limitations, fuel delivery and storage, and challenges for the deployment of new ZE/NZE technologies were taken into account. The initial BARCT analysis at 1.8 tons per year was based on an amount of propane per year being delivered to the island and enough storage capacity for 30-days in case of unforeseen circumstances preventing the required daily deliveries by barge while avoiding any loss of power needs on the island. Due to the uncertainty about whether the delivery can be consistently met and the potential lack of storage capacity, a lesser amount of propane delivery was evaluated.

The amount of propane ensures fewer emissions while providing sufficient, reliable power for critical infrastructure that supports compliance with the NOx emission caps and seeks to avoid rule violations.

Implementation Dates for NOx Limits
The implementation timelines have been characterized by some stakeholders as too lenient while others have said that they do not provide enough time. Staff is proposing to delay the 45 tons per year NOx limit from 2025 to 2027 and the 13 tons per year limit from 2026 to 2030. An additional limit of 30 tons per year is proposed for 2028 and a final limit of six tons per year in 2035. Extensions may be granted for up to three additional years for extenuating circumstances and are applicable to all proposed NOx limits (2027, 2028, 2030 and 2035). In addition, feasibility analyses can further extend implementation dates for the 2030 and 2035 NOx limits. The feasibility analyses will be conducted two years before the implementation dates (2028 and 2033 respectively) and will identify the electric generating units under consideration, the progress in procuring and installing the electric generating units, a description of how those units would achieve the emission limits, and, if applicable, the length of time of up to three years for an extension of the implementation date. The owner or operator will conduct the feasibility analyses to determine if the proposed emission limits can be met by the compliance date. The implementation dates reflect the challenges of installing new ZE/NZE technologies while continually providing reliable power to avoid blackouts and other public health and safety issues.

CEQA
Pursuant to South Coast AQMD's Certified Regulatory Program (Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110) and CEQA Guidelines Section 15187, South Coast AQMD, as lead agency for the proposed project (PAR 1135), has prepared a Subsequent Environmental Assessment (SEA), which is a substitute CEQA document pursuant to CEQA Guidelines Section 15252, prepared in lieu of a Subsequent Environmental Impact Report. The Final SEA concluded that significant and unavoidable adverse air quality impacts during operation may occur for the NOx limits of 45 tons per year, 30 tons per year and 13 tons per year due to interim emission reductions foregone, interim exceedances of the 24-hour average PM2.5 and PM10 air quality significance thresholds, and interim health risk impacts. No feasible mitigation measures were identified that would reduce these interim operational impacts to the less than significant levels. However, upon full implementation (e.g., at the final six tons per year NOx limit), no significant air quality impacts during operation will remain since PAR 1135 would be expected to reduce NOx emissions by 65.3 tons per year by January 1, 2035 (with a potential extension up to six years). The Final SEA is included as an attachment to this Board package (see Attachment I). In addition, Findings pursuant to CEQA Guidelines Section 15091, and a Statement of Overriding Considerations

pursuant to CEQA Guidelines Section 15093, referred to in this Board Letter as Attachment 1 to the Resolution, were also prepared (see Attachment F).

Socioeconomic Impact Assessment
The implementation of PAR 1135 will affect one electricity generating facility located on Santa Catalina Island, which currently operates six diesel internal combustion engines and 23 microturbines to generate power. The facility is classified under the industry of Fossil Fuel Electric Power Generation per North American Industry Classification System (NAICS) with a NAICS code 221112. The affected facility does not qualify as a small business, based on various definitions of small businesses. While the initial capital costs are significant, the implementation of PAR 1135 is projected to result in an overall cost savings attributable to the recurring cost savings from maintenance and parts, employee and service costs, and fuel costs. The average annual cost savings due to the implementation of PAR 1135 are estimated to range from $14.99 million to $14.16 million from 2027 to 2059, depending on real interest rates assumed (1 to 4%). The job impacts of implementing PAR 1135 are negligible. The Final Socioeconomic Impact Assessment is included as an attachment to this Board Letter (see Attachment J).

AQMP and Legal Mandates
PAR 1135 will partially implement Control Measure for Large Combustion Sources, L-CMB-06: NOx Emission Reductions from Electricity Generating Facilities, of the 2022 AQMP.

Resource Impacts
Existing staff resources are adequate to implement the proposed amended rule.

Attachments
A. Summary of Proposal
B. Key Issues and Responses
C. Rule Development Process
D. Key Contacts List
E. Resolution
F. Attachment 1 to the Resolution – Findings and Statement of Overriding Considerations
G. PAR 1135
H. Final Staff Report
I. Final Subsequent Environmental Assessment
J. Final Socioeconomic Impact Assessment
K. Board Presentation

ATTACHMENT A

SUMMARY OF PROPOSAL

Proposed Rule 1135
Emissions of Oxides of Nitrogen from Electricity Generating Facilities

Definitions

- Adds and modifies definitions for electricity generating equipment located on Santa Catalina Island

Emission Limits

- Establishes decreasing NOx emission limits over time for electric generating units located on Santa Catalina Island
- Prohibits the electricity generating facility located on Santa Catalina Island from installing more than three new diesel internal combustion engines and limits maximum cumulative rating for the proposed engines to 5.5 MW
- Prohibits the installation of new diesel engines or electricity generating equipment that does not meet Near-Zero-Emissions (NZE) or Zero-Emission (ZE) standards after 2028
- Requires engines installed prior to October 2024 to be removed from service by 2030
- Requires the operator to conduct feasibility analyses for the 2030 and 2035 NOx emission limits and allows up to three years extension to the implementation date
- Allows requests for time extensions for extenuating circumstances on all NOx emission implementation dates

Monitoring, Recordkeeping, and Reporting

- Requires units to be equipped with a Continuous Emissions Monitoring System (CEMS) to measure NOx except for units rated less than 0.5 MW and ZE electrical generating units
- Establishes methodology to calculate NOx emissions
- Requires maintaining records of all data used to calculate NOx emissions for five years

ATTACHMENT B

KEY ISSUES AND RESPONSES

Proposed Rule 1135
Emissions of Oxides of Nitrogen from Electricity Generating Facilities

Throughout the rule development process, staff worked with stakeholders and revised PAR 1135 to address key issues. There are two remaining issues below raised by some stakeholders.

Results of BARCT Assessment

Stakeholders have questioned why the final BARCT emission limit of 6 tons per year was modified from the initial BARCT emission limit of 1.8 tons per year. BARCT emission limits take into consideration environmental impacts, energy impacts, and economic impacts. As this facility is very unique being on an island and the only source of power including electricity, water movement, and waste systems, reliable sufficient power is crucial in avoiding blackouts and other public health issues related to polluted water and health hazards from biological waste exposure. When taking into consideration the various factors affecting a reliable energy supply, the final BARCT determination is for 6 tons per year NOx emissions cap. In addition to energy demand, other considerations such as power reliability, transmission, grid stability, space limitations, fuel delivery and storage, and challenges for the deployment of new ZE/NZE technologies were taken into account. The initial BARCT analysis at 1.8 tons per year was based on delivery of a certain amount of propane per year being delivered to the island and enough storage capacity for 30-days in case of unforeseen circumstances preventing the required daily deliveries by barge while avoiding any loss of power needs on the island. Due to the uncertainty that the delivery can be met all the time and potential lack of storage capacity, a lesser amount of propane delivery was evaluated. The amount of propane ensures lower emissions while providing sufficient reliable power for critical infrastructure that supports compliance with the rule emission caps and seeks to avoid rule violations.

Implementation Dates for NOx Limits

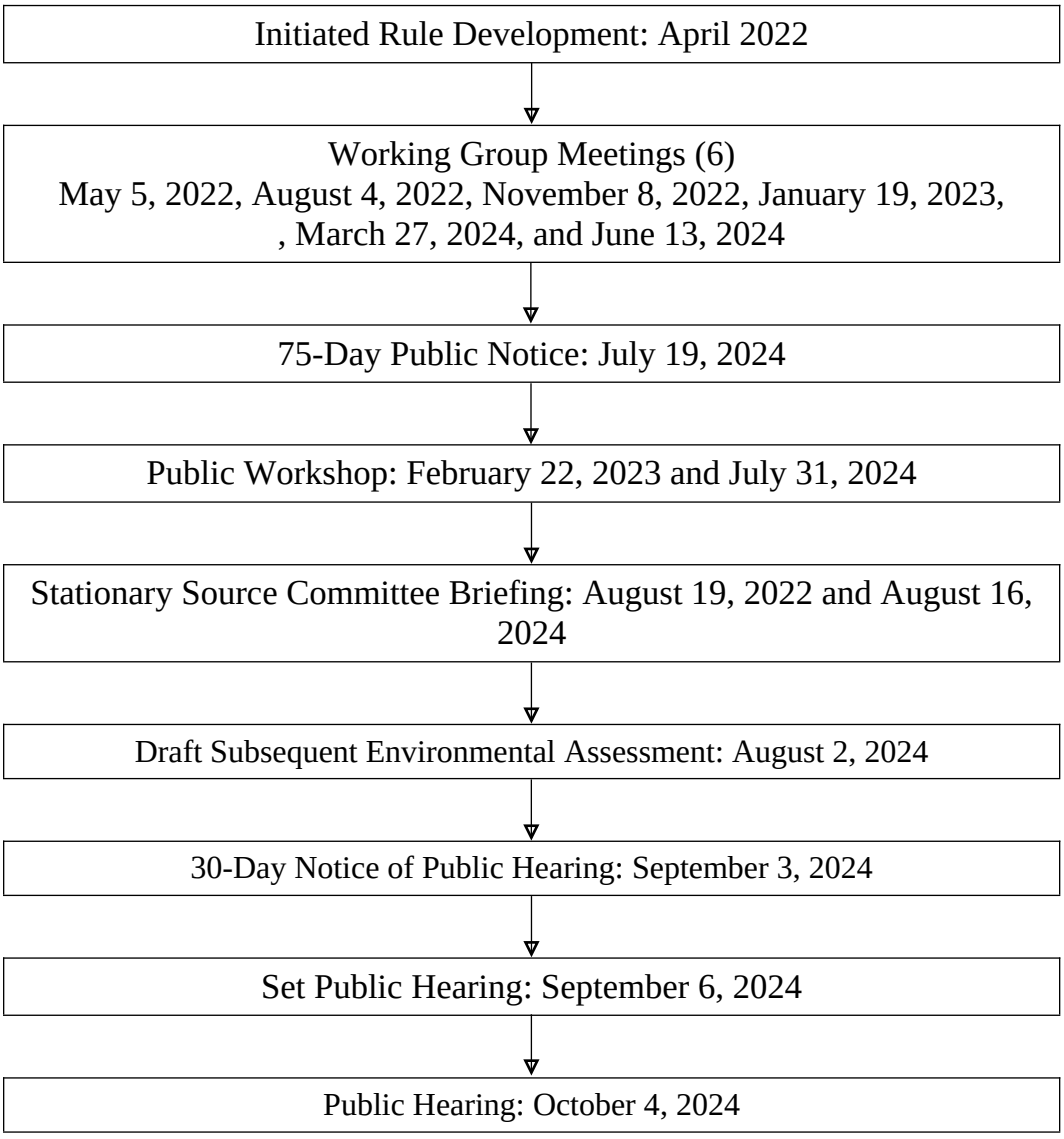
The implementation timelines have been characterized by some stakeholders as too lenient while others have said that they do not provide enough time. Staff is proposing to delay the 45 tons per year limit from 2025 to 2027 and the 13 tons per year limit from 2026 to 2030. An additional limit of 30 tons per year is proposed for 2028 and a final limit of 6 tons per year in 2035. Extensions may be granted for up to three additional years for extenuating circumstances and are applicable to all proposed NOx

limits (2027, 2028, 2030, and 2035). The provides the necessary time to engineer, design, permit, install, and test new equipment. Future zero emissions units, solar installation or other technologies will take design, grid stability, install transmission lines, and require other governmental approvals. In addition, feasibility analyses can further extend implementation dates for the 2030 and 2035 emission limits. The feasibility analyses will be conducted two years before the implementation dates (2028 and 2033 respectively) and will identify the electric generating units under consideration, the progress in procuring and installing the electric generating units, a description of how those units would achieve the emission limits, and, if applicable, the length of time of up to three years the facility is requesting as an extension to the implementation date. The owner or operator will conduct the feasibility analyses to determine if the proposed emission limits can be met by the compliance date. The implementation dates reflect the challenges of installing new ZE/NZE technologies while continually providing reliable power to avoid blackouts and other public health issues.

ATTACHMENT C

RULE DEVELOPMENT PROCESS

Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities



Thirty (30) months spent in rule development.

Two (2) Public Workshops.

Two (2) Stationary Source Committee Meetings.

Six (6) Working Group Meetings.

ATTACHMENT D

KEY CONTACTS LIST

Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities

ADEPT Group
Bloom Energy
California Air Resources Board
California Communities Against Toxics
California Energy Commission
California Hydrogen Business Council
California Independent System Operator
California Public Utilities Commission
California Safe Schools
Catalina Conservancy
Citizens for a Better Wilmington
City of Avalon Fire Department
Community Environmental Services
Coalition for Clean Air
Coalition for a Safe Environment
Cummins
Doosan
EMERGE
Friends of the Air, Earth and Water Coalition Kids IAQ
Latinos in Action
Mainspring Energy
Moose Boats
NAACP – San Pedro-Wilmington Branch
National Resources Defense Council
Plug Power
St. Philomena Church Social Justice Committee
San Pedro Peninsula Homeowners United The Wilmington Wire
Southern California Edison
Total Energies Renewables
U.S. Environmental Protection Agency
United Wilmington Youth Foundation
West Long Beach Association

ATTACHMENT E

RESOLUTION NO. 24-____

A Resolution of the Governing Board of the South Coast Air Quality Management District (South Coast AQMD) certifying the Final Subsequent Environmental Assessment (SEA) for Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities.

A Resolution of the South Coast AQMD Governing Board amending Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities.

WHEREAS, the South Coast AQMD Governing Board finds and determines that Proposed Amended Rule 1135 is considered a "project" as defined by the California Environmental Quality Act (CEQA); and

WHEREAS, the South Coast AQMD has had its regulatory program certified pursuant to Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l), and has conducted a CEQA review and analysis of Proposed Rule 1165 pursuant to such program (South Coast AQMD Rule 110); and

WHEREAS, the South Coast AQMD Governing Board has determined that the requirements for a Subsequent Environmental Impact Report have been triggered pursuant to its Certified Regulatory Program and CEQA Guidelines Section 15162(a), and that a Subsequent Environmental Assessment (SEA), a substitute document allowed pursuant CEQA Guidelines Section 15252 and South Coast AQMD's Certified Regulatory Program, is appropriate; and

WHEREAS, the South Coast AQMD has prepared a SEA pursuant to its certified regulatory program and CEQA Guidelines 15187, which tiers off of the Final Mitigated SEA for Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities which was certified on November 2, 2018 (referred to as November 2018 Final Mitigated SEA for Rule 1135) as allowed by CEQA Guidelines Sections 15152, 15162, and 15385. Because the SEA is a subsequent document to the November 2018 Final Mitigated SEA for Rule 1135, the baseline is the project analyzed in the November 2018 Final Mitigated SEA for Rule 1135. The SEA concluded that the proposed project may result in significant and unavoidable adverse air quality impacts during operation due to interim emission reductions foregone of oxides of nitrogen (NOx), interim exceedances of the 24-hour average PM2.5 and PM10 air quality significance thresholds, and interim health risk impacts; and

WHEREAS, the Draft SEA was circulated for a 46-day public review and comment period, from August 2, 2024 to September 17, 2024, and two comment letters were received; and

WHEREAS, the Draft SEA has been revised to include updates to reflect changes made to Proposed Amended Rule 1135 after the public notice of availability of the Draft SEA, and to include the comments received on the Draft SEA and the responses, so that it is now a Final SEA; and

WHEREAS, it is necessary that the South Coast AQMD Governing Board review the Final SEA prior to its certification, to determine that it provides adequate information on the potential adverse environmental impacts that may occur as a result of amending Rule 1135, including the responses to the comments received relative to the Draft SEA; and

WHEREAS, no feasible mitigation measures were identified that would reduce or eliminate the interim significant adverse operational air quality impacts to less than significant levels and, as such, a Mitigation Monitoring Plan pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097 is not required and was not prepared; and

WHEREAS, it is necessary that the South Coast AQMD prepare Findings pursuant to CEQA Guidelines Section 15091, and a Statement of Overriding Considerations pursuant to CEQA Guidelines Section 15093, regarding potentially significant adverse operational air quality impacts that cannot be mitigated to less than significant levels; and

WHEREAS, Findings and a Statement of Overriding Considerations have been prepared and are included in Attachment F in the Board letter, which is attached and incorporated herein by reference; and

WHEREAS, the South Coast AQMD Governing Board voting to amend Rule 1135 has reviewed and considered the information contained in the Final SEA, the Findings, the Statement of Overriding Considerations, and all other supporting documentation, prior to its certification, and has determined that the Final SEA has been completed in compliance with CEQA; and

WHEREAS, Proposed Amended Rule 1135 and supporting documentation, including but not limited to, the Final SEA, the Socioeconomic Impact Assessment, and the Final Staff Report were presented to the South Coast AQMD Governing Board and the South Coast AQMD Governing Board has reviewed and considered this information, as well as has taken and considered staff testimony and public comment prior to approving the project; and

WHEREAS, the Final SEA reflects the independent judgment of the South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that all changes made in the Final SEA after the public notice of availability of the Draft SEA, were not substantial revisions and do not constitute significant new information within the meaning of CEQA Guidelines Section 15073.5 or 15088.5, because no new significant effects were identified, and no new project conditions or mitigation measures were added, and all changes merely clarify, amplify, or make insignificant modifications to the Draft SEA, and recirculation is therefore not required; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Final Socioeconomic Impact Assessment for Proposed Amended Rule 1135 is consistent with the March 17, 1989 Governing Board Socioeconomic Resolution for rule adoption; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Final Socioeconomic Impact Assessment for Proposed Amended Rule 1135 is consistent with the provisions of Health and Safety Code Sections 40440.8, 40728.5, and 40920.6; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1135 will result in cost savings to the affected industry; and

WHEREAS, the South Coast AQMD Governing Board has actively considered the Final Socioeconomic Impact Assessment and has made a good faith effort to minimize adverse socioeconomic impacts; and

WHEREAS, the South Coast AQMD staff conducted a Public Workshop regarding Proposed Amended Rule 1135 on February 22, 2023, and July 31, 2024; and

WHEREAS, Proposed Amended Rule 1135 and supporting documentation, including but not limited to, the Final SEA, Final Staff Report, and Final Socioeconomic Impact Assessment were presented to the South Coast AQMD Governing Board and the South Coast AQMD Governing Board has reviewed and considered this information, as well as has taken and considered staff testimony and public comment prior to approving the proposed project; and

WHEREAS, the South Coast AQMD Governing Board finds and determines, taking into consideration the factors in Section (d)(4)(D) of the Governing Board Procedures (codified as Section 30.5(4)(D)(i) of the Administrative Code), that any modifications to Proposed Amended Rule 1135 since the Notice of Public Hearing was published are not so substantial as to significantly affect the meaning of Proposed Amended Rule 1135 within the meaning of Health and Safety Code Section 40726 because: (a) the changes do not impact emission reductions, (b) the changes do not affect the number or type of sources regulated by the proposed amended rule, (c) the changes are consistent with the information contained in the Notice of Public Hearing, and (d) the effects of Proposed Amended Rule 1135 do not exceed the effects of the range of alternatives analyzed in the Final SEA; and

WHEREAS, Proposed Amended Rule 1135 will be submitted to California Air Resources Board (CARB) and United States Environmental Protection Agency (U.S. EPA) for inclusion into the State Implementation Plan; and

WHEREAS, Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the Final Staff Report; and

WHEREAS, the South Coast AQMD Governing Board has determined that a need exists to adopt Proposed Amended Rule 1135 to update NOx emission limits for the electricity generating facility located on Santa Catalina Island; and

WHEREAS, the South Coast AQMD Governing Board has determined that there is a problem that Proposed Amended Rule 1135 will alleviate, namely to delay rule implementation dates and reduce NOx emission limits at the electricity generating facility located on Santa Catalina Island; and

WHEREAS, the South Coast AQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from Health and Safety Code Sections 39002, 39650 et. seq., 40000, 40001, 40440, 40441, 40506, 40510, 40702, 40725 through 40728, 40920.6, 41508, 41700, and 42300 et seq.; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1135 is written or displayed so that its meaning can be easily understood by the persons directly affected by it; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1135 is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1135 does not impose the same requirements as any existing state or federal regulations, and the proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board, in amending Rule 1135, references the following statutes which the South Coast AQMD hereby implements, interprets, or makes specific: Assembly Bill 617 and Health and Safety Code Sections 39002, 39616, 40001, 40406, 40506, 40702, 40440(a), 40725 through 40728.5, 40920.6, and 42300 et seq., and federal Clean Air Act Sections 110, 172, 173, and 182(e); and

WHEREAS, Health and Safety Code Section 40727.2 requires the South Coast AQMD to prepare a written analysis of existing federal air pollution control requirements applicable to the same source type being regulated whenever it adopts or amends a rule, and that the South Coast AQMD's comparative analysis of Proposed Amended Rule 1135 is included in the Final Staff Report; and

WHEREAS, the public hearing has been properly noticed in accordance with the provisions of Health and Safety Code Sections 40725 and 40440.5; and

WHEREAS, the South Coast AQMD Governing Board has held a public hearing in accordance with all applicable provisions of state and federal law; and

WHEREAS, the South Coast AQMD specifies the Planning and Rules Manager of Proposed Amended Rule 1135 as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of this proposed amended rule is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

NOW, THEREFORE BE IT RESOLVED, that the South Coast AQMD Governing Board has considered the Final SEA for Proposed Amended Rule 1135 together with all comments received during the public review period, and, on the basis of the whole record before it, the South Coast AQMD Governing Board: 1) finds that the Final SEA was completed in compliance with CEQA and the South Coast AQMD's Certified Regulatory Program, 2) finds that the Final SEA and all supporting documents were presented to the South Coast AQMD Governing Board, whose members exercised their independent judgment and reviewed, considered and approved the information therein prior to acting on Proposed Amended Rule 1135, and 3) certifies the Final SEA; and

BE IT FURTHER RESOLVED, that because no feasible mitigation measures were identified that would reduce or eliminate the interim significant adverse operational air quality impacts to less than significant levels, a Mitigation, Monitoring, and Reporting Plan pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097 is not required and was not prepared; and

BE IT FURTHER RESOLVED, that because significant adverse environmental impacts were identified as a result of adopting Proposed Amended Rule 1135, Findings and a Statement of Overriding Considerations are required and were prepared; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby adopt Findings pursuant to CEQA Guidelines Section 15091 and a Statement of Overriding Considerations pursuant to CEQA Guidelines Section 15093, as required by CEQA and which are included as Attachment F and incorporated herein by reference; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby adopt, pursuant to the authority granted by law, Proposed Amended Rule 1135 as set forth in the attached, and incorporated herein by reference; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board requests that Proposed Amended Rule 1135 be submitted into the State Implementation Plan; and

BE IT FURTHER RESOLVED, that the Executive Officer is hereby directed to forward a copy of this Resolution and Proposed Amended Rule 1135 and supporting documentation to CARB for approval and subsequent submittal to the U.S. EPA for inclusion into the State Implementation Plan.

DATE: _____ _____

CLERK OF THE BOARDS

ATTACHMENT F

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Attachment 1 to the Governing Board Resolution for:

Final Subsequent Environmental Assessment for Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities

Findings and Statement of Overriding Considerations

September 2024

State Clearinghouse No. 2016071006
South Coast AQMD No. 20240801ST/ 09142018RB

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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DONALD P. WAGNER
Supervisor, Third District
County of Orange

EXECUTIVE OFFICER:

WAYNE NASTRI

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Final Subsequent Environmental Assessment for Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities

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Findings and Statement of Overriding Considerations

1.0 Introduction

Proposed Amended Rule (PAR) 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities, is considered a "project" as defined by the California Environmental Quality Act (CEQA). [Public Resources Code Section 21000 et seq.]. Specifically, CEQA requires: 1) the potential adverse environmental impacts of proposed project to be evaluated; and 2) feasible methods to reduce or avoid any identified significant adverse environmental impacts of this project to also be evaluated. Public Resources Code Section 21061.1 and CEQA Guidelines Section 15364 define "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."

Since the proposed project is comprised of a South Coast AQMD-proposed amended rule, the South Coast AQMD has the greatest responsibility for carrying out or approving the project as a whole, which may have a significant effect upon the environment, and is the most appropriate public agency to act as lead agency. [Public Resources Code Section 21067 and CEQA Guidelines Section 15051(b)].[1]

The proposed project amends the January 2022 version of Rule 1135 and proposes revisions specific to electric generating units located on Santa Catalina Island which will: 1) update nitrogen oxides (NOx) emission limits and compliance dates; 2) establish provisions for monitoring, reporting, and recordkeeping for near zero emission (NZE) electric generating units without Continues Emission Monitoring System (CEMS); 3) extend the deadline for prohibiting the installation of new diesel internal combustion engines from January 1, 2024, to January 1, 2028 or six months after any applicable extensions; 4) prohibit the installation of more than three new diesel internal combustion engines with a cumulative rating of 5.5 megawatts (MW); 5) prohibit the installation of equipment that does not meet the definition of a Santa Catalina Island NZE electric generating unit or a Santa Catalina Island zero emission (ZE) electric generating unit after January 1, 2028 or six months after any applicable extensions; 6) require the installation of Santa Catalina Island NZE and/or ZE electric generating units by January 1, 2030 or six months after any applicable extensions with a minimum cumulative rating of 1.8 MW, excluding the highest rated Santa Catalina Island NZE and/or ZE electric generating unit, solar photovoltaic cells, and battery storage; 7) remove all prime power diesel internal combustion engines for which installation was completed earlier than Date of Adoption from service by January 1, 2030 or six months after any applicable extensions; 8) require a feasibility analysis (e.g., progress in procuring and installing electric generating units) to be conducted for the 13 tons per year (tpy) and six tpy NOx emission limits by January 1, 2028 and January 1, 2033, respectively; and 9) update the time extension provision by including more specific criteria needed for approval, allowing the electricity generating facility located on Santa Catalina Island to request time extensions for extenuating circumstances (e.g., unforeseen construction interruptions and/or supply chain disruptions) for each compliance date or according to the feasibility analyses for meeting the 13 tpy and six tpy NOx emission limits, and making requests for time extensions available for public review.

The South Coast AQMD, as Lead Agency for the proposed project, prepared a Subsequent Environmental Assessment (SEA) with significant impacts to conduct an environmental review of PAR 1135 pursuant to CEQA Guidelines Section 15187. The SEA is a substitute CEQA document

[1] CEQA Guidelines refers to California Code of Regulations, Title 14, Section 15000 and following.

prepared in lieu of a Subsequent Environmental Impact Report (EIR) with significant impacts [CEQA Guidelines Section 15162], pursuant to the South Coast AQMD's Certified Regulatory Program [Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110]. Pursuant to CEQA Guidelines Sections 15152, 15162, and 15385, the SEA tiers off of and is a subsequent document to the Final Mitigated SEA for Rule 1135 which was certified on November 2, 2018 (referred to herein as the November 2018 Final Mitigated SEA for Rule 1135).

The purpose of the November 2018 amendments to Rule 1135 was to reduce NOx emissions from Regional Clean Air Incentives Market (RECLAIM) and non-RECLAIM electricity generating facilities which are owned or operated by an investor-owned electric utility, a publicly owned electric utility, or have electric generating units with a combined generation capacity of 50 MW or more of electrical power for distribution in the state or local electrical grid system. The November 2018 Final Mitigated SEA for Rule 1135 analyzed the environmental impacts associated with the activities that six affected facilities (referred to as Facilities 1, 2, 3, 4, 5, and 6) were expected to undertake to ensure compliance with amended Rule 1135. While the reduction of NOx emissions was expected to create an environmental benefit, the November 2018 amendments to Rule 1135 were anticipated to create potentially significant adverse environmental impacts for the topic of hazards and hazardous materials due to the storage and use of aqueous ammonia. As such, mitigation measures were crafted to reduce the potentially significant adverse hazards and hazardous materials impacts to less than significant levels. No other environmental topic areas were identified as having potentially significant adverse environmental impacts. Because the November 2018 Final Mitigated SEA for Rule 1135 concluded that the project will not have a significant adverse impact on the environment after mitigation, mitigation measures were included as a condition of approval of this project. Thus, a Mitigation Monitoring and Reporting Plan, pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097, was required and adopted for this project. However, Findings pursuant to CEQA Guidelines Section 15091 and a Statement of Overriding Considerations pursuant to CEQA Guidelines Section 15093 were not required or adopted for the November 2018 version of Rule 1135.

Because this is a subsequent document, the baseline is the project analyzed in the November 2018 Final Mitigated SEA for Rule 1135. The 2018 amendments to Rule 1135 projected an overall NOx emission reduction of approximately 1.7 tons per day (tpd) from the six facilities identified as potentially needing modifications in order to achieve the emission limits in Rule 1135. Of these affected facilities, all but one facility, the electricity generating facility located on Santa Catalina Island (referred to as Facility 2), has either made modifications to achieve the emission limits in Rule 1135 or is no longer subject to Rule 1135 requirements. Relative to Facility 2, with the 13 tpy NOx limit by January 1, 2026 (with a potential extension up to three years), the 2018 amendments to Rule 1135 initially projected approximately 57 tpy of NOx emission reductions (equivalent to 0.16 tpd) would be achieved by the electricity generating facility located on Santa Catalina Island by January 1, 2026 (with a potential extension up to three years). Over 90% of the power generated at Facility 2 is from the operation of six diesel internal combustion engines and these six diesel engines were last modified in 2003 to install Selective Catalytic Reduction (SCR) technology. No other modifications have been made at Facility 2 to address the 2018 amendments to Rule 1135. Currently, the annual NOx emissions from Facility 2 are 71.3 tpy which is greater

than the 70 tpy this facility was emitting at the time the November 2018 Final Mitigated SEA was prepared.

The SEA was prepared because PAR 1135 contains new information of substantial importance which was not known and could not have been known at the time the November 2018 Final Mitigated SEA for Rule 1135 was certified and the project will have significant effects that were not previously discussed. [CEQA Guidelines Section 15162(a)(3)(A)].

The SEA, which includes a project description and analysis of potential adverse environmental impacts that could be generated from PAR 1135, concluded to have generally the same or similar environmental effects that were previously examined in the November 2018 Final Mitigated SEA for Rule 1135. However, the air quality impacts from PAR 1135 will cause delayed NOx emission reductions, interim exceedances of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of particulate matter with an aerodynamic diameter of less than 2.5 microns (PM2.5) and particulate matter with an aerodynamic diameter of less than 10 microns (PM10), and interim operational cancer risks which will be more severe than what was discussed in November 2018 Final Mitigated SEA. Specifically, the Final SEA for PAR 1135 concluded that significant and unavoidable adverse environmental impacts may occur for the topic of air quality during operation because: 1) the peak daily NOx operational impacts associated with the delayed NOx emission reductions would exceed the South Coast AQMD's daily NOx operational significance threshold of 55 pounds per day until meeting the proposed 13 tpy NOx limits by January 1, 2030 (with a potential extension up to six years); 2) project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 would exceed the South Coast AQMD's significance threshold from January 1, 2028 (with a potential extension up to three years) to January 1, 2030 (with a potential extension up to six years); and 3) the operational cancer risk impacts would exceed the South Coast AQMD's significance threshold (i.e., 10 in a million) when meeting the 45 tpy, 30 tpy, and 13 tpy NOx limits in PAR 1135. However, once the electricity generating facility located on Santa Catalina Island meets the 6 tpy NOx limit in PAR 1135 on and after January 1, 2035 (with a potential extension up to six years), less than significant operational air quality impacts are expected. Therefore, pursuant to CEQA Guidelines Section 15252(a)(2)(A), an alternatives analysis was required and has been included in the Final SEA. However, no feasible mitigation measures were identified that would reduce or eliminate the significant adverse impacts for the air quality during operation. Thus, mitigation measures were not made a condition of approval of PAR 1135. Further, since no feasible mitigation measures were identified, a Mitigation, Monitoring, and Reporting Plan, pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines 15097 is not required.

The Draft SEA was released and circulated for a 46-day public review and comment period from August 2, 2024 to September 17, 2024 and two comment letters were received during the comment period. None of the comment letters identified other potentially significant adverse impacts from the proposed project that should be analyzed and mitigated in the SEA. The comments and responses relative to the Draft SEA are included in Appendix E of the Final SEA.

In addition to incorporating the comment letters and the responses to comments, some modifications have been made to the Draft SEA to make it a Final SEA which include updates to reflect changes made to PAR 1135 after the public notice of availability of the Draft SEA. South

Coast AQMD staff evaluated the modifications made to PAR 1135 after the release of the Draft SEA for public review and comment and concluded that none of the revisions constitute significant new information, because: 1) no new significant environmental impacts would result from the proposed project; 2) there is no substantial increase in the severity of an environmental impact; 3) no other feasible project alternative or mitigation measure was identified that would clearly lessen the environmental impacts of the project and was considerably different from others previously analyzed; and 4) the Draft SEA did not deprive the public from meaningful review and comment. In addition, revisions to PAR 1135 and the analysis in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft SEA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft SEA has been revised to include the aforementioned modifications such that it is now the Final SEA. The Final SEA will be presented to the Governing Board prior to its October 4, 2024 public hearing (see Attachment I of the Governing Board package).

South Coast AQMD's certified regulatory program does not impose any greater requirements for making written findings for significant environmental effects than is required for an EIR under CEQA. When considering for approval a proposed project that has one or more significant adverse environmental effects, a public agency must make one or more written findings for each significant adverse effect, accompanied by a brief rationale for each finding. [Public Resources Code Section 21081 and CEQA Guidelines Sections 15065 and 15091]. The analysis in the Final SEA concluded that PAR 1135 has the potential to generate, significant adverse air quality impacts during operation which are more severe than what was previously analyzed in the November 2018 Final Mitigated SEA for Rule 1135 for air quality during operation.

For a proposed project with significant adverse environmental impacts, CEQA requires the lead agency to balance the economic, legal, social, technological, or other benefits of a proposed project against its significant unavoidable environmental impacts when determining whether to approve the proposed project. Under CEQA Guidelines Section 15093(a), "If the specific economic, legal, social, technological, or other benefits of a project outweigh the unavoidable significant adverse environmental effects, the adverse environmental effects may be considered 'acceptable.'" Thus, after adopting findings, the lead agency must also adopt a "Statement of Overriding Considerations" to approve a proposed project with significant adverse environmental effects.

2.0 CEQA Provisions Regarding Findings

CEQA generally requires agencies to make certain written findings before approving a proposed project with significant environmental impacts. South Coast AQMD is exempt from some of CEQA's requirements pursuant to its Certified Regulatory Program, but complies with its provisions where required or otherwise appropriate.

Relative to making Findings, CEQA Guidelines Section 15091 provides:

(a) No public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those

significant effects, accompanied by a brief explanation of the rationale for each finding. The possible findings are:

(1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.

(2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

(3) Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

(b) The findings required by subdivision (a) shall be supported by substantial evidence in the record.

(c) The finding in subdivision (a)(2) shall not be made if the agency making the finding has concurrent jurisdiction with another agency to deal with identified feasible mitigation measures or alternatives. The finding in subdivision (a)(3) shall describe the specific reasons for rejecting identified mitigation measures and project alternatives.

(d) When making the findings required in subdivision (a)(1), the agency shall also adopt a program for reporting on or monitoring the changes which it has either required in the project or made a condition of approval to avoid or substantially lessen significant environmental effects. These measures must be fully enforceable through permit conditions, agreements, or other measures.

(e) The public agency shall specify the location and custodian of the documents or other material which constitute the record of the proceedings upon which its decision is based.

(f) A statement made pursuant to Section 15093 does not substitute for the findings required by this section.

The "changes or alterations" referred to in CEQA Guidelines Section 15091(a)(1) may include a wide variety of measures or actions as set forth in CEQA Guidelines Section 15370, including:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action.

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

(c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

(e) Compensating for the impact by replacing or providing substitute resources or environments.

3.0 Summary of the Proposed Project

Rule 1135 is an industry-specific rule which applies to electric generating units (i.e., boilers, turbines, engines, etc.) that are at investor-owned electric utilities, publicly owned electric utilities, or have a generation capacity of at least 50 MW of electrical power for distribution in the state or local electrical grid system. Rule 1135 was adopted in August 1989 to reduce NOx emissions from electricity generating facilities and has been amended three times with the last two amendments in November 2018 and January 2022.

Amendments to Rule 1135 were adopted on November 2, 2018 which established Best Available Retrofit Control Technology (BARCT) NOx limits necessary for transitioning electric generating facilities subject to the RECLAIM to a command-and-control regulatory structure and to implement Control Measure CMB-05 – Further NOx Reductions from RECLAIM Assessment of the 2016 Air Quality Management Plan (AQMP) and California State Assembly Bill (AB) 617. The 2018 amendments expanded Rule 1135 applicability to all electric generating units at RECLAIM NOx, former RECLAIM NOx, and non-RECLAIM NOx electricity generating facilities. The amendments updated emission limits to reflect current BARCT levels at that time and to provide implementation timeframes for boilers, gas turbines, and internal combustion engines located on Santa Catalina Island. Additionally, the 2018 amendments to Rule 1135 established provisions for monitoring, reporting, and recordkeeping, and exemptions from specific provisions.

More recently, Rule 1135 was amended on January 7, 2022 to: 1) remove ammonia limits; 2) update provisions for CEMS; 3) include a reference to South Coast AQMD Rule 429.2 – Startup and Shutdown Exemption Provisions for Oxides of Nitrogen From Electricity Generating Facilities[2] to clarify startup and shutdown requirements; and 4) revise requirements for diesel internal combustion engines on Santa Catalina Island. At the time, stakeholders commented that an updated BARCT assessment was warranted due to the change in averaging time and that the BARCT assessment should emphasize ZE technologies. The adopted resolution directed South Coast AQMD staff to re-initiate rule development in 2022 which included a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives as well as ZE and NZE technologies.

In December 2022, the South Coast AQMD adopted the 2022 AQMP which included a series of control measures to achieve the 2015 8-hour ozone national ambient air quality standards (NAAQS). In particular, Control Measure L-CMB-06: NOx Emission Reductions from Electricity Generating Facilities, focused on large combustion sources and assessing low NOx and ZE technologies for power generation, and specifically mentioned replacing existing diesel internal combustion engines with lower-emitting technologies.

Thus, additional amendments to Rule 1135 are currently proposed to address stakeholder comments raised during the January 2022 amendments and partially implement Control Measure L-CMB-06 of the 2022 AQMP. PAR 1135 proposes revisions specific to electricity generating units located on Santa Catalina Island which will: 1) update NOx emission limits and compliance dates; 2) establish provisions for monitoring, reporting, and recordkeeping for NZE electric generating units without CEMS; 3) extend the deadline for prohibiting the installation of new

[2] South Coast AQMD, Rule 429.2, http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-429-2.pdf

diesel internal combustion engines from January 1, 2024, to January 1, 2028 or six months after any applicable extensions; 4) prohibit the installation of more than three new diesel internal combustion engines with a cumulative rating of 5.5 MW; 5) prohibit the installation of equipment that does not meet the definition of a Santa Catalina Island NZE electric generating unit or a Santa Catalina Island ZE electric generating unit after January 1, 2028 or six months after any applicable extensions; 6) require the installation of Santa Catalina Island NZE and/or ZE electric generating units by January 1, 2030 or six months after any applicable extensions with a minimum cumulative rating of 1.8 MW, excluding the highest rated Santa Catalina Island NZE and/or ZE electric generating unit, solar photovoltaic cells, and battery storage; 7) remove all prime power diesel internal combustion engines for which installation was completed earlier than Date of Adoption from service by January 1, 2030 or six months after any applicable extensions; 8) require a feasibility analysis (e.g., progress in procuring and installing electric generating units) to be conducted for the 13 tpy and six tpy NOx emission limits by January 1, 2028 and January 1, 2033, respectively; and 9) update the time extension provision by including more specific criteria needed for approval, allowing the electricity generating facility located on Santa Catalina Island to request time extensions for extenuating circumstances (e.g., unforeseen construction interruptions and/or supply chain disruptions) for each compliance date or according to the feasibility analyses for meeting the 13 tpy and six tpy NOx emission limits, and making requests for time extensions available for public review.

When comparing the types of activities and environmental impacts resulting from the implementation of Rule 1135 amendments that were previously analyzed in the November 2018 Final Mitigated SEA, to the currently proposed changes which comprise PAR 1135, the type and extent of the physical changes are expected to be similar and to cause similar secondary adverse environmental impacts for the same environmental topic areas that were identified and analyzed in the November 2018 Final Mitigated SEA for Rule 1135. Thus, the proposed project is expected to have generally the same or similar effects that were previously examined in the November 2018 Final Mitigated SEA for Rule 1135. However, the air quality impacts from PAR 1135 will cause delayed NOx emission reductions, interim exceedances of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10, and interim operational cancer risks which will be more severe than what was discussed in November 2018 Final Mitigated SEA. Nonetheless, upon full implementation, PAR 1135 would be expected to reduce NOx emissions by 65.3 tpy by January 1, 2035 or after any applicable extensions.

4.0 Potentially Significant Adverse Impacts That Cannot be Reduced Below a Significant Level

The analysis in the Final SEA independently considered whether PAR 1135 would result in new significant impacts for any environmental topic areas previously concluded in the November 2018 Final Mitigated SEA for Rule 1135 to have either no significant impacts or less than significant impacts. The Final SEA for PAR 1135 identified the topic of air quality during operation as the only area in which the proposed project may temporarily cause significant and unavoidable adverse environmental impacts. No other significant adverse impacts were identified. The following discussion independently considers the currently proposed project (PAR 1135) and analyzes the incremental changes for operational air quality impacts, relative to the baseline which is the project analyzed in the November 2018 Final Mitigated SEA for Rule 1135.

Air Quality Impacts During Operation

For the electricity generating facility located on Santa Catalina Island, PAR 1135 proposes to: 1) remove the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024; 2) delay the compliance date for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years); 3) delay the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to six years); and 4) include new annual NOx emission limits of 30 tpy and 6 tpy with compliance dates of January 1, 2028 (with a potential extension up to three years) and January 1, 2035 (with a potential extension up to six years), respectively. Thus, the analysis in the Final SEA estimated that implementation of PAR 1135 is expected to result in the following delayed NOx emission reductions which vary according to compliance year and exceed the South Coast AQMD's daily NOx operational significance threshold of 55 pounds per day:

- 21.3 tpy (equal to 116.71 lb/day) from January 1, 2024 to January 1, 2025;
- 26.3 tpy (equal to 144.11 lb/day) from January 1, 2025 to January 1, 2026;
- 58.3 tpy (equal to 319.45 lb/day) from January 1, 2026 to January 1, 2027 (with a potential extension up to three years);
- 32 tpy (equal to 175.34 lb/day) from January 1, 2027 (with a potential extension up to three years) to January 1, 2028 (with a potential extension up to three years); and
- 17 tpy (equal to 93.15 lb/day) from January 1, 2028 (with a potential extension up to three years) to January 1, 2030 (with a potential extension up to six years).

If any extension is granted for any proposed NOx emission limits, the emission reductions will be delayed for a longer period of time. Overall, the peak daily NOx operational impacts associated with the delayed NOx emission reductions from implementing PAR 1135 are significant until January 1, 2030 (with a potential extension up to six years) over the short-term, but less than significant after January 1, 2030 (with a potential extension up to six years) over the long-term.

Implementation of PAR 1135 is also expected to result in the exceedance of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 (i.e., 2.5 µg/m^3, and 2.5 µg/m^3, respectively) during the operation of electricity generating facility located on Santa Catalina Island when meeting the proposed 30 tpy NOx limit by January 1, 2028 (with a potential extension up to three years). However, once this facility makes modifications necessary to achieve the proposed 13 tpy NOx limit by January 1, 2030 (with a potential extension up to six years), the project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 will no longer exceed the South Coast AQMD's thresholds of significance for these pollutants. Thus, significant operational air quality impacts are expected at this facility over the short-term from January 1, 2028 (with a potential extension up to three years) until January 1, 2030 (with a potential extension up to six years) due to exceedance of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10.

Lastly, the analysis in the Final SEA concluded exceedance of the air quality significance threshold for cancer risk (i.e., 10 in one million) during the operation of the electricity generating facility located on Santa Catalina Island to meet the 45 tpy, 30 tpy, and 13 tpy NOx limits by January 1, 2027 (with a potential extension up to three years), January 1, 2028 (with a potential extension up to three years), and January 1, 2030 (with a potential extension up to six years), respectively However, once this facility meets the 6 tpy NOx limit by January 1, 2035 (with a potential extension up to six years), the operational cancer risk would not exceed the South Coast AQMD significance threshold. Thus, significant operational impacts from toxic air contaminants are expected at this facility when operating equipment to comply with the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits. However, less than significant operational impacts from toxic air contaminants are expected once the electricity generating facility located on Santa Catalina Island meets the 6 tpy NOx limit.

If significant adverse environmental impacts are identified, the CEQA document shall describe feasible mitigation measures that could minimize the significant adverse impacts of the proposed project. [CEQA Guidelines Section 15126.4]. Therefore, feasible mitigation measures are required to reduce operational air quality impacts. CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." [Public Resources Code Section 21061.1].

However, the reason PAR 1135 is proposing to update the annual NOx emission limits and compliance dates at Facility 2 is because the facility cannot feasibly attain the current annual NOx limits by the compliance dates adopted in the November 2018 and January 2022 versions of Rule 1135. Thus, there are no feasible mitigation measures that would eliminate or reduce the significant adverse operational air quality impacts for: 1) NOx emissions until meeting the 13 tpy NOx limit by January 1, 2030 (with a potential extension up to six years); 2) health risks when operating equipment to comply with the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits; and 3) project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 from January 1, 2028 (with a potential extension up to three years) to January 1, 2030 (with a potential extension up to six years) to less than significant levels. Therefore, PAR 1135 is considered to have significant adverse unavoidable project-specific and cumulative air quality impacts during operation when meeting the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits.

5.0 Findings Regarding Potentially Significant Environmental Impacts

Public Resources Code Section 21081(a) and CEQA Guidelines Section 15091(a) provide that a public agency shall not approve or carry out a project with significant environmental effects unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. Additionally, the findings must be supported by substantial evidence in the record. [CEQA Guidelines Section 15091(b)]. Three potential findings can be made for potentially significant impacts:

> **Finding 1:** Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final SEA. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

Finding 2: Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency. [Public Resources Code Section 21081(a)(2) and CEQA Guidelines Section 15091(a)(2)].

Finding 3: Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or project alternatives identified in the Final SEA. [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

As identified in the Final SEA and summarized in Section 4.0 of this attachment, PAR 1135 has the potential to create significant adverse operational air quality impacts. The South Coast AQMD Governing Board, therefore, makes the following findings regarding the proposed project. The Findings are supported by substantial evidence in the record as explained in each finding. These Findings will be included in the record of project approval and will also be noted in the Notice of Decision. The Findings made by the South Coast AQMD Governing Board are based on the following significant adverse impact identified in the Final SEA for PAR 1135:

Potential project-specific and cumulative delayed NOx emission reductions, changes in the 24-hour average concentrations of PM2.5 and PM10, and cancer risks during operation exceed the South Coast AQMD's applicable significance air quality thresholds and cannot be mitigated to less than significant levels when meeting the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits. However, once the electricity generating facility located on Santa Catalina Island meets the 6 tpy NOx limit on and after January 1, 2035 (with a potential extension up to six years) less than significant air quality impacts are expected during operation.

Finding and Explanation:
When comparing the types of activities and environmental impacts resulting from the implementation of Rule 1135 amendments that were previously analyzed in the November 2018 Final Mitigated SEA, to the currently proposed changes, PAR 1135 is anticipated to cause delayed NOx emissions reductions due to: 1) removing the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024; 2) delaying the compliance date for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years); and 3) delaying the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to six years).

The Final SEA estimated these delayed NOx emission reductions, which vary according to compliance year, would exceed the South Coast AQMD's daily NOx operational significance threshold of 55 pounds per day until meeting the 13 tpy NOx limits by January 1, 2030 (with a potential extension up to six years). However, PAR 1135 will eventually reduce the annual NOx limits from 13 tpy to 6 tpy by January 1, 2035 (with a potential extension up to six years) which will result in an air quality and health benefit. Thus, the peak daily operational NOx emissions impacts at Facility 2 from implementing PAR 1135 are significant until January 1, 2030 (with a potential extension up to six years) over the short-term, but less than significant after January 1, 2030 (with a potential extension up to six years) over the long-term.

The Final SEA also estimated significant operational air quality impacts at the electricity generating facility located on the Santa Catalina Island over the short-term from January 1, 2028 (with a potential extension up to three years) until January 1, 2030 (with a potential extension up to six years) due to exceedance of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10. However, once this facility makes modifications necessary to achieve the proposed 13 tpy NOx limit by January 1, 2030 (with a potential extension up to six years), project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 will no longer exceed the South Coast AQMD's thresholds of significance for these pollutants.

Moreover, the analysis in the Final SEA indicated potentially significant cancer risk impacts during the operation of electricity generating facility located on Santa Catalina Island to meet the 45 tpy, 30 tpy, and 13 tpy NOx limits by January 1, 2027 (with a potential extension up to three years), January 1, 2028 (with a potential extension up to three years), and January 1, 2030 (with a potential extension up to six years), respectively. However, once this facility meets the 6 tpy NOx limit by January 1, 2035 (with a potential extension up to six years), the operational cancer risk would not exceed the South Coast AQMD significance threshold (i.e., 10 in a million).

Due to significant adverse air quality impacts during operation, feasible mitigation measures were required in the Final SEA to minimize the significant adverse impacts of the proposed project. However, the analysis in the Final SEA identified no feasible mitigation measures that would eliminate or reduce the significant adverse operational air quality impacts for: 1) NOx emissions until meeting the 13 tpy NOx limits by January 1, 2030 (with a potential extension up to six years); 2) project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 from January 1, 2028 (with a potential extension up to three years) to January 1, 2030 (with a potential extension up to six years); and 3) health risks when operating equipment to comply with the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits to less than significant levels. Therefore, operational air quality impacts for NOx emissions, project-specific changes in the 24-hour average concentrations of PM2.5 and PM10, and health risks are found to be significant and unavoidable when meeting the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits. However, upon full implementation of PAR 1135 which will require attainment of the final 6 tpy NOx limit by January 1, 2035 (with a potential extension up to six years), less than significant operational air quality impacts are expected.

The Governing Board finds that: 1) the NOx emissions from the electricity generating facility located on Santa Catalina Island currently exceed 50 tpy and as such, this facility cannot feasibly attain the current annual NOx limits by the compliance dates adopted in the November 2018 and January 2022 versions of Rule 1135; and 2) there are no feasible mitigation measures that would eliminate or reduce the project-level or cumulative significant adverse operational air quality impacts for NOx emissions, changes in the 24-hour average concentrations of PM2.5 and PM10, and health risks to less than significant levels when meeting the proposed interim 45 tpy, 30 tpy, and 13 tpy NOx limits [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)]. However, once this facility makes modifications necessary to achieve the proposed final 6

tpy NOx limit by January 1, 2035 (with a potential extension up to six years), less than significant air quality impacts are expected during operation.

5.1 Findings For Alternatives to the Proposed Project

A. Alternative A: No Project

Finding and Explanation:
The Final SEA analyzes a No Project Alternative, referred to as Alternative A, which consists of what would occur if the proposed project is not approved; in this case, not proposing amendments to Rule 1135. Under Alternative A, the electricity generating facility located on Santa Catalina Island would be subject to the following annual NOx limits in the January 2022 version of Rule 1135: 50 tpy by January 1, 2024; 45 tpy by January 1, 2025; and 13 tpy by January 1, 2026 (with a three-year extension option to meet 13 tpy by January 1, 2029). However, the facility has indicated that they cannot attain these annual NOx limits by their respective compliance dates. Currently, the annual NOx emissions from the electricity generating facility located on Santa Catalina Island already exceed the 50 tpy NOx limit which had a compliance date of January 1, 2024. Also, because the January 2022 version of Rule 1135 contains a prohibition to install new diesel engines after January 1, 2024, this facility would not be able to replace their existing diesel engines with new Tier 4 Final diesel engines to meet any of the annual NOx limits and compliance dates in the January 2022 version of Rule 1135. This means that the actual NOx emission reductions achieved from Alternative A would be fewer than originally projected for this facility.

The adopted resolution for 2022 amendments to Rule 1135 directed South Coast AQMD staff to re-initiate the rule development process and develop a proposal that included a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and NZE technologies. Therefore, the main objectives of the proposed project are to: 1) revise the BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and NZE technologies; and 2) reduce the final NOx mass emission limit for the facility located on Santa Catalina Island.

Moreover, although potentially significant cancer risks are expected when attaining any of the annual NOx limits in Alternative A, less than significant impacts to operational cancer risk are expected once the requirement for attainment with the 6 tpy NOx limit by January 1, 2035 (with a potential extension up to six years) goes into effect for the proposed project.

Based on proceeding discussion, Alternative A is not environmentally superior to the proposed project. Furthermore, the No Project Alternative is infeasible because it neither meets the objectives of the proposed project nor takes into consideration the direction of adopted resolution during 2022 amendments to Rule 1135 to include a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and NZE technologies.

Because Alternative A is not environmentally superior to PAR 1135 and does not achieve the basic project objective, the Governing Board finds that the No Project Alternative is infeasible. [Public Resources Code 21081(a)(3); *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 1000- 1001 (upholding finding of infeasibility where agency determined alternative failed to achieve project objective)].

B. Alternative B: More Stringent Proposed Project

Finding and Explanation:
The Final SEA analyzes Alternative B, which is more stringent than PAR 1135. Under Alternative B, in lieu of the 6 tpy NOx limit that is currently proposed in PAR 1135, the electricity generating facility located on Santa Catalina Island would have to comply with a more stringent NOx limit of 1.8 tpy by January 1, 2035, (with a six-year extension option to meet 6 tpy by January 1, 2041). All other elements would be the same under Alternative B as for PAR 1135.

Because the electricity generating facility affected by PAR 1135 is very unique, located on an island, and serving as the sole provider of power, including electricity, water movement, and waste systems, providing reliable and sufficient power is crucial to avoid blackouts and other public health issues related to polluted water and health hazards from biological waste exposure. Overall, the electricity generating facility located on Santa Catalina Island should consider several repower parameters including electricity demand, power reliability, transmission, grid stability, space limitations, fuel delivery and storage, and challenges for the deployment of new ZE/NZE technologies while trying to meet any proposed NOx emission limits. Under Alternative B, the final 1.8 tpy NOx limit would require increased quantities of propane to be delivered to the island on an annual basis and enough storage capacity for 30-days in case of unforeseen circumstances preventing the required daily deliveries by barge while avoiding any loss of power needs on the island. Compared to the proposed project, Alternative B would introduce uncertainty about whether the delivery can be consistently met and a potential lack of storage capacity.

Of the alternatives analyzed, Alternative B is the only alternative to the proposed project with less than significant operational cancer risk impacts when meeting its final annual NOx limit (e.g., 1.8 tpy). In addition, when compared to the proposed project which has a final NOx limit of 6 tpy by January 1, 2035 (with a potential extension up to six years) and less than significant impacts to operational cancer risk, Alternative B with its more stringent 1.8 tpy NOx limit by January 1, 2035 (with a potential extension up to six years), would result fewer operational cancer risk impacts. Nonetheless, both the 6 tpy NOx limit in PAR 1135 and 1.8 tpy NOx limit in Alternative B would result in less than significant operational cancer risk impacts. Moreover, Alternative B would result in the same quantity of delayed NOx emission reductions as PAR 1135; however, Alternative B would be the only alternative resulting in greater NOx emission reductions compared to the proposed project over the long term. Based upon above considerations, Alternative B would be considered the lowest toxic and environmentally superior alternative relative to the other alternatives and the proposed project.

The Governing Board finds that there are no feasible mitigation measures that would eliminate or reduce the project-level or cumulative significant adverse operational air quality impacts for NOx emissions, changes in the 24-hour average concentrations of PM2.5 and PM10, and health risks to less than significant levels when meeting the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits if Alternative B is implemented. As such, the Governing Board finds that Alternative B will not avoid or substantially lessen the significant operational air quality impacts as identified in the Final SEA. [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)]. However, under Alternative B, once this facility meets the proposed 1.8 tpy NOx limit by January 1, 2035 (with a potential extension up to six years), less than significant air quality impacts are expected during operation.

C. Alternative C: Less Stringent Proposed Project

I. Finding and Explanation:

The Final SEA analyzes Alternative C, which is less stringent that the proposed project. Alternative C adjusts elements in PAR 1135 to create a less stringent proposed project by removing the 45 tpy and 6 tpy NOx limits; delaying the compliance date to attain 30 tpy NOx limit for one year; including a new annual NOx emission limit of 20 tpy by January 1, 2031 (with a potential extension up to three years); postponing the prohibition deadline to install a new diesel engine and install equipment that does not meet the definition of NZE or ZE electric generating unit for one year; delaying the compliance date to attain the 13 tpy NOx limit for five years; postponing the deadline to install NZE and/or ZE electric generating units with a cumulative rating greater than or equal to 1.8 MW for five years; and delaying the deadline to remove all prime power diesel engines with a construction date earlier than date of adoption from service for five years.

With regard to toxicity impacts, Alternative C would cause significant operational cancer risk impacts even when attaining the final 13 tpy NOx limit requirements whereas less than significant impacts to operational cancer risks are expected once the electricity generating facility located on Santa Catalina Island makes necessary modifications to meet the proposed 6 tpy NOx limit under PAR 1135. Alternative C would also result in further additional delayed NOx emissions reductions compared to PAR 1135. Moreover, the overall NOx emissions reductions under Alternative C would be 7 tpy fewer than the proposed project.

The Governing Board finds that there are no feasible mitigation measures that would eliminate or reduce the project-level or cumulative significant adverse operational air quality impacts for NOx emissions, changes in the 24-hour average concentrations of PM2.5 and PM10, and health risks to less than significant levels if Alternative C is implemented. Therefore, the Governing Board finds that Alternative C will not avoid or substantially lessen the significant environmental effect as identified in the Final SEA. [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

D. Alternative D: No ZE Equipment

I. Finding and Explanation:
Alternative D proposes that the electricity generating facility located on Santa Catalina Island would have to comply with 13 tpy NOx limit by January 1, 2030 (with a potential extension up to six years) as the end point which is expected to be achieved by 48% NZE, and 52% diesel internal combustion engines for power generation. Thus, under Alternative D, the electricity generating facility located on Santa Catalina Island is not required to meet the 6 tpy NOx limit by January 1, 2035. All other elements, limits, and deadlines would be the same under Alternative D as is in the proposed project.

Alternative D would result in the same quantity of delayed NOx emission reductions as PAR 1135. However, the overall NOx emission reductions from Alternative D will be 7 tpy fewer than the proposed project. Moreover, although less than significant operational cancer risk impacts are expected when meeting the final 6 tpy NOx limits in PAR 1135, Alternative C would cause significant operational cancer risk impacts even when attaining the final annual NOx limit requirements.

The Governing Board finds that there are no feasible mitigation measures that would eliminate or reduce the project-level or cumulative significant adverse operational air quality impacts for NOx emissions, changes in the 24-hour average concentrations of PM2.5 and PM10, and health risks to less than significant levels if Alternative D is implemented. As such, the Governing Board finds that Alternative D will not avoid or substantially lessen the significant environmental effect as identified in the Final SEA. [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

5.2 Conclusion of Findings

The Governing Board makes the following findings:

1) No feasible mitigation measures have been identified in the Final SEA that would eliminate or reduce the project-level or cumulative significant adverse operational air quality impacts for NOx emissions, changes in the 24-hour average concentrations of PM2.5 and PM10, and health risks to less than significant levels when meeting the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits. However, once this facility makes modifications necessary to achieve the proposed 6 tpy NOx limit by January 1, 2035 (with a potential extension up to six years), less than significant air quality impacts are expected during operation.
2) Alternative A, the No Project alternative, is infeasible because it neither meets the objectives of the proposed project nor takes into consideration the direction of adopted resolution during 2022 amendments to Rule 1135 to include a revised BARCT assessment for the electricity generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and NZE technologies. Because Alternative A is not environmentally superior to PAR 1135 and does not achieve the basic project objective, the Governing Board finds that the No Project Alternative is infeasible. [Public Resources Code 21081(a)(3); California Native Plant Society v. City of Santa Cruz (2009) 177

Cal.App.4th 957, 1000- 1001 (upholding finding of infeasibility where agency determined alternative failed to achieve project objective)].

3) For Alternatives C and D, the Governing Board finds that there are no feasible mitigation measures that would eliminate or reduce the project-level or cumulative significant adverse operational air quality impacts for NOx emissions, changes in the 24-hour average concentrations of PM2.5 and PM10, and health risks to less than significant levels. As such, the Governing Board finds that neither Alternative C nor Alternative D will avoid or substantially lessen the significant operational air quality impacts as identified in the Final SEA. [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

4) Alternative B was identified in the Final SEA as the environmentally superior alternative. However, the Governing Board finds that there are no feasible mitigation measures that would eliminate or reduce the project-level or cumulative significant adverse operational air quality impacts for NOx emissions, changes in the 24-hour average concentrations of PM2.5 and PM10, and health risks to less than significant levels when meeting the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits. Therefore, Alternative B will not avoid or substantially lessen the significant operational air quality impacts identified in the Final SEA. [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)]. However, under Alternative B, there is uncertainty with its potential for implementation because the ability of the affected facility meeting the proposed 1.8 tpy NOx limit by January 1, 2035 (with a potential extension up to six years) is dependent upon whether the amount of increased propane deliveries while maintaining a 30-day storage capacity can be consistently achieved.

The Governing Board further finds that the Final SEA considered alternatives pursuant to CEQA Guidelines Section 15126.6, but there is no alternative to PAR 1135 that would reduce to insignificant levels the significant operational air quality impacts identified for the proposed project and still achieve the objectives of the proposed project.

The Governing Board further finds that the findings required by CEQA Guidelines Section 15091(a) are supported by substantial evidence in the record.

6.0 Statement of Overriding Considerations

If significant adverse impacts of a proposed project remain after incorporating mitigation measures, or no measures or alternatives to mitigate the adverse impacts are identified, the lead agency must make a determination that the benefits of the project outweigh the unavoidable adverse environmental effects if it is to approve the project. CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve the project. [CEQA Guidelines Section 15093(a)]. If the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable" [CEQA Guidelines Section 15093(a)]. Accordingly, a Statement of Overriding Considerations regarding potentially significant adverse operational air quality impacts resulting from PAR 1135 has been prepared. This Statement of Overriding Considerations is included as part of the record of the

project approval for PAR 1135. Pursuant to CEQA Guidelines Section 15093(c), the Statement of Overriding Considerations will also be noted in the Notice of Decision for PAR 1135.

Despite the inability to incorporate changes into PAR 1135 that will mitigate potentially significant adverse operational air quality impacts to a level of insignificance when meeting the proposed 45 tpy, 30 tpy and 30 tpy NOx limits, the South Coast AQMD Governing Board finds that the following benefits and considerations outweigh the significant unavoidable adverse environmental impacts:

1. The analysis of potential adverse environmental impacts incorporates a "worst-case" approach. This entails the premise that whenever the analysis requires that assumptions be made, those assumptions that result in the greatest adverse impacts are typically chosen. This method likely overestimates the actual adverse environmental impacts from PAR 1135.

2. Although PAR 1135 is expected to result in delayed NOx emissions reductions until January 1, 2030 (with a potential extension up to six years), implementation of PAR 1135 is expected to incrementally reduce the annual NOx emissions from the current 71.3 tpy to 45 tpy, 30 tpy, and 13 tpy by January 1, 2027 (with a potential extension up to three years), January 1, 2028 (with a potential extension up to three years), and January 1, 2030 (with a potential extension up to six years), respectively. Moreover, upon full implementation of PAR 1135 by January 1, 2035 (with a potential extension up to six years), the NOx limit of 13 tpy by January 1, 2026 (with a three-year extension option) will be reduced further to 6 tpy which will provide additional air quality and health benefits.

3. While significant operational air quality impacts are expected at the electricity generating facility located on Santa Catalina Island over the short-term from January 1, 2028 (with a potential extension up to three years) until January 1, 2030 (with a potential extension up to six years) due to exceedances of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10, these thresholds will not be exceeded after January 1, 2030 (with a potential extension up to six years).

4. Although significant operational impacts from toxic air contaminants are expected at the electricity generating facility located on Santa Catalina Island when operating equipment to comply with the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits, less than significant operational impacts from toxic air contaminants are expected once the affected facility meets the 6 tpy NOx limit by January 1, 2035 (with a potential extension up to six years).

5. During 2022 amendments to Rule 1135, stakeholders commented that an updated BARCT assessment was warranted due to the change in averaging time and that the BARCT assessment should emphasize ZE technologies. Also, in December 2022, the South Coast AQMD adopted the 2022 AQMP which included a series of control measures to achieve the 2015 8-hour ozone NAAQS. In particular, Control Measure L-CMB- 06: NOx Emission Reductions from Electricity Generating Facilities, focused on large combustion sources and assessing low NOx and ZE technologies for power generation, and specifically

mentioned replacing existing diesel internal combustion engines with lower-emitting technologies. Thus, PAR 1135 is currently proposed to address stakeholder comments raised during the January 2022 amendments to Rule 1135 and to partially implement Control Measure L-CMB-06 of the 2022 AQMP. Moreover, the adoption of PAR 1135 is consistent with the adopted resolution during 2022 amendments to Rule 1135 which directed South Coast AQMD staff to re-initiate rule development in 2022 which included a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives as well as ZE and NZE technologies.

6. Although PAR 1135 would still cause temporary significant operational air quality impacts for NOx emissions, changes in the 24-hour average concentrations of PM2.5 and PM10, and health risks, it is considered to provide the best balance in achieving the project objectives while minimizing the significant adverse environmental impacts to operational air quality.

The South Coast AQMD Governing Board finds that the above-described considerations outweigh the unavoidable significant effects to the environment as a result of PAR 1135.

7.0 Mitigation

CEQA requires an agency to prepare a plan for reporting and monitoring compliance with the implementation of measures to mitigate significant adverse environmental impacts. When making findings as required by Public Resources Code Section 21081 and CEQA Guidelines Section 15091, the lead agency must adopt a reporting or monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment [Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097(a)]. The provisions of CEQA Guidelines Section 15097 and Public Resources Code Section 21081.6 are triggered when the lead agency certifies a CEQA document in which mitigation measures changes, or alterations have been required or incorporated into the project to avoid or lessen the significance of adverse impacts identified in the CEQA document.

However, no feasible mitigation measures were identified for PAR 1135 that would eliminate or reduce the significant adverse operational air quality impacts for NOx emissions, project-specific changes in the 24-hour average concentrations of PM2.5 and PM10, and health risks to less than significant levels when meeting the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits. It should be noted that once the electricity generating facility located on Santa Catalina Island makes modifications necessary to achieve the proposed 6 tpy NOx limit by January 1, 2035 (with a potential extension up to six years), less than significant air quality impacts are expected during operation. Since no feasible mitigation measures were identified, mitigation measures and a corresponding mitigation, monitoring and reporting plan are not required and have not been prepared.

8.0 Record of Proceedings

For purposes of CEQA, including the Findings and Statement of Overriding Considerations, the Record of Proceedings for PAR 1135 consists of the following documents and other evidence, at a minimum:

- The Final SEA for PAR 1135, including appendices and technical studies included or referenced in the Final SEA, comment letters, responses to comments, and all other public notices issued by South Coast AQMD for the Final SEA.
- The Draft SEA for the proposed project including appendices and technical studies included or referenced in the Draft SEA, and all other public notices issued by South Coast AQMD for the Draft SEA.
- The Preliminary Draft, Draft and Final versions of the rule language and associated staff report.
- The Draft and Final version of the Socioeconomic Impact Assessment.
- All written and verbal public testimony presented during a noticed public hearing for PAR 1135.
- All documents, studies, EAs, or other materials incorporated by reference and tiered-off in the Draft SEA and Final SEA.
- The Resolution adopted by South Coast AQMD in connection with PAR 1135, and all documents incorporated by reference therein.
- Matters of common knowledge to South Coast AQMD, including but not limited to federal, state, and local laws and regulations.
- Any documents expressly cited in the Findings and Statement of Overriding Considerations.
- Any other relevant materials required to be in the record of proceedings by Public Resources Code Section 21167.6(e).
- The Notice of Decision, prepared in compliance with Public Resources Code Section 21080.5(d)(2)(E), CEQA Guidelines Section 15252(b), and South Coast AQMD Rule 110(f), if the Governing Board certifies the Final SEA and approves PAR 1135.

To comply with CEQA Guidelines Section 15091(e), the South Coast AQMD specifies the Deputy Executive Officer of the Planning, Rule Development, and Implementation Division as the custodian of the administrative record for PAR 1135, which includes the documents or other materials which constitute the record of proceedings upon which the South Coast AQMD's actions related to the proposed project is based, and which are located at the South Coast AQMD headquarters, 21865 Copley Drive, Diamond Bar, California 91765. Copies of these documents, which constitute the record of proceedings, are and at all relevant times have been and will be available upon request. This information is provided in accordance with Public Resources Code Section 21081.6(a)(2) and CEQA Guidelines Section 15091(e).

(Adopted August 4, 1989)(Amended December 21, 1990)(Amended July 19, 1991)
(Amended November 2, 2018)(Amended January 7, 2022)(Amended TBD)

PROPOSED AMENDED RULE 1135. **EMISSIONS OF OXIDES OF NITROGEN FROM ELECTRICITY GENERATING FACILITIES**

(a) Purpose

The purpose of this rule is to reduce emissions of oxides of nitrogen (NOx) from electric generating units at electricity generating facilities.

(b) Applicability

This rule shall apply to electric generating units at electricity generating facilities.

(c) Definitions

(1) ANNUAL CAPACITY FACTOR means the ratio between the measured heat input (in MMBtu) from fuel consumption to an electric generating unit during a calendar year and the potential heat input (in MMBtu) to the electric generating unit had it been operated for 8,760 hours during a calendar year at the permitted heat input rating, expressed as a percent. Annual capacity factor does not include heat input of the electric generating unit during an Emergency Phase of the California Energy Commission Energy Emergency Response Plan or a Governor-Declared State of Emergency or Energy Emergency.

(2) ANNUAL NOx MASS EMISSIONS means actual emissions of NOx produced from all electric generating units at an electricity generating facility between January 1st through December 31st.

(~~2~~3) BACKUP UNIT means any NOx emitting turbine which is used intermittently to produce energy on a demand basis, does not operate more than 1,300 hours per year, is not subject to 40 Code of Federal Regulations (CFR) Part 72, and was a NOx process unit prior to the facility becoming a former RECLAIM NOx facility.

(~~3~~4) BOILER means any combustion equipment fired with liquid and/or gaseous fuel, which is primarily used to produce steam that is expanded in a turbine generator used for electric power generation.

(~~4~~5) COGENERATION TURBINE means a gas turbine which is designed to generate electricity and useful heat energy at the same time (combined heat and power).

(~~5~~6) COMBINED CYCLE GAS TURBINE means a gas turbine that recovers heat from the gas turbine exhaust gases for use in a heat recovery steam generator to generate additional electricity.

(~~6~~7) DAILY means a calendar day starting at 12 midnight and continuing through 11:59 p.m.

(~~7~~8) DUCT BURNER means a device located in the heat recovery steam generator of a gas turbine that combusts fuel and adds heat energy to the turbine exhaust to increase the output of the heat recovery steam generator.

(~~8~~9) ELECTRIC GENERATING UNIT means a boiler that generates electric power, a gas turbine that generates electric power with the exception of cogeneration turbines, or ~~a diesel internal combustion engine~~equipment that generates electric power and is located on Santa Catalina Island. An electric generating unit does not include ~~with the exception of~~ emergency internal combustion engines and portable engines registered under the California Air Resources Board Statewide Portable Equipment Registration Program (PERP).

(~~9~~10) ELECTRICITY GENERATING FACILITY means a facility that is owned or operated by an investor-owned electric utility or a publicly owned electric utility and has one or more electric generating units; or has electric generating units with a combined generation capacity of 50 ~~megawatts~~Megawatts (MW) or more of electrical power for distribution in the state or local electrical grid system. Electricity generating facility does not include facilities subject to South Coast AQMD Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations, South Coast AQMD Rule 1150.3 – Emissions of Oxides of Nitrogen from Combustion Equipment at Landfills, or South Coast AQMD Rule 1179.1 – Emission Reductions from Combustion Equipment at Publicly Owned Treatment Works Facilities.

(~~10~~11) EMISSION CAP is calculated as the total daily NOx emissions in pounds from all boilers at an electricity generating facility, expressed in pounds of NOx.

(~~11~~12) EMISSION RATE is calculated as the total daily NOx emissions in pounds from all boilers at an electricity generating facility, divided by the total daily

net electric power generated and/or obtained in Megawatt-Hours from all boilers at an electricity generating facility, expressed in pounds of NOx per Megawatt-Hour.

(~~12~~13) FORCE MAJEURE NATURAL GAS CURTAILMENT means:

(A) An interruption in natural gas service due to unavoidable or unforeseeable failure, malfunction, or natural disaster, not resulting from an intentional or negligent act or omission on the part of the owner or operator of an electric generating unit; or

(B) A supply restriction resulting from the application of a California Public Utilities Commission priority allocation system of Southern California Gas Company Tariff Rule 23, such that the daily fuel needs of an electric generating unit cannot be met with the natural gas available.

(~~13~~14) FORMER RECLAIM NOx FACILITY means a facility or any of its successors that was in the NOx Regional Clean Air Incentives Market (RECLAIM) as of January 5, 2018, as established in Regulation XX – Regional Clean Air Incentives Market (RECLAIM) (Regulation XX), that has received a final determination notification, and is no longer in the NOx RECLAIM program.

(~~14~~15) INTERNAL COMBUSTION ENGINE means a reciprocating--type engine in which the combustion of a fuel occurs with an oxidizer (usually air) in a combustion chamber to produce mechanical energy.

(~~15~~16) INVESTOR-OWNED ELECTRIC UTILITY means a business organization managed as a private enterprise that operates electric generating unit(s) for electric power distribution primarily in the grid system overseen by the California Public Utilities Commission.

(~~16~~17) NON-RECLAIM NOx FACILITY means a facility or any of its successors that was not in the NOx RECLAIM as of January 5, 2018, as established in Regulation XX.

(~~17~~18) OXIDES OF NITROGEN (NOx) EMISSIONS means the sum of nitric oxides and nitrogen dioxides emitted, collectively expressed as nitrogen dioxide emissions.

(~~18~~19) PUBLICLY OWNED ELECTRIC UTILITY means a special-purpose district or other jurisdiction, including municipal districts or municipalities,

that operates electric generating unit(s) for electric power distribution, either partially or totally, to residents of that district or jurisdiction.

(~~19~~20) RECLAIM NOx FACILITY means a facility or any of its successors that is in the NOx RECLAIM as of January 5, 2018, as established in Regulation XX and is still in RECLAIM on the relevant date.

(21) SANTA CATALINA ISLAND NEAR-ZERO EMISSION (NZE) ELECTRIC GENERATING UNIT means any electric generating unit located on Santa Catalina Island that produces NOx emissions greater than 0.01 pounds per Megawatt-Hour (lb/MW- hr) but less than or equal to 0.07 lb/MW-hr as demonstrated by a South Coast AQMD permit condition or other method determined to be equivalent by the Executive Officer.

(22) SANTA CATALINA ISLAND ZERO-EMISSION (ZE) ELECTRIC GENERATING UNIT means any electric generating unit located on Santa Catalina Island that produces NOx emissions less than or equal to 0.01 lb/MW-hr as demonstrated by a South Coast AQMD permit condition or other method determined to be equivalent by the Executive Officer.

(~~20~~23) SHUTDOWN is as defined in South Coast AQMD Rule 429.2 – Startup and Shutdown Exemption Provisions for Oxides of Nitrogen from Electricity Generating Facilities (Rule 429.2).

(~~21~~24) SIMPLE CYCLE GAS TURBINE means any stationary combustion turbine that does not recover heat from the combustion turbine exhaust gases to heat water or generate steam.

(~~22~~25) STARTUP is as defined in South Coast AQMD Rule 429.2.

(~~23~~26) TUNING means adjusting, optimizing, rebalancing, or other similar operations to an electric generating unit or an associated control device or as otherwise defined in the Permit to Operate. Tuning does not include normal operations to meet load fluctuations.

(d) ~~Emissions~~Emission Limits

(1) Emission Limits for Boilers and Gas Turbines

On and after January 1, 2024, the owner or operator of an electricity generating facility shall not operate a boiler or gas turbine in a manner that exceeds the NOx emission limits listed in Table 1: Emission Limits for Boilers and Gas Turbines, where:

(A) Boilers and gas turbines for which the owner or operator has applied for Permits to Construct after November 2, 2018 shall average the NOx emission limits in Table 1 over a 60-minute rolling average.

(B) Boilers and gas turbines installed or for which the owner or operator has applied for Permits to Construct prior to November 2, 2018 shall:

(i) Average the NOx emission limits in Table 1 over a 60-minute rolling average; or

(ii) Retain the averaging time requirements specified in the Permit to Operate as of November 2, 2018.

Table 1: Emission Limits for Boilers and Gas Turbines

Equipment Type	NO_x (ppmv)	Oxygen Correction (%, dry)
Boiler	5	3
Combined Cycle Gas Turbine and Associated Duct Burner	2	15
Simple Cycle Gas Turbine	2.5	15

(2) Electric Generating Units Located on Santa Catalina Island

The owner or operator of an electricity generating facility located on Santa Catalina Island with ~~diesel internal combustion engines~~ electric generating units shall:

(A) ~~By January 1, 2024, meet a mass emission limit from all electric generating units of 50 tons of NOx annually, including mass emissions from startups and shutdowns;~~Not install more than three new diesel internal combustion engines with a maximum cumulative rating of 5.5 MW as indicated on the rated prime power nameplate;

(B) Not install any new diesel internal combustion engines after ~~January 1, 2024~~January 1, 2028 or six months after any time extensions provided pursuant to subparagraphs (d)(3)(C) or (d)(5)(C);~~. A diesel internal combustion engine undergoing reconstruction as defined in 40 CFR Part 60.15 or Rule 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition~~

~~Engines shall not be considered as a new diesel internal combustion engine installation for the purposes of this subparagraph;~~

(C) Not install any equipment that does not meet the definition of a Santa Catalina Island NZE electric generating unit or a Santa Catalina Island ZE electric generating unit after January 1, 2028 or six months after any time extensions provided pursuant to subparagraphs (d)(3)(C) or (d)(5)(C);

(D) Install Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units by January 1, 2030 or six months after any time extensions provided pursuant to subparagraphs (d)(3)(C) or (d)(5)(C) with a minimum cumulative rating of 1.8 MW as indicated on the rated prime power nameplate, excluding the following from the minimum cumulative rating:

(i) The highest rated Santa Catalina Island NZE electric generating unit and/or Santa Catalina Island ZE electric generating unit;

(ii) Solar photovoltaic cells; and

(iii) Battery storage;

(~~C~~E) ~~By January 1, 2025, meet a~~Meet the annual NOx mass emission ~~limit~~limits specified in Table 2: Emission Limits for Electric Generating Units Located on Santa Catalina Island ~~from~~for all electric generating units ~~of 45 tons of NOx annually~~, including mass emissions from startups and shutdowns, and missing data substitutions pursuant to South Coast AQMD Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications (Rule 218.3) and South Coast AQMD Rule 2012 – Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions (Rule 2012) or other approved missing data substitutions as approved by the Executive Officer ; and

Table 2: Emission Limits for Electric Generating Units Located on Santa Catalina Island

Rule Reference	Compliance Date	NOx (tons per year)
(d)(2)(E)(i)	January 1, 2027	45

(d)(2)(E)(ii)	January 1, 2028	30
(d)(2)(E)(iii)	January 1, 2030	13
(d)(2)(E)(iv)	January 1, 2035	6

(~~D~~F ~~On and after January 1, 2026, meet a mass emission limit from all electric generating units of 13 tons of NOx annually, including mass emissions from startups and shutdowns.~~ Remove all prime power diesel internal combustion engines for which installation was completed earlier than [*Date of Adoption*] from service by January 1, 2030 or six months after any time extensions provided pursuant to subparagraphs (d)(3)(C) or (d)(5)(C).

(3) Feasibility Analysis for Electric Generating Units Located on Santa Catalina Island

(A) By January 1, 2028, the owner or operator of an electricity generating facility located on Santa Catalina Island shall conduct an analysis of the feasibility of the NOx emission limits in clause (d)(2)(E)(iii) and provide the report to the Executive Officer. The assessment shall include:

(i) Identification of the electric generating units under assessment to meet the NOx emission limits in clause (d)(2)(E)(iii);

(ii) Progress of replacing or retrofitting the electric generating units;

(iii) A description of the technology or technologies that will be used to achieve the mass emission limit;

(iv) The length of time necessary to replace or retrofit the electric generating units; and

(v) If applicable, the length of time, up to three years, of any request for a time extension to meet the NOx emission limits in clause (d)(2)(E)(iii).

(B) Any request for a time extension will be made available by the Executive Officer for public review no less than 30 days prior to approval.

(C) The Executive Officer will approve or disapprove the request for a time extension. Approval or disapproval will be based on the following criteria:

(i) The owner or operator prepared the request for a time extension in compliance with subparagraph (d)(3)(A); and

(ii) The owner or operator provided sufficient details identifying the reason(s) a time extension is needed. Such a demonstration may include, but is not limited to, providing grid stability studies, detailed schedules, engineering designs, construction plans, land acquisition contracts, permit applications, and purchase orders.

(D) By January 1, 2033, the owner or operator of an electricity generating facility located on Santa Catalina Island shall conduct an analysis of the feasibility of the NOx emission limits in clause (d)(2)(E)(iv) and provide the report to the Executive Officer. The assessment shall include:

(i) Identification of the electric generating units under assessment to meet the NOx emission limits in clause (d)(2)(E)(iv);

(ii) Progress of replacing or retrofitting the electric generating units;

(iii) A description of the technology or technologies that will be used to achieve the mass emission limit;

(iv) The length of time necessary to replace or retrofit the electric generating units; and

(v) If applicable, the length of time, up to three years, of any request for a time extension to meet the NOx emission limits in clause (d)(2)(E)(iv).

(E) Any request for a time extension will be made available by the Executive Officer for public review no less than 30 days prior to approval.

(F) The Executive Officer will approve or disapprove the request for a time extension. Approval or disapproval will be based on the following criteria:

(i) The owner or operator prepared the request for a time extension in compliance with subparagraph (d)(3)(D); and

(ii) The owner or operator provided sufficient details identifying the reason(s) a time extension is needed. Such a demonstration may include, but is not limited to, providing grid stability studies, detailed schedules, engineering designs, construction plans, land acquisition contracts, permit applications, and purchase orders.

(~~3~~4) ~~Emissions~~Emission Limits for Diesel Internal Combustion Engines

(A) The owner or operator of an electricity generating facility located on Santa Catalina Island shall not operate a new diesel internal combustion engine that is installed to meet the mass emission limits specified in ~~subparagraphs (d)(2)(A), (d)(2)(C) and (d)(2)(D)~~subparagraph (d)(2)(E) in a manner that exceeds the NOx, carbon monoxide, volatile organic compounds, and particulate matter emissions limits listed in Table ~~2~~3: ~~Emissions~~Emission Limits for Diesel Internal Combustion Engines.

(B) Diesel internal combustion engines installed prior to November 2, 2018 may retain the averaging time requirements specified in the Permit to Operate as of November 2, 2018.

Table ~~2~~3: ~~Emissions~~Emission Limits for Diesel Internal Combustion Engines

NO_x (ppmv)[1]	Carbon Monoxide (ppmv)[2]	Volatile Organic Compounds (ppmv)[3]	Particulate Matter (lbs/~~MMbtu~~MMBtu)[4]
45	250	30	0.0076

[1] – Corrected to 15% oxygen on a dry basis and averaged over a three-hour rolling average using hourly averages computed in accordance with ~~South Coast Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications (~~Rule 218.3~~)~~.

[2]– Corrected to 15% oxygen on a dry basis and averaged over 15 minutes

[3]– Measured as carbon, corrected to 15% oxygen on a dry basis, and averaged over sampling time required by the test method

[4]– Applies to both filterable and condensable particulate matter

(45) Time Extension

(A) The owner or operator of an electricity generating facility on Santa Catalina Island may submit a request to the Executive Officer for a

time extension of up to three years to meet the mass emission ~~limit~~limits specified in subparagraph ~~(d)(2)(D)~~ (d)(2)(E) and extended pursuant to paragraph (d)(3) provided the owner or operator:

(i) Submits the request to the Executive Officer at least 365 days before the compliance ~~deadline~~deadlines specified in ~~subparagraph (d)(2)(D)~~ clauses (d)(2)(E)(iii) and (d)(2)(E)(iv) and extended pursuant to paragraph (d)(3); and

(ii) The request includes:

(~~A~~I) Identification of the electric generating units for which a time extension is needed;

(~~B~~II) The reason(s) a time extension is needed;

(~~C~~III) Progress of replacing or retrofitting the electric generating units;

(~~D~~IV) A description of the technology or technologies that will be used to achieve the mass emission limit; and

(~~E~~V) The length of time requested.

(B) Any request for a time extension will be made available by the Executive Officer for public review no less than 30 days prior to approval.

(~~B~~C) The Executive Officer will approve or disapprove the request for a time extension. Approval or disapproval will be based on the following criteria:

(4~~5~~) (~~B~~C) (i) The owner or operator prepared the request for a time extension in compliance with subparagraph (d)(4~~5~~)(A); and

(ii) The owner or operator provided sufficient details identifying the reason(s) a time extension is needed that demonstrates to the Executive Officer that there are extenuating circumstances that necessitate additional time to complete implementation. Such a demonstration may include, but is not limited to, providing detailed schedules, engineering designs, construction plans, land acquisition contracts, permit applications, and purchase orders.

(~~C~~D) If the Executive Officer approves the request for a time extension, the owner or operator shall pay a mitigation fee within 30 days of the date

of approval. The mitigation fee shall be $100,000/year, or any portion of a year, after the compliance date specified in ~~subparagraph (d)(2)(D)~~ clauses (d)(2)(E)(iii) and (d)(2)(E)(iv).

(~~5~~6) Startup, Shutdown, and Tuning Requirements

The NOx emission limits in Table 1 and the NOx, carbon monoxide, and volatile organic compounds ~~emissions~~emission limits in Table ~~2~~3 shall not apply during startup and shutdown, pursuant to Rule 429.2, or tuning, if limitations for duration and number of tunings are included in the Permit to Operate.

(~~6~~7) City of Glendale

(A) Until compliance with the provisions pursuant to paragraph (d)(1) is achieved, the City of Glendale or any of its successors, shall not operate its boilers unless at least one of the following is met:

(i) Emission rate of 0.20 pounds of NOx per net Megawatt-Hour. NOx emissions during startups and shutdowns of boilers, up to a maximum of 12 hours for each event, shall not be included in the determination of the emissions rate if five or fewer boilers are in operation during this period; or

(ii) Emission cap of 390 pounds of NOx per day.

(B) Until compliance with paragraph (d)(1) is achieved, the City of Glendale shall not emit total quantities of NOx from all boilers in excess of 35 tons of NOx per calendar year. If Grayson combined cycle gas turbine Unit 8BC cannot produce electricity because of a breakdown for 30 continuous days or more, the annual NOx ~~emissions~~emission limit shall be increased by 65 pounds per day, up to a maximum of 41 tons per year

(~~6~~7) (C) A violation of any requirement specified in subparagraph (d)(~~6~~7)(A) or (d)(~~6~~7)(B) shall constitute a violation of this rule for every applicable unit operating during the exceedance period.

~~(7) On or before July 1, 2022, the owner or operator of a RECLAIM NOx facility or former RECLAIM NOx facility, excluding the owner or operator of an electricity generating facility on Santa Catalina Island, shall submit an application for a change of permit conditions to reconcile their permit(s) with Rule 1135.~~

~~(8) On or before January 1, 2023, the owner or operator of an electricity generating facility on Santa Catalina Island shall submit an application for a change of permit conditions to reconcile their permit(s) with Rule 1135 or for a Permit to Construct(s) to comply with paragraphs (d)(2) and (d)(3).~~

~~(9) On or before January 1, 2023, the owner or operator a non-RECLAIM NOx facility shall submit an application for a change of permit conditions to reconcile their permit(s) with Rule 1135.~~

(e) Monitoring, Recordkeeping, and Reporting

(1) RECLAIM NO_x Facility

The owner or operator of each RECLAIM NOx facility subject to Rule 1135 shall comply with ~~South Coast AQMD~~ Rule 2012 ~~Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions~~ to demonstrate compliance with the NOx emission limits of this rule, except as provided in paragraph (e)(3).

(2) Former RECLAIM NO_x and Non-RECLAIM NO_x Facilities

The owner or operator of each former RECLAIM NOx facility and non-RECLAIM NOx facility, shall comply with South Coast AQMD Rule 218 – Continuous Emission Monitoring (Rule 218), South Coast AQMD Rule 218.1 – Continuous Emission Monitoring Performance Specifications (Rule 218.1), South Coast AQMD Rule 218.2 – Continuous Emission Monitoring System: General Provisions (Rule 218.2), ~~South Coast AQMD~~ Rule 218.3 ~~Continuous Emission Monitoring System: Performance Specifications~~, and 40 CFR Part 75 to demonstrate compliance with the NOx emission limits of this rule, except as provided in paragraph (e)(3) .

(3) The owner or operator of a Santa Catalina Island NZE electric generating unit rated ≤ 0.5 MW or a Santa Catalina Island ZE electrical generating unit is not required to install or operate a continuous emission monitoring system (CEMS).

(4) The owner or operator of an NZE electric generating unit located on Santa Catalina Island shall determine the annual NOx mass emissions to demonstrate compliance with subparagraph (d)(2)(E) by utilizing the following method:

(A) Measure and record the Megawatt-Hours of each Santa Catalina NZE electric generating unit rated ≤ 0.5 MW;

(B) Multiply the total annual Megawatt-Hours from all Santa Catalina Island NZE electric generating units rated ≤ 0.5 MW by the emission factor of 0.07 lb/MW-hrs and convert to tons per year; and

(C) Sum the total annual NOx mass emissions of all Santa Catalina Island NZE electric generating units rated ≤ 0.5 MW to the total annual NOx mass emissions from other electric generating units obtained from CEMS, if applicable.

(5) The owner or operator of a Santa Catalina Island NZE electric generating unit rated ≤ 0.5 MW shall maintain records onsite for a minimum of five years of all data used to calculate the annual NOx mass emissions pursuant to paragraph (e)(4) and make available to the Executive Officer upon request.

(6) The owner or operator of a Santa Catalina Island NZE electric generating unit rated ≤ 0.5 MW shall install a non-resettable device to continuously record the Megawatt-Hours of each unit.

(~~3~~7) Backup Units

Until July 1, 2026, the owner or operator of a backup unit is not subject to paragraph (e)(2), provided that the owner or operator, for each backup unit:

(A) Install, maintain, and operate a totalizing fuel meter or any device approved by the Executive Officer to be equivalent in accuracy, reliability, reproducibility, and timeliness, to measure quarterly fuel usage;

(B) Conduct annual source testing to demonstrate compliance with the NOx emission limits as specified on the Permit to Operate according to South Coast AQMD Method 100.1 – Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling, South Coast AQMD Method 7.1 – Determination of Nitrogen Oxide Emissions from Stationary Sources, U.S. EPA Method 20 – Nitrogen Oxides from Stationary Gas Turbines; or U.S. EPA Method 7E – Nitrogen Oxide - Instrumental Analyzer;

(C) Conduct the initial source test pursuant to subparagraph (e)(~~3~~7)(B) within six months from the time the facility becomes a former RECLAIM NOx facility or within one year from the date of the last source test, whichever is later;

(D) Submit a source test protocol to the Executive Officer for written approval at least 60 days before the scheduled date of the source

test(s) required in subparagraphs (e)(~~3~~7)(B) and (e)(~~3~~7)(C). The source test protocol shall include the following:

(i) Brief descriptions of the unit to be tested and process;

(ii) Operating conditions under which the test(s) will be conducted;

(iii) Planned sampling parameters, including a process schematic diagram showing the ports and sampling locations, with the dimensions of ducts and stacks at the sampling locations and distances of flow disturbances from the sampling locations;

(iv) Brief description of test, sampling, and analytical methods used to measure pollutant, temperature, flow rates, and moisture;

(v) Description of calibration and quality assurance procedures; and

(vi) Information on equipment, logistics, personnel, and other resources necessary to conduct an efficient and coordinated source test;

(E) In lieu of subparagraph (e)(~~3~~7)(D), a previously approved source test protocol may be used if:

(~~3~~7) (E) (i) The unit has not been altered in a manner that requires a permit modification;

(ii) The permit emission factors or concentration limits or equipment-specific or category-specific emission rates have not changed since the previous test;

(iii) The approved source test protocol is representative of the operation and configuration of the unit;

(iv) The approved source test protocol meets the requirements in clauses (e)(~~3~~7)(D)(i) through (e)(~~3~~7)(D)(vi); and

(v) The approved source test protocol references the test method(s) required in subparagraph (e)(~~3~~7)(B);

(F) Submit a report of quarterly NOx mass emissions to the Executive Officer, using a format approved by the South Coast AQMD, as calculated using the emission factor specified in the Permit to Operate within 30 days after the end of the first three quarters and 60 days after the end of the fourth quarter of a compliance year;

(G) Tune-up once a year to manufacturer's specifications;

(H) Maintain the following records on-site for five years and make this information available to the South Coast AQMD upon request:

(i) Data collected and calibration records from the totalizing fuel meter or the Executive Officer-approved device as required by subparagraph (e)(~~3~~7)(A);

(ii) Source test protocols and reports as required by subparagraphs (e)(~~3~~7)(B) and (e)(~~3~~7)(D) or (e)(~~3~~7)(E);

(iii) Quarterly NOx mass emission reports as required by subparagraph (e)(~~3~~7)(F), including data used to calculate the NOx mass emissions; and

(iv) Record of each tune-up as required by subparagraph (e)(~~3~~7)(G); and

(I) Within six months of becoming a former RECLAIM NOx facility, submit a permit application that limits total annual operation time to no more than 1,300 hours per calendar year.

(~~4~~8) City of Glendale

The City of Glendale or any of its successors shall demonstrate compliance with paragraph (d)(~~6~~7) and calculate NOx emission rate in pounds of NOx per net Megawatt-Hour or NOx emission cap in pounds of NOx per day and tons of NOx per calendar year as established in their approved ~~Continuous Emission Monitoring System (CEMS)~~ CEMS Plan.

(~~5~~9) Diesel Internal Combustion Engines

The owner or operator of each diesel internal combustion engine electric generating unit shall comply with the following provisions:

(A) Demonstrate compliance with the carbon monoxide and volatile organic compound ~~emissions~~emission limits of this rule pursuant to South Coast AQMD Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines subdivisions (f) – Monitoring, Testing, Recordkeeping and Reporting and (g) – Test Methods;

(B) Conduct yearly source test for particulate matter emissions according to South Coast AQMD Method 5.1 – Determination of Particulate Matter Emissions from Stationary Sources Using a Wet Impingement Train or South Coast AQMD Method 5.2 – Determination of Particulate Matter Emissions from Stationary Sources Using Heated Probe and Filter to demonstrate compliance with the particulate matter emission limit. The yearly emission limit shall be defined as a period of 12 consecutive months determined on a rolling basis with a

new 12-month period beginning on the first day of each calendar month;

(C) Submit a source test protocol to the Executive Officer for written approval at least 60 days before the scheduled date of the source test(s) required in subparagraph (e)(~~5~~9)(B). The source test protocol shall include the information specified in clauses (e)(~~3~~7)(D)(i) through (e)(~~3~~7)(D)(vi); and

(D) In lieu of subparagraph (e)(~~5~~9)(C), a previously approved source test protocol may be used if the approved source test protocol meets all the criteria specified in clauses (e)(~~3~~7)(E)(i) through (e)(~~3~~7)(E)(v).

(~~6~~10) Catalytic and Non-Catalytic Control Devices with Ammonia Injection

(A) The owner or operator of each electric generating unit with a catalytic or non-catalytic control device with ammonia injection shall conduct quarterly source tests to demonstrate compliance with the ammonia emission limit specified in the Permit to Operate according to South Coast AQMD Method 207.1 – Determination of Ammonia Emissions from Stationary Sources during the first 12 months of operation of the electric generating unit with a catalytic or non-catalytic control device with ammonia injection and annually thereafter when four consecutive quarterly source tests demonstrate compliance with the ammonia emission limit specified in the Permit to Operate. If an annual test is failed, the owner or operator shall conduct four consecutive quarterly source tests to demonstrate compliance with the ammonia emission limit specified in the Permit to Operate prior to resuming annual source tests.

(~~6~~10) (B) In lieu of complying with subparagraph (e)(~~6~~10)(A), the owner or operator of an electric generating unit with a catalytic or non-catalytic control device with ammonia injection may utilize ammonia CEMS certified under an approved South Coast AQMD protocol to demonstrate compliance with the ammonia emission limit specified in the Permit to Operate.

(~~7~~11) The owner or operator of each former RECLAIM NOx facility and non-RECLAIM NOx facility shall maintain information pursuant to this subdivision at the facility for a period of five years, except that all data gathered or computed for intervals of less than 15 minutes shall be

maintained for a minimum of 48 hours, and made available to South Coast AQMD upon request.

(~~8~~1 Operations Recordkeeping

2) The owner or operator of each former RECLAIM NOx facility and non-RECLAIM NOx facility shall maintain records, on a daily basis, for the following parameter(s) or item(s):

(A) Time and duration of startups and shutdowns;

(B) Total hours of operation;

(C) Quantity of fuel consumption;

(D) Cumulative hours of operation to date for the calendar year;

(E) Megawatt-hours of electricity produced; and

(F) Net ~~megawatt-hours~~Megawatt-Hours electricity produced.

(f) Use of Liquid Petroleum Fuel

(1) Force Majeure Natural Gas Curtailment

The owner or operator of an electric generating unit shall not be subject to the NOx ~~emissions~~emission limits specified in subdivision (d) during force majeure natural gas curtailment when the use of liquid petroleum fuel is required and the electric generating unit may burn liquid petroleum fuel, provided that:

(1) (A) Within 15 days of each occurrence, the owner or operator of each electricity generating facility submits an affidavit signed by a corporate officer affirming that liquid petroleum fuel was burned due to force majeure natural gas curtailment; and

(B) Each electric generating unit, when it burns liquid petroleum fuel, emits NOx at no more than the applicable unit-specific liquid petroleum fuel NOx emission limit specified in the Permit to Operate.

(2) Distillate Fuel Oil Readiness Testing

The owner or operator of an electric generating unit shall not be subject to the NOx ~~emissions~~emission limits specified in subdivision (d) during distillate fuel oil readiness testing and the electric generating unit may burn liquid petroleum fuel, provided that:

(A) Distillate fuel oil readiness testing does not exceed 60 minutes per week;

(B) Each electric generating unit, when it burns liquid petroleum fuel, emits NOx at no more than the applicable unit-specific liquid petroleum fuel NOx emission limit specified in the Permit to Operate;

(C) The owner or operator conducts distillate fuel oil readiness testing only after the equipment has reached the emission limits specified in paragraph (d)(1) while firing on natural gas and no later than 60 minutes after achieving emission limits specified in paragraph (d)(1) while firing on natural gas; and

(D) Each distillate fuel oil readiness test commences with the equipment switching from natural gas to liquid petroleum fuel and concludes with the equipment switching from liquid petroleum fuel to natural gas.

(3) Source Testing and Fuel Flow Meter Calibration

The owner or operator of an electric generating unit shall not be subject to the NOx emission limits specified in subdivision (d) when it burns liquid petroleum fuel during emissions source testing or annual fuel flow meter calibration, and the electric generating unit may burn liquid petroleum fuel for emissions source testing or annual fuel flow meter calibration as specified by South Coast AQMD rules or the Permit to Operate, including initial certifications of CEMS and semi-annual Relative Accuracy Test Audits (RATAs). The owner or operator shall only conduct RATA tests and annual fuel flow calibration concurrently with distillate fuel oil readiness testing or during force majeure natural gas curtailment when the use of liquid petroleum fuel is required.

(g) Exemptions

(1) Combined Cycle Gas Turbines

The owner or operator of a combined cycle gas turbine installed prior to November 2, 2018 shall not be subject to paragraph (d)(1) for that combined cycle gas turbine, provided that:

(A) The Permit to Operate as of November 2, 2018 includes a condition limiting the NOx concentration to 2.5 ppmv NOx or less averaged over 60 minutes at 15 percent oxygen on a dry basis; and

(B) The NOx and ammonia limits, averaging times, and startup, shutdown, and, if applicable, tuning requirements specified on the Permit to Operate as of November 2, 2018 are retained.

(2) Once-Through-Cooling Electric Generating Units to Be Retired

Until December 31, 2029, the owner or operator of an electric generating unit subject to the Clean Water Act Section 316(b) shall not be subject to paragraph (d)(1) for that electric generating unit, provided that:

(A) The owner or operator retires the electric generating unit on or before the compliance date set forth in Table 1 of Section 2(B) of the State Water Resources Control Board's Statewide Water Quality Control Policy on the Use of Coastal Estuarine Waters for Power Plant Cooling (Once-Through-Cooling Policy) implementing Section 316(b) of the Clean Water Act;

(B) The NOx and ammonia limits, averaging times, and startup, shutdown, and, if applicable, tuning requirements specified on the Permit to Operate as of November 2, 2018 are retained;

(C) On or before January 1, 2023, the owner or operator notifies South Coast AQMD of the compliance dates set forth in Table 1 of Section 2(B) of the Once-Through-Cooling Policy; and

(D) Within 3 months of approval of an extension of the compliance date set forth in Table 1 of Section 2(B) of the Once-Through-Cooling Policy, the owner or operator notifies South Coast AQMD of the extension. This extension is not applicable to facilities that have utilized the Modeling and Offset Exemptions in Rule 1304 – Exemptions paragraph (a)(2) and the associated replacement electric generating unit is in operation.

(3) Diesel Internal Combustion Engines

The owner or operator of a diesel internal combustion engine installed prior to November 2, 2018 shall not be subject to paragraph (d)(~~3~~4) for that diesel internal combustion engine provided that:

(A) The Permit to Operate as of November 2, 2018 includes a condition limiting the NOx concentration to 51 ppmv NOx or less averaged over 60 minutes at 15 percent oxygen on a dry basis; and

(B) The NOx, ammonia, carbon monoxide, volatile organic compounds, and particulate matter limits, averaging times, and startup and shutdown requirements specified on the Permit to Operate as of November 2, 2018 are retained.

(4) Low-Use

(A) Gas Turbines

The owner or operator of a gas turbine installed prior to November 2, 2018 shall not be subject to ~~emissions~~emission limits specified under paragraph (d)(1) for that gas turbine, provided that the gas turbine:

(i) Maintains an annual capacity factor of less than twenty-five percent each calendar year;

(ii) Maintains an annual capacity factor of less than ten percent averaged over three consecutive calendar years on a rolling basis; and

(iii) Retains the NOx and ammonia limits, averaging times, and startup, shutdown, and, if applicable, tuning requirements specified on the Permit to Operate as of November 2, 2018.

(B) Boilers

The owner or operator of a boiler installed prior to November 2, 2018 shall not be subject to paragraph (d)(1) for that boiler, provided that the boiler:

(i) Maintains an annual capacity factor of less than two-and-one-half percent each calendar year;

(ii) Maintains an annual capacity factor of less than one percent averaged over three consecutive calendar years on a rolling basis; and

(4) (B) (iii) Retains the NOx and ammonia limits, averaging times, and startup and shutdown requirements specified on the Permit to Operate as of November 2, 2018.

(C) Initial Requirement for Low-Use Exemption

The owner or operator of an electricity generating facility that elects the low-use exemption pursuant to subparagraph (g)(4)(A) or (g)(4)(B) for a gas turbine or boiler shall submit permit applications by July 1, 2022 for each electric generating unit requesting the change of permit conditions to incorporate the low-use exemption.

(D) Eligibility for Low-Use Exemption

Eligibility of the low-use exemption shall be determined annually for each electric generating unit and reported to the Executive Officer no later than March 1 following each reporting year.

(E) Exceedance of Low-Use Exemption

(i) If an electric generating unit with a low-use exemption pursuant to subparagraph (g)(4)(A) or (g)(4)(B) exceeds the

annual or three year average annual capacity factor limit, such exceedance shall be a violation of this rule and the owner or operator of that electric generating unit is subject to issuance of a notice of violation each year there is an exceedance for each annual and/or three-year exceedance.

(ii) If an electric generating unit with a low-use exemption pursuant to subparagraph (g)(4)(A) or (g)(4)(B) exceeds the annual or three-year average annual capacity factor limit, the owner or operator of that electric generating unit shall:

(~~A~~I) Within six months of the date of reported exceedance of subparagraph (g)(4)(A) or (g)(4)(B), submit complete permit applications to repower, retrofit, or retire that electric generating unit;

(~~B~~II) Submit a CEMS Plan within six months from the date of complete permit application submittal pursuant to subclause (g)(4)(E)(ii)(A); and

(~~C~~III) Not operate that electric generating unit in a manner that exceeds the ~~emissions~~emission limits listed in Table I after two years from the date of the reported exceedance of subparagraph (g)(4)(A) or (g)(4)(B).

(5) Internal combustion engines located on Santa Catalina Island are exempt from subdivision (f).

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Staff Report
Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities

October 2024

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EXECUTIVE SUMMARY

South Coast Air Quality Management District (South Coast AQMD) Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities (Rule 1135), is an industry-specific rule which applies to electric generating units (i.e. boilers, turbines, engines, etc.) at investor-owned electric utilities, at publicly owned electric utilities, or which have a generation capacity of at least 50 Megawatts of electrical power for distribution in the state or local electrical grid system.

During the 2022 amendment of Rule 1135, stakeholders urged staff to conduct a Best Available Retrofit Control Technology (BARCT) analysis of electric generating units located on Santa Catalina Island emphasizing zero-emission (ZE) technologies. In response to stakeholder comments, staff performed a BARCT analysis with a focus on ZE and near-zero emission technologies to repower Santa Catalina Island.

Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities (PAR 1135) will establish oxides of nitrogen (NOx) emission limits for electric generating units located on Santa Catalina Island. PAR 1135 includes monitoring, reporting, and recordkeeping requirements for electric generating units located on Santa Catalina Island. One electricity generating facility with a total of 29 electric generating units is affected by PAR 1135.

The proposed final NOx limit of 6 tpy can be achieved using a combination of Tier 4 Final diesel engines, Santa Catalina Island Near-Zero Emission (NZE) electric generating units, and Santa Catalina Island Zero-Emission (ZE) electric generating units. Staff assumed a combination of 30% ZE, 50% NZE, and 20% diesel internal combustion engines for the purposes of the cost-effectiveness analysis. The proposed final NOx emission limit is estimated to reduce NOx emissions at the electricity generation facility located on Santa Catalina Island by 65.3 tons per year, or 0.18 tons per day. PAR 1135 will partially implement Control Measure for Large Combustion Sources, L-CMB-06: NOx Emission Reductions from Electricity Generating Facilities, of the 2022 Air Quality Management Plan (2022 AQMP).[1]

PAR 1135 was developed through a public process. Six Working Group meetings were held on May 5, 2022, August 4, 2022, November 8, 2022, January 19, 2023, March 27, 2024, and June 13, 2024. Staff also reported on the progress of the BARCT assessment to the South Coast Air Quality Management District Stationary Source Committee on August 19, 2022. In addition, Public Workshops were held on February 22, 2023, and on July 31, 2024. Staff also conducted multiple site visits as part of this rule development process and has met numerous times with facility operators, technology vendors, and interested stakeholders.

[1] South Coast AQMD, 2022 AQMP, http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16

CHAPTER 1: BACKGROUND

INTRODUCTION

Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities (PAR 1135) applies to electric generating units at electricity generating facilities that are investor-owned electric utilities, at publicly owned electric utilities, or which have a generation capacity of at least 50 Megawatts (MW) of electrical power for distribution in the state or local electrical grid system. PAR 1135 is needed to update oxides of nitrogen (NOx) emission limits for electricity generating facilities located on Santa Catalina Island to reflect Best Available Retrofit Control Technology (BARCT).

BACKGROUND

The 2022 amendment of South Coast Air Quality Management District (South Coast AQMD) Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities (Rule 1135) included a revision to the averaging time for diesel internal combustion engines located on Santa Catalina Island to demonstrate compliance with emission limits. Stakeholders commented that an updated BARCT assessment was warranted due to the change in averaging time and that the BARCT assessment should emphasize zero-emission (ZE) technologies. The adopted resolution directed staff to re-initiate rule development in 2022 that included a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and near-zero emission (NZE) technologies.

In December 2022, the South Coast AQMD adopted the 2022 Air Quality Management Plan (2022 AQMP)[1] which includes a series of control measures to achieve the 2015 8-hour ozone National Ambient Air Quality Standard. Control Measure for Large Combustion Sources, L-CMB-06: NOx Emission Reductions from Electricity Generating Facilities, of the 2022 AQMP focuses on assessing low NOx and ZE technologies for power generation, and specifically mentions the replacement of existing diesel internal combustion engines with lower-emitting technologies.

REGULATORY BACKGROUND

After a series of NOx rules for utility boilers were adopted in the 1970s, South Coast AQMD Rule 1135.1 – Controlling Emissions of Oxides of Nitrogen from Electric Power Generating Equipment[2] (Rule 1135.1) was adopted in 1980. Rule 1135.1applied to electric utilities with generating system capacity over 500 MW and required the use of least NOx dispatch to minimize NOx emissions. In 1982, the California Superior Court entered a judgment vacating Rule 1135.1, as the result of a lawsuit seeking to rescind Rule 1135.1. The judgement specified a decreasing annual NOx emissions cap until 1990 when a final NOx emissions cap was established.

Rule 1135 was adopted in 1989 and applied to electric power generating steam boiler systems, repowered units, and alternative electricity generating sources. A NOx system-wide average emission limit and a daily NOx emissions cap was established for each utility system. Additionally, Rule 1135 required Emission Control Plans and continuous emissions monitoring systems (CEMS).

Rule 1135 was amended in December 1990 to resolve implementation and enforceability issues raised by the California Air Resources Board (CARB). This amendment included accelerated

[1] South Coast AQMD, 2022 Air Quality Management Plan, http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16

[2] South Coast AQMD, Rule 1135.1, http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1135-1.pdf?sfvrsn=4

retrofit dates for emission controls, unit-by-unit emission limits, modified compliance plan and monitoring requirements, computerized telemetering, and an amended definition of alternative resources. Rule 1135 was amended again in July 1991 to address additional staff recommendations regarding system-wide emission rates, daily emission caps, annual emission caps, oil burning, and cogeneration, along with outstanding issues related to modeling and BARCT analysis. The United States Environmental Protection Agency (U.S. EPA) approved Rule 1135 into the State Implementation Plan on August 11, 1998.

When the REgional Clean Air Incentives Market (RECLAIM) program was adopted in 1993, electricity generating facilities were included in NOx RECLAIM with the exception of electricity generating facilities that were owned and operated by the City of Burbank, City of Glendale, and the City of Pasadena that were allowed to opt-in to the program. The cities of Burbank and Pasadena opted in to RECLAIM, while the City of Glendale remained regulated by command-and-control rules. In response to an increased demand for power generation and delayed installation of controls by electricity generating facilities, in May 2001, the South Coast AQMD Governing Board adopted South Coast AQMD Rule 2009 – Compliance Plan for Power Producing Facilities (Rule 2009),[3] which required installation of BARCT through compliance plans at electricity generating facilities. As a result, much of the equipment at electricity generating facilities was retrofitted or replaced to meet lower NOx emission limits. Diesel internal combustion engines providing power to Santa Catalina Island were not subject to Rule 2009 because the facility did not qualify as a Power Producing Facility because its capacity was less than 50 MW.

In 2018, Rule 1135 was amended to establish BARCT NOx limits which are needed to transition electric generating facilities in the RECLAIM program to a command-and-control regulatory structure and to implement Control Measure CMB-05: Further NOx Reductions from RECLAIM Assessment of the 2016 Air Quality Management Plan (2016 AQMP)[4] and Assembly Bill 617. The 2018 amendment expanded Rule 1135 applicability to all electric generating units at RECLAIM NOx, former RECLAIM NOx, and non-RECLAIM NOx electricity generating facilities. The amendment updated emission limits to reflect current BARCT levels and to provide implementation timeframes for boilers, gas turbines, and internal combustion engines located on Santa Catalina Island. Additionally, the amendment established provisions for monitoring, reporting, and recordkeeping, and exemptions from specific provisions.

Rule 1135 was amended on January 7, 2022, to remove ammonia limits, update provisions for Continuous Emission Monitoring Systems, reference South Coast AQMD Rule 429.2 – Startup and Shutdown Exemption Provisions for Oxides of Nitrogen From Electricity Generating Facilities[5] for startup and shutdown requirements, and revise requirements for diesel internal combustion engines on Santa Catalina Island. Staff was directed to re-initiate rule development to include a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and NZE technologies to address the large amount of pollution generated from such a small and outdated source of electricity.

[3] South Coast AQMD, Rule 2009, http://www.aqmd.gov/docs/default-source/rule-book/reg-xx/rule-2009-compliance-plan-for-power-producing-facilities.pdf?sfvrsn=4

[4] South Coast AQMD, 2016 AQMP, www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15

[5] South Coast AQMD, Rule 429.2, http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-429-2.pdf?sfvrsn=9

Nearly all electricity generating facilities in the South Coast Air Basin besides the equipment on Santa Catalina Island of have been operating at BARCT NOx limit for several years already.

AFFECTED FACILITIES AND EQUIPMENT

The proposed amendments to Rule 1135 impacts one electricity generating facility located on Santa Catalina Island. The electricity generating facility on Santa Catalina Island currently operates six diesel internal combustion engines and 23 microturbines to generate power. Over 90 percent of the power generated at the electricity generating facility on Santa Catalina Island is from diesel internal combustion engines. The diesel internal combustion engines on Santa Catalina Island produce approximately 10 to 70 times more NOx than other electric generating units subject to Rule 1135. The electricity generating facility on Santa Catalina Island produces more than 10 percent of the NOx emissions from all electricity generating facilities in South Coast AQMD while providing less than 0.06% of the power[6]. **Table 1-1** contains the equipment affected by PAR 1135.

Table 1-1: PAR 1135 Affected Equipment

Equipment Type	Rating (MW)	Construction Year	NOx Emissions[7]
Diesel Engine Unit 7	1	1958	97 ppmv (15% O_2, dry)
Diesel Engine Unit 8	1.5	1964	97 ppmv (15% O_2, dry)
Diesel Engine Unit 10	1.125	1968	140 ppmv (15% O_2, dry)
Diesel Engine Unit 12	1.5	1976	82 ppmv (15% O_2, dry)
Diesel Engine Unit 14	1.4	1985	103 ppmv (15% O_2, dry)
Diesel Engine Unit 15	2.8	1995	51 ppmv (15% O_2, dry)
Microturbines (23 units)	1.49	2011	0.07 lb/MW-hr

PUBLIC PROCESS

Development of PAR 1135 was conducted through a public process. Six Working Group meetings were held on May 5, 2022, August 4, 2022, November 8, 2022, January 19, 2023, March 27, 2024, and June 13, 2024. The Working Group is composed of representatives from businesses, environmental groups, public agencies, and consultants. The purpose of the Working Group meetings is to discuss proposed concepts and work through the details of South Coast AQMD's proposal. Staff also reported on the progress of the BARCT assessment to the South Coast AQMD Stationary Source Committee on August 19, 2022. Additionally, Public Workshops were held on February 22, 2023 and on July 31, 2024. The purpose of the Public Workshops is to present the proposed rule language to the general public and stakeholders and to solicit comment. Staff also

[6] Based on the Final Staff Report for the 2018 amendment to Rule 1135 (9 MWh/15,904 MWh and 0.2 tpd/1.9 tpd)

[7] NOx emissions for diesel engines calculated by using the uncontrolled NOx emissions and control efficiency specified in Southern California Edison's Best Available Control Technology and Alternative Analysis for Pebbly Beach Generating Station (Version 00; Revised April 30, 2021) and NOx emissions for microturbines reflect the emission standard in the California Air Resources Board Distributed Generation Certification Regulation

conducted multiple site visits as part of this rule development process and has met with individual facility operators, technology vendors, and interested stakeholders.

CHAPTER 2: BARCT ASSESSMENT

INTRODUCTION

BARCT ANALYSIS APPROACH

Assessment of South Coast AQMD Regulatory Requirements

Assessment of Emission Limits for Existing Units

Other Regulatory Requirements

Assessment of Pollution Control Technologies

Initial BARCT Emission Limit and Other Considerations

Cost-Effectiveness and Incremental Cost-Effectiveness Analyses

BARCT Emission Limit Recommendation

INTRODUCTION

South Coast Air Quality Management District (South Coast AQMD) conducted an assessment of Best Available Retrofit Control Technology (BARCT) for electric generating units located on Santa Catalina Island. Staff will reevaluate BARCT for the remaining electricity generating facilities in the future to fully implement Control Measure for Large Combustion Sources, L-CMB-06: NOx Emission Reductions from Electricity Generating Facilities, from the 2022 Air Quality Management Plan (2022 AQMP).[1]

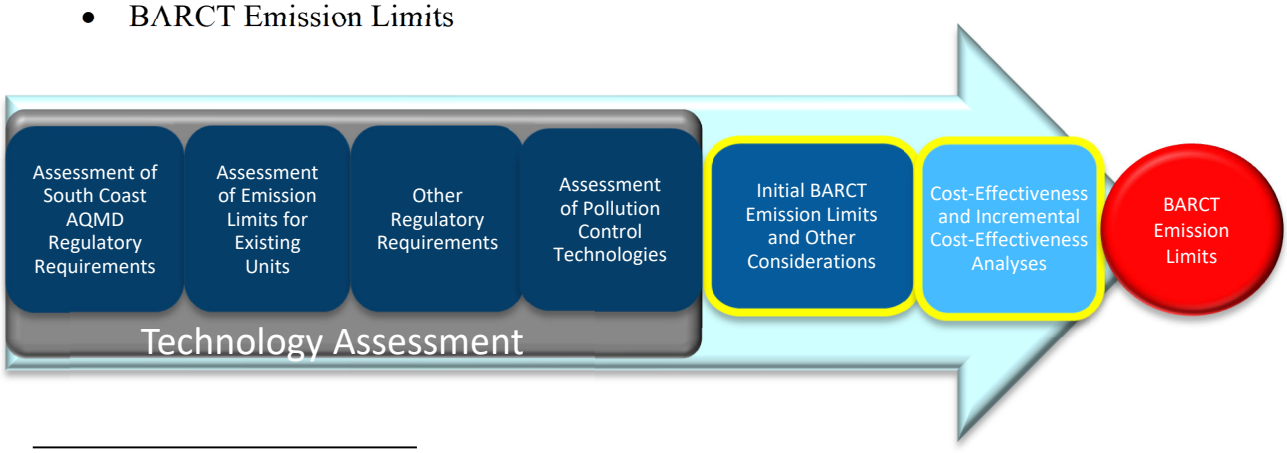
BARCT is defined in the Health and Safety Code Section 40406 as "an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source." Consistent with state law, BARCT emission limits take into consideration environmental impacts, energy impacts, and economic impacts. In addition to oxides of nitrogen (NOx) reductions sought in the proposed amended rule, staff identified potential environmental and energy effects of the proposed rule through the California Environmental Quality Act (CEQA) process. Economic impacts are assessed at the equipment category level by a review of cost-effectiveness and incremental cost-effectives contained in this report and at the macro level as part of the socioeconomic impact assessment contained in a separate report.

BARCT ANALYSIS APPROACH

The BARCT analysis approach follows a series of steps conducted for each equipment category and fuel type. For Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities (PAR 1135), internal combustion engines, fuel cells, linear generators, solar photovoltaic (PV) cells, and tidal and current energy harvesting systems were analyzed.

The steps for BARCT analysis consist of:

- Assessment of South Coast AQMD Regulatory Requirements
- Assessment of Emissions Limits for Existing Units
- Other Regulatory Requirements
- Assessment of Pollution Control Technologies
- Initial BARCT Emission Limits and Other Considerations
- Cost-Effectiveness and Incremental Cost-Effectiveness Analyses
- BARCT Emission Limits



[1] South Coast AQMD, 2022 Air Quality Management Plan, http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16

Assessment of South Coast AQMD Regulatory Requirements

As part of the BARCT assessment, staff reviewed existing South Coast AQMD regulatory requirements that affect NOx emissions for electric generating units located on Santa Catalina Island. NOx emissions from electric generating units located on Santa Catalina Island are regulated under South Coast AQMD Rule 1135 – Emissions of Oxides of Nitrogen from Electric Power Generating Systems (Rule 1135) and Regulation XX – Regional Clean Air Incentives Market (RECLAIM) (Regulation XX).

The RECLAIM program limits NOx emissions from electricity generating facilities, but does not limit emissions or establish concentration limits by equipment category or fuel type. However, emissions limits are established at the time of permitting, and permits may include concentration limits for NOx and emissions limits for non-RECLAIM pollutants such as particulate matter. A facility's NOx allocations are diminished over time, requiring facilities to lower emissions or to purchase credits from other facilities that have lowered emissions below their allocations.

Rule 1135 established interim NOx emission limits for the electricity generating facility located on Santa Catalina Island, which includes a 50 tons per year NOx limit by January 1, 2024 and 45 tons per year NOx limit by January 1, 2025 from all electric generating units. Rule 1135 established a 13 ton per year final NOx limit from all electric generating units located on Santa Catalina Island on and after January 1, 2026, with an option for a three-year extension. Rule 1135 also requires new diesel combustion engines located on Santa Catalina Island to meet a 45 parts per million by volume (ppmv) NOx limit at 15% oxygen on a dry basis.

Assessment of Emission Limits for Existing Units

Staff examined the current electric generating units located on Santa Catalina Island to assess emission limits. Permit limits for NOx were identified for all equipment to identify what is already being done in practice.

Six prime power diesel internal combustion engines are located on Santa Catalina Island. Five of these engines were installed more than 39 years ago and one was installed 29 years ago. All units are controlled with selective catalytic reduction. In 2003, the higher emitting units were retrofitted, while the lowest emitting unit was a new installation in 1995. The lowest permitted NOx limit for a diesel engine used for electricity generation in South Coast AQMD is 51 ppmv at 15% oxygen on a dry basis. The details of the diesel internal combustion engines subject to PAR 1135 are listed below in **Table 2-1** below. The NOx permit limit of 6.5 pounds per Megawatt hour (lbs/MW-hr) for the diesel internal combustion engines located on Santa Catalina Island is roughly 100 times higher than the California Air Resources Board (CARB) distributed generation emission standard for NOx at 0.07 lbs/MW-hr required for newly installed electric generating units.[2] PAR 1135's proposed definition of Santa Catalina Island near-zero emission (NZE) electric generating unit is based on CARB's distributed generation emission standard for NOx, which is equivalent to approximately 2.5 ppmv NOx at 15% oxygen on a dry basis.

The electricity generating facility located on Santa Catalina Island also operates 23 propane fired microturbines to supplement the six prime power diesel internal combustion engines. The

[2] CARB, Final Regulation Order – Establish a Distributed Generation Certification Program, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/dg01/finreg.pdf?_ga=2.89974301.708521970.1675193247-969541522.1644423250

microturbines have registrations pursuant to Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II. The microturbine registration operating parameters specify that each gas turbine shall be certified with the State of California at the date of manufacture. The California Air Resources Board Distributed Generation Certification Regulation specifies a NOx emission limit of 0.07 lb/MW-hr.

Table 2-1: Prime Diesel Internal Combustion Engines at the Electricity Generating Facility Located on Santa Catalina Island

Unit	Size (HP)	Output (MW)	Install Year	Retrofit Date	Control^	NOx Permit Limit+
10	1575	1.125	1968	2003	SCR	6.5 lbs/Megawatt-hour (MW-hr)~
14	1950	1.4	1985	2003	SCR	6.5 lbs/MW-hr~
8	2150	1.5	1964	2003	SCR	6.5 lbs/MW-hr~
7	1500	1	1958	2003	SCR	6.5 lbs/MW-hr~
12	2200	1.5	1976	2003	SCR	6.5 lbs/MW-hr~
15	3900	2.8	1995	None	SCR	51 ppmv at 15% O_2, dry; 6.5 lbs/MW-hr~

+ Actual NOx concentrations emitted are generally lower than the NOx permit limits
~ Averaged over one calendar year, limit is based on total mass NOx emitted from Units 1 – 6 and microturbines
^ SCR: Selective Catalytic Reduction

The baseline emissions from the six prime power diesel internal combustion engines located on Santa Catalina Island were determined to be 71.3 tons of NOx per year based on Annual Emission Report (AER) data.[3] Emissions from microturbines located on Santa Catalina were not included in the baseline emissions calculation because the current definition of electric generating unit in Rule 1135 does not include microturbines.

Other Regulatory Requirements

As part of the BARCT assessment, staff examined NOx limits for diesel internal combustion engines promulgated by Bay Area Air Quality Management District (BAAQMD), Sacramento Metropolitan Air Quality Management District (SMAQMD), and San Joaquin Valley Air Pollution Control District (SJVAPCD). **Table 2-2** below notes the NOx limits in the three air districts. The applicable equipment sizes differ by regulation.

[3] Staff established baseline emissions for the electricity generating facility located on Santa Catalina Island by determining the average of emissions from prime power diesel internal combustion engines listed in the AERs for the reporting years of 2017, 2019, and 2021. The AER data for the 2018 reporting year was not available and the AER data or 2020 was not representative due to the COVID-19 pandemic, and therefore were not included.

Table 2-2: Other Air District Emission Standards for Diesel Internal Combustion Engines

Air District	Rule Number	Rule Adoption Date	NOx Limit
BAAQMD	Regulation 9, Rule 8	July 25, 2007	110 ppmv at 15% oxygen
SMAQMD	Rule 412	June 1, 1995	80 ppmv at 15% oxygen
SJVAPCD	Rule 4702	August 18, 2021	U.S. EPA Tier 4[+] or meet certified compression-ignition engine standard[~]

[+] Applies to non-certified compression-ignited engines installed on or before January 1, 2015 (greater than 750 brake horsepower and less than 1,000 annual operating hours) and United States Environmental Protection Agency (U.S. EPA)-certified Tier 1 or Tier 2 compression-ignited engines

[~] Applies to U.S. EPA-certified Tier 3 or Tier 4 compression ignition engines

Assessment of Pollution Control Technologies

As part of the BARCT assessment, staff conducted a technology assessment to evaluate NOx pollution control technologies for electric generating units located on Santa Catalina Island. Staff reviewed scientific literature, vendor information, and strategies utilized in practice. The technologies are presented below and the applicability for use with various electric generating units is noted.

Fuel Cells

A fuel cell is a device capable of producing electrical energy from chemical reactions through the conversion of a fuel, such as hydrogen or propane, and an oxidizing agent, such as oxygen, into electricity. A fuel cell works similarly to a battery and is comprised of two electrodes, an anode and a cathode, surrounding an electrolyte membrane (**Figure 2-1**). A fuel such as hydrogen or propane is supplied to the anode and oxygen enters the cathode. The porous electrolyte membrane only allows positively charged protons to pass through to the cathode. Negatively charged electrons that cannot pass through the electrolyte membrane flow through an external circuit to generate an electric current. Oxygen, protons, and unused electrons combine in the catalytic cathode to produce water and heat as a byproduct of waste.

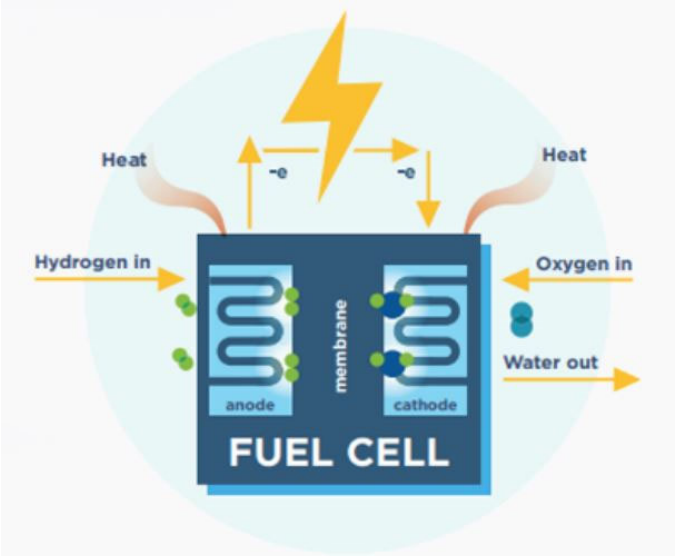


Figure 2-1: Typical Components of a Hydrogen Fuel Cell[4]

Fuel cells are two to three times more efficient than internal combustion engines and provide the flexibility to operate utilizing a variety of fuels such as hydrogen, propane, and biogas. The products of a hydrogen fuel cell are electricity, water, and heat. Alternately, propane fuel cells are expected to produce less than 2.5 ppmv of NOx emissions.[5] Fuel cells can also be combined to form a fuel cell stack in series to yield a higher voltage or in parallel for a higher current and are complementary to other energy technologies such as batteries, solar panels, and wind turbines.

Internal Combustion Engines

Internal combustion engines work by releasing energy through the combustion of a fuel and air mixture. Gasoline or diesel are most commonly used but renewable fuels such as natural gas, propane, or biodiesel may also be utilized. An internal combustion engine consists of two components working together, a fixed cylinder and a piston. Expanding combustion gases within the engine pushes the piston, which in turn rotates the crankshaft. This high-speed motion generates an electric current.

Non-road diesel internal combustion engines contribute considerably to air pollution. To improve air quality, the U.S. EPA developed Tier 4 emission standards for nonroad diesel internal combustion engines to reduce harmful emissions. Replacement with a U.S. EPA Tier 4 Final diesel engine is expected to produce less than 45 ppmv NOx. Replacement with a propane internal combustion engine is expected to produce less than 11 ppmv NOx. Staff also discussed with stakeholders the possibility of propane internal combustion engines meeting a 2.5 ppmv NOx limit with add-on control equipment. However, staff has not received further information regarding this control option.

[4] Fuel Cell & Hydrogen Energy Association, Fuel Cell Basics, https://www.fchea.org/fuelcells

[5] Combined Heath and Power Partnership, Catalog of CHP Technologies, Section 6. Technology Characterization – Fuel Cells, https://www.epa.gov/sites/default/files/2015-07/documents/catalog_of_chp_technologies_section_6._technology_characterization_-_fuel_cells.pdf

Linear Generators

A linear generator works to directly convert linear motion into electricity by compressing a mixture of fuel and air in a center reaction zone. The compression of fuel and air creates a chemical reaction that drives magnets through copper coils in a linear motion. Energy is created from the magnets attached to oscillators, which interact with the copper coils during linear motion to generate electricity (**Figure 2-2)**.

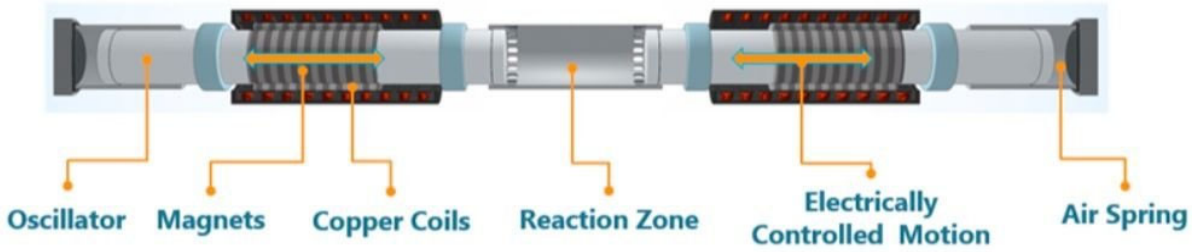


Figure 2-2: Components of a Linear Generator[6]

Linear generators maintain reaction temperatures below levels at which NOx forms, resulting in NZE. Further, linear generators do not require add-on control technologies such as selective catalytic reduction to control NOx emissions and have lower start-up emissions since it is not dependent on a catalyst to reach a destruction temperature. In addition, linear generators utilize a parametric monitoring system to maintain proper combustion to meet energy demands. The parametric monitoring system works by monitoring air and fuel flow to ensure proper air-to-fuel ratio is achieved, which also ensures emissions are under control. Lastly, linear generators also provide the flexibility to operate utilizing various fuels including hydrogen and propane.

Solar Photovoltaic Cells

Solar PV cells generate zero-emission (ZE) electricity by absorbing sunlight and utilizing light energy to create an electrical current. Light consists of photons vibrating at a range of wavelengths, and the wavelengths can be captured by a solar PV cell. Solar PV cells are made of a semiconductor material, typically silicon, that is treated in a way that allows it to interact with photons from sunlight. Sunlight energy absorbed by solar PV cells causes electrons to flow through two layers of silicon to create an electric field (**Figure 2-3**). The electric field forces loosened electrons to flow through in one direction, generating an electric current. Metal plates on each side of the solar PV cell collect those electrons and transfer them to wires where electrons then flow as electricity. Solar PV cells are wired together and installed on top of a substrate such as metal or glass to create solar panels, which are then installed collectively as a group to form a solar power system.

[6] Greentech Media, "Mainspring Energy Lands $150M Deal to Deploy its Linear Generators with NextEra," https://www.greentechmedia.com/articles/read/mainspring-energys-linear-generators-to-roll-out-through-150m-deal-with-nextera

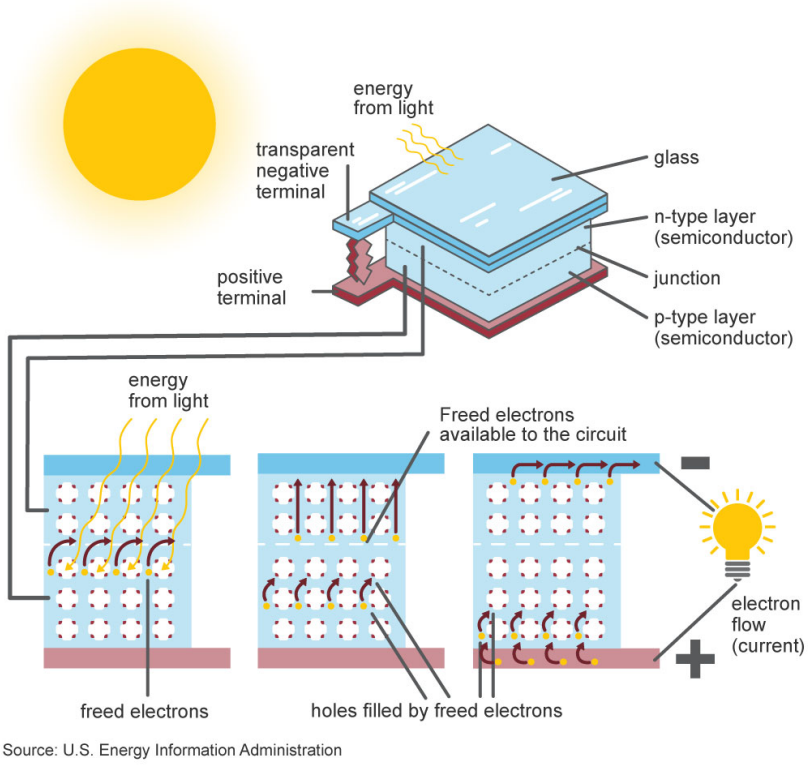


Figure 2-3: Inside a Solar PV Cell[7]

Solar PV cells can supply power through different systems. Through an on-grid system, excess power is produced by solar panels fed to the local utility grid, which can supply power that solar panels are not producing (e.g. at night). Off-grid systems contain solar panels that charge batteries, where electricity is drawn. A hybrid system consists of solar panels connected to the grid and a battery backup to store excess power.

Tidal and Current Energy Harvesting Systems

Tidal and current energy harvesting systems are a renewable ZE technology that generate electricity from tidal streams and ocean currents (**Figure 2-4**). Tidal and current energy harvesting systems generate power by the wing utilizing the hydrodynamic lift force created by the underwater current and the turbine being pulled through the water at a water flow higher than the stream speed. The turbine shaft turns the generator which outputs electricity to the grid via a power cable.

[7] United States Energy Information Administration, Photovoltaics and Electricity, https://www.eia.gov/energyexplained/solar/photovoltaics-and-electricity.php#:~:text=The%20U.S.%20Energy%20Information%20Administration%20%28EIA%29%20estimates%20that,2020%2C%20up%20from%2011%20billion%20kWh%20in%202014

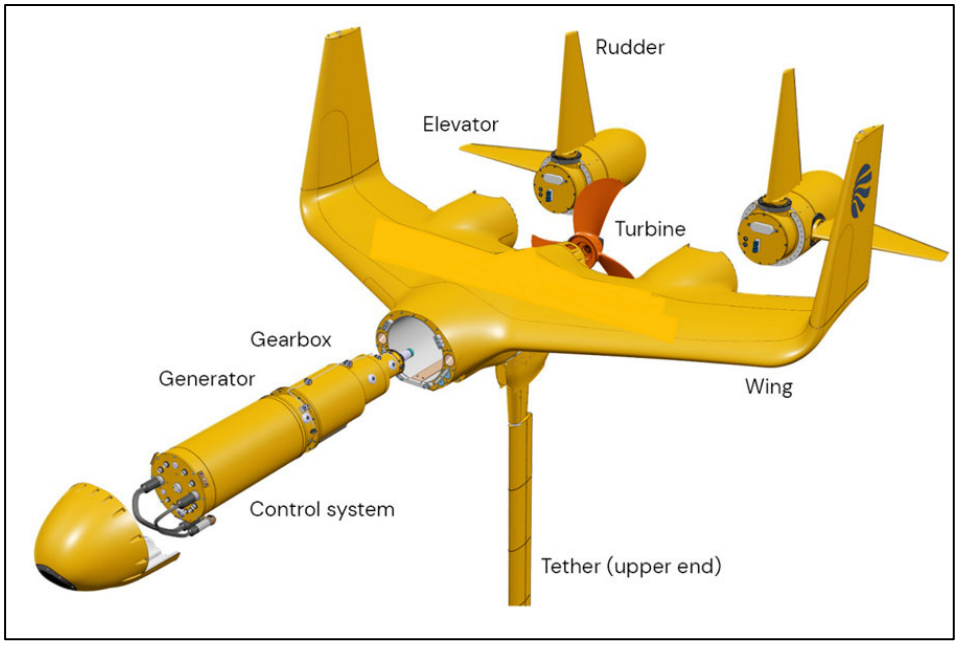


Figure 2-4: Tidal and Current Energy Harvesting System

Senate Bill (SB) 605 (Padilla, Chapter 405, Statutes of 2023) requires the California Energy Commission, in consultation with other state agencies, to evaluate the technological and economic feasibility of deploying wave and tidal energy[8]. Other requirements of SB 605 include identifying suitable sea space for wave and tidal energy projects and identifying monitoring strategies to evaluate impacts to marine and tidal ecosystems.

Other Technologies

Staff also screened other technologies including wind turbines and undersea cables. While staff found technological limitations in this particular case, it is possible in the future that technological advances could overcome the hurdles staff identified.

Initial BARCT Emission Limit and Other Considerations

Staff considered specific repower parameters for the electricity generating facility on Santa Catalina Island throughout the technology assessment process, including electricity demand, space limitations, and fuel storage. Furthermore, challenges for the deployment of ZE and/or NZE technologies were taken into consideration when establishing the BARCT NOx mass emission limit.

Electricity Demand

The electricity generating facility on Santa Catalina Island historically produces approximately 29,000 MW-hr per year of power. The average hourly load is approximately 3.3 Megawatts (MW). In September 2022, the electricity generating facility located on Santa Catalina Island reached a new peak load of 6.3 MW during a heat wave. The historical annual power generation and new peak load was used to determine feasible repower scenarios to establish BARCT.

[8] https://legiscan.com/CA/text/SB605/id/2844364

Space Limitations

A significant challenge for installing ZE and/or NZE technologies at the electricity generating facility located on Santa Catalina Island is limited space (**Figure 2-5**). The estimated available onsite space for ZE and/or NZE technologies is less than 5,000 square feet. The electricity generating facility located on Santa Catalina Island also provides water and gas service, which limits the equipment that could be removed and replaced with ZE and/or NZE equipment on the existing facility footprint. The BARCT analysis assumed that three of the six existing diesel engines that will not be replaced with Tier 4 Final diesel engines and all existing microturbines could be removed to install ZE and/or NZE technologies for power generation (see areas marked in red in **(Figure 2-5)**.

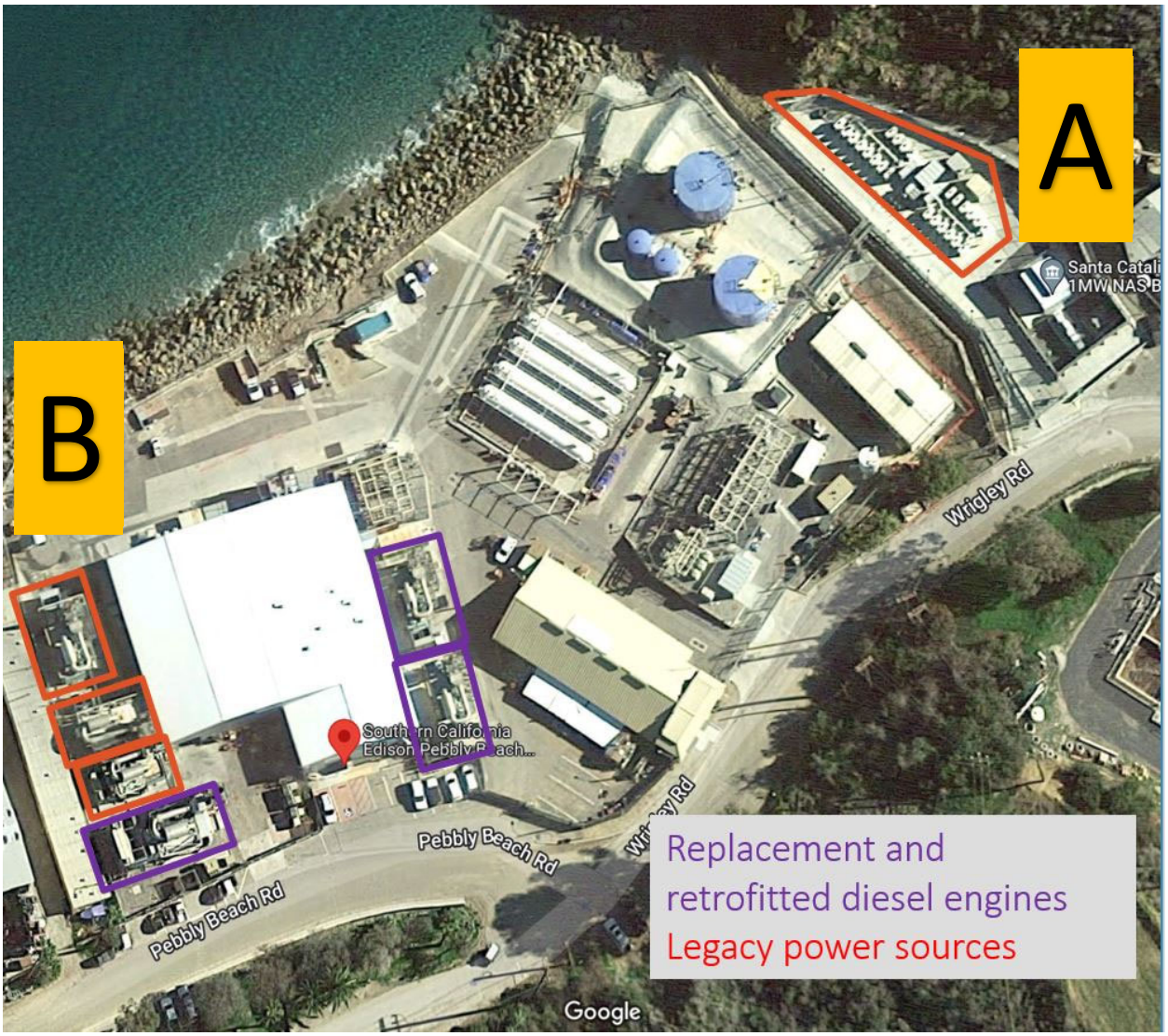


Figure 2-5: Land Availability at the Electricity Generating Facility Located on Santa Catalina Island

A – Microturbine platform
B – Diesel internal combustion engines

Staff analyzed the number of ZE and NZE units that could fit in the existing facility footprint (**Table 2-3**)[9]. Initially, staff anticipated that eight linear generators could fit on the microturbine pad. However, the electricity generating facility on Santa Catalina Island stated that the microturbine pad (location A in Figure 2-5) could likely only accommodate five linear generators due to required ancillary equipment. Staff repeatedly requested information from the electric generating facility located on Santa Catalina Island regarding the number of NZE units that could fit in location B in Figure 2-5, when considering ancillary equipment needed. The electricity generating facility located on Santa Catalina Island stated that they had not analyzed how many NZE units could fit at location B because six diesel engines are necessary to meet electricity demand. Therefore, the estimated number of ZE or NZE units in Table 2-3 does not account for potential ancillary equipment needed, except for linear generators located on the microturbine pad. The electric generating facility located on Santa Catalina Island has since stated plans to install NZE units at location B.

Table 2-3: Estimated Number of ZE or NZE Units Possible in Available Onsite Space

ZE or NZE Technology	Number of Units in Available Onsite Space	Electric Power Output (MW)
Propane Linear Generators	11	2.75
Hydrogen Linear Generators	11	2.75
Propane Fuel Cells	13	5.7
Hydrogen Fuel Cells	4	4

Staff also evaluated the possibility of land acquisition outside of the existing facility footprint to install ZE and/or NZE technologies. Additional land procurement would be necessary for solar PV cells to provide a significant contribution of power generation to Santa Catalina Island. However, land availability on Santa Catalina Island for solar PV cells is limited, as most open land on the island is mountainous and solar energy production is optimal on flat pieces of land. A potential site on Santa Catalina for the installation of solar PV cells, or other ZE and/or NZE technologies, is Middle Ranch (**Figure 2-6**). Middle Ranch is approximately 15 acres, which can accommodate solar PV installations that could provide approximately 30% of historical power generation needed for Santa Catalina Island. Complications in the permitting process and land use plans with external agencies may generate substantial obstacles for the acquisition of additional land. The current land use plan restricts energy facilities from being established on most areas of Santa Catalina Island, including the Middle Ranch site. Modifications to the Santa Catalina Island land use plan would require the revision of existing regulations with external agencies, which could take multiple years.

[9] Staff's analysis assumed that ZE and/or NZE technologies were not stacked, however, some vendors stated that their technology has the capability of being stacked.

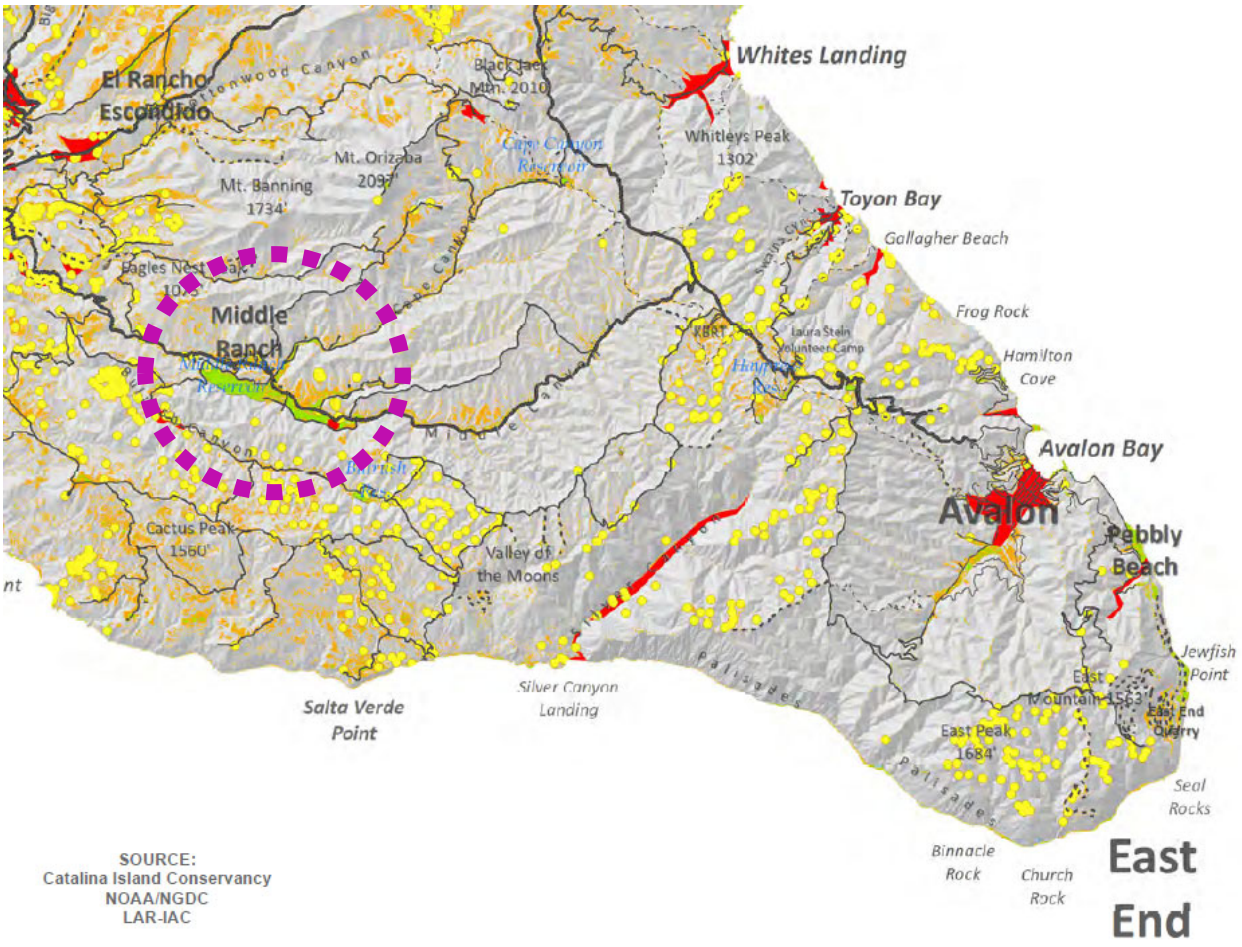


Figure 2-6: Middle Ranch area of Santa Catalina Island[10]

Fuel Storage

Santa Catalina Island does not have fueling infrastructure on the island; all fuel must be brought in by barges. All repower scenarios for the electricity generating facility located on Santa Catalina Island include three diesel internal combustion engines for redundancy because the site already has 30-days of diesel fuel storage. The repower scenarios assume at least 5% power generation (MW-hr per year) from diesel engines in the event that the barge is not running, and fuel cannot be delivered. Staff analyzed fuel deliveries from 2017 to 2021 to Santa Catalina Island and found that the longest time lapse between fuel deliveries was five days and that the barge did not run for a maximum of 14 days in a calendar year (approximately 4% of a calendar year). Staff assumed at least 5% power generation (MW-hr per year) from diesel engines to be conservative. The BARCT analysis assumes that three of the existing diesel engines would be replaced with U.S. EPA Tier 4 Final diesel engines.

Constructing additional fuel storage beyond the existing 30-day supply for diesel and propane storage tanks is limited on the existing facility footprint. If ZE technologies fueled by hydrogen were to be utilized, the electricity generating facility located on Santa Catalina Island would most likely need to expand its existing footprint to accommodate ancillary fuel storage facilities.

[10] Catalina Island Conservancy, GIS Work for Large Solar Project on Island, Accessed: July 21, 2022

Potential land for additional fuel storage was identified at a location adjacent to the electricity generating facility, but outside of the existing facility footprint. After an initial discussion with the landowning company, several unsuccessful attempts for further discussions led staff to determine that acquisition of the land could not be relied upon for the purposes of establishing a BARCT limit.

There are four 30,000-gallon propane storage tanks located at the electricity generating facility located on Santa Catalina Island. However, only three of the propane storage tanks are currently in service due to fire suppression requirements needed to bring the fourth propane storage tank online. Additional water storage for fire suppression is needed to operate the fourth propane storage tank.

Storage tank capacity can fluctuate throughout the year based on seasonal utility demand and gas expansion as temperature rises. Staff requested information from the electricity generating facility located on Santa Catalina Island regarding ambient temperature and daily propane tank percent fill from 2019 to 2023. Based on the data provided, staff found that there was no correlation between temperature and propane tank fill ($R^2 < 0.009$).

The electric generating facility located on Santa Catalina Island stated that a minimum fuel reserve of 25 percent storage tank capacity is required at all times[11]. The average capacity of the propane tanks is 67 percent, but the propane tanks can be filled up to a maximum aggregate capacity of 83 percent. Staff calculated a 2.9 day fuel reserve at average capacity[12]. Since the proposed BARCT limit incorporates 5% diesel engines and 30% ZE technology based on annual power generation (MW-hr per year), existing propane fuel storage was determined to be sufficient. In a scenario where 95% of power is generated using propane, staff calculates a fuel reserve average capacity just below 2 days.

Initial BARCT Emission Limit

Staff projected the number of fuel tanks necessary for ZE and NZE technologies fueled by hydrogen and propane, respectively. **Table 2-4** provides projections of fuel usage and associated fuel tanks delivered based on repower scenarios for the electricity generating facility located on Santa Catalina Island. Staff assumed a maximum capacity of 9,100-gallons (gal) of propane, 1,250-kilograms (kg), or 7,450 gallons of diesel per fuel tank[13]. The electricity generating facility located on Santa Catalina Island utilizes approximately 2 million gallons of diesel and 190,000 gallons of propane annually for power generation, which equates to approximately 300 fuel tanks. The electric generating facility located on Santa Catalina Island also utilizes approximately 650,000 gallons of propane annually for utility service, which equates to approximately 70 fuel tanks.

[11] Between 2019 to 2023, there were 7 days in which the propane tank capacity was below 25 percent

[12] Staff calculated days of propane storage based on three propane storage tanks, a 10-day utility fuel reserve, a 25% fuel reserve minimum, and fuel needed for 65% NZE technology for the proposed BARCT limit

[13] Fuel tank capacity for barge deliveries is included in the Southern California Edison Pebbly Beach Alternatives Study, Revised Final Action Plan (July 14, 2022)

Table 2-4: Hydrogen and Propane Fuel Tanks Estimated for Various Repower Scenarios

	Annual Fuel Requirements	Annual Number of Fuel Tanks
Hydrogen Estimated for 95% ZE Scenario	2,146,200 kg	1,717
Hydrogen Estimated for a 65% ZE Scenario	1,395,030 kg	1,116
Propane Estimated for 95% NZE Scenario	2,860,690 gal	309
Propane Estimated for 65% NZE Scenario	1,859,449 gal	205
Propane Estimated for 50% NZE Scenario	1,915,626 gal	276

Staff determined a 95% ZE scenario to be technologically infeasible due to the number of fuel tanks required for hydrogen fueled ZE technologies. Staff is only aware of one barge that delivers fuel to Santa Catalina Island; the barge makes deliveries Monday through Friday. Based on historical fuel usage at the electricity generating facility on Santa Catalina Island, it is possible to deliver at least two tanks of fuel each day that the barge is operating. Staff assumed that the maximum amount of fuel that could be delivered to the electricity generating facility on Santa Catalina Island is two fuel tanks for 260 days out of the year. Therefore, repower scenarios that required over 448 fuel tanks annually were considered to be technologically infeasible[14]. Staff estimates approximately 1,730 fuel tanks would be required annually for a 95% ZE repower scenario using hydrogen fueled technologies. Additionally, a 95% ZE scenario with a combination of both solar PV cells and hydrogen fueled equipment was determined to be technologically infeasible. Due to limited land availability suitable for solar PV cell installation, staff estimates that a maximum of 30% of power generation for Santa Catalina Island could be provided by solar PV cells. The remaining 65% of ZE hydrogen fueled equipment needed for a 95% ZE scenario is estimated to result in approximately 1,130 fuel tanks annually.

Furthermore, a 95% ZE scenario including hydrogen fueled technologies would likely require ancillary fuel storage facilities outside of the existing facility footprint. After several unsuccessful attempts with the landowning company of a potential fuel storage site, staff determined that acquisition of the land could not be relied upon for the purposes of establishing a BARCT limit. Moreover, even if land for additional fuel storage could be acquired, the hydrogen fuel source would eventually be depleted as there are currently not enough barges to replenish the hydrogen fuel reserves.

[14] Staff's calculations account for the propane tanks that are delivered for utility service

The repower scenario comprised of 95% propane fueled NZE and 5% diesel internal combustion is estimated to result in 309 fuel tanks being delivered annually. This is approximately three percent more fuel tanks being delivered for power generation than current operations.

The repower scenario comprised of 30% ZE, 65% NZE, and 5% diesel internal combustion engines is estimated to result in approximately 220 fuel tanks being delivered annually. The quantity of fuel tanks that would be delivered as a result of a repower scenario comprised of 30% ZE, 65% NZE, and 5% diesel internal combustion engines results in approximately 80 fewer fuel tanks being delivered for power generation than current operations.

The recommendation for the initial BARCT NOx emission limit is based on the technology assessment. A cost-effectiveness analysis, which includes an incremental cost-effectiveness analysis, is then made with cost information provided by stakeholders to further refine the determination for the final BARCT NOx emission limit. Staff proposed an initial BARCT emission limit of 1.6 tons per year NOx for electric generating units located on Santa Catalina Island. The initial BARCT limit is based on a combination of technologies comprising of 30% ZE, 65% NZE, and 5% diesel internal combustion engines for power generation (MW-hr per year) on Santa Catalina Island.

Staff later revised the initial BARCT limit to 1.8 tpy NOx after updating the emission factors used to calculate the final BARCT limit. The emission factors were updated to reflect the U.S. EPA standard for Tier 4 Final engines used in generator sets rated greater than 1200 hp (1.48 lbs/MWhr) and emission standard for Santa Catalina Island Zero-Emission Electric Generating Units defined in PAR 1135 (<0.01 lb/MWhr). The updated emission factors used are conservative, as Tier 4 Final engines can achieve more than 20 percent lower emissions depending on load. Furthermore, Santa Catalina Island Zero-Emission Electric Generating Units are not counted towards emission calculations, as specified in paragraph (e)(4) of PAR 1135.

Cost-Effectiveness and Incremental Cost-Effectiveness Analyses

A complete discussion of cost-effectiveness is provided in Chapter 4: Impact Assessment of this report. The findings are summarized here as part of the BARCT assessment process.

Staff conducted a cost-effectiveness analysis of several repower scenarios utilizing ZE and/or NZE technologies to repower the electricity generating facility located on Santa Catalina Island (**Table 2-5**). Staff evaluated the following technologically feasible repower scenarios based on annual power generation (MW-hr per year): all Tier 4 Final diesel engines; 50% NZE, 50% diesel internal combustion engines; 30% ZE, 50% NZE, 20% diesel internal combustion engines; 95% NZE, 5% diesel internal combustion engines; and 30% NZE, 65% NZE, 5% diesel internal combustion engines.

Table 2-5: Cost-Effectiveness Analysis for Santa Catalina Island Repower Scenarios

	All Tier 4 Final Diesel Engines	50% NZE, 50% Diesel Engines	30% ZE,+ 50% NZE, 20% Diesel Engines	95% NZE, 5% Diesel Engines	30% ZE,+ 65% NZE, 5% Diesel Engines
Net Annual Costs (includes annualized capital and O&M costs)	$2,296,000	$663,000	$2,076,000	$3,060,000	$1,924,000
NOx Emission Reductions (Tons/Year)	49.57	59.92	65.3	69.24	69.5
Cost-Effectiveness ($/Ton of NOx Reduced)	$46,000	$11,000	$32,000	$44,000	$28,000

+ Repower scenario requires the acquisition of land outside of the existing facility footprint

The initial BARCT limit of 1.8 tons per year NOx for the electricity generating facility located on Santa Catalina Island was determined to be cost-effective at less than the 2022 AQMP cost-effectiveness threshold of $325,000 per ton of NOx reduced.

Staff proceeded to conduct incremental cost-effectiveness analyses between each progressively more stringent repower scenario repower scenarios analyzed (**Table 2-6**) and against an all Tier 4 Final diesel engine scenario (**Table 2-7**). Incremental cost-effectiveness is the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option.

Table 2-6: Incremental Cost-Effectiveness of Progressively More Stringent Repower Scenarios

	All Tier 4 Final Diesel Engines versus 50% NZE, 50% Diesel Engines	50% NZE, 50% Diesel Engines versus 30% ZE, 50% NZE, 20% Diesel Engines	30% ZE, 50% NZE, 20% Diesel Engines versus 95% NZE, 5% Diesel Engines	95% NZE, 5% Diesel Engines versus 30% ZE, 65% NZE, 5% Diesel Engines
Incremental Cost-Effectiveness	$(158,000)	$263,000	$250,000	$(4,372,000)

The initial BARCT limit of 1.8 tons per year NOx for the electricity generating facility located on Santa Catalina Island was determined to be incrementally cost-effective at less than $325,000 per ton of NOx reduced.

Emission Limit Recommendation

As noted earlier, BARCT is defined as "an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source." As such and to be consistent with state law, BARCT emission limits take into consideration environmental impacts, energy impacts, and economic impacts. As this facility is very unique being on an island and the only source of power including electricity, water movement, and waste systems, reliable sufficient power is crucial in avoiding blackouts and other public health issues related to polluted water and hazard health from biological waste exposure. When taking into consideration the various factors affecting a reliable energy supply, the final BARCT determination is for 6 tons per year NOx emissions cap. In addition to energy demand, other considerations such as power reliability, transmission, grid stability, space limitations, fuel delivery and storage, and challenges for the deployment of new ZE/NZE technologies were taken into account. The initial BARCT analysis at 1.8 tons per year was based on delivery of 1.5 million gallons of propane per year being delivered to the island and enough storage capacity for 30-days in case of unforeseen circumstances preventing the required daily deliveries by barge while avoiding any loss of power needs on the island. Due to the uncertainty that the delivery can be met all the time and potential lack of storage capacity, a lesser amount of propane delivery was evaluated. Taking into account reliability of delivery and 30-day storage, the reasonably achievable amount of 900,000 gallons of propane per year was considered. This would be an increase from the current delivery of propane but would enable the facility to power near-zero equipment that could generate 50 percent (coupled with 30 percent zero emission equipment) of the demand needed to sufficiently and reliably power all of the island's needs for electricity, water transport, and waste systems, even during peak demand. With the remaining power needed based on the usage of Tier 4 diesel engines, this equates to 6 tons per year of NOx emissions that can be feasibly achieved. In addition, the amount of propane ensures lower emissions while providing sufficient reliable power for critical infrastructure that supports compliance with the rule emission caps and seeks to avoid rule violations.

CHAPTER 3: SUMMARY OF PROPOSALS

INTRODUCTION

DEFINITIONS (Subdivision (c))

EMISSION LIMITS (Subdivision (d))

MONITORING, RECORDKEEPING, AND REPORTING (Subdivision (e))

INTRODUCTION

Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities (PAR 1135) establishes nitrogen (NOx) mass emission limits for electric generating units located on Santa Catalina Island, requirements to install Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units, and requirements to remove existing prime power diesel internal combustion engines from service. Additionally, PAR 1135 establishes provisions for monitoring, reporting, and recordkeeping for Santa Catalina Island near-zero-emission (NZE) electric generating units and electric generating units not required to install continuous emissions monitoring systems (CEMS) located on Santa Catalina Island. PAR 1135 also includes updates to remove outdated rule provisions, correct rule references, and other editorial changes.

DEFINITIONS (Subdivision (c))

PAR 1135 adds and modifies definitions to provide clarification New or modified definitions added to PAR 1135 include:

- *ANNUAL NOx MASS EMISSIONS means actual emissions of NOx produced from all electric generating units at an electricity generating facility between January 1st through December 31st.*

  This proposed definition provides clarity that NOx mass emission limits are calculated on a fixed basis per calendar year, rather than on a rolling basis.

- *ELECTRIC GENERATING UNIT means a boiler that generates electric power, a gas turbine that generates electric power with the exception of cogeneration turbines, or equipment that generates electric power and is located on Santa Catalina Island. An electric generating unit does not include emergency internal combustion engines and portable engines registered under the California Air Resources Board Statewide Portable Equipment Registration Program (PERP).*

  The definition was modified to broaden the definition of electric generating units located on Santa Catalina Island. The proposed definition includes all prime power electric generating equipment located on Santa Catalina Island.

- *SANTA CATALINA ISLAND NEAR-ZERO EMISSION (NZE) ELECTRIC GENERATING UNIT means any electric generating unit located on Santa Catalina Island that produces NOx emissions greater than 0.01 pounds per Megawatt-Hour (lb/MW- hr) but less than or equal to 0.07 lb/MW-hr as demonstrated by a South Coast AQMD permit condition or other method determined to be equivalent by the Executive Officer.*

  This proposed definition provides clarity on the rate of emissions considered to be near-zero emission on Santa Catalina Island. Through the permitting process, staff will determine if equipment meets the emission requirements from a manufacturer guarantee, source test, or other approved method.

- *SANTA CATALINA ISLAND ZERO-EMISSION (ZE) ELECTRIC GENERATING UNIT means any electric generating unit located on Santa Catalina Island that produces NOx emissions less than or equal to 0.01 lb/MW-hr as demonstrated by a South Coast AQMD permit condition or other method determined to be equivalent by the Executive Officer.*

This proposed definition provides clarity on the rate of emissions considered to be zero-emission on Santa Catalina Island. The emissions requirement of less than or equal to 0.01 lb/MW-hr NOx for Santa Catalina Island ZE electric generating units is intended to address any potential emissions. However, Santa Catalina Island ZE electric generating units should have emissions of 0 lb/MW-hr NOx, as any equipment that may cause the issuance of air contaminants or may control air contaminants is required to have a permit, except for equipment specified in Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II.

EMISSION LIMITS (Subdivision (d))

Current South Coast Air Quality Management District (South Coast AQMD) Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities (Rule 1135) subparagraph (d)(2)(A) was deleted to remove the first interim annual oxides of nitrogen (NOx) mass emission limit of 50 tons of NOx by January 1, 2024, as the compliance deadline has passed. It is expected that the electricity generating facility located on Santa Catalina Island can meet the first interim limit of 45 tons per year of NOx by January 1, 2027 by replacing two older diesel engines with Tier 4 Final diesel engines.

Subparagraph (d)(2)(A) prohibits the electricity generating facility located on Santa Catalina Island from installing more than three new diesel internal combustion engines. Furthermore, new diesel internal combustion engines installed cannot exceed a maximum cumulative rating of 5.5 Megawatts (MW) as indicated on the rated power nameplate. The maximum cumulative rating is the sum of the prime power nameplate rating of each new diesel internal combustion engine. The new Tier 4 Final diesel engines proposed to be installed are rated at 1.825 MW each. Staff rounded the maximum cumulative rating for the proposed three Tier 4 Final diesel engines to 5.5 MW for simplicity.

Subparagraph (d)(2)(B) extends the deadline prohibiting the installation of any new diesel internal combustion engine from January 1, 2024 to January 1, 2028. Installation of any new diesel internal combustion must be completed by January 1, 2028. Staff updated this provision due to the failure of the cleanest existing diesel engine's new catalyst block to meet particulate matter emission standards as specified by South Coast AQMD Rule 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines[1]. It is expected that the electricity generating facility located on Santa Catalina Island can meet the second interim limit of 30 tons per year of NOx by January 1, 2028 by replacing three older diesel engines with Tier 4 Final diesel engines. Due to the existing capacities of fuel storage and limitations to expand fuel storage outside of existing facility footprint, the extension of the prohibition deadline will provide reliability and redundancy in the event barge trips for propane fuel deliveries cannot occur.

Subparagraph (d)(2)(C) will prohibit the installation of any equipment that does not meet the definition of a "Santa Catalina Island Near-Zero-Emission (NZE) Electric Generating Unit" or a "Santa Catalina Island Zero-Emission (ZE) Electric Generating Unit" after January 1, 2028. This provision was added to require the installation of cleaner power generation technologies that were demonstrated to be technologically feasible and cost-effective during the BARCT assessment.

[1] South Coast AQMD, Rule 1470, http://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1470.pdf?sfvrsn=8

Subparagraph (d)(2)(D) was also added to ensure that a minimum amount of Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units are installed. Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units will need to provide approximately 75 percent of the power at the electricity generating facility located on Santa Catalina Island to meet the final proposed NOx limit of 6 tons per year (tpy). Throughout the rule development process, the electricity generating facility located on Santa Catalina Island expressed that three Tier 4 Final diesel engines are necessary to provide redundancy during maintenance and unplanned outages. Similarly, backup Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units are necessary to provide sufficient power during maintenance and unplanned outages to meet the final proposed NOx limit as well as minimize the use of diesel engines. Subparagraph (d)(2)(D) requires by January 1, 2030, installation of Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units with a minimum cumulative rating of 1.8 MW as indicated on the rated prime power nameplate. The minimum cumulative rating is the sum of the nameplate rating of each Santa Catalina Island NZE electric generating unit and Santa Catalina Island ZE electric generating unit installed, excluding the highest rated Santa Catalina Island NZE electric generating unit and/or Santa Catalina Island ZE electric generating unit, solar photovoltaic cells, and battery storage. Compliance with subparagraph (d)(2)(D) can be achieved in many ways. For example, installation of three propane engines rated 1.5 MW each would comply with subparagraph (d)(2)(D) because the cumulative rating when subtracting the highest rated Santa Catalina Island NZE electric generating unit is 3.0 MW.[2] However, installation of two propane engines rated 1.5 MW each would not comply with subparagraph (d)(2)(D) because the cumulative rating when subtracting the highest rated Santa Catalina Island NZE electric generating unit is 1.5 MW.

Subparagraph (d)(2)(E) will establish progressively more stringent NOx mass emission limits for the electricity generating facility located on Santa Catalina Island. The final proposed NOx emission limit is 6 tpy. The NOx mass emission limits include emissions from startups, shutdowns, and missing data substitutions.

Subparagraph (d)(2)(F) requires all prime power diesel internal combustion engines for which installation was completed earlier than *[Date of Adoption]* to be removed from service by January 1, 2030. If extensions are granted pursuant to subparagraphs (d)(3)(C) and (d)(5)(C), the compliance date will become six months after any time extension granted. Therefore, all six existing prime power diesel internal combustion engines will be required to be removed from service by January 1, 2030 or six months after time extensions. Removing from service means physically removing the equipment from the facility or altering the equipment in such a way that it cannot be used without new construction activities. The January 1, 2030, compliance deadline in subparagraph (d)(2)(F) aligns with the implementation date of the 13 tpy NOx limit.

Subparagraph (d)(3)(A) requires that by January 1, 2028, the owner or operator conduct a feasibility analysis to determine if the proposed emission limits in clause (d)(2)(E)(iii) can be met by the compliance date. The analysis should identify the electric generating units under consideration, the progress in procuring and installing the electric generating units, a description

[2] Staff assumed that propane engines can meet the proposed Santa Catalina Island NZE Electric Generating Unit standard of 0.07 lb/MW-hr NOx for the subparagraph (d)(2)(D) compliance examples

of how those units would achieve the emission limits, and, if applicable, the length of time of up to three years for an extension to the implementation date.

Subparagraph (d)(3)(B) establishes a requirement that a request for a time extension shall be made available for public review no less than 30 days prior to approval.

Subparagraph (d)(3)(C) provides the criteria for which the Executive Officer will evaluate any extension request for approval.

Similarly, paragraphs (d)(3)(D) through (d)(3)(F) requires that by January 1, 2033, the owner or operator conduct a feasibility analysis to determine if the proposed emission limits in clause (d)(2)(E)(iv) can be met by the compliance date. The same requirements for public review and approval criteria apply.

Subparagraph (d)(5)(A) updates the time extension provision for the electricity generating facility on Santa Catalina Island. PAR 1135 allows the electricity generating facility located on Santa Catalina Island to request ~~up to two~~ time extensions~~; one time extension~~ for ~~the 13 tpy~~ each NOx limit ~~and one time extension for the 6 tpy NOx limit~~. Each time extension can be approved for up to three years.

Subparagraph (d)(5)(B) establishes a requirement that a request for a time extension shall be made available for public review no less than 30 days prior to approval.

Clause (d)(5)(C)(ii) was updated to specify that the extenuating circumstances that demonstrate the need for a time extension are limited to construction interruptions and/or supply chain disruptions. Examples of such extenuating circumstances include supply chain or permitting issues beyond the control of Southern California Edison.

MONITORING, RECORDKEEPING, AND REPORTING (Subdivision (e))

Paragraphs (e)(1) to (e)(3) clarify that Santa Catalina Island NZE electric generating units rated less than or equal to 0.5 Megawatts (MW) and Santa Catalina Island ZE electric generating units do not require installation of continuous emission monitoring systems (CEMS).

Paragraph (e)(4) establishes a method to calculate NOx emissions from Santa Catalina Island NZE electric generating units rated less than or equal to 0.5 MW located on Santa Catalina Island, as those units will not be required to install CEMS. The NOx emissions calculated from Santa Catalina Island NZE electric generating units rated less than or equal to 0.5 MW are required to be added to the total annual NOx emissions from electricity generating units that have CEMS to demonstrate compliance with emission limits specified in paragraph (d)(2).

Paragraph (e)(5) requires records of all data used to calculate the annual NOx emissions from Santa Catalina Island NZE electric generating units rated less than or equal to 0.5 MW for compliance verification purposes. The data is required to be maintained onsite for a minimum of five years and be made available to the Executive Officer upon request.

Paragraph (e)(6) requires the installation of a non-resettable device to continuously record the megawatt-hours hours for each Santa Catalina Island NZE electric generating unit rated less than or equal to 0.5 MW.

CHAPTER 4: IMPACT ASSESSMENTS

INTRODUCTION

Impact assessments were conducted during the Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen From Electricity Generating Facilities (PAR 1135) development to assess environmental and socioeconomic implications. Health and Safety Code requirements for cost-effectiveness analysis and incremental cost-effectiveness analysis were evaluated during rule development of PAR 1135. Draft findings and comparative analyses were prepared pursuant to Health and Safety Code Sections 40727 and 40727.2, respectively. An analysis of the potential adverse environmental impacts associated with PAR 1135 has been conducted and a California Environmental Quality Act (CEQA) document has been prepared based on this analysis.

POTENTIALLY IMPACTED FACILITIES

There is one electricity generating facility located on Santa Catalina Island impacted by PAR 1135. The electricity generating facility on Santa Catalina Island currently operates six diesel internal combustion engines and 23 microturbines to generate power. Table 1-1 in Chapter 1 of the staff report contains more detailed information on the equipment affected by PAR 1135.

EMISSION INVENTORY AND EMISSION REDUCTIONS

PAR 1135 will result in emission reductions from the electricity generating facility located on Santa Catalina Island by removing three diesel engines and 23 microturbines and replacing them with Tier 4 Final diesel engines, Santa Catalina Island NZE electric generating units, and Santa Catalina Island ZE electric generating units.

Staff established baseline emissions for the electricity generating facility located on Santa Catalina Island by determining the average of emissions from prime power diesel internal combustion engines listed in the Annual Emission Reports (AERs)[1] for the reporting years of 2017, 2019, and 2021. The baseline emissions from the electricity generating facility located on Santa Catalina Island were determined to be 71.3 tons of oxides of nitrogen (NOx) per year. Emissions data from the 2018 AER reporting year was not included, as emissions data for each diesel internal combustion engine was initially not available. The AER emission data from 2020 was also not included, as emissions were not representative of typical operations due to the COVID-19 pandemic. The electricity generating facility located on Santa Catalina Island later provided the 2018 AER report. However, staff decided to maintain the initial method of calculating baseline emissions, as they are considered representative of typical operations and similar to the emission baseline used in the 2018 amendment to Rule 1135[2].

The proposed final NOx limit of 6 tpy was established to address concerns raised by the operator regarding feasibility and grid stability. The proposed final NOx limit can be achieved using a combination of Tier 4 Final diesel engines, Santa Catalina Island NZE electric generating units, and Santa Catalina Island ZE electric generating units. Staff assumed a combination of 30% ZE, 50% NZE, and 20% diesel internal combustion engines for the purposes of the cost-effectiveness analysis. The proposed limit is estimated to reduce NOx emissions at the electricity generation facility located on Santa Catalina Island by 65.3 tons per year, or 0.18 tons per day. Estimated

[1] South Coast AQMD, Annual Emissions Reporting, http://www.aqmd.gov/home/rules-compliance/compliance/annual-emission-reporting

[2] 2018 amendment to Rule 1135 used an emission baseline of 69 tpy NOx for the electricity generating facility located on Santa Catalina Island

emission reductions were calculated by taking the difference between the baseline emissions from the electricity generating facility located on Santa Catalina Island and the estimated NOx emissions from the repower scenario. Estimated emission reductions for the repower scenario was determined by assigning an estimated percentage of power generation output to each equipment type. Power generation was then calculated (Megawatt hour per year (MW-hr per year)) based on an estimated percentage of equipment output. Annual power generation for each equipment type was then multiplied by various emission factors: 1.48 lbs/MW-hr for Tier 4 Final diesel engines, 0.07 lb/MW-hr for Santa Catalina Island NZE electric generating units, and 0.01lb/MW-hr for Santa Catalina Island ZE electric generating units. Lastly, the estimated NOx emissions from each equipment type were added to calculate the total estimated NOx emissions for the repower scenario.

COST-EFFECTIVENESS

Health and Safety Code Section 40920.6 requires a cost-effectiveness analysis when establishing BARCT requirements. Staff conducted a cost-effectiveness analysis of the proposed emission limit. The cost-effectiveness of a technology is measured in terms of the cost in dollars per ton of air pollutant reduced. To determine the cost-effectiveness of each assessed repower scenario for Santa Catalina Island, the following calculation was used:

$$\text{Cost-Effectiveness} = \frac{(Annualized\ Capital\ Cost + Annual\ O\&M) - Existing\ Annual\ O\&M}{Estimated\ Annual\ Emissions\ Reductions}$$

The annualized capital cost in the formula above incorporates a Capital Recovery Factor (CRF) of 4% over the life of the equipment. The CRF method calculates the present value of the control costs over the life of the equipment by adding the capital cost to the present value of all annual costs and other periodic costs over the life of the equipment. Equipment life accounts for the monetary payoff of the equipment, not the operational life expectancy. A 20-year equipment life was assumed for repower scenarios with a mix of technologies. Existing annual operation and maintenance (O&M) costs are then subtracted from the cost of the repower scenario. The difference is divided by the estimated annual emission reductions for the repower scenario, resulting in the cost-effectiveness amount in dollars.

The cost-effectiveness amount for each assessed repower scenario was measured against the 2022 Air Quality Management Plan (AQMP)[3] cost-effectiveness threshold of $325,000 per ton of NOx. Therefore, if the cost per ton of emissions reduced is less than the cost-effectiveness threshold of $325,000 per ton of NOx, then the control method is considered to be cost-effective.

Costs were provided by technology vendors and the electricity generating facilities, including the electricity generating facility located on Santa Catalina Island. Capital costs include one-time costs associated with the purchase of equipment, installation, demolition, engineering assessments, labor, and commissioning and testing. Annual operating costs included maintenance and parts, emissions and performance testing, employee and service costs, insurance and permitting, fuel costs (including shipping), hazardous materials handling or treatment, and land lease cost. Values are reported in 2022 dollars. Further, no stranded asset costs were incorporated as the newest diesel

[3] South Coast AQMD, 2022 Air Quality Management Plan, http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16

internal combustion engine on an electricity generating facility located on Santa Catalina Island is over 29-years old and the existing microturbines were provided by South Coast AQMD.

The cost-effectiveness analysis of each technologically feasible repower scenario evaluated for the electricity generating facility located on Santa Catalina Island is listed below in Table 4-1. Several variables impacted the cost-effectiveness of each repower scenario, however, the cost of fuel was the primary factor impacting cost-effectiveness. Although the replacement of five diesel internal combustion engines were below the cost-effectiveness threshold of $325,000 per ton of NOx reduced, it produced the least amount of NOx emission reductions in comparison to the other repower scenarios evaluated. Furthermore, repower scenarios with a mix of technologies (ZE, NZE, and diesel internal combustion engines) were determined to be more cost-effective than the Tier 4 Final diesel engine repower scenario. In fact, the repower scenarios with a mix of technologies were determined to be cost-saving over the life of the equipment when compared to current operations.

Table 4-1: Cost-Effectiveness Analysis of Repower Scenarios on Santa Catalina Island

	All Tier 4 Final Diesel Engines	50% NZE, 50% Diesel Engines	30% ZE, 50% NZE, 20% Diesel Engines	95% NZE, 5% Diesel Engines	30% ZE, 65% NZE, 5% Diesel Engines
Net Annual Costs (includes annualized capital and O&M costs)	$2,296,000	$663,000	$2,076,000	$3,060,000	$1,924,000
NOx Emission Reductions (Tons/Year)	49.57	59.92	65.3	69.34	69.5
Cost-Effectiveness ($/Ton of NOx Reduced)	$46,000	$11,000	$32,000	$44,000	$28,000

INCREMENTAL COST-EFFECTIVENESS

Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis for BARCT rules or emission reduction strategies when there is more than one control option which would achieve the emission reduction objective of the proposed amendments. Incremental cost-effectiveness is the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option.

Incremental cost-effectiveness is calculated as follows:

$$\text{Incremental cost-effectiveness} = \frac{Calt - Cproposed}{Ealt - Eproposed}$$

Where:

$C_{proposed}$ is the present worth value of the proposed control option;
$E_{proposed}$ are the emission reductions of the proposed control option;
C_{alt} is the present worth value of the alternative control option; and
E_{alt} are the emission reductions of the alternative control option

The incremental cost effectiveness measured against each progressively more stringent technologically feasible repower scenario is presented below in Table 4-2.

Table 4-2: Incremental Cost-Effectiveness of Progressively More Stringent Repower Scenarios

	All Tier 4 Final Diesel Engines versus 50% NZE, 50% Diesel Engines	50% NZE, 50% Diesel Engines versus 30% ZE, 50% NZE, 20% Diesel Engines	30% ZE, 50% NZE, 20% Diesel Engines versus 95% NZE, 5% Diesel Engines	95% NZE, 5% Diesel Engines versus 30% ZE, 65% NZE, 5% Diesel Engines
Incremental Cost-Effectiveness	$(158,000)	$263,000	$250,000	$(4,372,000)

RULE ADOPTION RELATIVE TO COST-EFFECTIVENESS

On October 14, 1994, the South Coast AQMD Governing Board adopted a resolution that requires staff to address whether rules being proposed for amendment are considered in the order of cost-effectiveness. The 2022 AQMP ranked, in the order of cost-effectiveness, all of the control measures for which costs were quantified. It is generally recommended that the most cost-effective actions be taken first. Proposed Amended Rule 1135 partially implements Control Measure for Large Combustion Sources, L-CMB-06: NOx Emission Reductions from Electricity Generating Facilities (L-CMB-06). The 2022 AQMP ranked Control Measure L-CMB-06 seventeenth in cost-effectiveness for stationary source control measures for ozone.

SOCIOECONOMIC IMPACT ASSESSMENT

Health and Safety Code Section 40440.8 requires a socioeconomic impact assessment for proposed and amended rules resulting in significant impacts to air quality or emission limitations. A Draft Socioeconomic Impact Assessment for PAR 1135 was ~~will be prepared and~~ released for public review and comment on September 3, 2024. The Final Socioeconomic Impact Assessment is available in the October 4, 2024, Governing Board Package. ~~as a separate document as least 30 days prior to the South Coast AQMD Governing Board Hearing of Proposed Amended Rule 1135, which is scheduled for October4, 2024 (subject to change).~~

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Pursuant to CEQA and South Coast AQMD's Certified Regulatory Program (Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110), the South Coast AQMD, as lead agency for PAR 1135, prepared a Subsequent Environmental Assessment (SEA) for the proposed project. The SEA is a substitute CEQA

document prepared pursuant to CEQA Guidelines Section 15252 and in lieu of a Subsequent Environmental Impact Report. The SEA tiers off of the November 2018 Final Mitigated SEA for the November 2018 amendments to Rule 1135,[4] as allowed by CEQA Guidelines Sections 15152, 15162, and 15385. The Draft SEA was released for a 46-day public review and comment period to provide public agencies and the public an opportunity to obtain, review, and comment on the environmental analysis. The South Coast AQMD received two comment letters ~~Comments made~~ relative to the analysis in the Draft SEA and responses to the comments ~~will be~~have been included in the Final SEA.

DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE SECTION 40727

Requirements to Make Findings

Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing, and in the staff report.

Necessity

Proposed Amended Rule 1135 is needed to reduce NOx emission limits at the electricity generating facility located on Santa Catalina Island.

Authority

The South Coast AQMD Governing Board has authority to adopt amendments to Proposed Amended Rule 1135 pursuant to the Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728, and 41508.

Clarity

Proposed Amended Rule 1135 is written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency

Proposed Amended Rule 1135 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

Non-Duplication

Proposed Amended Rule 1135 will not impose the same requirements as any existing state or federal regulations. The proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference

In amending Rule 1135, the following statutes which the South Coast AQMD hereby implements, interprets or makes specific are referenced: Health and Safety Code Sections 39002, 40000, 40001, 40702, 40440(a), and 40725 through 40728.5.

[4] South Coast AQMD, 2018. Final Mitigated Subsequent Environmental Assessment (SEA) for Proposed Amended Rule (PAR) 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities, SCH No. 2016071006. http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2018/par-1135---final-mitigated-sea_with-appendices.pdf

COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2 requires a comparative analysis of the proposed amended rule with any Federal or District rules and regulations applicable to the same source. A comparative analysis is presented below in Table 4-3.

Table 4-3: PAR 1135 Comparative Analysis

Rule Element	PAR 1135	Rule 1110.2	Rule 2009	RECLAIM	40 CFR Part 60 Da	40 CFR Part 60 GG	40 CFR Part 60 KKKK	40 CFR Part 72
Applicability	Boilers, internal combustion engines, and turbines located at investor-owned electric utilities, publicly owned electric utilities, facilities with combined generation capacity of ≥ 50 MW	Gaseous and liquid fueled engine over 50 rated brake horsepower	Facility generating ≥ 50MW and owned or operated by Southern California Edison, Los Angeles Dept. of Water and Power, City of Burbank, City of Glendale, City of Pasadena, or any their successors	Facilities regulated under the NOx RECLAIM program (South Coast AQMD Reg. XX)	Electric utility steam generating units at a facility generating > 73 MW and constructed or modified after 9/18/78	Gas turbines with heat input of ≥ 10 MMBtu/hr constructed or modified before 2/18/2005	Gas turbines with heat input of ≥ 10 MMBtu/hr constructed or modified after 2/18/2005	Facilities regulated under the national sulfur dioxide and nitrogen dioxide air pollution control and emission reductions program
Requirements	Concentration limits: • Boiler: NOx 5 ppmv @ 3% O2 • Combined Cycle Gas Turbine and Associated Duct Burner: NOx 2 ppmv @ 15% O2 • Simple Cycle Gas Turbine: NOx 2.5 ppmv @ 15% O2 Internal Combustion • Engine: NOx 45 ppmv @ 15% O2; CO 250 ppmv @ 15% O2; VOC 30 ppmv @ 15% O2; PM 0.0076 lbs/MMBtu @ 15% O2 NOx mass emission limits for the electricity generating facility located on Santa Catalina Island : • 45 tpy by January 1, 2027 • 30 tpy by January 1, 2028 •13 tpy by January 1, 2030 •6 tpy by January 1, 2035	Existing Internal Combustion Engine: NOx 11 ppmv @ 15% O2; CO 250 ppmv @ 15% O2; VOC 30 ppmv @ 15% O2;	Submit Compliance Plan to demonstrate BARCT by 2003/2004	As determined by Rule 2009	NOx limit: 0.15 lb/MMBtu	NOx limit @ 15% O2: 0.0075*(14.4/Y) +F where Y = manufacture's rated heat input and F = NOx emission allowance for fuel-bound nitrogen	NOx limit for electric generating units (@ 15% O2): •≤ 50 MMBtu/hr – 42 ppm when firing natural gas •50 MMBtu/hr and ≤ 850 MMBtu/hr – 15 ppm when firing natural gas •>850 MBtu/hr – 15 ppm when firing natural gas •≤ 50 MMBtu/hr – 96 ppm when firing other fuel •50 MMBtu/hr and ≤ 850 MMBtu/hr – 74 ppm when firing other fuel •>850 MBtu/hr – 42 ppm when firing natural gas	NOx limits for boilers = 0.40 lb/MMBtu

Rule Element	PAR 1135	Rule 1110.2	Rule 2009	RECLAIM	40 CFR Part 60 Da	40 CFR Part 60 GG	40 CFR Part 60 KKKK	40 CFR Part 72
Reporting	Annual reporting of NOx emissions	Breakdowns, monthly portable engine logs,	None	• Daily electronic reporting for major sources • Quarterly Certification of Emissions Report and Annual Permit Emissions Program for all units	Daily written reports or quarterly electronic reports	Excess emissions and CEMS downtime within 30 days	Excess emissions and CEMS downtime within 30 days; annual performance testing within 60 days	40 CFR 75 requirements for quarterly reports of information and hourly data from CEMS monitors, and calibration
Monitoring	A continuous in-stack NOx monitor for electric generating units that are not zero emission or near-zero emission and rated ≤0.5 MW	A continuous in-stack NOx monitor for engines ≥ 1,000 bhp and operating more than two million bhp-hr per calendar year	None	A continuous in-stack NOx monitor for major sources	A continuous in-stack NOx monitor	A continuous in-stack NOx monitor	A continuous in-stack NOx monitor	A continuous in-stack NOx monitor
Recordkeeping	Performance testing; emission rates; monitoring data; CEMS audits and checks maintained for five years	Source testing or Relative accuracy tests per 40 CFR 70 at least once every two years	None	• < 15-min. data = min. 48 hours; • ≥ 15-min. data = 3 years (5 years if Title V) • Maintenance & emission records, source test reports, RATA reports, audit reports and fuel meter calibration records for Annual Permit Emissions Program = 3 years (5 years if Title V)	Performance testing; emission rates; monitoring data; CEMS audits and checks	Performance testing; emission rates; monitoring data; CEMS audits and checks	Performance testing; emission rates; monitoring data; CEMS audits and checks	Performance testing; emission rates; monitoring data; CEMS audits and checks maintained for three years
Fuel Restrictions	Liquid petroleum fuel limited to Force Majeure natural gas curtailment, readiness testing, and source testing	None	None	None	None	None	None	None

APPENDIX A: Facility Affected by Proposed Amended Rule 1135

Table A-1: Facility Affected by Proposed Amended Rule 1135

Facility ID	Facility Name
4477	Southern California Edison Pebbly Beach Generating Station

APPENDIX B: RESPONSE TO PUBLIC COMMENTS

Comment No. 1 (received as verbal statements during Public Workshop) – Mark Abramowitz, Community Environmental Services

Is Southern California Edison in violation of the 50 tons per year of NOx emission limit in Rule 1135? Has Southern California Edison made a formal request for an extension? The Rule 1135 amendment in 2022 prohibited diesels after January 1, 2024 and proposing to allow diesel engines is backsliding. The proposed rule will result in a four-year delay for installing diesel engines. There is no provision in the proposed rule to eliminate the newly-installed diesel engines. With zero-emission alternatives available, the South Coast AQMD is not complying with federal LAER by allowing diesel engines to be installed. Staff conducted a BARCT assessment but at the request of Southern California Edison, the rule was delayed to allow for a grid stability study. However, the grid stability study did not cover the range of technologies that the BARCT assessment addressed. The results of the grid stability study were predetermined as Southern California Edison has raised objections to inverter-based technology. The proposed rule fails to meet the Board's direction to return immediately with a rule that reflects the BARCT assessment. Staff had proposed to require a limit of 1.6 tons of NOx emitted by 2026, but has reversed itself and now will allow over 70 tons of NOx emitted by 2026. The proposed limit of 6 tons of NOx emitted is triple the BARCT assessment and is inconsistent with Board direction, the 2022 AQMP, and state law to adopt rules that reflect BARCT.

Response to Comment No. 1

No, Southern California Edison is not in violation of the current Rule 1135 limit of 50 tons of NOx per year as that compliance determination would be made at the end of the calendar year. Also, Southern California Edison has not yet made a formal request for an extension of time to comply as the extension option only applies to the 2026 emission limit. The proposed rule will allow additional time for diesel engines to be installed because supply chain issues and permitting delayed the installation of the engines. The rule requires removal of the legacy engines but does not require removal of the newly installed engines as they provide necessary redundancy if fuel supplies are not available for the island. Staff is proposing a NOx limit of 6 tons per year because of feasibility and grid stability concerns, and additional time is allowed to procure and install the diesel engines and other equipment. BARCT requires the consideration of environmental, energy, and economic impacts. The effect of the proposed amendments on grid stability is a proper concern as it is an energy impact.

Comment No. 2 (received as verbal statements during Public Workshop) – Chris Chavez, Coalition of Clean Air

Please explain why Continuous Emission Monitoring System (CEMS) would not be appropriate. Please quantify diesel particulate matter reductions associated with the original proposal and the current proposal. In the future, as technology develops, the rule should be revisited to determine if more emission reductions are available. Catalina should not be the one area that is allowed to not meet the zero-emission statewide mandate. The goal is to deploy zero-emission technology as soon as possible.

Response to Comment No. 2

Currently the rule requires CEMS for all electricity generating equipment as all of the equipment is capable of 1 MW or greater output. Because the NZE and ZE equipment may have lower power output and low emissions, staff is proposing that NZE and ZE equipment with an output equal to or less than 0.5 MW be allowed to determine emissions through the use of emission factors representing maximum emissions allowed. Diesel engines and NZE equipment on Santa Catalina Island with an output of greater than 0.5 MW will be required to monitor emissions with a CEMS.

The current PM2.5 inventory associated with diesel engine use on Santa Catalina Island is 0.43 tons per day. The original proposal would reduce PM2.5 emissions 98.7 percent through the use of Tier IV diesel engines and a projected additional 50 percent reduction from limiting the operation time of the Tier IV diesel engines for an overall reduction of 99.4 percent. The current proposal would also reduce PM2.5 emissions by 98.7 percent through the use of Tier IV engines. However, the operation time would be limited to approximately 20 percent of the current usage meaning the overall PM2.5 reduction would be 99.7 percent.

The feasibility analysis in the proposed rule only dictates the timeline for installation of NZE and ZE technology. There is no preclusion to conducting further BARCT assessments and requiring more stringent emission limits in the future.

Comment No. 3 (received as verbal statements during Public Workshop) – John Chen, Cummins

We are supplying the engines and the engines will result in a massive reduction of PM emissions.

Response to Comment No. 3
Thank you for that information.

Comment No. 4 (received as verbal statements during Public Workshop) – David Pettit, formerly representing NRDC

What happened to the 2 ton per year BARCT NOx limit originally proposed by staff? How did it change so greatly?

Response to Comment No. 4
Southern California Edison conducted a grid stability study and found that there were uncertainties that they could meet that limit. The volume of fuel delivered and storage capacity are concerns. The proposed limits are achievable.

Comment No. 5 (received as verbal statements during Public Workshop) – Dawn Anaiscourt, Southern California Edison

SCE appreciates fair regulations and does not oppose the proposed limits as they are based on technology evaluated by South Coast AQMD staff with incorporation of grid stability and propane limitations on the island. There is a high level of uncertainty if we can meet the 2030 and 2035 timelines due to supply chain issues, regulatory hurdles, and technology advancements to determine what the best option will be. We appreciate the ability to review the timelines through

the feasibility studies closer to the deadlines. SCE would prefer a five year extension for the feasibility results. Our commitment to the emission reduction goals remains steadfast. SCE would like the time extensions for circumstances beyond their control to apply to all rule deadlines, not just the 2030 and 2035 deadlines. Where there is a time extension granted, any related prohibition should be similarly extended as everything must be done in a coordinated fashion. The requirement to install NZE or ZE equipment should be tied to the date of the last diesel installation. Lastly, the cap of 5.5 MW of diesel engines is unnecessary to meet emission reduction goals and flexibility should be allowed. If the 5.5 MW cap is maintained, it should be specified that it is related to the prime power output of the engines.

Response to Comment No. 5
The proposed rule will incorporate time extensions for extenuating circumstances to all rule deadlines and where a time extension is granted, related prohibitions will also be extended six months after the applicable extension. Staff will also clarify that the 5.5 MW cap applies to prime power output of the engines.

Comment No. 6 (received as verbal statements during Public Workshop) – Mark Abramowitz, Community Environmental Services

The proposed rule does not reflect BARCT which is a minimum requirement and strays from past practice and provisions of the Health and Safety Code. With respect to a 95 percent zero emission scenario, this was requested by the public and found to have a cost-effectiveness at $88,000 per ton of NOx reduced. Weeks later, the 2022 AQMP was adopted with a higher cost-effectiveness threshold and staff then reversed itself claiming that space requirements, back up fuel storage, and lack of barges made it infeasible. However, staff overestimated the space needed for fuel cells by not considering that fuel cells could be stacked. Additionally, more space could become available if storage of diesel fuel was not necessary. Staff also reversed itself on additional land availability for diesel storage based on the lack of responsiveness to a few phone calls. Lastly, based on no new information, staff claims that a lack of barges or more barge trips makes it infeasible which is preposterous. More barges could be made available and with District assistance, zero emission barges could be available. Procurement of a storage site or contracting of a barge should not be considered when determining BARCT. Other zero-emission technologies, such as roof top solar, underwater turbines, and use of electrolyzers have not been fully evaluated. The proposal weakens diesel standards by increasing averaging times, allowing new diesels, and increasing time frame to comply. The proposal should consider increasing costs of diesel and propane. The proposal allows SCE to conduct their own technology assessment which is suboptimal considering their delays and reluctance to reduce emissions. It could easily be decades before the site needs to meet the emission limits. The extension provisions in the rule bypass the public Hearing Board process, does not have the approval criteria that the Hearing Board follows, and places the decision in the hands of staff. The proposed rule conflicts with the requirement that the provisions reflect BARCT, does not backslide, and requires the use of LAER or major source BACT. The assessment does not indicate what type of hydrogen is being used.

Response to Comment No. 6
Staff did conduct a BARCT assessment which is included as Chapter 2 of this document. The proposed emission limit reflects a compromise to address grid stability and feasibility concerns of

Southern California Edison. Staff did evaluate a 95 percent zero emission scenario but found it technologically infeasible because of space requirements. Hydrogen fuel has a very low energy density. To store 30-days of fuel reserve, the storage tank would be much larger than could be accommodated on site. Land outside the site footprint is extremely limited by the topography of the island and the reluctance of the Catalina Island Conservancy to allow further development. A possible site identified for possible fuel storage was covered in a mudslide and the owner was not interested in selling or leasing.

Many zero emission technologies were identified and evaluated in the BARCT assessment. The proposed emission limit incorporates the use of 30 percent zero emission technology. The proposal is technology neutral allowing the facility to determine which technology is most suitable as long as the emission limits are met.

The proposal does allow additional time beyond the current rule provision to install new diesel engines. Procurement and installation has been delayed by supply chain and permitting issues. Not allowing the installation of new diesel engines would mean the continued use of engines that have significantly higher NOx and PM emissions until some other technology was installed which would likely occur even later than the timelines in the proposal.

The Socioeconomic Impact Assessment will consider future diesel and propane costs when evaluating the proposal.

The proposal allows SCE to conduct a feasibility analysis to determine if more time is needed to install NZE and ZE equipment. The proposal does not include a technology assessment conducted by Southern California Edison or South Coast AQMD. If feasibility and extenuating circumstances extensions are utilized, the final emission compliance date could extend out to 2041. Similar extension provisions are currently included in Rule 1135 and approvals are limited by the criteria established in the rule.

The establishment of LAER or major source BACT is outside the scope of this rule and has an independent process.

The type of hydrogen used was not evaluated as it would not impact NOx emissions.

Comment Letter A: Anthony Hernandez, Southern California Edison

SOUTHERN CALIFORNIA EDISON
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July 3, 2024

Mr. Michael Krause
Assistant Deputy Executive Officer
Planning, Rule Development and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Email: MKrause@aqmd.gov

SUBJECT: Proposed Amendments to Rule 1135 - Emissions of Oxides of Nitrogen from Electricity Generating Facilities

Dear Mr. Krause:

Southern California Edison (SCE) appreciates South Coast Air Quality Management District's (SCAQMD) reopening of Rule 1135 to address issues relating to SCE's Pebbly Beach Generating Station (PBGS) on Santa Catalina Island (Catalina). SCE remains committed to working with the SCAQMD on a viable pathway toward a cleaner energy future at PBGS, with plans to increase reliance on near-zero-emission (NZE) and zero-emission (ZE) technology for power generation on the island. I write to provide SCE's comments on the Pre-Preliminary Draft version of Proposed Amended Rule 1135 released on June 13, 2024. According to that draft, an amended Rule 1135 would include the following emission limits and deadlines[1]:

A-1

Table 1. *Proposed Emission Reduction Targets and Deadlines*

Compliance Deadline	Proposed NOx Limit (tons per year (TPY))
1/1/2027	45
1/1/2028	30
1/1/2030	13
1/1/2035	6

A-2

The timeline in Table 1 is extremely ambitious and would require overcoming a multitude of challenges to achieve the necessary nitrogen oxide (NOx) emission reductions by the proposed deadlines, especially the latter two limits set to take effect in 2030 and 2035. SCE is committed to working to achieve these limits while addressing the underlying challenges, in partnership with the SCAQMD. Several of these challenges are due to the island's unique geography and its isolated

[1] The targets were also discussed at the SCAQMD Working Group meeting held on June 13, 2024 (*see* slide 10: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1135/par-1135_wgm-6-final.pdf?sfvrsn=6).

grid. The following discussion underscores the critical nature of the challenges ahead for achievement of future emissions limits, particularly for 2030 and 2035. It is therefore imperative that the Amended Rule 1135 include provisions that ensure that SCE and the SCAQMD conduct thorough technology assessments nearer in time to both the 2030 and 2035 compliance deadlines to ascertain the feasibility of meeting the proposed limits. These assessments will determine whether the deadlines can be met and whether they represent Best Available Retrofit Control Technology (BARCT) at those future dates. Furthermore, they may trigger additional rule development, if necessary. Along with the technology assessments, the Amended Rule should provide appropriate provisions for modifying/extending any of the deadlines listed in Table 1 for compliance where needed, based either on the outcome of the technology assessments or other factors outside SCE's control. Incorporating these modifications into the Pre-Preliminary Draft of the Proposed Amended Rule 1135 will ensure a sustainable framework within the Rule to achieve ongoing emissions reductions from PBGS for Catalina Island.

A-3

Specifically, SCE recommends the following additions/modifications to the Pre-Preliminary Draft:

- Five-year extensions and rule development initiation provisions like those in Section d(3)(B) should be added to allow sufficient technology maturation and adoption if the results of the technology assessments deem the 13 TPY and/or 6 TPY limits infeasible. A-4
- Separate technology assessments are needed for both the 13 TPY and 6 TPY limits. A-5
- The maximum time extension (for matters outside of SCE's control) should be increased from two years to up to five years. A-6
- The ability to request time extensions is needed for all emission limits and should be available for ALL extenuating circumstances outside of SCE's control (not only for construction and supply chain disruptions). A-7
- The minimum 2 megawatt (MW) cumulative rating is unnecessarily restrictive and should be removed. A-8
- Remove inclusion of emissions derived from "missing data procedures" (MDP) during period of unexpected Continuous Emissions Monitoring System (CEMS) downtime and allow SCE to use alternative emissions calculations. A-9
- Remove the requirement to remove diesel-fueled internal combustion engines (ICE) installed prior to final rule adoption by January 1, 2030. A-10

I. Pathways to Achieve Emission Targets

The challenges SCE and the SCAQMD must address when determining the feasibility of meeting the proposed limits by the specified deadlines include, but are not limited to, the following:

- PBGS would need to completely overhaul the current power generation profile within a compacted schedule to meet all emission limit deadlines.
- Grid stability must be constantly maintained to reliably serve Catalina residents and visitors with life-critical utilities.

A-11

- Inherent operational and grid stability limitations of inverter-based NZE/ZE technologies need to be overcome.
- Considering the unique island challenges and constraints referenced above, the optimization of Catalina's propane fuel for electric generation will depend on the resolution of SCE's current and future gas GRC proposals, and collaboration with key island stakeholders to protect public safety.
- Achieving 30% annual ZE energy generation remains highly speculative at present due to limited land availability and its impact on grid stability.
- SCE prefers to first secure cost recovery authorization from the California Public Utilities Commission, which can take significant time, before committing to required expenditures in equipment and construction costs.
- The proposed emission limits do not account for projected load growth, which can vary greatly depending on the future electrification plans on Catalina.

A-11 (Cont.)

SCE remains steadfast in its commitment to emissions reduction and clean energy. We wholeheartedly share the SCAQMD's urgency in reducing NOx emissions promptly. Assessing the feasibility of the proposed limits and deadlines requires consideration of multiple complex factors and is constrained by SCE's responsibility to ensure reliable and affordable utilities for Catalina residents and visitors. This section describes the potential pathways to achieve the proposed emission limits by the specified deadlines and includes sample generation scenarios at each target level (Table 2).

The feasibility of achieving the proposed emission limits of 13 TPY and 6 TPY is still highly speculative at present, as explained below. Therefore, SCE requests (as described in Section 2 below) that the rule provide compliance flexibility should the limits be deemed infeasible and not representative of BARCT upon completion of the proposed technology assessments, and/or in the event of other circumstances outside of SCE's control.

A-12

Table 2. *Potential Generation Profiles to Achieve Emission Limit Targets*

Facility Emissions	Deadline	Unit	Fuel Consumption (gal)	Output[2] (MWh)	Generation Distribution (%)	Projected NOx Emissions (TPY)
45 TPY	1/1/2027	New Diesel T4Fs	1,605,730	22,163	72%	16.4
		Older Diesel ICEs	674,252	7,571	25%	28.2
		Microturbines	208,689	1,053	3%	0.3
		Total	**2,488,671**	**30,787**	**100%**	**45**
30 TPY	1/1/2028	New Diesel T4Fs	1,958,207	27,028	88%	20.0
		Older Diesel ICEs	240,972	2,706	9%	10.1
		Microturbines	208,689	1,053	3%	0.3
		Total	**2,407,868**	**30,787**	**100%**	**30**
13 TPY	1/1/2030	New Diesel T4Fs	1,207,137	16,313	52%	12.0
		NZE	1,500,000	14,771	48%	0.5
		Total	**2,707,137**	**31,084**	**100%**	**13**
6 TPY	1/1/2035	New Diesel T4Fs	495,721	6,988	22%	5.2
		NZE	1,500,000	14,771	48%	0.5
		ZE	N/A	9,325	30%	0.0
		Total	**1,995,721**	**31,084**	**100%**	**6**

A-12 (Cont.)

[2] Generation output and corresponding emissions do not account for future load growth, which is expected to significantly increase over time.

A. A compacted schedule is required to meet emission reduction deadlines.

To achieve the proposed emissions limits by the required deadlines, SCE must undertake an extensive overhaul of the PBGS generation portfolio. Over the next decade, the facility will be in a constant state of flux, with various stages of planning and construction to incorporate the new generation assets. This leaves little room for delays in the supply chain or issues arising from the construction process. All existing generation assets, including the propane-fired microturbines and the six legacy diesel internal combustion engines (ICE), must be phased out to meet the proposed emission limits. These challenges are amplified by the need to provide uninterrupted life-critical utilities to Catalina residents and visitors, amidst rapid technological evolution.

To achieve the proposed 45 TPY NOx emission limit by 2027, SCE must replace at least two of its six existing diesel generators. SCE proposed starting with the replacement of Units 8 and 10 because those have the highest NOx emissions per MWh. SCE submitted the application for permits to replace these engines on April 20, 2021 with U.S. EPA Tier 4 Final-certified (T4F) units and is working diligently with SCAQMD staff to obtain the required Permit to Construct (PTC).[3] If the SCAQMD issues the PTC by December 2024, SCE anticipates completing the replacement of Units 8 and 10 by the end of 2026. Once the two new T4F units are online, SCE will use them as the new baseload units. This will reduce NOx emissions to 45 TPY, a substantial improvement compared to SCE's 2021-2023 NOx emissions range of 60 to 70 TPY. The execution plan is outlined in Figure 1 below.

SCE will procure and replace the third T4F unit (to replace Unit 15) after the SCAQMD issues the PTC. Once installed and operational, this third new T4F unit is expected to reduce facility-wide NOx emissions to 30 TPY. This estimate is based on the grid stability study's conclusion that nearly 90% of the load can be shifted to the three new T4F engines, as shown in Table 2 above. If the SCAQMD issues the PTC by December 2024 and no significant supply chain issues are encountered, it may be possible to complete the third engine replacement by the end of 2027 and fully optimizing all three new generators in 2028, as outlined in Figure 2. If the PTC is not issued within these timeframes, or there are other delays outside of SCE's control, SCE may need to request an extension of the compliance deadlines for the 45 TPY and/or the 30 TPY emission limit.

A-12 (Cont.)

Reducing emissions to 13 TPY and 6 TPY will be much more challenging than the first two stages because it will require a significant increase in use of NZE/ZE technologies, the feasibility of which remains speculative at this time (due to land scarcity and grid stability concerns). Significant changes to PBGS's current generation portfolio would be needed. Immediate challenges to making those changes include project construction/installation timelines, propane fuel constraints, and meeting grid stability requirements.

A-13

[3] This permit application also covers the replacement of Unit 15, which is described below. SCE has already procured the T4F units to replace Units 8 and 10, but not 15.

Because Catalina's isolated grid lacks any connections to the mainland, all facility upgrades must be performed in a specific sequence that ensures sufficient uninterrupted generation to satisfy the island's electrical demand constantly. To meet the 13 TPY limit, SCE would need to retire the aging propane-fired microturbines, replace them with new NZE technology, and increase propane use to at least 1.5 million gallons annually for electricity generation.[4] One generation configuration that could potentially meet the proposed limit is shown in Table 2. On average, SCE's current microturbines (load-following inverter-based resources) produce approximately 3% of the island's annual power production. However, at any given time, the island's electrical demand and online generation resources at PBGS determine the maximum contribution from the microturbines and is specifically related to maintaining grid stability. In contrast, use of propane-fired internal combustion engines (ICE), a more mature technology, could potentially help overcome the lack of grid stability provided by IBRs. Because of the grid stability limitations with IBRs, SCE believes that modeling emissions estimates using propane-fired ICE (instead of IBRs) is a more realistic approach to meet the SCAQMD's proposed NZE emissions limit of 0.07 lbs/MWh.

A-13 (Cont.)

To maintain reliable power continuously, the incorporation of NZE technology must occur in the following sequence to provide sufficient backup generation to the three new T4F diesel generators. The installation of the first NZE unit will provide sufficient generation capacity to allow ceasing operations and the eventual removal of the older, less-efficient backup non-T4F engines (Units 7, 12, and 14), which is a critical step in meeting the 13 TPY limit. Once the older units have been removed, SCE anticipates there may be sufficient space for a second NZE unit, which is necessary not only for adequate resource redundancy but to also allow increasing propane use to achieve further emission reductions. This must be carefully planned to accommodate the tight space constraints at PBGS. Figure 3 below depicts a projected timeline and task list for NZE installation that would be meet the 13 TPY limit by 2030.

If the SCAQMD issues a PTC for two propane-fired NZE generators to SCE by June 2027 and if SCE can (eventually) feasibly increase propane supply to 1.5 million gallons annually for power generation, it may be possible to meet the 13 TPY limit by 2032 if all conditions noted above occur as outlined (*see* Figure 3 below). SCE recognizes that the SCAQMD would prefer to accelerate the NZE installation process to bring the emission target forward to 2030. If electricity generation from 1.5 million gallons of propane annually proves to be feasible, SCE would be amenable to this target date provided the SCAQMD can shorten the permitting process to fewer than 24 months and with the assumption that no other circumstances beyond SCE's control (e.g., supply chain limitations) delay SCE from procuring and installing the NZE equipment. This must be addressed in the technology assessments that SCE recommends including in the rule.

A-14

[4] By this time, SCE would already have replaced Units 8, 10, and 15 with new T4F units to meet the 30 TPY limit by January 1, 2028.

Figure 1. *Projected Schedule for Replacement of Units 8 and 10*

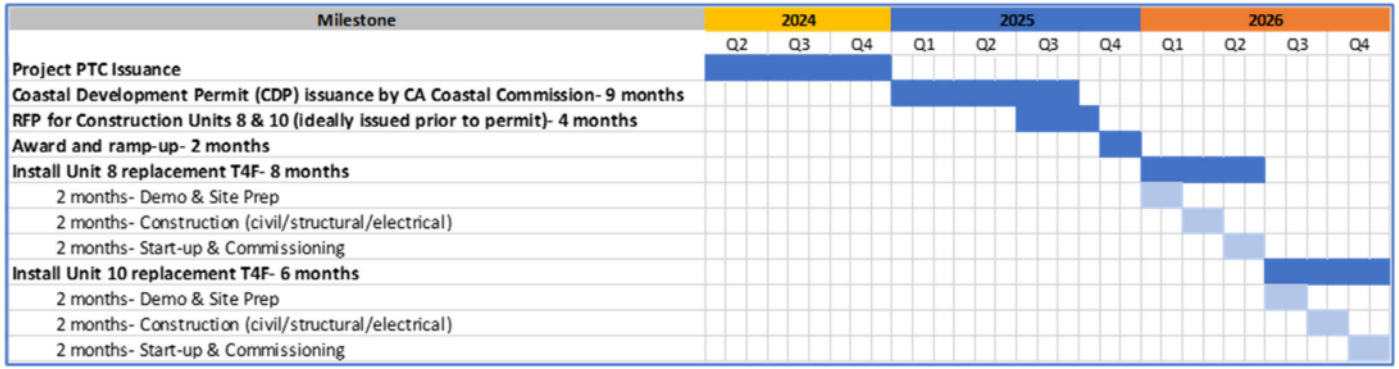
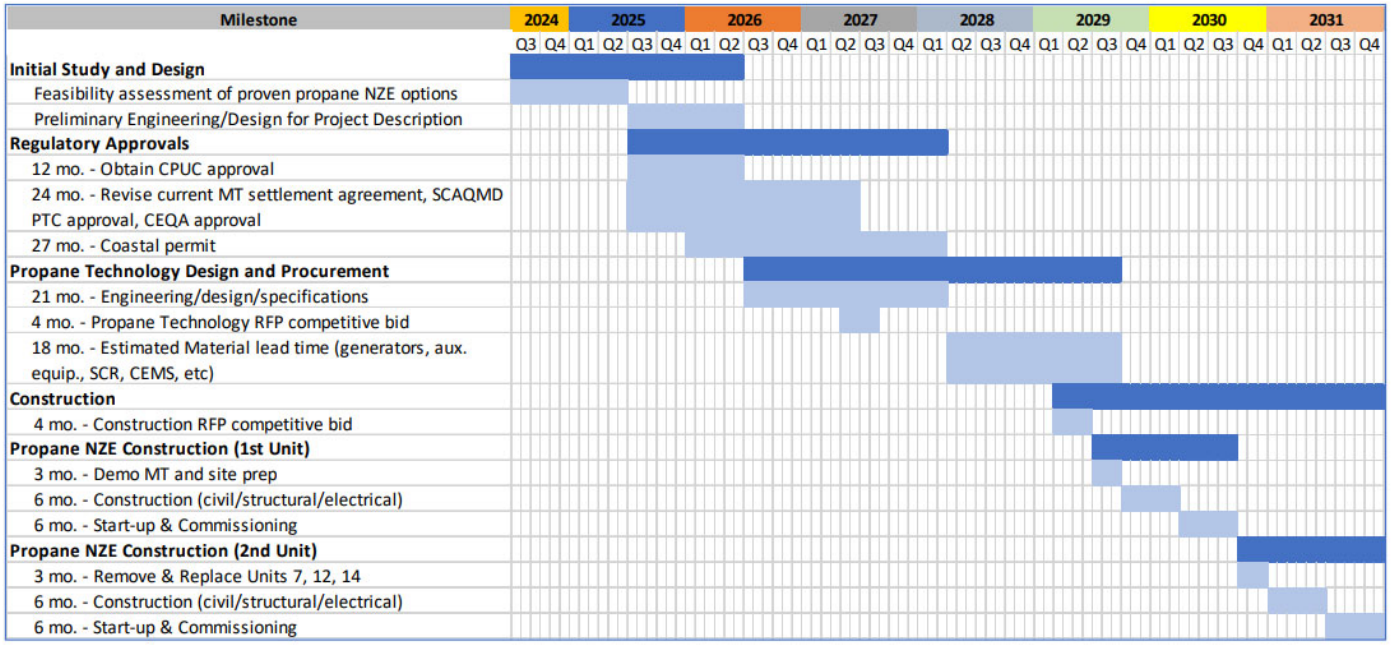


Figure 2. *Projected Schedule for Replacement of Unit 15*

A-14 (Cont.)

Figure 3. *Projected Timeline for NZE Installation*



A-14 (Cont.)

B. Further study is needed to determine whether Catalina's grid can accommodate increased NZE/ZE technology.

SCE has been grappling with the complexity of identifying a feasible generation configuration that would incorporate sufficient NZE/ZE technology to meet both the proposed emission limits and pass grid stability requirements, both currently and in the foreseeable future. As the exclusive provider of electricity, water, and gas for Catalina, SCE bears the responsibility of ensuring safe and reliable utility service to the island. Because Catalina's electrical distribution system is self-contained and isolated with no connections to the mainland's system, all electrical, water, and gas utility operations are entirely dependent on PBGS's electric power production. Given these circumstances, the electrical system's stability is of paramount importance for maintaining reliability. SCE and its consultants continue to study how NZE/ZE generation can successfully be integrated into the grid. Once there is a commercially available ZE/NZE product available, SCE's consultants will use manufacturer-specific technical details to model the product's contribution to grid stability, which must be a central element of the SCAQMD's feasibility assessment. SCE would greatly appreciate the SCAQMD's assistance in encouraging manufacturers to share this information with SCE once it becomes available.

In a small, isolated electrical system like Catalina, one factor critical to grid stability is whether generation resources can provide enough "short-circuit current." Without it, a grid's protective devices cannot function properly when a fault occurs, leading to outages. On the mainland, a myriad of generation sources can contribute short circuit current to the system. However, on Catalina, this safety net is missing. With its isolated generation portfolio and very long distribution circuits, the margin between normal condition load-serving current and short-circuit current is already at the lower end of the allowable range. Replacement of the traditional generation at PBGS with IBRs will further reduce this margin. To protect the island from compromised fault conditions, studies are needed to determine the maximum penetration of IBRs that can be accommodated before significant changes are made. Unlike traditional generation sources that can typically produce instantaneous short-circuit values of around 600% of the full-load rating of the machine, IBRs are commonly limited to values in the range of 120-150% of the inverter rating.[5]

A-15

In an electrical system during normal conditions, current flows from the generation source toward the load (the end user). Equipment is sized to ensure it can accommodate the amount of current flow under normal conditions and protective devices are installed along the path that can detect and isolate a portion of the path when a fault occurs. When a fault occurs, the amount of current flowing to the fault usually exceeds the amount of current during normal conditions. Protective devices (specifically those that operate on overcurrent) are set to operate only during fault

[5] Hadavi, S., Virtual Synchronous Generator Versus Synchronous Condensers: An Electromagnetic Transient Simulation-based Comparison, February 2022, Section 3.1 (pg. 11), available at https://cse.cigre.org/cse-n024/virtual-synchronous-generator-versus-synchronous-condensers-an-electromagnetic-transient-simulation-based-comparison.html.

conditions when the current flowing through them exceeds a certain value and for a certain duration. This value must be greater than the amount of current that flows during normal conditions or the protective device may be unable to distinguish between normal and fault conditions. This may cause the protective device to operate when it should not, causing a nuisance outage. Failing to clear a fault can result in a short circuit, with consequences far more serious than nuisance (including injury/death, fire, and equipment damage). The system operator must ensure that the difference between normal condition current flow and short-circuit current flow is large enough so that when a fault occurs, the protective device has the clear signal to operate and clear the fault quickly.

In an electrical system with traditional generation, the amount of steady state short-circuit current is commonly several times higher than the current that flows under normal conditions. These conditions allow protective devices to operate as intended without concern; however, with an increase in the penetration of IBRs (offsetting traditional generation), the steady state short-circuit current during a fault declines. Likewise, as the distance increases between the generation resources and where a fault occurs, the short-circuit current declines.

A protection coordination study evaluates all the protection devices on a section of a system such as a distribution circuit, or in this case, the entire Catalina electrical system. Each device is sized based on its location relative to the current passing through it under both normal conditions and fault conditions. Each device upstream from the fault (i.e., from the fault back toward the source of power) is coordinated with the others to minimize the number of customers affected. If the nearest device upstream from a fault is unable to detect the fault condition, it cannot clear it, so the next upstream device is now responsible to clear it. The fault will persist until an upstream device eventually detects and clears the fault. This increased fault duration presents a significant risk. The proper operation and coordination of a protection system is critical; it would be unacceptable if only a portion of the devices could operate properly. Thus, any proposed generation portfolio for Catalina that would produce inadequate short-circuit current and would result in improper operation of protective should be dismissed.

Maintaining grid stability will be paramount for maintaining the safety and reliability of Catalina's isolated grid as PBGS increases reliance on NZE/ZE technology for power generation. In studying ways to increase propane use and minimize emissions, SCE initially focused on replacing the aging microturbines with propane-fueled IBR technology. However, because IBRs produce significantly less short-circuit current during faults than ICE resources, and because they produce far less power per square foot of space required, SCE is now evaluating propane-fueled ICEs (i.e., reciprocating generators). SCE expects the performance of the propane-fueled ICEs to exceed that of any IBRs in both areas of consideration. However, there are still inherent limitations of propane ICEs which will need to be evaluated.

A-15 (Cont.)

C. SCE will continue to evaluate the feasibility of propane reciprocating engines.

Because IBRs inherently produce low values of short-circuit current during faults and have relatively low power output per square foot of space required, SCE is now conducting a

A-16

comprehensive evaluation of propane ICEs (reciprocating engines). The grid stability performance of propane ICEs is expected to exceed that of IBRs. One propane ICE manufacturer has asserted to SCE that its equipment could meet the NZE emissions limit of 0.07 lbs/MWh provided a selective catalytic reduction (SCR) is used, although no written guarantee has been provided. SCE continues to explore the options with the manufacturer (and will continue to seek other manufacturers).

Propane ICEs have inherent operational conditions and limitations that could pose challenges for reliable operation on an isolated grid like Catalina's. Because propane has a significantly higher fuel density than natural gas, it cannot be directly injected into the engine cylinders and must be conditioned before delivery into the combustion chamber. Furthermore, propane spark ignition otto-cycle engines have a slower response than the compression ignition diesel-cycle engines. This means that propane engines do not adjust to load increases reductions as readily as diesel engines. If the generators are unable to adjust quickly enough to follow the load demand, a mismatch between generation and load occurs, leading to grid instability and the potential for a collapse of the grid resulting in a blackout. Therefore, it is important to consider that propane ICEs may not be a reliable generation source to provide baseload power, and diesel generators may be necessary to provide baseload and stability to the grid. In other words, it might prove necessary to always maintain some amount of diesel generation online at a minimum load to provide support for propane ICEs.

A-16 (Cont.)

Although propane ICEs have significant limitations at this time to overcome for isolated grid integration, SCE believes that they are a viable option if the manufacturer can provide an emissions guarantee to meet the SCAQMD's proposed NZE emission limit. SCE will continue to explore this option.

D. Limitations on propane supply can potentially restrict NZE generation.

As shown in Table 2, SCE would have to incorporate NZE technology in a short time and increase annual propane usage for electricity generation to approximately 1.5 million gallons to meet the 13 TPY NOx emission target. Currently, SCE uses approximately 250,000 gallons of propane in a normal year for electricity generation (in years when the battery is unavailable, such as 2023, consumption is around 330,000 gallons). SCE's primary commitment is our obligation to ensure safe and reliable operations at Catalina. In addition, SCE is obligated to serve Catalina with critical utilities and must prioritize distribution of propane to gas customers at all times. Although SCE is resolute in its commitment to increasing propane-based electricity generation at PBGS to meet the necessary emission targets, these commitments to Catalina remain the highest priority. Therefore, the process of increasing propane deliveries up to the proposed volume will need to be vetted with all island stakeholders.

A-17

The City of Avalon's Fire Chief has expressed concerns with increasing propane throughput and cited the limited resources and personnel at Catalina in dealing with potential emergencies as an

underlying factor for these concerns. During subsequent meetings, the Fire Chief has communicated that the City of Avalon Fire Department would be comfortable increasing the propane deliveries to a maximum of three times per week. SCE is currently conducting an independent and comprehensive risk-analysis-based approach to help determine future propane delivery capabilities to PBGS. Preliminary estimates indicate that the maximum average number of propane deliveries is three per week, which is significantly below the estimated 1.5 million gallons for power generation needed to reach the proposed 13 TPY NOx limit. As previously mentioned, SCE must prioritize distribution of propane to gas customers at all times (approximately 650,000 gallons per year). Considering the unique island challenges and constraints referenced above, the optimization of Catalina's propane fuel for electric generation will depend on the resolution of SCE's current and future gas GRC proposals, and collaboration with key island stakeholders to protect public safety. If the necessary deliveries of propane cannot be achieved, the future BARCT assessments must reflect this. SCE is finalizing a detailed report and expects to share it with the SCAQMD in the next few weeks.

A-17 (Cont.)

E. No ZE option that can achieve 30% annual generation output (given Catalina's unique constraints) has been identified.

SCE has been diligently exploring options to maximize annual ZE generation from sources such as solar and wind. While SCE has not yet found a ZE option that can provide up to 30% of the island's annual generation output using the available land while also ensuring grid stability, it remains dedicated to this pursuit. SCE will work closely with the SCAQMD to evaluate and determine the appropriate ZE implementation timeframe through a feasibility study as technology matures and other implementation hurdles are overcome.

In a demonstration of its commitment to ZE, SCE launched the Catalina All-Source request for offers (RFO) on December 21, 2022. This RFO sought third-party bids for eligible renewable resources, standalone and paired energy storage, and demand response solutions, among other preferred resources. As an investor-owned utility, SCE adheres to the California Public Utilities Commission (CPUC)-approved least-cost best-fit resource selection framework, which is overseen by the CPUC and an independent evaluator for fairness, transparency, and compliance with stated RFO goals. The bid submission period closed on January 5, 2024, and SCE is currently in the process of assessing the bids. This multi-year process has not yet yielded any offers upon which SCE could rely to achieve 30% annual generation output from ZE resources. Unless and until there are sufficient options for developers to build solar PV projects on Catalina that can account for 30% of annual generation output, SCE will not be able to meet the 6 TPY limit. At this point, concluding that SCE can achieve at least 30% annual generation output with ZE is highly speculative, and thus, the SCAQMD's BARCT scenario is neither achievable nor appropriate on the proposed timeline. Current circumstances underscore the importance of future technology assessments to determine BARCT and corresponding compliance timing as compliance deadlines in the Amended Rule approach.

A-18

F. Securing cost recovery from the CPUC.

Investor-owned utilities like SCE pay for projects by petitioning the CPUC for approval for reimbursement, typically prior to any expenditures (a process known as "cost recovery"). In its General Rate Case (GRC) proceeding, a utility projects the next four years' worth of planned capital and maintenance spending. Sometimes, the utility uses a standalone application for certain projects. SCE had originally included the Catalina Repower project costs in its 2021 GRC request. The CPUC's Decision for the 2021 GRC ordered SCE to instead file a separate petition for recovery, which SCE did in October 2021. SCE and the two intervening parties (TURN and Cal Advocates) reached a settlement agreement[6] that was approved in 2022. To seek cost recovery of the new PBGS units, SCE will follow the process outlined in that settlement agreement (which is summarized below):[7]

Figure 4

Catalina Repower Project – Approval Phases and Cost Recovery Mechanism

Catalina Repower Project	Approval Process	Forum for Cost Recovery
Phase IA: Units 8 and 10 replacement with two new U.S. EPA Tier-4 Final Certified	Tier 2 Advice Letter	SCE proposes cost recovery of Catalina Repower Memorandum Account costs via Tier 3 Advice Letter.
Phase IB: Unit 15 replacement, retirement, or retrofitting	Tier 2 Advice Letter	Catalina Repower Memorandum Account in future cost recovery proceeding.
Phase 2: Clean Energy, All-Source RFO	Power purchase agreements with third parties secured through the Clean Energy All Source RFO will be approved via SCE's Energy Resource Recovery Account (ERRA) Review Application. If SCE needs any non-zero emissions generation (including utility owned generation), SCE must seek approval via an application.	Cost recovery for power purchase agreements with third parties secured through the Clean Energy All Source RFO will be secured via ERRA. Cost recovery for any non-zero emissions generation (including utility owned generation) will be secured via an application.

A-19

As indicated above, in its GRC, SCE proposed that the Commission approve cost recovery for the new Units 8 and 10 via a Tier 3 Advice Letter (instead of including it in a subsequent GRC proceeding).

[6] The April 2022 settlement agreement between TURN, SCE and Cal Advocates created a process for SCE to seek cost recovery of future clean-energy projects on Catalina. It is attached to the November 2022 order granting the parties' request to approve the settlement agreement and terminate the proceeding.

[7] *See* CPUC D.22-11-007, Decision Approving All-Party Settlement Agreement and Making Additional Findings, at § D(6) (Nov. 4, 2022) (available at https://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=498295641).

G. The proposed emission limits do not account for future load growth.

SCAQMD's proposed emission limits are based on historical load for Catalina and do not account for projected load growth. The emission limits being proposed must account for the island's future load growth and failing to do so will adversely impact SCE's ability to meet the emission limits if electric consumption increases considerably. Therefore, SCE requests this be considered in the future technology assessments. It is important that any load growth forecast considers the potential adoption of electric marine vessels and harbor craft and potential electrification of Catalina resident's appliances and vehicles, which could significantly increase load growth in addition to reducing emissions for the air basin.

Load forecasting is inherently challenging, especially in the later years of a long-term horizon. The accuracy of the load forecast used to calculate future emissions is critical to understanding what emission values are achievable while ensuring grid stability. This reinforces the criticality of performing technology assessments with the most current load forecast then-available, prior to the 13 TPY and 6 TPY limits becoming effective to determine if the proposed limits will need to be adjusted and/or their timing extended. SCE strongly supports using the most current forecast at the time of the technology assessments to ensure the highest level of accuracy when determining feasibility of the proposed limits.

A-20

In summary, SCE remains committed to achieving the proposed NOx emission targets outlined in the Pre-Preliminary Draft. However, the ability to meet those limits, particularly13 TPY and 6 TPY, is highly speculative at this time due to the multitude of challenges described in this section. For these reasons, SCE is providing comments to the Pre-Preliminary Draft in the next section of this letter to ensure there is sufficient compliance flexibility available. This flexibility is critical because SCE cannot abrogate its duty to provide life-critical utilities to Catalina residents and visitors. Shutting down PBGS operations to remain compliant with limits deemed unattainable is not a viable option.

II. SCE Comments on Pre-Preliminary Draft Rule Language

As presented above in Section I, there are numerous challenges that must be overcome to achieve compliance with the proposed limits in the Pre-Preliminary Draft. There is much uncertainty at this time on whether the latter two limits of 13 TPY and 6 TPY can be feasibly met by the proposed deadlines, and for this reason it is critical for the SCAQMD to provide sufficient flexibility in the rule language to provide relief if the limits are deemed infeasible upon completion of the proposed technology assessments, or due to other circumstances beyond SCE's control. SCE urges the SCAQMD to apply the revisions presented below.

A-21

A. The language describing the proposed technology assessment should provide necessary relief if the limits are deemed infeasible.

Figure 5. *Pre-Preliminary Draft Proposed Amended Rule 1135: Section (d)(3)*

> (3) Technology Assessments for Electric Generating Units Located on Santa Catalina Island
>
> By January 1, 2028, the Executive Officer shall conduct a technology assessment and report to the Governing Board if the NOx emission limits in clauses (d)(2)(E)(iii) and (d)(2)(E)(iv) represent BARCT.
>
> (A) If the Executive Officer determines that the NOx emission limits specified in clauses (d)(2)(E)(iii) and (d)(2)(E)(iv) represent BARCT, the owner or operator of an electricity generating facility located on Santa Catalina Island shall meet the NOx limits specified in clauses (d)(2)(E)(iii) and (d)(2)(E)(iv) by the applicable compliance dates.
>
> (B) If the technology assessment specified in this paragraph demonstrates that more stringent BARCT requirements are applicable, the Executive Officer shall initiate rule development for the implementation schedule of the more stringent BARCT requirements within six months after the technology assessment.

A-22

Proposed Section (d)(3) would require a technology assessment by January 1, 2028 to determine whether the 13 TPY and 6 TPY limits are feasible and represent BARCT. If the assessment supports a stricter BARCT requirement, the SCAQMD would be required to initiate rule development to achieve it. However, there is no provision for relaxing the 13 TPY and 6 TPY limits or adjusting their timing if the technology assessment demonstrates they are infeasible and therefore do not represent BARCT in 2030 and 2035, respectively. Such a provision is critical and must be added; given the substantial potential impacts and need for a clear and sustainable framework in the rule, the SCAQMD must provide for more than the default relief (seeking a variance before the Hearing Board). Specifically, SCE recommends the rule include a five-year extension of the proposed 13 TPY and 6 TPY limit deadlines if a technology assessment finds the limits do not represent BARCT, to allow for technology maturation and adoption. SCE believes a five-year period is appropriate to allow for such advancement and reassessment.

Furthermore, the rule should incorporate two separate technology assessments: one each for the 13 TPY and 6 TPY NOx limits. A separate technology assessment is critical for the final BARCT limit of 6 TPY due to the highly speculative nature of meeting the proposed limit at the present time, even if and when the 13 TPY limit is met. As previously described, meeting the final BARCT limit would require a complete overhaul of PBGS's current generation profile within an extremely compressed timeline. In addition, meeting the limit would require increasing the available land as

well as development of ZE technology that can provide up to 30 percent of total generation output while maintaining grid stability. Finally, performing an additional assessment closer to the final 6 TPY deadline will ensure an accurate load forecast has been accounted for in understanding the limit's feasibility. SCE remains committed to meeting the proposed 2035 deadline, but an additional separate technology assessment for the 6 TPY limit (to be completed by January 1, 2033) should be added to the proposed rule language to ensure feasibility has been evaluated based on updated future conditions and technology.

SCE's Proposed Revisions

SCE respectfully requests that the SCAQMD revise the draft proposed rule as follows. SCE's proposed modifications to the June 13, 2024 language are shown in **bold underlined** text and deletions are shown in ~~**bold strikethrough**~~ text:

(d) (3) Technology Assessments for Electric Generating Units Located on Santa Catalina Island

(A) By January 1, 2028, the Executive Officer shall conduct a technology assessment **(including assessment of technology availability and island-specific grid stability factors)** and report to the Governing Board if the NOx emission limit**s** in clause**s** (d)(2)(E)(iii) ~~**and (d)(2)(E)(iv)**~~ represent**s** BARCT.

(i) ~~**(A)**~~ If the Executive Officer determines that the NOx emission limit**s** specified in clause**s** (d)(2)(E)(iii) ~~**and (d)(2)(E)(iv)**~~ represent**s** BARCT, the owner or operator of an electricity generating facility located on Santa Catalina Island shall meet the NOx limit**s** specified in clauses (d)(2)(E)(iii) ~~**and (d)(2)(E)(iv)**~~ by the applicable compliance date**s**.

(ii) ~~**(B)**~~ If the technology assessment specified in this paragraph demonstrates that more stringent BARCT requirements are applicable, the Executive Officer shall initiate rule development for the implementation schedule of the more stringent BARCT requirements within six months after the technology assessment.

(iii) If the technology assessment(s) specified in this paragraph demonstrates that the NOx emission limit in clause (d)(2)(E)(iii) does not represent BARCT, the implementation schedule for paragraph (d)(2)(E)(iii) shall be automatically extended by five years and the Executive Officer may, if deemed necessary, initiate rule development for the implementation schedule of less stringent BARCT requirements within six months after the technology assessment.

(B) By January 1, 2033, the Executive Officer shall conduct a technology assessment (including assessment of technology availability and island-specific grid stability factors) and report to the Governing Board if the NOx emission limits in clause (d)(2)(E)(iv) represents BARCT.

A-22 (Cont.)

(i) If the Executive Officer determines that the NOx emission limit specified in clause (d)(2)(E)(iv) represents BARCT, the owner or operator of an electricity generating facility located on Santa Catalina Island shall meet the NOx limits specified in clause (d)(2)(E)(iv) by the applicable compliance dates.

(ii) If the technology assessment specified in this paragraph demonstrates that more stringent BARCT requirements are applicable, the Executive Officer shall initiate rule development for the implementation schedule of the more stringent BARCT requirements within six months after the technology assessment.

(iii) If the technology assessment specified in this paragraph demonstrates that the NOx emission limit in clause (d)(2)(E)(iv) does not represent BARCT, the implementation schedule for paragraph (d)(2)(E)(iv) shall be automatically extended by five years and the Executive Officer may, if deemed necessary, initiate rule development for the implementation schedule of less stringent BARCT requirements within six months after the technology assessment.

A-22 (Cont.)

B. The NZE/ZE combined rating requirement unnecessarily constrains SCE's ability to achieve the required emission limits.

Figure 6. *Pre-Preliminary Draft Proposed Amended Rule 1135: Section (d)(2)(D)*

(D) Install Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units by January 1, 2030 with a minimum cumulative rating of 2 MW, excluding:

(i) The highest rated Santa Catalina Island NZE electric generating unit and/or Santa Catalina Island ZE electric generating unit;

(ii) Solar photovoltaic cells; and

(iii) Battery storage;

A-23

Proposed Section (d)(2)(D) would require installation of NZE/ZE electric generating units with a minimum cumulative rating of 2 MW at PBGS (excluding the highest-rated NZE/ZE electric generating unit, solar photovoltaic cells, and battery storage). SCE believes the cumulative rating requirement unnecessarily restricts its ability to achieve the required emission limits. The selection of NZE/ZE will be primarily driven by the need in meeting the proposed emission limits, while taking into consideration the space constraints at PBGS and the multiple variables described previously including the critical need of maintaining grid stability on Catalina's isolated grid. In the hypothetical case that only two 1.8 MW NZE units could be deployed within the limited PBGS footprint, compliance with the proposed emission limits can be achieved by baseloading both units

to operate simultaneously during high demand periods, if grid stability can be maintained while doing so. However, SCE would not be able to meet the minimum rating requirement (which has no independent benefit once the emission limit is met).

The SCAQMD's Energy Policy[8] states that it is the Governing Board's long-standing policy to be technology neutral and that any form of energy will be allowed in meeting the specified emission limits. By imposing a minimum rating requirement for specific technologies at PBGS, the SCAQMD would be flouting this policy. A rating requirement is irrelevant in this case because the emission limits are what ultimately drive compliance. SCE believes the proposed emission limits are sufficient to drive the reduction targets the SCAQMD is seeking to achieve. Providing flexibility for SCE to strategize and determine the right technology mixture without unnecessary hurdles would afford SCE the optimal foundation for meeting the proposed targets.

SCE's Proposed Revisions

SCE respectfully requests that the SCAQMD revise the draft proposed rule as follows. SCE's proposed modifications to the June 13, 2024 language are shown in **bold underlined** text and deletions are shown in ~~**bold strikethrough**~~ text:

A-23 (Cont.)

Section (d)(2)(D):

> (D) Install Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units by January 1, 2030. ~~**with a minimum cumulative rating of 2 MW, excluding**~~:
>
> > ~~**(i) The highest rated Santa Catalina Island NZE electric generating unit and/or Santa Catalina Island ZE electric generating unit;**~~
> >
> > ~~**(ii) Solar photovoltaic cells; and**~~
> >
> > ~~**(iii) Battery storage;**~~

[8] South Coast AQMD, AQMD Air Quality-Related Energy Policy, available at https://www.aqmd.gov/docs/default-source/planning/Greenhouse-Gases/board-approved-energy-policy-090911.pdf?sfvrsn=6

C. The proposed time extension should be modified to provide critical and appropriate compliance flexibility.

Figure 7. *Pre-Preliminary Draft Proposed Amended Rule 1135: Section (d)(5)(A)*

(~~4~~5) Time Extension

(A) The owner or operator of an electricity generating facility on Santa Catalina Island may submit a request to the Executive Officer for a time extension of up to ~~three~~two years to meet the mass emission ~~limit~~limits specified in ~~subparagraph (d)(2)(D)~~ clauses (d)(2)(E)(iii) and (d)(2)(E)(iv) provided the owner or operator:

(i) Submits the request to the Executive Officer at least 365 days before the compliance ~~deadline~~deadlines specified in ~~subparagraph (d)(2)(D)~~ clauses (d)(2)(E)(iii) and (d)(2)(E)(iv); and

(ii) The request includes:

(~~A~~I) Identification of the electric generating units for which a time extension is needed;

(~~B~~II) The reason(s) a time extension is needed;

(~~C~~III) Progress of replacing or retrofitting the electric generating units;

(~~D~~IV) A description of the technology or technologies that will be used to achieve the mass emission limit; and

(~~E~~V) The length of time requested.

A-24

Proposed Section (d)(5)(A) includes time extensions of up to two years to meet the mass emission limits of 13 TPY and 6 TPY by 2030 and 2035, respectively. The extension should be expanded to include all limits being proposed under Table 2 of PAR 1135(d)(2)(E), as well as including a potential extension of the diesel ICE ban proposed under PAR 1135(d)(2)(B) and PAR 1135(d)(2)(C) if needed, to address any delays in the construction/procurement timeline or regulatory approvals, including issuance of the required PTC, that are outside of SCE's control. As set forth in Section I of this letter, SCE faces challenges of executing a compacted schedule to install the two T4F engines currently in storage, in addition to procurement of the third T4F engine to replace Unit 15. The procurement of the third engine will begin after the expected issuance of the PTC by the end of this calendar year. Extenuating circumstances outside of SCE's control could cause potential delays in achieving any of the limits in Table 2, and time extensions would provide critical compliance relief as needed.

The maximum extension time frame should be increased from two years to up to five years. The previous rule language allowed an extension for up to three years. Compliance with the latter two proposed NOx limits remains speculative at this time; it will require grid stability improvements of NZE/ZE technologies, significant increases in propane use for power generation, acquisition of numerous agency/stakeholder approvals, among other things, as described in Section I. All these factors can potentially lead to the need for an extension with a longer time frame than the currently proposed two years. The extension would only be granted at the SCAQMD's discretion, so SCE would need to clearly justify the length of any extension requests.

Figure 8. *Pre-Preliminary Draft Proposed Amended Rule 1135: Section (d)(5)(B)*

(45)	(B)	(i)	The owner or operator prepared the request for a time extension in compliance with subparagraph (d)(45)(A); and
		(ii)	The owner or operator provided sufficient details identifying the reason(s) a time extension is needed that demonstrates to the Executive Officer that there are extenuating circumstances due to unforeseen construction interruptions and/or supply chain disruptions that necessitate additional time to complete implementation. ~~Such a demonstration may include, but is not limited to, providing detailed schedules, engineering designs, construction plans, land acquisition contracts, permit applications, and purchase orders.~~
	(C)		If the Executive Officer approves the request for a time extension, the owner or operator shall pay a mitigation fee within 30 days of the date of approval. The mitigation fee shall be $100,000/year, or any portion of a year, after the compliance date specified in ~~subparagraph (d)(2)(D)~~ clauses (d)(2)(E)(iii) and (d)(2)(E)(iv).

A-24 (Cont.)

Proposed Section (d)(5)(B) would narrowly limit the circumstances in which an extension may be granted to unforeseen construction interruptions and/or supply chain disruptions. However, there are a multitude of extenuating circumstances beyond SCE's control that could arise which would require an extension besides construction and supply chain disruptions, such as permitting delays. The currently operative Rule 1135 properly provides a broader, non-exclusive list of examples issues that can form the basis of an extension request:

Figure 9. *Current Rule 1135: Section (d)(4)(B)(i)*

(d)	(4)	(B)	(i)	The owner or operator prepared the request for a time extension in compliance with subparagraph (d)(4)(A); and
			(ii)	The owner or operator provided sufficient details identifying the reason(s) a time extension is needed that demonstrates to the Executive Officer that there are extenuating circumstances that necessitate additional time to complete implementation. Such a demonstration may include, but is not limited to, providing detailed schedules, engineering designs, construction plans, land acquisition contracts, permit applications, and purchase orders.
		(C)		If the Executive Officer approves the request for a time extension, the owner or operator shall pay a mitigation fee within 30 days of the date of approval. The mitigation fee shall be $100,000/year, or any portion of a year, after the compliance date specified in subparagraph (d)(2)(D).

Instead of the new proposed draft language, SCE recommends the SCAQMD retain the existing language from the current rule section (d)(4)(B)(ii) which contains a non-exclusive list of circumstances outside SCE's control. [9] As commented previously in Subsection A, the proposed language does not allow the SCAQMD to initiate rule development for scenarios where the 13 TPY and 6 TPY limits are deemed infeasible upon completion of the technology assessment. If the SCAQMD does not initiate rule development to either increase the NOx limit or move the implementation deadline to a later date based on the results of the technology assessment, it is critical for the SCAQMD to allow extensions to provide compliance relief for other extenuating circumstances outside SCE's control.

A-24 (Cont.)

SCE's Proposed Revisions

SCE respectfully requests that the SCAQMD revise the draft proposed rule as follows. SCE's proposed modifications to the June 13, 2024 language are shown in **bold underlined** text and deletions are shown in ~~**bold strikethrough**~~ text:

(d) (5) Time Extension

(A) The owner or operator of an electricity generating facility on Santa Catalina Island may submit a request to the Executive Officer for a time extension of up to **five** ~~**two**~~ years to meet the mass emission limits specified in **Table 2 of clause (d)(2)(E) or the prohibition in clause (d)(2)(B)** ~~**clauses (d)(2)(E)(iii) and (d)(2)(E)(iv),**~~ provided the owner or operator:

[9] The current version of Rule 1135 is available at https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1135.pdf?sfvrsn=4.

(i) Submits the request to the Executive Officer at least 365 days before the compliance deadlines specified in **Table 2 of** clause**s** **(d)(2)(E) and/or clause (d)(2)(B)** ~~**(d)(2)(E)(iii) and (d)(2)(E)(iv)**~~; and

(ii) The request includes:

(I) Identification of the electric generating units for which a time extension is needed;

(II) The reason(s) a time extension is needed;

(III) Progress of replacing or retrofitting the electric generating units;

(IV) A description of the technology or technologies that will be used to achieve the mass emission limit; and

(V) The length of time requested.

A-24 (Cont.)

(B) The Executive Officer will approve or disapprove the request for a time extension. Approval or disapproval will be based on the following criteria:

(i) The owner or operator prepared the request for a time extension in compliance with subparagraph (d)(5)(A); and

(ii) The owner or operator provided sufficient details identifying the reason(s) a time extension is needed that demonstrates to the Executive Officer that there are extenuating circumstances **that necessitate additional time to complete implementation.** ~~**due to unforeseen construction interruptions and/or supply chain disruptions that necessitate additional time to complete implementation.**~~ **Such a demonstration may include, but is not limited to, providing detailed schedules, engineering designs, construction plans, land acquisition contracts, permit applications, and purchase orders.**

D. The requirement to include emissions derived from missing data substitution for CEMS monitoring when determining compliance with annual limits should be removed.

Figure 9. *Pre-Preliminary Draft Proposed Amended Rule 1135: Section (d)(2)(E)*

(~~C~~E)	~~By January 1, 2025, meet a~~Meet the annual NOx mass emission ~~limit~~limits specified in Table 2: Emission Limits for Electric Generating Units Located on Santa Catalina Island ~~from~~for all electric generating units ~~of 45 tons of NOx annually~~, including mass emissions from startups and shutdowns, and missing data substitutions pursuant to South Coast AQMD Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications (Rule 218.3) and South Coast AQMD Rule 2012 – Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions (Rule 2012); and

A-25

Proposed Section (d)(2)(E) would require inclusion of emissions derived from "missing data" procedures (MDP) during periods of unexpected CEMS downtime to be included when determining compliance with the annual emissions limit. SCE recommends removal of this requirement. MDP substitutions are unduly punitive and artificially elevate NOx emissions -- sometimes to the extent that the MDP-substituted emissions for a portion of the year exceed the total annual actual emissions for the facility. For example, a CEMS unit could be accurately recording emissions but a late Remote Terminal Unit (RTU) transmission to the SCAQMD could trigger substitute data, which would not be reflective of the facility's "true" emissions. Especially in the case of late RTU transmissions, SCE believes that actual CEMS data should be used in determining compliance.

This will be especially significant as the facility limit is lowered. SCE agrees these emissions should be counted in other circumstances (e.g., annual emissions reports and associated fees), but not toward the rule's annual compliance determination. There is simply not much leeway at these lower limits to incorporate artificially high substitute data. Instead, SCE recommends an "alternative emissions calculation" method that would require SCAQMD approval prior to quantification for determining compliance with the annual emissions limit. SCE believes this would be more representative of actual emissions and would provide sufficient safeguards within the context of the more stringent limits proposed in this rule.

E. Requiring the removal of legacy ICEs is premature and unnecessary.

Figure 10. *Pre-Preliminary Draft Proposed Amended Rule 1135: Section (d)(2)(F)*

(DF)	~~On and after January 1, 2026, meet a mass emission limit from all electric generating units of 13 tons of NOx annually, including mass emissions from startups and shutdowns.~~ Remove all prime power diesel internal combustion engines for which installation was completed earlier than [*Date of Adoption*] from service by January 1, 2030.

Proposed Section (d)(2)(F) would require the removal, by January 1, 2030, of prime power diesel ICE units that were installed prior to the Rule 1135 amendment adoption. SCE opposes this requirement. The eventual removal of the engines should be ultimately determined by SCE's rigorous grid stability analyses and our ability to introduce NZE/ZE technology into PBGS's generation profile. Our commitment to grid stability and safety is unwavering. We are actively exploring innovative solutions to transition towards cleaner energy sources while ensuring that SCE can continue to provide life-critical utilities safely. SCE anticipates meeting the proposed 13 TPY and 6 TPY emission limits would require minimal operation of diesel ICE and that their removal may be needed to allow sufficient space for the NZE/ZE units. However, until appropriate models are commercially available and validated through SCE grid stability analyses, requiring removal of the existing ICEs is unnecessarily restrictive. SCE requests that Proposed Section (d)(2)(F) be stricken from the Amended Rule.

A-26

SCE's Proposed Revisions

SCE respectfully requests that the SCAQMD revise the draft proposed rule as follows. SCE's proposed modifications to the June 13, 2024 language are shown in **bold underlined** text and deletions are shown in ~~**bold strikethrough**~~ text:

~~**(d)(2)(F) Remove all prime power diesel internal combustion engines for which installation was completed earlier than *[Date of Adoption]* from service by January 1, 2030.**~~

III. Conclusion

SCE is committed to finding a solution that balances reducing PBGS's emissions footprint with the need to provide uninterrupted life-critical utilities to Catalina. We see these challenges not just as obstacles but as opportunities for us to innovate and find solutions together. SCE is aligned with the SCAQMD's emission reduction goals but we will need to work closely together to overcome a multitude of challenges to meet the proposed limits by the proposed deadlines. For that reason,

A-27

the final rule must provide relief from the proposed limits if the technology assessment(s) finds them to be unreasonable and therefore not BARCT.

SCE appreciates the SCAQMD's substantial efforts to amend Rule 1135 and the opportunity to collaborate with the SCAQMD to bring alternative, cleaner power generation solutions to Catalina. Please feel free to contact Yung Chung, Senior Air Quality Advisor, with any questions or concerns at (626) 613-2821 or Yung.Chung@sce.com.

A-27 (Cont.)

Sincerely,

DocuSigned by:
Anthony Hernandez
0E235977344E47B...

Anthony Hernandez, SCE
Director of Catalina Operations & Strategy
Southern California Edison

CC: Michael Morris, SCAQMD
Isabelle Shine, SCAQMD
Yung Chung, SCE
Bethmarie Quiambao, SCE

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Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	7/3/2024 2:57:52 PM
Certified Delivered	Security Checked	7/3/2024 3:27:01 PM
Signing Complete	Security Checked	7/3/2024 3:27:09 PM
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Response to Comment A-1
Staff appreciates Southern California Edison's commitment to working on a viable pathway toward a cleaner energy future at the Pebbly Beach Generating Station.

Response to Comment A-2
Staff has included consideration of the island's unique geography, isolated grid, grid stability, lack of fueling infrastructure, space constraints, the need to remain fully operable during equipment replacement, and the critical role Pebbly Beach Generating Station has on the well-being of the Santa Catalina Island community. Those considerations are incorporated into the BARCT assessment, the final proposed emission limits, and the provisions allowing additional flexibility.

Response to Comment A-3
Feasibility analyses are included for the 2030 and 2035 emission limits. The feasibility analyses will be conducted two years before the implementation dates (2028 and 2033 respectively) and will identify the electric generating units under consideration, the progress in procuring and installing the electric generating units, a description of how those units would achieve the emission limits, and, if applicable, the length of time of up to three years for an extension to the implementation date. The owner or operator will conduct the feasibility analyses to determine if the proposed emission limits in clause (d)(2)(E)(iv) can be met by the compliance date. The feasibility analyses will not determine if the limits represent BARCT.

Response to Comment A-4
See Response to Comment No. A-3. Extension may be granted for up to three years but does not include rule development initiation provisions.

Response to Comment A-5
See Response to Comment No. A-3. Separate feasibility analyses are included for both the 13 tpy and 6 tpy limits to allow additional time up to three years to meet the proposed limits.

Response to Comment A-6
The maximum time extension for extenuating circumstances has been extended from two years to three years and is applicable to all compliance dates.

Response to Comment A-7
The extenuating circumstances that demonstrate the need for a time extension are limited to unforeseen construction interruptions and/or supply chain disruptions. The variance process to provide relief from South Coast AQMD regulations is available to address extenuating circumstances beyond those reasons provided in the proposed rule.

Response to Comment A-8
A minimum 1.8 MW cumulative prime power output backup provision was added to ensure that a minimum amount of Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units are installed. Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units will need to provide approximately 75 percent of the power at the electricity generating facility located on Santa Catalina Island to meet the final proposed NOx limit of 6 tons per year (tpy). Throughout the rule development

process, it was expressed that three Tier 4 Final diesel engines are necessary to provide redundancy during maintenance and unplanned outages. Similarly, backup Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units are necessary to provide sufficient power during maintenance and unplanned outages to meet the final proposed NOx limit as well as minimize the use of diesel engines.

Response to Comment A-9
The proposed rule includes other approved missing data substitutions as approved by the Executive Officer.

Response to Comment A-10
Removal of the legacy engines installed prior to the adoption date of the rule is necessary due to the space constraints of the facility. Without removal of the engines, there is insufficient space to install cleaner energy equipment. Space limitations are a significant challenge for installing ZE and/or NZE technologies and was taken into consideration during the BARCT assessment. The BARCT analysis assumed that three of the six existing diesel engines that will not be replaced with Tier 4 Final diesel engines and all existing microturbines could be removed to install ZE and/or NZE technologies for power generation. If the legacy engines are not removed, then the space available is the microturbine pad which would reduce the space available to half or less.

Response to Comment A-11
See Response to Comment A-2. Staff acknowledges the challenges when determining the feasibility of meeting the proposed limits. Staff agrees that there is a need to overhaul the current power generation profile that relies on diesel engines installed in the previous century. Grid stability must be maintained when examining modern technologies to provide life-critical utilities. The proposed facility-wide emission caps provide added flexibility for Southern California Edison to determine which technologies best suit the situation. The proposed rule is technology neutral and does not specify technologies to be installed. The proposed emission limits account for the maximum peak load with population growth. Further load growth could be met with NZE and ZE technologies. South Coast AQMD does not consider securing cost recovery authorization from the California Public Utilities Commission to be a sufficient reason for delay.

Response to Comment A-12
Staff appreciates the sample generation scenarios provided to achieve the proposed emission limits by the specified deadlines. The proposed rule provides the opportunity for Southern California Edison to conduct feasibility analyses to determine if the specified deadlines can be achieved. Time extensions are available in the event of extenuating circumstances such as supply chain issues, permit delays, or construction interruptions. However, the feasibility analyses and extensions do not review the BARCT assessment or the proposed emission limits.

Response to Comment A-13
Staff agrees that reducing emissions to 13 TPY and 6 TPY may present challenges and has provided opportunities to request additional time to meet the proposed limits through feasibility analyses and extensions for extenuating circumstances to address construction/installation timelines and grid stability requirements. The very limited current use (approximately 3 percent of power generation) of aged microturbines provide an ideal opportunity to begin installation of NZE

equipment, in parallel with the installation of new diesel engines. The proposed emissions limits are technology and Southern California Edison is free to pursue propane-fired internal combustion engines to meet NZE requirements.

Response to Comment A-14
Staff agrees that the removal of legacy engines must occur sequentially with the installation of NZE technology. Staff disagrees that it would take five years from permit issuance to install NZE technology. As noted earlier, the microturbines could easily be removed with minimal impact on power generation. The space made available could accommodate NZE equipment without removing a legacy diesel engine. With the installation of NZE equipment on the microturbine pad, it would facilitate the removal of the legacy diesel engines as more power output is readily available. See Response to Comment A-3 and A-12 with respect to feasibility analyses and time extensions.

Response to Comment A-15
Southern California Edison conducted a grid stability analysis as part of the BARCT assessment and found NZE and ZE technologies that were stable.[1] Staff disagrees that there are not commercially available ZE/NZE products available. Staff is aware of the challenges of providing power to Santa Catalina Island and has included provisions in the proposed rule to accommodate these challenges (see Response to Comment A-2). Operating power grids with high levels of inverter based resources have already been demonstrated on King Island in Australia, El Hierro in Spain, Kaua'I in Hawaii, and Maui in Hawaii[2]. The most comparable to Santa Catalina Island is El Hierro with a daily peak of 7 MW and a valley of 4 MW. Inverter based resources provide 100 percent of instantaneous power and 80 percent of overall power.[3] The proposed rule is technology neutral and does not require the use of inverter based resources. However, it is clear that high levels of inverter based resources have been demonstrated on island grids and are commercially available.

Response to Comment A-16
The proposed rule is technology neutral and the use of propane fueled ZE/NZE equipment is allowed. The proposed emission limit would enable the facility to maintain some amount (approximately 20 percent) of power generation through the use of diesel engines to provide support for propane fueled ZE/NZE equipment and/or inverter based resources.

Response to Comment A-17
The proposed emission limit includes continued use of propane for gas customers. Staff evaluated the number of barge trips and propane storage capacity. Because diesel deliveries are reduced as propane deliveries increase, the total number of barge trips are similar. The current propane storage capacity is sufficient to supply both the gas customers and the increased fuel for ZE/NZE

1 Southern California Edison, Catalina Island Final Grid Stability Study, 09/29/2023 https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1135/sce-to-scaqmd-with-final-grid-stability-sudy-(9-29-23).pdf?sfvrsn=16

2 National Renewable Energy Laboratory, Introduction to Grid Forming Inverters, June 2024 https://www.nrel.gov/docs/fy24osti/90256.pdf

3 N.Taveira, J. Palomares, E. Quitman, ENERCON GmbH, The Hybrid Power Plant in El Hierro Island: Facts and Challenges from the Wind Farm Perspective https://hybridpowersystems.org/wp-content/uploads/sites/9/2018/05/1_3_TENE18_046_paper_Taveira_Nuno.pdf

equipment. Staff requested guidance from the City of Avalon Fire Department regarding propane fuel storage and fuel delivery. The City of Avalon Fire Department was clear that additional fuel storage was not possible due to National Fire Protection Association standards. However, the fire department has not ~~stated~~ provided any formal disapproval of increase propane deliveries.[4]

Response to Comment A-18
The proposed rule is technology neutral and does not require the use of ZE equipment. However, staff has identified several ZE technologies, including solar and fuel cells, that could be utilized to provide power. Southern California Edison's grid stability study determined that 30 percent of power could be supplied with solar successfully. There continue to be challenges to procure land and addressing land use concerns for solar power generation. The use of fuel cells would not have those challenges, are stackable, and could easily fit in the footprint of the PBGS site. Southern California Edison is open to continue to pursue technologies in a process consistent with California Public Utilities Commission for procurement but delays in securing cost recovery authorization from the California Public Utilities Commission is not a sufficient reason for delay.

Response to Comment A-19
Southern California Edison is open to continue to pursue technologies in a process consistent with California Public Utilities Commission for procurement but delays in securing cost recovery authorization from the California Public Utilities Commission is not a sufficient reason for delay.

Response to Comment A-20
The proposed emission limits will accommodate projected load growth associated with population growth. If and when load growth associated with electric marine vessels and harbor craft, and electrification of residential appliances and vehicles occurs, a future BARCT assessment can occur within the rule development framework. See Response to Comment A-3.

Response to Comment A-21
Staff appreciates Southern California Edison's comments on proposed rule language and commitment to working on a viable pathway toward a cleaner energy future at the Pebbly Beach Generating Station.

Response to Comment A-22
See Response to Comment A-3, A-4, and A-5.

Response to Comment A-23
See Response to Comment A-8.

Response to Comment A-24
See Response to Comment A-6 and A-7.

Response to Comment A-25
See Response to Comment A-9.

[4] Southern California Edison, SUBJECT: Proposed Amendments to Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities, January 3, 2024 https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1135/202401_sce-pbgs-propane-availability.pdf?sfvrsn=6

Response to Comment A-26
See Response to Comment A-10.

Response to Comment A-27
Staff appreciates Southern California Edison's commitment to working on a viable pathway toward a cleaner energy future at the Pebbly Beach Generating Station. See Response to Comment A-3.

Comment Letter B: Mark Abramowitz, Community Environmental Services

Thank you for the opportunity to comment on the proposed amendments to PAR 1135, relating to emissions from power production on Catalina Island.

Currently, the Pebbly Beach Generating Station emits more than 10% of all NOx in the District for power production, and is also subject to provisions of an Order for Abatement by the District's Hearing Board, due to violations of the District's toxics rules. It is also upwind of virtually the entire District.

After public concerns about the failure of proposed amendments to proposed amended Rule 1135 to reflect required Best Available Retrofit Control Technology (BARCT) requirements, the last rule amendment was adopted in 2022, with three important provisions, not including those that weakened the requirements for Catalina island.

First, after January of this year, no new diesels were allowed. That date has passed, and District rules no longer allow permits for new diesel engines at the site for power production. Yet District staff has now proposed going back in time and allowing new diesel engines when alternatives are available. This backsliding appears inconsistent with the subsequently adopted AQMP, as well as anti-backsliding requirements. And a one year delay in adopting a new rule will result in a four year delay in eliminating the installation of new diesel engines on Catalina Island. This raises a real question of whether the rule should remain as is.

Lastly, it is of great concern that in the face of zero emission technologies that can replace diesel engines, the District seems to be indicating that it will violate its responsibility to ensure that federal LAER and state major source BACT requirements are met in issuing any permits. Compliance with these requirement will result in zero emission technology engines instead of diesel engines.

B-1

Second, staff was to return to the Board ASAP after performing an updated BARCT assessment focusing on zero emission and near-zero emission technologies.

This BARCT analysis was performed, and completed over a year ago. Indeed, staff's analysis was consistent with the prior public comments that there were feasible zero emission technologies. District staff workshopped and was ready to return to the Board with new amendments reflecting BARCT. These amendments would have resulted in massive emission reductions of diesel particulate matter and NOx at the site.

But at the request of Southern California Edison, the rule was delayed so that Edison could perform a grid stability assessment. The request appears to have been just a delaying or avoidance tactic, as the assessment performed didn't even consider the range of options focusing on zero emission technologies that the BARCT analysis was to address. There was additional delay as Edison performed a further limited assessment.

And because zero emission technologies can rely on what are called "inverter-based" technologies (which are used in microgrids), the results of their analysis was pre-determined, as Edison has raised objections to relying on inverter-based technologies. Indeed, Edison has asked for, and the California Public Utilities Commission has declined, a request by Edison to make findings along these lines.

Edison has continued to oppose rule requirements that reflect BARCT, and have sought to delay the District's progress to meet air quality standards through the use of zero emission technologies. Their demands have reflected this, and raise the question of why the District has cowed to Edison demands for the District to insert themselves into the area of grid stability, which is under purview of the Public Utilities Commission, and not the District. Further, the

B-2

analysis was prepared by Edison's own consultant, reflecting assumptions in which the PUC is apparently in disagreement.

This may be the first District rule ever where an unwilling source has been given the key to write their own technology assessment. This is particularly suboptimal given the source's track record in delay and refusal to reduce emissions. Under staff's proposal, it could be decades before the site actually meets today's BARCT.

As a result, the District's action fails to meet the Board's direction to return ASAP with a rule recommendation that reflects the new BARCT analysis.

B-2 (Cont.)

Third, the Pebbly Beach Generating Station was to reduce emissions to 13 tons per year by 2026, with an extension if that limit was not feasible. Subsequently though, staff determined that indeed that limit was feasible, and further proposed an even more stringent limit of 1.6 tons per year by 2026. After opposition by Edison, District staff has now reversed itself, and proposes allowing over 70 tons by 2026, despite the fact that the District's analysis indicates that BARCT is less that 2 tons per year.

The impact of that change is staggering, and is equivalent to the emission reductions achieved by the sum total of many rules put together.

The ultimate emissions limit in the staff proposal, 6 tons per year, remains more than triple that of its BARCT analysis, inconsistent with board direction, the adopted AQMP, district EJ policies, the District energy policy, and state law requirements to adopt rules that reflect BARCT.

B-3

Even with staff's proposed BARCT limit, there remain further feasible emission reductions that are addressed below.

BARCT Analysis

Despite initial reluctance to seriously consider zero emission technologies for use on Catalina Island, staff is to be complimented on the outstanding work in carrying out the BARCT analysis. We wish that their work had been taken more seriously in proposing new amendments. Instead, the proposed amendments take us backwards.

We do however, have some concerns about the BARCT analysis, particularly where the conclusions stray from past practice, the provisions of the California Health and Safety Code, and where staff reversed itself in determining the feasibility of zero emission mixes.

B-4

95% Zero Emission Scenario

The revised BARCT analysis was performed after requests from the public that the District better assess recent improvements in zero emission technology. A 95% zero emission scenario was assessed by District staff in furtherance of that objective.

At the November, 2022 working group meeting that reviewed the District's BARCT analysis, staff found that a 95% zero emission scenario was feasible, but at a cost of $88,000/ton NOx reduced, it was not cost-effective.

Weeks later, the District adopted the 2022 AQMP, which changed the review threshold for cost-effectiveness from $59,000/ton to $325,000/ton NOx reduced.

B-5

Based on no new significant material information, by the next working group meeting the District claimed that a 95% zero emission scenario was not feasible, even though it may be cost-effective.

B-5 (Cont.)

Fuel cell option

In evaluating this scenario, the District looked at fuel cells as a way to meet the possible 95% zero emission, since this was an example raised by the public. In its new characterization of the 95% scenario, the District claimed that space requirements, back-up fuel storage requirements, and lack of barges now made a 95% scenario infeasible.

Clearly the Pebbly Beach site is space constrained. However, the staff analysis likely misstated the physical space requirements for fuel cells by as much as 100% or more. Staff acknowledged in the staff report that fuel cell manufacturers have indicated that their fuel cells can be stacked, but the space analysis performed by the District did not assume any stacking. Further, a more aggressive analysis which assumed that zero emission technologies (and not diesel) would be used for emergency backup could have eliminated space taken up by storage of diesel fuel, further reducing any space constraints.

The District also then claimed that there was insufficient space for backup fuel storage. Having previously identified a possible possible site for backup fuel storage, the District reversed itself based on just a few attempted calls to the landowner. Identification of storage space or the interest of a landowner in selling or leasing space at an unspecified price would normally be something that would not fall to the District in doing a BARCT analysis, nor should their disinterest in discussing this with District staff be something that should turn a feasible option into infeasible.

B-6

In this context, staff has also addressed as barriers land use and permitting issues, and the obstacles they may create. This is true about many District rules, and an unwilling permit holder can be creative in foot-dragging, as Edison has done. But the District needs to look at what steps have been taken by Edison to aggressively seek these approvals. And what amount of their significant advocacy resources that they have brought to bear to seek these approvals compared to the efforts and resources that they have spent to avoid BARCT requirements. The District should not imagine problems where they don't exist, and count on Edison to be diligent. And as described below, these speculative factors are wisely not included by the legislature in the factors for determining BARCT.

Lastly, the District, based on no new information, claims that a lack of barges for more barge trips makes the 95% option infeasible. This is a preposterous claim, and one that is also inappropriate for a BARCT analysis.

There are many companies that make and/or operate barges. These barges transport trucks that carry the fuel. Currently this is done to transport the diesel fuel to the Island. There are some that believe that they could not only provide barges to transport additional fuel to the Island, but with District assistance, would be willing to demonstrate a **zero emission barge** to do so, and **replace the diesel barge** that currently transports fuel to the Island. This would have to be done with District assistance.

B-7

Further, the District's position seems to undermine the basis of the AQMP, which provides for using zero emission technologies, including electrification. Using a lack of barges as a reason to find a zero emission option infeasible is akin to saying that the AQMP is infeasible because

all of the infrastructure to power zero emission sources is not in place. And in this case, it is really up to the source to arrange for a fuel supply chain.

In addition, in making these last two factors a part of the BARCT analysis appears inconsistent with state law. As the District points out, BARCT is defined in Health & Safety Code Section 40406 as "an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source." Neither procurement of a storage site nor contracting a barge, nor speculative land use barriers fall under the "environmental, energy, and economic impacts" that the District may take account of. In fact, these may fall under "economic" but the District has assigned no economic cost to these factors.

B-7 (Cont.)

Other Zero Emission Options

Staff also performed analysis of other zero emission technologies, though on a smaller scale. And after seeing staff move to options that didn't make full use of zero emission technologies, other options were submitted to the District, including that of taking a distributed energy approach using rooftop solar in order to eliminate the need for diesel engines, underwater zero emission turbines and the use of electrolyzers to produce limited amounts of backup fuel. Data has been submitted to the District, but has not been fully evaluated. Many of the zero emission options can be mixed, and provide a myriad of potential options for zero emission power production on Catalina Island.

The use of all or some of these options are essential to implement the AQMP and provide needed basin emission reductions, yet the District is moving in the opposite direction from the "zero emission" focus of the AQMP. The AQMP specifically calls out (as mentioned in the staff report, replacement of existing diesels. Having just weakened the diesel emission standards in Rule 1135 by increasing emission averaging times, and then proposing to continue to allow new diesels, increased time frames to comply and reducing feasible reduction goals, the District is going backward. We can't go back. The rule should reflect a zero emission cap by some compliance date.

B-8

Additional Comments

Update of emission factors - Staff has proposed to update the emission factors. We believe that this would be inappropriate, and specifically not conservative since the staff report indicates that the engines can achieve 20% lower emissions, Given that the limits are so flexible over time, there is adequate ability to have a BARCT limit that represents what can be achieved. In fact, state BARCT requirements mandate this.

B-9

Cost-effectiveness calculation - Staff should describe more fully how the cost-effectiveness calculations have changed since November, 2022 when eliminating diesel engines was found to save money due to the high cost of maintaining diesel engines.

B-10

And since fuel costs drive any long term cost analysis, the District should provide more information on it's assumptions for the future costs of diesel, hydrogen (renewable), propane, natural gas, etc.

B-11

Further, a cost-effectiveness calculation or and especially an incremental cost-effectiveness analysis seems inappropriate and completely subjective when applied to limits that don't

B-12

reflect BARCT, rely on a speculative mix of technologies, and is an emissions cap rather than a comparison of different technologies as anticipated by the legislature.

B-12 (Cont.)

Circumvention of legislature-adopted Hearing Board process/special treatment - Furthermore, staff's proposal bypasses and circumvents the existing public and more transparent Hearing Board process, and instead, is handled by staff. And the criteria for approval of extensions do not match that that the independent Hearing Board is required to make for all other sources. Indeed, this source, representing over 10% of power plant emission in the basin, is getting special treatment.

B-13

Findings under Health and Safety Code Section 40727 - The District proposes to include a finding that 'Proposed Amended Rule 1135 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.' We believe that the Board would not be able to make this finding since the proposed rule conflict requirement that the rule reflect BARCT, violates anti-backsliding requirement, and fails to require the use of LAER and/or major source BACT.

B-14

Diesel limitations - Specific limits should be placed on diesel usage to match staff assumptions. If the intent is for the diesel to be used for emergency backup only, the rule should place this limitation on their use.

B-15

There has already been a lengthy delay, and now staff is proposing to give Edison an additional eight years to me meet a significantly less stringent standard that will be much easier to meet.

B-16

Response to Comment B-1
The proposed rule amendment allows more time for diesel engines to be installed but also requires further emission reductions beyond the current emission limits. Additional time for diesel installation is due to supply chain issues and permitting delays. Assuming the feasibility analyses conclude that the 13 tpy and 6 tpy NOx limits are achievable by the proposed implementation dates, there will still be approximately 172 tons of NOx emission reductions foregone between 2024 to 2029 when comparing PAR 1135 to current Rule 1135.

The diesel engines have been evaluated pursuant to federal Lowest Achievable Emission Rate (LAER) and state Best Available Control Technology (BACT) guidelines. It is incorrect to state that LAER and BACT requires zero emission technology.

Response to Comment B-2
A BARCT assessment was conducted and when presented it was noted that the grid stability study was pending. While the grid stability study did not fully analyze the possible scenarios staff requested, the grid stability study eventually did show that use of ZE/NZE equipment would result in a stable grid. The emission reductions in the proposed rule will result in a 92 percent reduction in NOx emissions and 99.7 percent reduction in PM emissions. While Southern California Edison has raised concerns with inverter based resources, the grid stability study showed use of inverter based resources would result in a stable grid. Use of inverter based resources to provide the majority of power has been successfully demonstrated on island grids including King Island in Australia, El Hierro in Spain, Kaua'I in Hawaii, and Maui in Hawaii. A feasibility analysis will be allowed to allow for more time to meet the proposed limits but a technology assessment is not included in the proposed rule (see Response to Comment 6.). Under staff's proposal, the final emission limit of 6 tons per year of NOx emissions could be delayed until 2041 if the feasibility analysis and time extension provisions are utilized.

Response to Comment B-3
Staff found that both the 13 ton per year and 6 ton per year emission limits are feasible in the future. Assuming the feasibility analyses conclude that the 13 tpy and 6 tpy NOx limits are achievable by the proposed implementation dates, there will still be approximately 172 tons of NOx emission reductions foregone between 2024 to 2029 when comparing PAR 1135 to current Rule 1135. Staff did conduct a BARCT assessment which is included as Chapter 2 of this document. The proposed emission limit reflects a compromise to address grid stability and feasibility concerns of Southern California Edison.

Response to Comment B-4
A BARCT assessment is included in Chapter 2 of this report which complies with past practice and the California Health and Safety Code.

Response to Comment B-5
The BARCT assessment included a review of a 95 percent zero emission standard. The scenario was found not to be technically feasible due to large amount of land needed for hydrogen fuel storage. The cost-effectiveness of the scenario is irrelevant since the scenario is not technically feasible.

Response to Comment B-6
Propane-fired fuel cells are considered an available option to meet the proposed emission limits. The technology is stackable as noted by the commenter. Current propane storage could accommodate less than three days of power generation without fuel deliveries. Such a short timeframe would jeopardize critical energy needs. A review of the past five years has shown that fuel deliveries are regularly interrupted for several days at a time. Staff agrees that a 30-day fuel storage is needed to ensure continued power generation in case fuel deliveries are interrupted by weather or other calamity. Further fuel storage outside the facility is limited (see Response to Comment 6).

Response to Comment B-7
While the BARCT assessment noted the number of barge trips to meet the various scenarios, it is the limited fuel storage that makes the 95 percent zero emission standard infeasible. BARCT is defined in the Health and Safety Code, section 40406, as "an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source." Storage space of fuel is limiting the maximum degree of reduction achievable. The BARCT limit correctly considers the needs of the island to have stable and continuous power. Both of these factors are relevant to the proposed limit's effect on grid stability, which is an energy impact that is properly considered in determining BARCT.

Response to Comment B-8
Staff did evaluate multiple zero emission technologies. While solar was identified as an option that could provide 30 percent of power on Santa Catalina Island, the proposed rule is technology neutral and does not specify any specific technology use. Other of the myriad of ZE/NZE technologies not identified could be utilized to meet the proposed emission limits which integrate 30 percent zero emission technology in the BARCT assessment consistent with the 2022 AQMP. A 100% zero-emission limit was determined to be unfeasible at the current time. If technological advances in the future allow for further adoption of zero emission technologies, rule development can be initiated to incorporate the advancements.

Response to Comment B-9
Staff updated the emission factors to account for negligible emissions from zero emission technologies. The change in emission factors results in 0.00055 ton per day (1.1 pounds per day) of emission increase over the original BARCT assessment.

Response to Comment B-10
The change of cost-effectiveness is due to the addition of land lease costs for solar. Specifics cannot be provided because of the confidential nature of the costs and that the proposed rule impacts only one facility. Staff is unable to aggregate costs as is normally done when multiple facilities are impacted by a proposed rule.

Response to Comment B-11
Staff used current fuel prices for diesel and propane. Natural gas is not available on the island and would not provide additional benefit over propane. Hydrogen cost was not included because

sufficient storage space is unavailable. The Socioeconomic Impact Assessment will evaluate future diesel and propane costs.

Response to Comment B-12
Cost-effectiveness was calculated for the BARCT assessment and the final emission limit. Both were found to be cost-effective and incrementally cost-effective.

Response to Comment B-13
The Hearing Board process is utilized when facilities seek relief from rule requirements. Numerous rules, including the current version of Rule 1135, have provisions and exemptions to avoid non-compliance necessitating the Hearing Board process.

Response to Comment B-14
See Response to Comment B-1 and B-3.

Response to Comment B-15
Emission limits constrain the use of diesel engines. The proposed limit envisions the diesel engines as backup, not as emergency use only. Emergency use is limited to 200 hours per year. Historical barge records indicate that fuel delivery is unavailable between five and fourteen days per year which would exceed the 200 hour per year emergency limit.

Response to Comment B-16
See Response to Comment B-1

Comment Letter C: Anthony Hernandez, Southern California Edison

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL™ Company

August 14, 2024

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SUBJECT: Proposed Amendments to Rule 1135 - Emissions of Oxides of Nitrogen from Electricity Generating Facilities

Dear Mr. Krause:

Southern California Edison (SCE) appreciates South Coast Air Quality Management District's (SCAQMD) reopening of Rule 1135 to address issues relating to SCE's Pebbly Beach Generating Station (PBGS) on Santa Catalina Island (Catalina). SCE remains committed to working with the SCAQMD on a viable pathway toward a cleaner energy future at PBGS, with plans to increase reliance on near-zero-emission (NZE) and zero-emission (ZE) power generation technology. This letter provides SCE's comments on the Preliminary Draft version of Proposed Amended Rule (PAR) 1135 released on July 19, 2024. All comments stem from the high degree of uncertainty at present in meeting the proposed emission limit targets, and SCE is requesting these revisions to provide sufficient safeguards and flexibility. This is critical since SCE cannot abrogate its duty to provide life-critical utilities to Catalina residents and visitors to achieve compliance if the requirements under the proposed rule prove to be unattainable.

C-1

I. SCE Comments on Pre-Preliminary Draft Rule Language

SCE remains committed to meeting SCAQMD's clean air objectives and will apply its best efforts to meet the proposed deadlines and emission limits. As previously outlined in our July 3, 2024 comment letter, there are a multitude of challenges to overcome and much uncertainty at this time on whether the latter two limits of 13 and 6 tons per year (TPY) can be feasibly met by the proposed deadlines. For these reasons, it is critical for the rule to provide sufficient flexibility and safeguards to provide relief if meeting the limits and requirements in the rule are deemed infeasible by their respective deadlines.

C-2

SCE urges the SCAQMD to adopt the following suggested revisions:

1. Proposed revisions to the time extension language under Section (d)(5):
   a. Allow time extensions of up to three years for all limits under Table 2 of Proposed Section (d)(2)(E).
   b. The extension language should include the prohibitions and deadlines under Proposed Sections (d)(2)(B), (d)(2)(C), (d)(2)(D), and (d)(2)(F).
   c. Allow time extensions of up to five years.
2. Remove the 5.5 MW maximum cumulative rating cap for new diesel internal combustion engines.
3. Remove the requirement to include emissions derived from missing data substitution for CEMS monitoring when determining compliance with annual limits.

C-3

C-4

C-5

C-6

C-7

A. Proposed time extension language revisions

Figure 1. *Preliminary Draft Proposed Amended Rule 1135: Section (d)(5)*

(45) Time Extension

(A) The owner or operator of an electricity generating facility on Santa Catalina Island may submit a request to the Executive Officer for a time extension of up to three years to meet the mass emission ~~limit~~limits specified in ~~subparagraph (d)(2)(D)~~ clauses (d)(2)(E)(iii) and (d)(2)(E)(iv) and extended pursuant to paragraph (d)(3) provided the owner or operator:

C-8

Proposed Section (d)(5)(A) allows a request for a time extension of up to three years to meet the mass emission limits of 13 TPY and 6 TPY by 2030 and 2035, respectively. This extension provision should be expanded to include all limits being proposed under Table 2 of Proposed Section (d)(2)(E) to address any delays in the construction/procurement timeline or regulatory approvals, including issuance of the required PTC, that are outside SCE's control. SCE faces the challenge of executing a compacted schedule to install the two U.S. EPA-certified Tier 4 Final (T4F) engines currently in storage, in addition to procuring the third T4F engine to replace Unit 15. The procurement of the third engine will begin after the expected issuance of the PTC by the end of 2024, after the rule is amended. Extenuating circumstances outside SCE's control could cause potential delays in achieving any of the limits in Table 2, and time extensions would provide the critical compliance relief needed while holding SCE responsible for continuing to work toward meeting the limit when it becomes feasible. If time extensions are granted, any related prohibitions should be similarly extended, as everything must be done in a sequential and coordinated manner.

The extension language in the proposed rule should include the prohibitions and deadlines under Proposed Sections (d)(2)(B), (d)(2)(C), (d)(2)(D), and (d)(2)(F).

In addition, the language under Proposed Section (d)(5) links the time extension language to the feasibility studies under Proposed Section (d)(3). Any extensions granted under this section of the rule should be independent of the feasibility study results and additional to any time extensions granted under Proposed Section (d)(3). SCE requests revisions to the language to remove or clarify references to Proposed Section (d)(3).

Compliance with the latter two proposed NOx limits remains highly speculative at this time; it will require grid stability improvements of NZE/ZE technologies, significant increases in propane use for power generation, viable ZE projects capable of achieving at least 30% annual generation output,[1] acquisition of numerous agency/stakeholder approvals, etc. All these factors can potentially lead to the need for an extension with a longer time than the currently proposed three-year maximum (even considering the additional three years potentially provided by the feasibility assessments). SCE therefore requests the SCAQMD consider making the time extension provided by this provision up to five years.

SCE's Proposed Revisions

SCE respectfully requests that the SCAQMD revise the draft proposed rule as shown below and consider extending it from three to five years. SCE's proposed modifications to the July 19, 2024 language are shown in **bold underlined** text and deletions are shown in ~~**bold strikethrough**~~ text:

Proposed Section (d)(5)(A):

(A) In addition to any time extensions granted pursuant to clause (d)(3), the owner or operator of an electricity generating facility on Santa Catalina Island may submit a request to the Executive Officer for a time extension of up to three years to meet the mass emission limits specified in clauses **(d)(2)(E)(i), (d)(2)(E)(ii),** (d)(2)(E)(iii), and (d)(2)(E)(iv) **and the requirements in clauses (d)(2)(B), (d)(2)(C), (d)(2)(D), and (d)(2)(F)** ~~**extended pursuant to paragraph (d)(3)**~~ provided the owner or operator:

(i) Submits the request to the Executive Officer at least 365 days before the compliance deadlines specified in subparagraph (d)(2)(D) clauses **(d)(2)(E)(i), (d)(2)(E)(ii),** (d)(2)(E)(iii), and (d)(2)(E)(iv) **and the requirements in clauses (d)(2)(B), (d)(2)(C), (d)(2)(D), and (d)(2)(F)** and extended pursuant to paragraph (d)(3); and

C-8 (Cont.)

[1] SCE launched the Catalina All-Source request for offers (RFO) on December 21, 2022. This RFO sought third-party bids for eligible renewable resources, standalone and paired energy storage, and demand response solutions, among other preferred resources. Because none of the bids submitted met the minimum requirements, SCE did not accept any.

B. Any removal of legacy ICEs should be coordinated with and contingent upon other actions, with deadlines extended as necessary.

Figure 2. *Preliminary Draft Proposed Amended Rule 1135: Section (d)(2)(F)*

(~~DF~~)	~~On and after January 1, 2026, meet a mass emission limit from all electric generating units of 13 tons of NOx annually, including mass emissions from startups and shutdowns.~~ Remove all prime power diesel internal combustion engines for which installation was completed earlier than [*Date of Adoption*] from service by January 1, 2030 or six months after any time extensions provided pursuant to subparagraphs (d)(3)(C) or (d)(5)(C).

Proposed Section (d)(2)(F) would require the removal, by January 1, 2030, of prime power diesel internal combustion engine (ICE) units that were installed prior to adoption of the amended Rule 1135. SCE appreciates the added potential extension language linked to the feasibility studies. The timing of the eventual removal of the engines should be determined as part of SCE's rigorous grid stability analyses and depend on our ability to introduce NZE/ZE technology into PBGS's generation profile. Our commitment to grid stability and safety is unwavering. We are actively exploring innovative solutions to transition towards cleaner energy sources while continuing to provide life-critical utilities safely. SCE's current analysis shows that meeting the proposed 13 TPY and 6 TPY emission limits would require minimal operation of diesel ICE and that their removal may be needed to allow sufficient space for the NZE/ZE units. However, until appropriate models are commercially available and validated through SCE grid stability analyses, requiring removal of the existing ICEs is premature and may not account for the practical implications on grid stability needs.

C-9

Thus, any rule language requiring the removal of legacy diesel engines must be clearly coordinated with and contingent upon the successful installation and operation of NZE and ZE technology that will adequately compensate for the back-up reliability that the legacy engines provide. Without this necessary coordination, the rule risks becoming inconsistent during the implementation phase.

Similarly, any requirement to install only ZE and NZE technology after January 1, 2028 and any ban on installation of diesel engines after the same date should be coordinated together *and* conditioned upon the successful installation and operation of the initial three diesel engines that are required for reliability on the island. Where one provision deadline is extended, the others should be extended as well. SCE highlights the importance of the rule language providing the ability to extend the prohibitions and deadlines under Proposed Section (d)(2).

C. 5.5 MW maximum cumulative rating for new diesel internal combustion engines

Figure 3. *Preliminary Draft Proposed Amended Rule 1135: Section (d)(2)(A)*

(2) Electric Generating Units Located on Santa Catalina Island

The owner or operator of an electricity generating facility located on Santa Catalina Island with ~~diesel internal combustion engines~~ electric generating units shall:

(A) ~~By January 1, 2024, meet a mass emission limit from all electric generating units of 50 tons of NOx annually, including mass emissions from startups and shutdowns;~~Not install more than three new diesel internal combustion engines with a maximum cumulative rating of 5.5 MW;

Figure 4. *Preliminary Draft Staff Report: Page 3-2*

Subparagraph (d)(2)(A) prohibits the electricity generating facility located on Santa Catalina Island from installing more than three new diesel internal combustion engines. Furthermore, new diesel internal combustion engines installed cannot exceed a maximum cumulative rating of 5.5 MW. The maximum cumulative rating is the sum of the name plate rating of each new diesel internal combustion engine. The new Tier 4 Final diesel engines proposed to be installed are rated at 1.825 Megawatts (MW) each. Staff rounded the maximum cumulative rating for the proposed three Tier 4 final diesel engines to 5.5 MW for simplicity.

C-10

SCE understands the goal of Rule 1135 is to meet the proposed emission limits and thereby achieve the necessary NOx reductions to help meet the SCAQMD's cleaner air vision for PBGS. A MW cap on diesel installations is not necessary to meet those NOx reduction goals. The precise way SCE reaches the emissions targets should be driven by grid stability and resource adequacy needs. These restrictions are not needed to meet the rule's emission reduction objectives and are burdensome. SCE recommends that the language be removed from the proposed rule.

If the language is not removed from the proposed rule, it and the staff report should be revised to clearly specify that the 5.5 MW figure is based on the rated prime power nameplate for the installed engines. The 1.825 MW rating that the SCAQMD used to derive the 5.5 MW is based on the rated prime power nameplate, so this specification should be clear in the staff report (which does not differentiate between standby and prime power ratings). SCE respectfully requests that SCAQMD specify in the staff report that this rating is based off the prime power rating (consistent with the previously submitted permit application).

D. The requirement to include emissions derived from missing data substitution for CEMS monitoring when determining compliance with annual limits should be removed.

Figure 9. *Preliminary Draft Proposed Amended Rule 1135: Section (d)(2)(E)*

(~~C~~E)	~~By January 1, 2025, meet a~~Meet the annual NOx mass emission ~~limit~~limits specified in Table 2: Emission Limits for Electric Generating Units Located on Santa Catalina Island ~~from~~for all electric generating units ~~of 45 tons of NOx annually~~, including mass emissions from startups and shutdowns, and missing data substitutions pursuant to South Coast AQMD Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications (Rule 218.3) and South Coast AQMD Rule 2012 – Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions (Rule 2012); and

Proposed Section (d)(2)(E) would require inclusion of emissions derived from "missing data" procedures (MDP) during periods of unexpected downtime of the continuous emission monitoring system (CEMS) to be included when determining compliance with the annual emissions limit. SCE recommends removal of this requirement. MDP substitutions are unduly punitive and artificially elevate NOx emissions -- sometimes to the extent that the MDP-substituted emissions for a portion of the year exceed the total annual actual emissions for the facility. For example, a CEMS unit could be accurately recording emissions but a late Remote Terminal Unit (RTU) transmission to the SCAQMD could trigger substitute data, which would not be reflective of the facility's "true" emissions. Especially in the case of late RTU transmissions, SCE believes that actual CEMS data should be used in determining compliance.

C-11

This will be especially significant as the facility limit is lowered. SCE agrees these emissions should be counted in other circumstances (e.g., annual emissions reports and associated fees), but not toward the rule's annual compliance determination. There is simply not much leeway at these lower limits to incorporate artificially high substitute data. Instead, SCE recommends an "alternative emissions calculation" method that would require SCAQMD approval prior to quantification for determining compliance with the annual emissions limit. SCE believes this would better represent actual emissions and would provide sufficient safeguards within the context of the more stringent limits proposed in this rule.

II. Conclusion

SCE is committed to finding a solution that balances reducing PBGS's emissions footprint with the need to provide reliable and resilient life-critical utilities to Catalina. Meeting the proposed 13 and 6 TPY NOx emission limits under PAR 1135 will require a complete overhaul of all power generation assets currently being utilized at PBGS within an extremely accelerated period, while maintaining grid stability and our obligations to Catalina residents. SCE remains committed to overcoming the challenges needed to meet these limits, but sufficient safeguards and flexibility are required within the final rule language to provide the greatest opportunity for success. SCE cannot abrogate its duty to provide life-critical utilities to Catalina residents and visitors to achieve compliance if the proposed rule's requirements are unattainable.

SCE appreciates the SCAQMD's substantial efforts to amend Rule 1135 and the opportunity to collaborate with the SCAQMD to bring alternative, cleaner power generation solutions to Catalina. Please feel free to contact Yung Chung, Senior Air Quality Advisor, with any questions or concerns at (626) 613-2821 or Yung.Chung@sce.com.

C-12

Sincerely,

DocuSigned by:
Anthony Hernandez
0E235977344E47B...

Anthony Hernández, SCE
Director of Catalina Operations & Strategy
Southern California Edison

cc: Michael Morris, SCAQMD
Isabelle Shine, SCAQMD
Yung Chung, SCE
Bethmarie Quiambao, SCE

Attachments

A – SCE's PAR 1135 Comment Letter (July 3, 2024)

See Comment Letter A above for SCE's PAR 1135 Comment Letter (July 3, 2024)

Response to Comment C-1
See Response to Comment A-1 and A-2.

Response to Comment C-2
Thank you for providing additional comments to the previous comment letter on July 3, 2024 which is included above as Comment Letter A and contains staff's responses.

Response to Comment C-3
See Response to Comment A-3 and A-4.

Response to Comment C-4
The extension language includes prohibitions and deadlines under paragraphs (d)(2)(B), (d)(2)(C), (d)(2)(D), and (d)(2)(F).

Response to Comment C-5
Staff believes time extensions of up to five years would be excessive. With the proposed time extensions and feasibility analyses, the proposed rule already allows compliance implementation dates to be delayed by up to 18 years. The request would add eight more years allowing for compliance implementation dates to be delayed by up to 26 years.

Response to Comment C-6
The new Tier 4 Final diesel engines proposed to be installed by Southern California Edison are rated at 1.825 Megawatts (MW) prime power output each. Staff rounded the maximum cumulative rating for the proposed three Tier 4 Final diesel engines to 5.5 MW for simplicity. Southern California Edison has indicated that the three proposed engines can provide 90 percent or more of the power needed for Santa Catalina Island. Having the ability to install larger engines would increase NOx and PM emissions beyond what is necessary to provide adequate power.

Response to Comment C-7
See Response to Comment A-9.

Response to Comment C-8
See Response to Comment A-3, A-4, C-4, and C-5. The linkage of the time extension in paragraph (d)(5) to the feasibility analysis in paragraph means that time extension can be requested after any additional time is allowed for feasibility concerns. Therefore, linking the two paragraphs means that if both are utilized, the compliance implementation date can be delayed by up to six years.

Response to Comment C-9
The proposed rule language delays the removal of the legacy engines up to six months after any time extension is provided pursuant to subparagraphs (d)(3)(C) or (d)(5)(C). See also Response to Comment A-10.

Response to Comment C-10
See Response to Comment C-6. The proposed rule language has been clarified to specify that the rating is based on the rated prime power nameplate as requested.

Response to Comment C-11
See Response to Comment C-7.

Response to Comment C-12
See Response to Comment A-1 and A-2.

Comment Letter D, Jesse Marquez, Coalition for a Safe Environment (et al.)

Coalition For A Safe Environment Community Dreams
EMERGE
The Wilmington Wire
United Wilmington Youth Foundation
Organización de Servicios Comunitarios Familiares
Citizens For A Better Wilmington
San Pedro Peninsula Homeowners United
NAACP- San Pedro-Wilmington Branch # 1069
West Long Beach Association
Latinos In Action
Friends of the Air, Earth and Water California Kids IAQ
California Communities Against Toxics
St. Philomena Church Social Justice Committee
California Safe Schools

August 15, 2024

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Re: Proposed Amendments PAR 1135
Su: Public Comment Submittal Opposing Rule 1135

Dear Stationary Source Committee:

The Coalition For A Safe Environment et al community organizations submit our public comments opposing Rule 1135 due to the numerous unacceptable proposed changes.

It appears that AQMD senior management is interfering with AQMD Staff Rule 1135 progress by allowing Southern California Edison to not comply with all requirements of Rule1135 such as by-passing Best Available Retrofit Control Technology (BARCT) requirements, not taking any enforcement actions and allowing SCE to continually delay compliance by accepting requests for additional studies.

D-1

We ask for the following:

1. We want AQMD to identify all applicable California and Federal laws, executive orders, acts, policies, regulations, rules and program requirements. D-2
2. We want AQMD to include all applicable California and Federal laws, executive orders, acts, policies, regulations, rules and program requirements in PAR 1135. D-3
3. We do not want any exemptions, waivers, variances or dismissal of any existing Rule 1135 requirements, penalties or fines for Southern California Edison's (SCE) failure to comply with any regulatory requirements. D-4
4. We do not accept any compliance deadlines extensions from the existing Rule 1135. D-5
5. We do not accept any weakening of the existing Rule 1135 emission limits by increasing the limit. D-6
6. We want AQMD to identify and require BARCT to be incorporated in all areas applicable in the PAR1135. D-7
7. We want AQMD to identify and require Zero Emissions Technology to be incorporated in the SCE facility in PAR1135. There are Zero Emission Technologies to replace over 90% of all equipment and power sources. Alternative Green Power is currently available and includes Solar Power, Ocean Wave, Wind Turbine and Green Hydrogen Fuel Cell Power. D-8
8. We want AQMD to prepare and include an Environmental Justice Compliance Assessment. D-9
9. We want AQMD to add an additional Public Meeting to include outreach to Environmental Justice and Disadvantaged Communities. D-10

Current SCE Non-Compliance Legal Requirements: D-11

1. SCAQMD Rule 1135

a. (d) Emissions
(1) Emission Limits for Boilers and Gas Turbines

On and after January 1, 2024, the owner or operator of an electricity generating facility shall not operate a boiler or gas turbine in a manner that exceeds the NOx emission limits listed in Table 1: Emission Limits for Boilers and Gas Turbines, where:

b. (d) Emissions
(2) Electric Generating Units Located on Santa Catalina Island

The owner or operator of an electricity generating facilitating facility located on Santa Catalina Island with diesel internal combustion engines shall:

(A) By January 1, 2024, meet a mass emission limit from all electric generating units of 50 tons of NOX annually, including mass emissions from startups and shutdowns.

(B) Not install any new diesel internal combustion engines after January 1, 2024.

(C) By January 1, 2025, meet a mass emission limit from all electric generating units of 45 tons of NOx annually, including mass emissions from startups and shutdowns;

(D) On and after January 1, 2026, meet a mass emission limit from all electric generating units of 13 tons of NOx annually, including mass emissions from startups and shutdowns

D-10 (Cont.)

2. CARB - California Health and Safety Code, HSC § 40406 (2023)

40406. As used in this chapter, "best available retrofit control technology" means an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.

D-11

3. CARB - California Assembly Bill 617 (AB 617)

(1) Existing law requires the State Air Resources Board to make available on its Internet Web site data concerning the emissions of greenhouse gases, criteria air pollutants, and toxic air contaminants, as specified.

This bill would require the state board to develop a uniform statewide system of annual reporting of emissions of criteria air pollutants and toxic air contaminants for use by certain categories of stationary sources. The bill would require those stationary sources to report their annual emissions of criteria air pollutants and toxic air contaminants, as specified.

(2) Existing law generally designates air pollution control and air quality management districts with the primary responsibility for the control of air pollution from all sources other than vehicular sources. Existing law authorizes the state board or an air district to require the owner or the operator of an air pollution emission source to take any action that the state board or the air district determines to be reasonable for the determination of the amount of air pollution emissions from that source.

This bill would require the state board, by October 1, 2018, to prepare a monitoring plan regarding technologies for monitoring criteria air pollutants and toxic air contaminants and the need for and benefits of additional community air monitoring systems, as defined. The bill would require the state board to select, based on the monitoring plan, the highest priority locations in the state for the deployment of community air monitoring systems. The bill would require an air district containing a selected location, by July 1, 2019, to deploy a system in the selected location. The bill would authorize the air district to require a stationary source that emits air pollutants in, or that materially affect, the selected location to deploy a fence-line monitoring system, as defined, or other specified real-time, on-site monitoring. The bill would authorize the state board, by January 1, 2020, and annually thereafter, to select additional locations for the deployment of the systems. The bill would require air districts that have deployed a system to provide to the state board air quality data produced by the system. By increasing the duties of air districts, this bill would impose a state-mandated local program. The bill would require the state board to publish the data on its Internet Web site.

This bill would require the state board, by October 1, 2018, to prepare and update, at least once every 5 years, a statewide strategy to reduce emissions of toxic air

D-12

contaminants and criteria pollutants in communities affected by a high cumulative exposure burden. The bill would require the state board to select locations around the state for the preparation of community emissions reduction programs, and to provide grants to community-based organizations for technical assistance and to support community participation in the programs. The bill would require an air district containing a selected location, within one year of the state board's selection, to adopt a community emissions reduction program. By increasing the duties of air districts, this bill would impose a state-mandated local program.

(3) Existing law requires air districts, prior to adopting rules to meet the requirement for best available retrofit control technology or for a specified feasible measure, to take specified actions, including, among others, identifying one or more potential control options that achieve the emissions reduction objectives for the rule. Existing law also authorizes a district to establish its own best available retrofit control technology requirement based upon the consideration of specified factors.

This bill would require a district that is in nonattainment for one or more air pollutants to adopt an expedited schedule for the implementation of best available retrofit control technology, as specified. The bill would require the schedule to apply to each industrial source that, as of January 1, 2017, was subject to a specified market-based compliance mechanism and give highest priority to those permitted units that have not modified emissions-related permit conditions for the greatest period of time.

This bill would require the state board to establish and maintain a statewide clearinghouse that identifies the best available control technology, best available retrofit control technology for criteria air pollutants, and related technologies for the control of toxic air contaminants.

(4) Existing law establishes maximum criminal and civil penalties for any person, as defined, for violations of air pollution laws from nonvehicular sources. Existing law generally establishes the maximum criminal and civil penalties at $1,000, unless otherwise specified.

This bill would increase the maximum for the generally applicable criminal and civil penalties under these provisions to $5,000. The bill would annually adjust maximum penalties for violations of these laws based on the California Consumer Price Index.

D-12 (Cont.)

4. CARB - California Assembly Bill 32 (AB 32) - California Health and Safety Code, HSC § 38500 (2006)

38501. The Legislature finds and declares all of the following:

(a) Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

(b) Global warming will have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry. It will also increase the strain on electricity supplies necessary to meet the demand for summer air-conditioning in the hottest parts of the state.

D-13

(c) California has long been a national and international leader on energy conservation and environmental stewardship efforts, including the areas of air quality protections, energy efficiency requirements, renewable energy standards, natural resource conservation, and greenhouse gas emission standards for passenger vehicles. The program established by this division will continue this tradition of environmental leadership by placing California at the forefront of national and international efforts to reduce emissions of greenhouse gases.

(d) National and international actions are necessary to fully address the issue of global warming. However, action taken by California to reduce emissions of greenhouse gases will have far-reaching effects by encouraging other states, the federal government, and other countries to act.

(e) By exercising a global leadership role, California will also position its economy, technology centers, financial institutions, and businesses to benefit from national and international efforts to reduce emissions of greenhouse gases. More importantly, investing in the development of innovative and pioneering technologies will assist California in achieving the 2020 statewide limit on emissions of greenhouse gases established by this division and will provide an opportunity for the state to take a global economic and technological leadership role in reducing emissions of greenhouse gases.

(f) It is the intent of the Legislature that the State Air Resources Board coordinate with state agencies, as well as consult with the environmental justice community, industry sectors, business groups, academic institutions, environmental organizations, and other stakeholders in implementing this division.

(g) It is the intent of the Legislature that the State Air Resources Board consult with the Public Utilities Commission in the development of emissions reduction measures, including limits on emissions of greenhouse gases applied to electricity and natural gas providers regulated by the Public Utilities Commission in order to ensure that electricity and natural gas providers are not required to meet duplicative or inconsistent regulatory requirements.

(h) It is the intent of the Legislature that the State Air Resources Board design emissions reduction measures to meet the statewide emissions limits for greenhouse gases established pursuant to this division in a manner that minimizes costs and maximizes benefits for California's economy, improves and modernizes California's energy infrastructure and maintains electric system reliability, maximizes additional environmental and economic co-benefits for California, and complements the state's efforts to improve air quality.

(i) It is the intent of the Legislature that the Climate Action Team established by the Governor to coordinate the efforts set forth under Executive Order S-3-05 continue its role in coordinating overall climate policy.

D-13 (Cont.)

5. CARB - California Senate Bill 100 (SB 100) - Public Utilities Code

SECTION 1. This act shall be known as The 100 Percent Clean Energy Act of 2018.

(b) The Legislature finds and declares that the Public Utilities Commission, State Energy Resources Conservation and Development Commission, and State Air Resources Board should plan 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.

D-14

(c) It is the intent of the Legislature in enacting this act to extend and expand policies established pursuant to the California Renewables Portfolio Standard Program (Article 16 (commencing with Section 399.11) of Chapter 2.3 of Part 1 of Division 1 of the Public Utilities Code), and to codify the policies established pursuant to Section 454.53 of the Public Utilities Code, and that both be incorporated in long-term planning.

SEC. 2. Section 399.11 of the Public Utilities Code is amended to read:

399.11. The Legislature finds and declares all of the following:

(a) In order to attain a target of generating 20 percent of total retail sales of electricity in California from eligible renewable energy resources by December 31, 2013, 33 percent by December 31, 2020, 50 percent by December 31, 2026, and 60 percent by December 31, 2030, it is the intent of the Legislature that the commission and the Energy Commission implement the California Renewables Portfolio Standard Program described in this article.

(b) Achieving the renewables portfolio standard through the procurement of various electricity products from eligible renewable energy resources is intended to provide unique benefits to California, including all of the following, each of which independently justifies the program:

(1) Displacing fossil fuel consumption within the state.

(2) Adding new electrical generating facilities in the transmission network within the WECC service area.

(3) Reducing air pollution, particularly criteria pollutant emissions and toxic air contaminants, in the state.

(4) Meeting the state's climate change goals by reducing emissions of greenhouse gases associated with electrical generation.

(5) Promoting stable retail rates for electric service.

(6) Meeting the state's need for a diversified and balanced energy generation portfolio.

(7) Assisting with meeting the state's resource adequacy requirements.

(8) Contributing to the safe and reliable operation of the electrical grid, including providing predictable electrical supply, voltage support, lower line losses, and congestion relief.

(9) Implementing the state's transmission and land use planning activities related to development of eligible renewable energy resources.

(c) The California Renewables Portfolio Standard Program is intended to complement the Renewable Energy Resources Program administered by the Energy Commission and established pursuant to Chapter 8.6 (commencing with Section 25740) of Division 15 of the Public Resources Code.

(d) New and modified electric transmission facilities may be necessary to facilitate the state achieving its renewables portfolio standard targets.

(e) (1) Supplying electricity to California end-use customers that is generated by eligible renewable energy resources is necessary to improve California's air quality

D-14 (Cont.)

and public health, particularly in disadvantaged communities identified pursuant to Section 39711 of the Health and Safety Code, and the commission shall ensure rates are just and reasonable, and are not significantly affected by the procurement requirements of this article.

D-14 (Cont.)

The Coalition For A Safe Environment et al community organizations respectfully file these Public Comments on behalf of our members, organization affiliations, the public and request that all issues identified and requests be accepted and included in the PAR 1153.

D-15

Jesse N. Marquez is the designated contact person for all community organizations for all future correspondence, information, questions, hearings and meetings. All community organizations reserve their rights to participate in all future meetings, discussion, actions, mediation and negotiations.

Respectfully Submitted,

Jesse N. Marquez
Executive Director
Coalition For A Safe Environment
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Anabell Romero Chavez
Wilmington Improvement Network
Board Member

Valerie Contreras
Vice President
Citizens For A Better Wilmington

Joe R. Gatlin
Vice President
NAACP- San Pedro-Wilmington Branch #1069

Modesta Pulido
Chairperson
St. Philomena Social Justice Ministry

Jane Williams
Executive Director
California Communities Against Toxics

Robina Suwal
Executive Director
California Safe Schools

Kathleen Woodfield
Board Member
San Pedro Peninsula Homeowners United

Rosalie Preston
President
Friends of the Air, Earth and Water

Theral Golden
Treasurer
West Long Beach Association

Robert A. Trani, Jr.
Founder
United Wilmington Youth Foundation

Response to Comment D-1
See Response to Comment 1, 4, 5, B-1, and B-4.

Response to Comment D-2
The Comparative Analysis presented in Table 4-3 of this report includes Federal or District rules and regulations applicable to the same source.

Response to Comment D-3
It would be duplicative to include all applicable laws, orders, etc. within PAR 1135. Those legal requirements remain enforceable even if not included within PAR 1135.

Response to Comment D-4
The proposed rule has no impact on the existing Rule 1135 until the proposed rule is adopted at which time the existing Rule 1135 will no longer be applicable. Penalties or fines for failure to comply with the existing Rule 1135 requirements is outside the scope of rule development.

Response to Comment D-5
See Response to Comment 1, 5, A-3 through A-7, A-14, A-18, A-19, B-1, B-2, C-4, C-5, and C-8.

Response to Comment D-6
The proposed emission limits are lower than the limits in the existing Rule 1135. Please see Response to Comment 1 and B-3.

Response to Comment D-7
Please see Response to Comment 4,6, B-2 through B-4, and B-7.

Response to Comment D-8
Please see Response to Comment 6, B-2, B-5, and B-8.

Response to Comment D-9
There are environment justice and cumulative impact draft policies and guidance documents that are under deliberation but have not been finalized. Pursuant to CEQA and South Coast AQMD's Certified Regulatory Program (Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110), the South Coast AQMD, as lead agency for PAR 1135, prepared a Subsequent Environmental Assessment (SEA) for the proposed project. The SEA is a substitute CEQA document prepared pursuant to CEQA Guidelines Section 15252 and in lieu of a Subsequent Environmental Impact Report. The SEA tiers off of the November 2018 Final Mitigated SEA for the November 2018 amendments to Rule 1135,[5] as allowed by CEQA Guidelines Sections 15152, 15162, and 15385. The Draft SEA was released for a 46-day public review and comment period to provide public agencies and the public an opportunity to obtain,

[5] South Coast AQMD, 2018. Final Mitigated Subsequent Environmental Assessment (SEA) for Proposed Amended Rule (PAR) 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities, SCH No. 2016071006. http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2018/par-1135---final-mitigated-sea_with-appendices.pdf

review, and comment on the environmental analysis. Comments made relative to the analysis in the Draft SEA and responses to the comments will be included in the Final SEA.

Response to Comment D-10
Development of PAR 1135 was conducted through a public process. Six Working Group meetings were held on May 5, 2022, August 4, 2022, November 8, 2022, January 19, 2023, March 27, 2024, and June 13, 2024. The Working Group is composed of representatives from businesses, environmental groups, public agencies, and consultants. The purpose of the Working Group meetings is to discuss proposed concepts and work through the details of South Coast AQMD's proposal. Staff also reported on the progress of the BARCT assessment to the South Coast AQMD Stationary Source Committee on August 19, 2022. Additionally, a Public Workshop was held on February 22, 2023 and another one was held on July 31, 2024. The purpose of the Public Workshop is to present the proposed rule language to the general public and stakeholders and to solicit comment. Staff also conducted multiple site visits as part of this rule development process and has met with individual facility operators, technology vendors, and interested stakeholders. No further working group meetings or public workshops are planned.

Response to Comment D-11
Please see Response to Comment 1.

Response to Comment D-12
South Coast AQMD determines BARCT. Southern California Edison cannot be in non-compliance with BARCT.

Response to Comment D-13
California Air Resources Board and air districts, including South Coast AQMD, implement California Assembly Bill AB 617 (AB 617). Southern California Edison cannot be in non-compliance with AB 617.

Response to Comment D-14
California Air Resources Board is tasked with implementing California Assembly Bill 32 (AB 32). Southern California Edison cannot be in non-compliance with AB 32.

Response to Comment D-15
California Energy Commission is tasked with implementing California Senate Bill 100 (SB 100). Southern California Edison cannot be in non-compliance with SB 100.

Response to Comment D-16
Thank you for your comments regarding PAR 1135. Your comments and staff's responses to your comments are included in this report.

ATTACHMENT I

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Subsequent Environmental Assessment for:

Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities

September 2024

State Clearinghouse No. 2016071006
South Coast AQMD No. 20240801ST/ 09142018RB

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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JOSÉ LUIS SOLACHE
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Cities of Los Angeles County/Western Region

DONALD P. WAGNER
Supervisor, Third District
County of Orange

EXECUTIVE OFFICER:

WAYNE NASTRI

PREFACE

This document constitutes the Final Subsequent Environmental Assessment (SEA) for Proposed Amended Rule (PAR) 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities.

The Draft SEA was circulated for a 46-day public review and comment period from August 2, 2024 to September 17, 2024. Two comment letters were received during the comment period. The comments and responses relative to the Draft SEA are included in Appendix E of this Final SEA.

In addition, subsequent to the release of the Draft SEA for public review and comment, minor modifications were made to the proposed project. PAR 1135 was revised to allow the electricity generating facility located on Santa Catalina Island to request time extensions for extenuating circumstances (e.g., unforeseen construction interruptions and/or supply chain disruptions) for meeting each of the proposed NOx limits. Therefore, some modifications have been made to the Draft SEA to make it a Final SEA which include the aforementioned updates and additions made to PAR 1135 after the Draft SEA was released for the public review and comment period.

Relative to the environmental topic area "Hydrology and Water Quality," the summary of the less than significant hydrology and water quality impacts from the November 2018 Final Mitigated SEA was included in the "Environmental Topic Areas Previously Concluded in the November 2018 Final Mitigated SEA To Have No Impacts" section of the Draft SEA when it should have been included in "Environmental Topic Areas Previously Concluded in the November 2018 Final Mitigated SEA To Have Less Than Significant Impacts" section. For this reason, the analysis was relocated within the Final SEA from the "Environmental Topic Areas Previously Concluded in the November 2018 Final Mitigated SEA To Have No Impacts" section to the "Environmental Topic Areas Previously Concluded in the November 2018 Final Mitigated SEA To Have Less Than Significant Impacts" section. In addition, the hydrology and water quality impacts analysis was updated to acknowledge and account for minimal water use for dust control purposes during construction. However, the conclusion of less than significant hydrology and water quality impacts remained unchanged.

To facilitate identification of the changes between the Draft SEA and the Final SEA, modifications to the document are included as <u>underlined text</u> and text removed from the document is indicated by ~~strikethrough text~~. To avoid confusion, minor formatting changes are not shown in underline or strikethrough mode.

South Coast AQMD staff has evaluated the modifications made to PAR 1135 after the release of the Draft SEA for public review and comment and concluded that none of the revisions constitute significant new information, because: 1) no new significant environmental impacts would result from the proposed project; 2) there is no substantial increase in the severity of an environmental impact; 3) no other feasible project alternative or mitigation measure was identified that would clearly lessen the environmental impacts of the project and was considerably different from others previously analyzed, and 4) the Draft SEA did not deprive the public from meaningful review and comment. In addition, revisions to PAR 1135 and the analysis in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft SEA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft SEA has been revised to include the aforementioned modifications such that it is now the Final SEA.

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CHAPTER 1

EXECUTIVE SUMMARY

1.0 INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (South Coast AQMD) in 1977[1] as the agency responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin and portions of the Salton Sea Air Basin and Mojave Desert Air Basin. In 1977, amendments to the federal Clean Air Act (CAA) included requirements for submitting State Implementation Plans (SIPs) for nonattainment areas that fail to meet all federal ambient air quality standards [CAA Section 172], and similar requirements exist in state law. [Health and Safety Code Section 40462]. The federal CAA was amended in 1990 to specify attainment dates and SIP requirements for ozone, carbon monoxide (CO), nitrogen dioxide (NO2), and particulate matter with an aerodynamic diameter of less than 10 microns (PM10). In 1997, the United States Environmental Protection Agency (U.S. EPA) promulgated ambient air quality standards for particulate matter with an aerodynamic diameter less than 2.5 microns (PM2.5). The U.S. EPA is required to periodically update the national ambient air quality standards (NAAQS).

In addition, the California Clean Air Act (CCAA), adopted in 1988, requires the South Coast AQMD to achieve and maintain state ambient air quality standards for ozone, CO, sulfur dioxide, and NO2 by the earliest practicable date. [Health and Safety Code Section 40910]. The CCAA also requires a three-year plan review, and, if necessary, an update to the SIP. The CCAA requires air districts to achieve and maintain state standards by the earliest practicable date and for extreme non-attainment areas, to include all feasible measures pursuant to Health and Safety Code Sections 40913, 40914, and 40920.5. The term "feasible" is defined in the California Environmental Quality Act (CEQA) Guidelines[2] Section 15364, as a measure "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

By statute, the South Coast AQMD is required to adopt an air quality management plan (AQMP) demonstrating compliance with all federal and state ambient air quality standards for the areas under the jurisdiction of the South Coast AQMD[3]. Furthermore, the South Coast AQMD must adopt rules and regulations that carry out the AQMP[4]. The AQMP is a regional blueprint for how the South Coast AQMD will achieve air quality standards and healthful air, and it contains multiple goals promoting reductions of criteria air pollutants, greenhouse gases (GHGs), and toxic air contaminants (TACs). The 2016 AQMP[5] and 2022[6] AQMP state that both oxides of nitrogen (NOx) and volatile organic compounds (VOC) emissions need to be addressed, with the emphasis that NOx emission reductions are more effective to reduce the formation of ozone and PM2.5. Ozone is a criteria pollutant shown to adversely affect human health and is formed when VOCs react with NOx in the atmosphere. NOx is a precursor to the formation of ozone and PM2.5, and NOx emission reductions are necessary to achieve the ozone standard attainment. NOx emission reductions also contribute to attainment of PM2.5 standards.

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1 The Lewis-Presley Air Quality Management Act, 1976 Cal. Stats., Ch. 324 (codified at Health and Safety Code Section 40400 40540).

2 The CEQA Guidelines are codified at Title 14 California Code of Regulations Section 15000 *et seq.*

3 Health and Safety Code Section 40460(a).

4 Health and Safety Code Section 40440(a).

5 South Coast AQMD, Final 2016 Air Quality Management Plan, March 2017. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf

6 South Coast AQMD, Final 2022 Air Quality Management Plan, December 2022. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf

Rule 1135 is an industry-specific rule which applies to electric generating units (i.e., boilers, turbines, engines, etc.) that are at investor-owned electric utilities, publicly owned electric utilities, or have a generation capacity of at least 50 Megawatts (MW) of electrical power for distribution in the state or local electrical grid system. Rule 1135, however, does not include facilities subject to South Coast AQMD Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations, South Coast AQMD Rule 1150.3 – Emissions of Oxides of Nitrogen from Combustion Equipment at Landfills, or South Coast AQMD Rule 1179.1 – Emission Reductions from Combustion Equipment at Publicly Owned Treatment Works Facilities.

In October 1993, the South Coast AQMD Governing Board adopted Regulation XX – Regional Clean Air Incentives Market (RECLAIM) to reduce NOx and oxides of sulfur (SOx) emissions from high emitting facilities. RECLAIM was designed to take a market-based approach to achieve emission reductions, as an aggregate. In addition, RECLAIM was intended to be equivalent to achieving emissions reductions under a command-and-control approach, but by providing facilities with the flexibility to seek the most cost-effective solution to reduce their emissions. The market-based approach used in RECLAIM was based on using a supply and demand concept, where the cost to control emissions and reduce a facility's emissions would eventually become less than the diminishing supply of NOx RECLAIM trading credits (RTCs). However, the analysis of the effectiveness of RECLAIM over the long term has shown that the ability to achieve actual NOx emission reductions had diminished due to a large amount of RTCs resulting from shutdowns being re-introduced into the market prior to the October 2016 amendments to Rule 2002 to address this issue.

When RECLAIM was adopted in 1993, electricity generating facilities were included in the NOx RECLAIM program with the exception of electricity generating facilities that were owned and operated by the City of Burbank, City of Glendale, and the City of Pasadena that were allowed to opt-in to the program. The cities of Burbank and Pasadena opted-in to RECLAIM, while the City of Glendale remained regulated by command-and-control rules. In response to an increased demand for power generation and delayed installation of controls by electricity generating facilities, in May 2001, the South Coast AQMD Governing Board adopted the South Coast AQMD Rule 2009 – Compliance Plan for Power Producing Facilities[7], which required installation of Best Available Retrofit Control Technology (BARCT) through compliance plans at electricity generating facilities. As a result, much of the equipment at electricity generating facilities was retrofitted or replaced to meet lower NOx emission limits. However, the diesel internal combustion engines providing power to Santa Catalina Island were not subject to Rule 2009 because the facility capacity was less than 50 MW and as such, did not qualify as a Power Producing Facility. Instead, the electric generating units located on Santa Catalina Island were subject to South Coast AQMD Rule 2009.1 – Compliance Plans and Forecast Reports for Non Power Producing Facilities[8], which resulted in installation of selective catalytic reduction technology (SCR) on the diesel internal combustion engines.

In the 2016 AQMP, Control Measure CMB-05 – Further NOx Reductions from RECLAIM Assessment, committed to additional NOx emission reductions of five tons per day to occur by 2025. Also, the South Coast AQMD Governing Board directed staff to implement an orderly sunset of the RECLAIM program to achieve the additional five tons per day of NOx emission reductions. Thus, CMB-05 committed to a process of transitioning NOx RECLAIM facilities to a

[7] South Coast AQMD, Rule 2009, http://www.aqmd.gov/docs/default-source/rule-book/reg-xx/rule-2009-compliance-plan-for-power-producing-facilities.pdf

[8] South Coast AQMD, Rule 2009.1, http://www.aqmd.gov/docs/default-source/rule-book/reg-xx/rule-2009-1.pdf

command-and-control regulatory structure and ensure that the applicable equipment will meet BARCT level equivalency as soon as practicable.

On July 26, 2017, Governor Brown approved California State Assembly Bill (AB) 617, which addressed community monitoring and non-vehicular air pollution (criteria pollutants and toxic air contaminants).[9] AB 617 also contained an expedited schedule for implementing BARCT for cap-and-trade facilities. Industrial source RECLAIM facilities that are in the cap-and-trade program are subject to the requirements of AB 617. Under AB 617, air districts were required to develop, by January 1, 2019, an expedited schedule for the implementation of BARCT no later than December 31, 2023, with the highest priority given to older, higher-polluting units that will need retrofit controls installed.

Shortly thereafter, amendments to Rule 1135 were adopted on November 2, 2018 which established BARCT NOx limits necessary for transitioning electric generating facilities subject to the RECLAIM to a command-and-control regulatory structure and to implement Control Measure CMB-05 of the 2016 AQMP and AB 617. The 2018 amendments expanded Rule 1135 applicability to all electric generating units at RECLAIM NOx, former RECLAIM NOx, and non-RECLAIM NOx electricity generating facilities. The amendments updated emission limits to reflect current BARCT levels at that time and to provide implementation timeframes for boilers, gas turbines, and internal combustion engines located on Santa Catalina Island. Additionally, the 2018 amendments to Rule 1135 established provisions for monitoring, reporting, and recordkeeping, and exemptions from specific provisions. At the time, six facilities were identified as potentially needing modifications in order to achieve the emission limits in Rule 1135. Of these affected facilities, all but one facility, the electricity generating facility located on Santa Catalina Island, has either made modifications to achieve the emission limits in Rule 1135 or is no longer subject to Rule 1135 requirements.

More recently, Rule 1135 was amended on January 7, 2022 to: 1) remove ammonia limits; 2) update provisions for Continuous Emission Monitoring Systems (CEMS); 3) include a reference to South Coast AQMD Rule 429.2 – Startup and Shutdown Exemption Provisions for Oxides of Nitrogen From Electricity Generating Facilities[10] to clarify startup and shutdown requirements; and 4) revise requirements for diesel internal combustion engines on Santa Catalina Island. At the time, stakeholders commented that an updated BARCT assessment was warranted due to the change in averaging time and that the BARCT assessment should emphasize zero-emission (ZE) technologies. The adopted resolution directed South Coast AQMD staff to re-initiate rule development in 2022 which included a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives as well as ZE and near-zero emission (NZE) technologies.

In December 2022, the South Coast AQMD adopted the 2022 AQMP which included a series of control measures to achieve the 2015 8-hour ozone NAAQS. In particular, Control Measure L-CMB-06: NOx Emission Reductions from Electricity Generating Facilities, focused on large combustion sources and assessing low NOx and ZE technologies for power generation, and specifically mentioned replacing existing diesel internal combustion engines with lower-emitting technologies.

[9] Assembly Bill 617, https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB617
[10] South Coast AQMD, Rule 429.2, http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-429-2.pdf

Additional amendments to Rule 1135 are currently proposed to address stakeholder comments raised during the January 2022 amendments and partially implement Control Measure L-CMB-06 of the 2022 AQMP. Proposed Amended Rule (PAR) 1135 applies to electric generating units at electricity generating facilities that are investor-owned electric utilities, publicly owned electric utilities, or have a generation capacity of at least 50 MW of electrical power for distribution in the state or local electrical grid system.

For the electricity generating facility located on Santa Catalina Island which operates six diesel internal combustion engines and 23 microturbines to generate power, staff conducted a BARCT assessment and ~~learned~~ confirmed that over 90 percent (%) of the power generated is from diesel internal combustion engines. These six diesel engines were last modified in 2003 to install selective catalytic reduction (SCR) technology. No other modifications have been made to address the 2018 amendments to Rule 1135. As such, PAR 1135 has been crafted to establish NOx emission limits for electric generating units located on Santa Catalina Island. PAR 1135 also includes monitoring, reporting, and recordkeeping requirements for electric generating units located on Santa Catalina Island.

1.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA) requires that all potential adverse environmental impacts of proposed projects be evaluated and that methods to reduce or avoid identified significant adverse environmental impacts of these projects be implemented, if feasible. The purpose of the CEQA process is to inform the South Coast AQMD Governing Board, public agencies, and interested parties of potential adverse environmental impacts that could result from implementing the proposed project and to identify feasible mitigation measures or alternatives, when an impact is significant.

Public Resources Code Section 21080.5 allows public agencies with regulatory programs to prepare a plan or other written documents in lieu of a Negative Declaration or EIR once the Secretary of the Resources agency has certified the regulatory program. The South Coast AQMD's regulatory program was certified on March 1, 1989 [CEQA Guidelines Section 15251(l)]. In addition, the South Coast AQMD adopted Rule 110 – Rule Adoption Procedures to Assure Protection and Enhancement of the Environment, which implements the South Coast AQMD's certified regulatory program. Under the certified regulatory program, the South Coast AQMD typically prepares an Environmental Assessment (EA) to evaluate the environmental impacts for rule projects proposed for adoption or amendment.

PAR 1135 is considered a "project" as defined by CEQA. For the electricity generating facility located on Santa Catalina Island, PAR 1135 proposes to: 1) update NOx emission limits and compliance dates; 2) establish provisions for monitoring, reporting, and recordkeeping for NZE electric generating units without CEMS; 3) extend the deadline for prohibiting the installation of new diesel internal combustion engines from January 1, 2024, to January 1, 2028 or six months after any applicable extensions; 4) prohibit the installation of more than three new diesel internal combustion engines with a cumulative rating of 5.5 MW; 5) prohibit the installation of equipment that does not meet the definition of a Santa Catalina Island NZE electric generating unit or a Santa Catalina Island ZE electric generating unit after January 1, 2028 or six months after any applicable extensions; 6) require the installation of Santa Catalina Island NZE and/or ZE electric generating units by January 1, 2030 or six months after any applicable extensions ~~(with a three-year extension option to meet by January 1, 2033)~~ with a minimum cumulative rating of 1.8 MW, excluding the highest rated Santa Catalina Island NZE and/or ZE electric generating unit, solar photovoltaic

cells, and battery storage; 7) remove all prime power diesel internal combustion engines for which installation was completed earlier than Date of Adoption from service by January 1, 2030 or six months after any applicable extensions; 8) require a feasibility analysis (e.g., progress in procuring and installing electric generating units) to be conducted for the 13 tpy and six tpy NOx emission limits by January 1, 2028 and January 1, 2033, respectively; and 9) update the time extension provision by including more specific criteria needed for approval, allowing the electricity generating facility located on Santa Catalina Island to request time extensions for extenuating circumstances (e.g., unforeseen construction interruptions and/or supply chain disruptions) for each compliance date or according to the feasibility analyses for meeting each of 13 tpy and six tpy NOx emission limits, and making requests for time extensions available for public review.

The March 2017 Final Program Environmental Impact Report (EIR) for the 2016 AQMP[11] determined that the overall implementation of Control Measure CMB-05, the basis in part for the 2018 amendments to Rule 1135 which updated the NOx emission limits to reflect current BARCT levels at that time and to provide implementation timeframes for boilers, gas turbines, and internal combustion engines located on Santa Catalina Island, had the potential to generate adverse environmental impacts in seven topic areas – air quality, energy, hazards and hazardous materials, hydrology and water quality, noise, solid and hazardous waste, and transportation. More specifically, the March 2017 Final Program EIR for the 2016 AQMP evaluated the impacts from installation and operation of additional control equipment and SCR or selective non-catalytic reduction (SNCR) equipment potentially resulting in construction emissions, increased electricity demand, hazards from additional ammonia transport and use, increase in water use and wastewater discharge, changes in noise volume, generation of solid waste from construction and disposal of old equipment, and catalysts replacements, as well as changes in traffic patterns and volume. For the entire 2016 AQMP, the analysis in the March 2017 Final Program EIR concluded that significant and unavoidable adverse environmental impacts were expected to occur after implementing mitigation measures for the following environmental topic areas: 1) aesthetics from increased glare and from the construction and operation of catenary lines and use of bonnet technology for ships; 2) construction-related air quality and GHGs; 3) energy (due to increased electricity demand); 4) hazards and hazardous materials due to (a) increased flammability of solvents; (b) storage, accidental release, and transportation of ammonia, (c) storage and transportation of liquefied natural gas; and (d) proximity to schools; 5) hydrology (water demand); 6) construction noise and vibration; 7) solid construction waste and operational waste from vehicle and equipment scrapping; and 8) transportation and traffic during construction and during operation on roadways with catenary lines and at the harbors. Since significant adverse environmental impacts were identified, mitigation measures were identified and applied. However, the March 2017 Final Program EIR concluded that the 2016 AQMP would have significant and unavoidable adverse environmental impacts even after mitigation measures were identified and applied. As such, mitigation measures were made a condition of project approval and a Mitigation, Monitoring, and Reporting Plan was adopted. Findings were made and a Statement of Overriding Considerations was adopted by the South Coast AQMD Governing Board.

The purpose of the November 2018 amendments to Rule 1135 was to reduce NOx emissions from RECLAIM and non-RECLAIM electricity generating facilities which are owned or operated by an investor-owned electric utility, a publicly owned electric utility, or have electric generating units with a combined generation capacity of 50 MW or more of electrical power for distribution in the state or local electrical grid system. South Coast AQMD staff determined that the November

[11] South Coast AQMD, Final Program Environmental Impact Report for the 2016 Air Quality Management Plan, March 2017. http://www.aqmd.gov/home/research/documents-reports/lead-agency-SCAQMD-projects/SCAQMD-projects---year-2017

2018 amendments to Rule 1135 contained new information of substantial importance which was not known and could not have been known at the time the March 2017 Final Program EIR for the 2016 AQMP was certified, and the type of CEQA document appropriate to evaluate the environmental impacts of the November 2018 amendments was a Mitigated Subsequent Environmental Assessment (SEA). The Final Mitigated SEA[12] for the November 2018 amendments to Rule 1135 was certified by the South Coast AQMD Governing Board on November 2, 2018 (referred to herein as the November 2018 Final Mitigated SEA for Rule 1135) and analyzed the environmental impacts associated with the activities that the six affected facilities at that time (referred to as Facility 1, 2, 3, 4, 5, and 6) were expected to undertake to ensure compliance with amended Rule 1135. While the reduction of NOx emissions was expected to create an environmental benefit, the November 2018 amendments to Rule 1135 were anticipated to create potentially significant adverse environmental impacts for the topic of hazards and hazardous materials due to the storage and use of aqueous ammonia. As such, mitigation measures were crafted that were shown to reduce the potentially significant adverse hazards and hazardous materials impacts to less than significant levels. To date, the construction activities undertaken in response to the 2018 amendments to Rule 1135 have been completed at Facilities 1, 4, and 5. Regarding Facility 6, the November 2018 Final Mitigated SEA for Rule 1135 analyzed construction and operational emissions associated with catalyst module replacement in SCR for their simple cycle turbine; however, this facility permanently shut down their turbine at the beginning of 2020. Therefore, the previously analyzed construction and operational emissions attributed to Facility 6 in the November 2018 Final Mitigated SEA have not occurred and will not occur in the future. Regarding Facility 3, the November 2018 Final Mitigated SEA for Rule 1135 analyzed construction emissions associated with removing three existing boilers, and installing up to three new turbines with three new SCRs and one new aqueous ammonia storage tank. Instead, Facility 3 indicated that their repower project would shut down and remove their three existing boilers by January 1, 2024, and install set of batteries and three new prime natural gas internal combustion (IC) engines. Because Rule 1135 is not applicable to prime natural gas IC engines and batteries, Facility 3 will no longer be subject to Rule 1135. Therefore, of the six affected facilities identified as being subject to Rule 1135 in the November 2018 Final Mitigated SEA, only Facility 2 has yet to undergo physical modifications necessary to achieve the NOx emission limits contained in the 2018 amendments to Rule 1135. Regarding Facility 2, the November 2018 Final Mitigated SEA for Rule 1135 originally analyzed the environmental impacts associated with replacing five diesel engines with five new Tier 4 Final diesel engines to comply with a NOx emission limit of 13 tpy by January 1, 2026.

On January 7, 2022, Rule 1135 was amended to: 1) remove ammonia limits which would be addressed during the permit application process; 2) reference Rule 429.2 for startup and shutdown requirements; 3) add references to the September 2022 Rule 218-series rules relating to requirements for CEMS; and 4) revise the requirements for diesel internal combustion engines located on Santa Catalina Island. The 2022 amendments to Rule 1135 specifically established interim NOx emission limits (i.e., 50 tpy by January 1, 2024 and 45 tpy by January 1, 2025) for the electricity generating facility located on Santa Catalina Island. Since the 2022 amendments to Rule 1135 were not expected to cause new physical modifications, no significant adverse impacts on the environment were identified. Thus, the South Coast AQMD Governing Board determined on January 7, 2022 that the 2022 amendments to Rule 1135 were exempt from CEQA pursuant to

[12] South Coast AQMD, 2018. Final Mitigated Subsequent Environmental Assessment (SEA) for Proposed Amended Rule (PAR) 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities, SCH No. 2016071006. http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2018/par-1135---final-mitigated-sea_with-appendices.pdf

CEQA Guidelines Section 15061(b)(3); and a Notice of Exemption (NOE) was prepared pursuant to CEQA Guidelines Section 15062.

Currently, PAR 1135 proposes to: 1) remove the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024; 2) delay the compliance date for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years); 3) delay the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years); and 4) include new annual NOx emission limits of 30 tpy and 6 tpy with compliance dates of January 1, 2028 (with a potential extension up to three years) and January 1, 2035 (with a potential extension up to ~~three~~ six years), respectively. Table 1-1 shows the previous, current and proposed NOx emissions limits for the electric generating facility located on Santa Catalina Island as well their corresponding compliance dates.

Table 1-1
Previous, Current, and Proposed NOx Emissions Limits and Compliance Dates for the Electric Generating Facility Located on Santa Catalina Island

Version of Rule 1135	NOx limit (tpy)	Compliance date	Corresponding CEQA document
2018	13	1/1/2026	November 2018 Final Mitigated SEA
2022	50	1/1/2024	NOE
	45	1/1/2025	
PAR 1135	45	1/1/2027 (with a potential extension up to three years)*	August 2024 Draft SEA
	30	1/1/2028 (with a potential extension up to three years)*	
	13	1/1/2030 (with a potential extension up to ~~three~~ six years)*	
	6	1/1/2035 (with a potential extension up to ~~three~~ six years)*	

* Subject to specific criteria and approval by South Coast AQMD

When comparing the types of activities and environmental impacts resulting from the implementation of Rule 1135 amendments that were previously analyzed in the November 2018 Final Mitigated SEA, to the currently proposed changes which comprise PAR 1135, the type and extent of the physical changes are expected to be similar and to cause similar secondary adverse environmental impacts for the same environmental topic areas that were identified and analyzed in the November 2018 Final Mitigated SEA for Rule 1135. Thus, the proposed project is expected to have generally the same or similar effects that were previously examined in the November 2018 Final Mitigated SEA for Rule 1135. However, the air quality impacts from PAR 1135 will cause

delayed NOx emission reductions, interim exceedances of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of ~~ambient air quality standards for~~ PM2.5 and PM10, and interim operational cancer risks which will be more severe than what was discussed in November 2018 Final Mitigated SEA. Specifically, PAR 1135 will result in delayed NOx emission reductions due to: 1) removing the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024; 2) delaying the compliance date for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years) , and 3) delaying the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years). Eventually, PAR 1135 will reduce the NOx mass emission limit from 13 tpy to 6 tpy on and after January 1, 2035 (with a potential extension up to ~~three~~ six years). If any extension is granted for any ~~the 13 tpy~~ NOx emission limit as presented in Table 1-1 ~~(up to three years)~~, the emission reductions will be delayed for a longer period of time and corresponding impacts will be prolonged. Potentially significant exceedances of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of ~~ambient air quality standards for~~ PM2.5 and PM10 are also expected during the operation of electricity generating facility located on Santa Catalina Island when meeting the proposed 30 tpy NOx limit by January 1, 2028 (with a potential extension up to three years). However, once this facility makes modifications necessary to achieve the 13 tpy NOx limit by January 1, 2030 (with a potential extension up to ~~three~~ six years), the project-specific changes in the 24-hour average ~~ambient air quality~~ concentrations of PM2.5 and PM10 will no longer exceed the South Coast AQMD's air quality significance thresholds ~~of significance~~ for these pollutants (i.e., 2.5 µg/m^3, and 2.5 µg/m^3, respectively). Moreover, because the facility intends to replace the existing diesel engines with Tier 4 Final diesel engines, potentially significant operational cancer risk impacts from diesel particulate matter (DPM) are expected to occur for the 45 tpy, 30 tpy, and 13 tpy NOx limits by January 1, 2027 (with a potential extension up to three years), January 1, 2028 (with a potential extension up to three years), and January 1, 2030 (with a potential extension up to ~~three~~ six years), respectively. However, once this facility makes modifications necessary to achieve the 6 tpy NOx limit by January 1, 2035 (with a potential extension up to ~~three~~ six years), the operational cancer risk will no longer exceed the South Coast AQMD's thresholds of significance (i.e., 10 in a million).

Therefore, the proposed project contains new information of substantial importance which was not known and could not have been known at the time the November 2018 Final Mitigated SEA for Rule 1135 was certified. [CEQA Guidelines Section 15162(a)(3)]. Moreover, the analysis indicates that the type of CEQA document appropriate for the proposed project is a SEA, which contains the environmental analysis required by CEQA Guidelines Section 15187 and tiers off of the November 2018 Final Mitigated SEA for Rule 1135. Thus, this SEA is a subsequent document to the November 2018 Final Mitigated SEA for Rule 1135.

Because this is a subsequent document, the baseline is the project analyzed in the November 2018 Final Mitigated SEA for Rule 1135. The SEA is a substitute CEQA document, prepared in lieu of a Subsequent EIR with significant impacts [CEQA Guidelines Section 15162], pursuant to South Coast AQMD's Certified Regulatory Program [CEQA Guidelines Section 15251(l)]; codified in South Coast AQMD Rule 110. The SEA is also a public disclosure document intended to: 1) provide the lead agency, responsible agencies, decision makers, and the general public with information on the environmental impacts of the proposed project; and 2) be used as a tool by decision makers to facilitate decision making on the proposed project.

Thus, the South Coast AQMD, as lead agency for the proposed project has prepared this SEA with significant impacts. In addition, since significant adverse impacts have been identified, an alternatives analysis is required and has been included in this SEA. The Draft SEA ~~is being~~has been released and circulated for a 46-day public review and comment period from August 2, 2024 to September 17, 2024. Two comment letters were received during the comment period. The comments and responses relative to the Draft SEA are included in Appendix E of this Final SEA. ~~Any comments on the analysis presented in this Draft SEA received during the public comment period will be responded to and included in an appendix of the Final SEA.~~

The November 2018 Final Mitigated SEA for Rule 1135 (State Clearinghouse No. 2016071006) upon which this SEA relies, is incorporated by reference pursuant to CEQA Guidelines Section 15150 and is available from the South Coast AQMD's website at:

November 2018 Final Mitigated SEA for Rule 1135:

http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2018/par-1135---final-mitigated-sea_with-appendices.pdf

The above document may also be obtained from the South Coast AQMD's Public Information Center by calling (909) 396-2039 or by email PICrequests@aqmd.gov, or by contacting Derrick Alatorre - Deputy Executive Officer/Public Advisor, South Coast AQMD, 21865 Copley Drive, Diamond Bar, CA 91765, (909) 396-2432, PublicAdvisor@aqmd.gov.

South Coast AQMD staff has evaluated the modifications made to PAR 1135 after the release of the Draft SEA for public review and comment and concluded that none of the revisions constitute significant new information, because: 1) no new significant environmental impacts would result from the proposed project; 2) there is no substantial increase in the severity of an environmental impact; 3) no other feasible project alternative or mitigation measure was identified that would clearly lessen the environmental impacts of the project and was considerably different from others previously analyzed, and 4) the Draft SEA did not deprive the public from meaningful review and comment. In addition, revisions to PAR 1135 and the analysis in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft SEA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft SEA has been revised to include the aforementioned modifications such that it is now the Final SEA.

Prior to making a decision on the adoption of the proposed project, the South Coast AQMD Governing Board must review and certify the Final SEA, including responses to comments, as providing adequate information on the potential adverse environmental impacts that may occur as a result of adopting PAR 1135.

1.2 PREVIOUS CEQA DOCUMENTATION

South Coast AQMD rules, as ongoing regulatory programs, have the potential to be revised over time due to a variety of factors (e.g., regulatory decisions by other agencies, new data, lack of progress in advancing the effectiveness of control technologies to comply with requirements in technology forcing rules, new more stringent national ambient air quality standards, etc.).

Rule 1135 was adopted in August 1989 to reduce NOx emissions from electricity generating facilities and has been amended three times with the last amendment in January 2022. For the electricity generating facility located on Santa Catalina Island, PAR 1135 proposes to: 1) update NOx emission limits and compliance dates; 2) establish provisions for monitoring, reporting, and recordkeeping for NZE electric generating units without CEMS; 3) extend the deadline for prohibiting the installation of new diesel internal combustion engines from January 1, 2024 to January 1, 2028 or six months after any applicable extensions; 4) prohibit the installation of more than three new diesel internal combustion engines with a cumulative rating of 5.5 MW; 5) prohibit the installation of equipment that does not meet the definition of a Santa Catalina Island NZE electric generating unit or a Santa Catalina Island ZE electric generating unit after January 1, 2028 or six months after any applicable extensions; 6) require the installation of Santa Catalina Island NZE and/or ZE electric generating units by January 1, 2030 or six months after any applicable extensions ~~(with a three-year extension option to meet by January 1, 2033)~~ with a minimum cumulative rating of 1.8 MW, excluding the highest rated Santa Catalina Island NZE and/or ZE electric generating unit, solar photovoltaic cells, and battery storage; 7) remove all prime power diesel internal combustion engines for which installation was completed earlier than Date of Adoption from service by January 1, 2030 or six months after any applicable extensions; 8) require a feasibility analysis (e.g., progress in procuring and installing electric generating units) to be conducted for the 13 tpy and six tpy NOx emission limits by January 1, 2028 and January 1, 2033, respectively; and 9) update the time extension provision by including more specific criteria needed for approval, allowing the electricity generating facility located on Santa Catalina Island to request time extensions for extenuating circumstances (e.g., unforeseen construction interruptions and/or supply chain disruptions) for each compliance date or according to the feasibility analyses for meeting each of 13 tpy and six tpy NOx emission limits, and making requests for time extensions available for public review. As allowed by CEQA Guidelines Sections 15152, 15162, and 15385, this SEA tiers off of the November 2018 Final Mitigated SEA for Rule 1135, which is summarized below:

Final Mitigated Subsequent Environmental Assessment for Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities; November 2018: Amendments to Rule 1135 were adopted in November 2018 to reduce NOx emissions from RECLAIM and non-RECLAIM electricity generating facilities which are owned or operated by an investor-owned electric utility, a publicly owned electric utility, or have electric generating units with a combined generation capacity of 50 MW or more of electrical power for distribution in the state or local electrical grid system. The amendments to Rule 1135: 1) expanded the rule's applicability to include units at RECLAIM electricity generating facilities and units at electricity generating facilities that were not at electric power generating systems previously subject to Rule 1135; 2) updated the NOx and ammonia emission limits for boilers and gas turbines; 3) established NOx emission limits and added new emission limits for ammonia, CO, VOC, and particulate matter for internal combustion engines; 4) revised monitoring, reporting, and recordkeeping requirements; and 5) revised exemptions. Approximately 1.7 tons per day of NOx emission reductions were expected to be achieved as a result of implementing the November 2018 version of Rule 1135. While the reduction of NOx emissions was expected to create an environmental benefit, the activities that the affected facilities were expected to undertake to ensure compliance with amended Rule 1135 were anticipated to also create potentially significant adverse environmental impacts for the topic of hazards and hazardous materials due to the storage and use of aqueous ammonia. As such, mitigation measures were crafted that were shown to reduce the potentially significant adverse hazards and hazardous materials impacts to less than significant levels. The South Coast AQMD Governing Board certified the Final Mitigated SEA and approved

the amendments to Rule 1135 on November 2, 2018. The November 2018 Final Mitigated SEA can be obtained by visiting the South Coast AQMD website at: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2018/par-1135---final-mitigated-sea_with-appendices.pdf.

1.3 INTENDED USES OF THIS DOCUMENT

In general, a CEQA document is an informational document that informs a public agency's decision-makers and the public generally of potentially significant adverse environmental effects of a project, identifies possible ways to avoid or minimize the significant effects, and describes reasonable alternatives to the project. [CEQA Guidelines Section 15121]. A public agency's decision-makers must consider the information in a CEQA document prior to making a decision on the project. Accordingly, this SEA is intended to: a) provide the South Coast AQMD Governing Board and the public with information on the environmental effects of the proposed project; and b) be used as a tool by the South Coast AQMD Governing Board to facilitate decision-making on the proposed project.

Additionally, CEQA Guidelines Section 15124(d)(1) requires a public agency to identify the following specific types of intended uses of a CEQA document:

1. A list of the agencies that are expected to use the SEA in their decision-making;

2. A list of permits and other approvals required to implement the project; and

3. A list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies.

In addition to the South Coast AQMD's Governing Board, which will consider the SEA for the proposed project in their decision-making, the California Air Resources Board (CARB), a state agency, and the U.S. EPA, a federal agency, will be reviewing the SIP submittal for PAR 1135 which contains all supporting documents, including the SEA. Moreover, PAR 1135 is not subject to any other related environmental review or consultation requirements.

To the extent that local public agencies, such as cities, county planning commissions, et cetera, are responsible for making land use and planning decisions related to projects that must comply with the requirements in the proposed project, they could possibly rely on this SEA during their decision-making process. Similarly, other single purpose public agencies approving projects at facilities complying with the proposed project may rely on this SEA.

For any affected facility operator who proposes to install power generating equipment and other components necessary to the installation of that equipment for the purpose of complying with the NOx emission limits in the proposed project, South Coast AQMD permit applications and a CEQA review would be required to determine if the project could rely on this SEA or if further CEQA analysis is warranted before any approvals can be granted.

This proposed project will be reviewed by both CARB and the U.S. EPA to determine if PAR 1135 should be approved into the SIP as required under the federal Clean Air Act. The U.S. EPA's approval is subject to a public review process generally of at least 30 days after publication in the Federal Register. South Coast AQMD staff is not aware of any additional environmental review or consultation requirements to carry out the emission reduction projects necessary to implement

PAR 1135, except that the local lead agency may determine that further CEQA analysis is necessary, depending on the specifics of those future projects.

1.4 AREAS OF CONTROVERSY

CEQA Guidelines Section 15123(b)(2) requires a public agency to identify the areas of controversy in the CEQA document, including issues raised by agencies and the public. Over the course of developing PAR 1135, the predominant concerns expressed by representatives of industry and environmental groups, either in public meetings or in written comments, regarding the proposed project are highlighted in Table 1-2.

Table 1-2
Areas of Controversy

	Area of Controversy	Topics Raised by the Public, Agencies, and/or Stakeholders	South Coast AQMD Evaluation
1.	BARCT/BACT /LAER for Tier 4 Final diesel engines	Until a new analysis concludes otherwise, Tier 4 Final diesel engines remain BARCT, BACT, and LAER.	The rule development process determines BARCT, not BACT/LAER. The BARCT assessment in the Preliminary Draft Staff Report acknowledges the challenges and limitations of acquiring additional land but is not limited to the Pebbly Beach Generating Station (PBGS) footprint, and therefore incorporates, but is not limited to, the Tier 4 Final diesel engines. Further, BACT/LAER is determined by class and category of equipment and fuel availability on the island. The South Coast AQMD Engineering & Permitting Division will determine if Tier 4 Final diesel engines are BACT/LAER through the permit process.
2.	Delay prohibition on new diesel engines	Allowing Southern California Edison (SCE) to replace diesel engines with new Tier 4 Final diesel engines would reduce the facility's NOx emissions.	PAR 1135 contains a provision that intends to allow three new Tier 4 Final diesel internal combustion engines to be installed provided that a maximum cumulative rating of 5.5 MW is not exceeded. However, the required NOx reductions sought by PAR 1135, as well as the need to reduce DPM emissions, a toxic, will not be fully achieved solely with new Tier 4 Final diesel engines.
3.	Adjust implementation schedule	Timeline to start construction and operate new Tier 4 Final diesel engines needs to be adjusted to take into account permitting complexity, global supply chain issues, and facility construction constraints.	Staff extended the deadline to replace diesel internal combustion engines by four years from January 1, 2024 to January 1, 2028 (with a potential extension up to three years).

Table 1-2 (concluded)
Areas of Controversy

	Area of Controversy	Topics Raised by the Public, Agencies, and/or Stakeholders	South Coast AQMD Evaluation
4.	Adjust mass emission limit	NOx emission limit of 13 tpy is based on an unrealistic assumption that fossil fueled equipment can be completely replaced with ZE or NZE technology. SCE remains opposed to a facility mass emission limit because it disallows future load growth.	The 13 tpy NOx emission limit was adopted in the November 2018 amendments to Rule 1135 and is not new to PAR 1135. Moreover, PAR 1135 contains a four-year extension of the compliance date (e.g., from January 1, 2026 to January 1, 2030 (with a potential extension up to six years)) for the 13 tpy NOx emission limit. PAR 1135 also includes a final NOx limit of 6 tpy with a compliance date of January 1, 2035 (with a potential extension up to six years) and can be achieved through any combination of ZE/NZE technologies and Tier 4 Final diesel engines, so the cleaner the technology, the more opportunity there is for load growth and staying within the emission cap.
5.	Prohibition on new diesel engines	Prohibition deadline to install new diesel engines should not be revised.	Due to limited available space both onsite at the PBGS facility and elsewhere on Santa Catalina Island for purchase or lease, fire code requirements regarding the storage, and dispensing of other non-diesel fuels, and only space for one barge to periodically deliver fuel to supply the engines, Tier 4 Final diesel engines are necessary to provide power on Santa Catalina Island. Tier 4 Final diesel engines emit fewer pollutants than the diesel engines currently operating at PBGS. PAR 1135 also contains interim and final NOx emission limits that are technologically feasible with any combination of technologies which cannot be achieved solely by Tier 4 Final diesel engines.

Pursuant to CEQA Guidelines Section 15131(a), "[e]conomic or social effects of a project shall not be treated as significant effects on the environment." CEQA Guidelines Section 15131(b) states further, "[e]conomic or social effects of a project may be used to determine the significance of physical changes caused by the project." Physical changes that may be caused by the proposed project have been evaluated in Chapter 4 of this Draft SEA. No direct or indirect physical changes

resulting from economic or social effects have been identified as a result of implementing PAR 1135.

1.5 EXECUTIVE SUMMARY

CEQA Guidelines Section 15123 requires a CEQA document to include a brief summary of the proposed actions and their consequences. In addition, areas of controversy must also be included in the executive summary (see preceding discussion). This SEA consists of the following chapters: Chapter 1 – Executive Summary, Chapter 2 – Project Description, Chapter 3 – Existing Setting, Chapter 4 – Environmental Impacts, Chapter 5 – Alternatives, Chapter 6 – References, Chapter 7 – Acronyms, and various appendices. The following subsections briefly summarize the contents of Chapters 1 through 5.

Summary of Chapter 1 – Executive Summary

Chapter 1 includes an introduction of the proposed project and a discussion of the legislative authority that allows the South Coast AQMD to amend and adopt air pollution control rules, identifies general CEQA requirements and the intended uses of this CEQA document, and summarizes the remaining four chapters that comprise this SEA.

Summary of Chapter 2 – Project Description

South Coast AQMD Rule 1135 is an industry-specific rule which applies to electric generating units (i.e., boilers, turbines, engines, etc.) at investor-owned electric utilities, publicly owned electric utilities, or have a generation capacity of at least 50 MW of electrical power for distribution in the state or local electrical grid system.

During the 2022 amendments to Rule 1135, stakeholders urged staff to conduct a BARCT analysis of electric generating units located on Santa Catalina Island emphasizing ZE technologies. In response to stakeholder comments, staff performed a BARCT analysis with a focus on ZE and NZE technologies to repower Santa Catalina Island.

For the electricity generating facility located on Santa Catalina Island, PAR 1135 proposes to: 1) update NOx emission limits and compliance dates; 2) establish provisions for monitoring, reporting, and recordkeeping for NZE electric generating units without CEMS; 3) extend the deadline for prohibiting the installation of new diesel internal combustion engines from January 1, 2024 to January 1, 2028 (or six months after any applicable extensions); 4) prohibit the installation of more than three new diesel internal combustion engines with a cumulative rating of 5.5 MW; 5) prohibit the installation of equipment that does not meet the definition of a Santa Catalina Island NZE electric generating unit or a Santa Catalina Island ZE electric generating unit after January 1, 2028 or six months after any applicable extensions; 6) require the installation of Santa Catalina Island NZE and/or ZE electric generating units by January 1, 2030 or six months after any applicable extensions ~~(with a three-year extension option to meet by January 1, 2033)~~ with a minimum cumulative rating of 1.8 MW, excluding the highest rated Santa Catalina Island NZE and/or ZE electric generating unit, solar photovoltaic cells, and battery storage; 7) remove all prime power diesel internal combustion engines for which installation was completed earlier than Date of Adoption from service by January 1, 2030 or six months after any applicable extensions; 8) require a feasibility analysis (e.g., progress in procuring and installing electric generating units) to be conducted for the 13 tpy and six tpy NOx emission limits by January 1, 2028 and January 1, 2033, respectively; and 9) update the time extension provision by including more specific criteria

needed for approval, allowing the electricity generating facility located on Santa Catalina Island to request time extensions for extenuating circumstances (e.g., unforeseen construction interruptions and/or supply chain disruptions) for each compliance date or according to the feasibility analyses for meeting each of 13 tpy and six tpy NOx emission limits, and making requests for time extensions available for public review.

PAR 1135 will partially implement Control Measure L-CMB-06 of the 2022 AQMP, and is estimated to reduce NOx emissions at the electricity generation facility located on Santa Catalina Island by 65.3 tpy by January 1, 2035 or after any applicable extensions.

Summary of Chapter 3 – Existing Setting

Pursuant to CEQA Guidelines Section 15125, Chapter 3 – Existing Setting, includes a description of the existing environmental setting of the environmental topic areas that are expected to have potentially significant changes if the proposed project is implemented.

PAR 1135 will affect one electricity generating facility located on Santa Catalina Island. As allowed by CEQA Guidelines Sections 15152, 15162, and 15385, this SEA tiers off of the November 2018 Final Mitigated SEA for Rule 1135.

The existing environmental setting is the physical environmental conditions as they existed at the time the Notice of Preparation (NOP) and Initial Study (IS) was published, or if no NOP/IS is published, at the time the environmental analysis is commenced [CEQA Guidelines Section 15125]. For the November 2018 amendments to Rule 1135, no NOP/IS was prepared, but the environmental analysis commenced on September 14, 2018 when the Notice of Completion (NOC) announcing the availability of the Draft Mitigated SEA was released for public review and comment. The Draft Mitigated SEA for PAR 1135 contained an environmental checklist, the same environmental checklist used when preparing a NOP/IS, plus a detailed analysis of the environmental setting and corresponding environmental effects specifically tailored to implementing the proposed amendments at that time. When comparing the types of activities and environmental impacts previously analyzed for the November 2018 amendments to Rule 1135 in the November 2018 Final Mitigated SEA to the currently proposed changes which comprise PAR 1135, the type and extent of the physical changes are expected to be similar and will cause similar secondary adverse environmental impacts for the same environmental topic areas that were identified and analyzed in the November 2018 Final Mitigated SEA, except that only one facility will be subject to PAR 1135 while six facilities were subject to the November 2018 amendments to Rule 1135. Based on the preceding discussion, the baseline that was established at the time the NOC was published for the September 2018 Draft Mitigated SEA directly corresponds to the currently proposed project since the nature of the physical impacts that may occur as a result of implementing PAR 1135 are the same or similar to the previous analysis in the November 2018 Final Mitigated SEA. Thus, the baseline for the analysis in this SEA is the project analyzed in the November 2018 Final Mitigated SEA.

This SEA analyzes the incremental changes that may occur subsequent to the November 2018 Final Mitigated SEA if PAR 1135 is implemented. In addition, the analysis in this SEA independently considers whether the proposed project would result in new significant impacts for any of the other environmental topic areas previously concluded in the November 2018 Final Mitigated SEA to have either no significant impacts or less than significant impacts (with or without mitigation) and no environmental topic area was identified as having potentially

significant adverse impacts. A description and the basis for this conclusion is included in Chapter 4 of this SEA.

As such, Chapter 3 of this Draft SEA contains subchapters devoted to describing the existing setting for air quality which was the only environmental topic area identified as having potentially significant adverse environmental impacts if PAR 1135 is implemented.

Summary of Chapter 4 – Environmental Impacts

CEQA Guidelines Section 15126(a) requires a CEQA document to identify and focus on the "significant environmental effects of the proposed project." Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. In addition, CEQA Guidelines Section 15126(b) requires a CEQA document to identify the significant environmental effects that cannot be avoided if the proposed project is implemented. CEQA Guidelines Section 15126(c) also requires a CEQA document to consider and discuss the significant irreversible environmental changes that would be involved if the proposed project is implemented. Further, CEQA Guidelines Section 15126(e) requires a CEQA document to consider and discuss mitigation measures proposed to minimize the significant effects. Finally, CEQA Guidelines Section 15130 requires a CEQA document to discuss whether the proposed project has cumulative impacts. Chapter 4 considers and discusses each of these requirements.

PAR 1135 has been mainly developed to update the annual NOx emission limits and compliance dates for the electric generating facility located on Santa Catalina Island. As allowed by CEQA Guidelines Sections 15152, 15162, and 15385, this SEA tiers off of the November 2018 Final Mitigated SEA for Rule 1135. As explained in the Summary of Chapter 3, the baseline for the analysis in this SEA is the project analyzed in the November 2018 Final Mitigated SEA for Rule 1135.

This SEA is a comprehensive environmental document that programmatically analyzes potential incremental environmental impacts from implementing the proposed project relative to the existing setting established in the November 2018 Final Mitigated SEA for Rule 1135. The analysis examines the activities that the affected facilities would be expected to undertake to comply with PAR 1135. The analysis of the effects of PAR 1135 indicates that the topic of air quality will be affected due to delayed NOx emission reductions, interim exceedances of the air quality significance thresholds for project-specific changes in the 24-hour average ~~– ambient air quality standards for~~concentrations of PM2.5 and PM10, and interim cancer risks, which will be more severe than what was previously contemplated in the November 2018 Final Mitigated SEA.

Potential Environmental Impacts Found to be Significant: Air Quality and Greenhouse Gas Emissions Impacts

This SEA tiers off of the November 2018 Final Mitigated SEA for Rule 1135 which analyzed the environmental impacts associated with the potential modifications that may be expected to occur at six affected electricity generating facilities to comply with the BARCT emission limits in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA for Rule 1135 concluded that no environmental topic areas, except for hazards and hazardous materials, would have potentially significant adverse environmental impacts. Moreover, mitigation measures were crafted in the November 2018 Final Mitigated SEA that were shown to reduce the potentially significant adverse hazards and hazardous materials impacts to less than significant levels.

The analysis in this SEA independently considers whether PAR 1135 would result in new significant impacts for any environmental topic areas previously concluded in the November 2018 Final Mitigated SEA for Rule 1135 to have either no significant impacts or less than significant impacts (with or without mitigation). Among the environmental areas examined for PAR 1135, only the topic of air quality will have new significant impacts due to the potential for delayed NOx emission reductions, interim exceedances of the air quality significance thresholds for project-specific changes in the 24-hour average ~~ambient air quality standards for~~concentrations of PM2.5 and PM10, and interim cancer risk impacts, which will be more severe than what was discussed in the November 2018 Final Mitigated SEA for Rule 1135. A description and the basis for this conclusion is also included in this section.

Implementation of the proposed project is expected to result in potentially significant delayed NOx emission reductions due to: 1) removing the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024; 2) delaying the compliance dates for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years); and 3) delaying the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years). Eventually, PAR 1135 will reduce the NOx mass emission limit from 13 tpy to 6 tpy on and after January 1, 2035, with an up to ~~three~~six-year extension option to achieve 6 tpy by January 1, ~~2038~~2041. If any extension is granted for ~~the 13 tpy~~any NOx emission limits as presented in Table 1-1 ~~(up to three years)~~, the emission reductions will be delayed for a longer period of time and corresponding impacts will be prolonged. Potentially significant exceedances of the air quality significance thresholds for the project-specific changes in the 24-hour average ~~ambient air quality standards for~~concentrations of PM2.5 and PM10 are also expected during the operation of electricity generating facility located on Santa Catalina Island when meeting the proposed 30 tpy NOx limit by January 1, 2028 (with a potential extension up to three years)~~-~~. However, once this facility makes modifications necessary to achieve the proposed 13 tpy NOx limit by January 1, 2030 (with a potential extension up to ~~three~~ six years), the project-specific changes in the 24-hour average ~~ambient air quality~~ concentrations of PM2.5 and PM10 will no longer exceed the South Coast AQMD's air quality significance thresholds ~~of significance~~ for these pollutants (i.e., 2.5 µg/m^3, and 2.5 µg/m^3, respectively). Moreover, because the facility intends to replace the existing diesel engines with Tier 4 Final diesel engines, potentially significant operational cancer risk impacts are expected to occur for the 45 tpy, 30 tpy and 13 tpy NOx limits by January 1, 2027 (with a potential extension up to three years), January 1, 2028 (with a potential extension up to three years), and January 1, 2030 (with a potential extension up to ~~three~~ six years), respectively. However, once this facility makes modifications necessary to achieve the 6 tpy NOx limit by January 1, 2035 (with a potential extension up to ~~three~~ six years), the operational cancer risk will no longer exceed the South Coast AQMD's thresholds of significance (i.e., 10 in a million).

As such, if PAR 1135 is implemented, significant and unavoidable adverse environmental impacts to the air quality during operation are expected to occur.

Other Environmental Impacts Found Not to be Significant

CEQA requires the SEA to identify the environmental topic areas that were analyzed and concluded to have no impacts or less than significant impacts if the proposed project is implemented. For the effects of a project that were determined not to be significant, CEQA Guidelines Section 15128 requires the analysis to contain a statement briefly indicating the reasons that various effects of a project were determined not to have significant impacts and were therefore not discussed in detail.

As explained earlier, the November 2018 Final Mitigated SEA for Rule 1135 concluded that all of the environmental topic areas would have either less than significant impacts (with or without mitigation) or no impacts. For all environmental topics, except air quality and GHG emissions which is discussed and further analyzed in Section 4.1 of this chapter, this subchapter of the SEA identifies and summarizes these previously analyzed environmental topic areas and assesses whether the conclusions for these environmental topic areas would need to be revised if PAR 1135 is implemented. Also, since two new environmental topic areas, tribal cultural resources and wildfire, were added to the CEQA Guidelines after the November 2018 Final Mitigated SEA for Rule 1135 was certified, this section analyzes whether the PAR 1135 would contribute to any impacts on tribal cultural resources and wildfires.

As such, if PAR 1135 is implemented, the conclusions of no impact or less than significant impact for all of the environmental topic areas, except for air quality during operation as analyzed in the Chapter 4, will remain unchanged.

Other CEQA Topics

CEQA documents are also required to consider and discuss the potential for growth-inducing impacts [CEQA Guidelines Section 15126(d)] and to explain and make findings about the project's relationship between short-term and long-term environmental goals. [CEQA Guidelines Section 15065(a)(2)]. Additional analysis in Chapter 4 confirms that PAR 1135 would not result in irreversible environmental changes or the irretrievable commitment of resources, foster economic or population growth, or the construction of additional housing. Further, implementation of the PAR 1135 is not expected to achieve short-term goals to the disadvantage of long-term environmental goals.

Summary Chapter 5 - Alternatives

Since significant air quality impacts during operation are associated with PAR 1135, CEQA Guidelines Section 15126(e) requires a CEQA document to consider and discuss alternatives to the proposed project. The following alternatives to the proposed project are identified and summarized in Table 1-3: Alternative A – No Project, Alternative B – More Stringent Proposed Project, Alternative C – Less Stringent Proposed Project, and Alternative D – No ZE Equipment.

Pursuant to the requirements in CEQA Guidelines Section 15126.6(b) to mitigate or avoid the significant effects that a project may have on the environment, Table 1-4 provides a comparison of individual requirements that comprise the proposed project and that have potentially significant adverse impacts, to each of the project alternatives. Aside from operational air quality impacts, no other potentially significant adverse impacts were identified for the proposed project or any of the project alternatives. The proposed project provides the best balance in achieving the project objectives while minimizing the significant adverse environmental impacts to operational air quality. Therefore, the proposed project is preferred over the project alternatives.

Table 1-3
Summary of the Proposed Project (PAR 1135) and Alternatives

Rule Elements	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
Annual NOx Emission Limits	45 tpy by 1/1/2027 30 tpy by 1/1/2028 13 tpy by 1/1/2030 6 tpy by 1/1/2035	50 tpy by 1/1/2024 45 tpy by 1/1/2025 13 tpy by 1/1/2026	45 tpy by 1/1/2027 30 tpy by 1/1/2028 13 tpy by 1/1/2030 1.8 tpy by 1/1/2035	30 tpy by 1/1/2029 20 tpy by 1/1/2031 13 tpy by 1/1/2035	45 tpy by 1/1/2027 30 tpy by 1/1/2028 13 tpy by 1/1/2030
Potential NOx Emission Reductions	65.3 tpy by 1/1/2035 (with a potential extension up to ~~three~~ six years)	58.3 tpy by 1/1/2026 (with potential extension up to three years)	69.5 tpy by 1/1/2035 (with a potential extension up to ~~three~~ six years)	58.3 by 1/1/2035 (with a potential extension up to ~~three~~ six years)	58.3 tpy by 1/1/2030 (with a potential extension up to ~~three~~ six years)
Prohibition Deadline to Install New Diesel Internal Combustion Engines	1/1/2028 (with a potential of six additional months after any time extension is provided)	1/1/2024	Same as Proposed Project	1/1/2029 (with a potential of six additional months after any time extension is provided)	Same as Proposed Project
Prohibition Deadline to Install Equipment that Does Not Meet the definition of NZE or ZE Electric Generating Unit	1/1/2028 (with a potential of six additional months after any time extension is provided)	N/A	Same as Proposed Project	1/1/2029 (with a potential of six additional months after any time extension is provided)	Same as Proposed Project
Deadline to Install NZE and/or ZE Electric Generating Units With a Cumulative Rating ≥ 1.8 MW	1/1/2030 (with a potential of six additional months after any time extension ~~up to three years~~is provided)	N/A	Same as Proposed Project	1/1/2035 (with a potential of six additional months after any time extension ~~up to three years~~is provided)	Same as Proposed Project
Deadline to Remove All Prime Power Diesel Internal Combustion Engines With an Installation Date Earlier than Date of Adoption From Service	1/1/2030 (with a potential of six additional months after any time extension is provided)	N/A	Same as Proposed Project	1/1/2035 (with a potential of six additional months after any time extension is provided)	Same as Proposed Project

Table 1-3 (concluded)
Summary of the Proposed Project (PAR 1135) and Alternatives

Rule Elements	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
Time Extension Provision for Meeting the Annual NOx Emission Limits	An option for a three-year extension to meet 45 tpy and 30 tpy by 1/1/2030, and 1/1/2031, respectively An option for a ~~three~~six-year extension to meet 13 tpy by 1/1/~~2033~~2036 Up to ~~three~~six-year extension option to meet 6 tpy by 1/1/~~2038~~2041	An option for a three-year extension to meet 13 tpy by 1/1/2029	An option for a three-year extension to meet 45 tpy and 30 tpy by 1/1/2030, and 1/1/2031, respectively An option for a ~~three~~six-year extension to meet 13 tpy by 1/1/~~2033~~2036 Up to ~~three~~six-year extension option to meet 1.8 tpy by 1/1/~~2038~~2041	An option for a three-year extension to meet 30 tpy and 20 tpy by 1/1/2032, and 1/1/2034, respectively An option for a ~~three~~six-year extension to meet 13 tpy by 1/1/~~2038~~2041	An option for a three-year extension to meet 45 tpy and 30 tpy by 1/1/2030, and 1/1/2031, respectively An option for a ~~three~~six-year extension to meet 13 tpy by 1/1/~~2033~~2036

Table 1-4
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1135) and Alternatives

Air Quality & GHGs Impact Areas	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
Construction Criteria Pollutants	• PAR 1135 only impacts one electricity generating facility located on Santa Catalina Island. • Compliance with the proposed project may be achieved through replacing three existing diesel engines with three new Tier 4 Final diesel engines, replacing existing microturbines with five linear generator and three fuel cells, and installing solar powered batteries and photovoltaic (PV) cells.* • **Less than significant impacts** in peak daily emissions for construction: VOC: 9.5 lbs/day NOx: 68.0 lbs/day CO: 52.5 lbs/day SOx: 0.1 lbs/day PM10: 5.0 lbs/day PM2.5: 3.9 lbs/day	• Under this alternative, the electricity generating facility located on Santa Catalina Island would be required to meet 13 tpy NOx limit by 1/1/2026 (with potential extension up to three years). However, no new diesel engine installations are allowed after 1/1/2024, so this facility would need to find non-diesel technology in order to satisfy the annual NOx limit. • The November 2018 Final Mitigated SEA for Rule 1135 originally analyzed environmental impacts associated with compliance activities at six affected facilities (including the electricity generating facility located on Santa Catalina Island) and concluded **less than significant impacts** in peak daily construction emissions for all the affected facilities.	Compared to PAR 1135, more NZE units are expected to be installed under this alternative. Because replacing three existing diesel engines with three new Tier 4 Final diesel engines, replacing existing microturbines with NZE units, and installing ZE technologies are assumed to be sequential to minimize power disruptions or reductions to the facility's customers during construction, Alternative B would result in similar peak daily construction emissions to those of the proposed project. • **Less than Significant Impacts** in peak daily emissions for construction: Same as Proposed Project	Compared to PAR 1135, compliance with Alternative C is not expected to require installation of any ZE technologies. Because replacing three existing diesel engines with three new Tier 4 Final diesel engines, and replacing existing microturbines with NZE units are assumed to be sequential to minimize power disruptions or reductions to the facility's customers during construction, Alternative C would result in similar peak daily construction emissions to those of the proposed project. • **Less than Significant Impacts** in peak daily emissions for construction: Same as Proposed Project	Compared to PAR 1135, compliance with Alternative D is not expected to require installation of any ZE technologies. Because replacing three existing diesel engines with three new Tier 4 Final diesel engines, and replacing existing microturbines with NZE units are assumed to be sequential to minimize power disruptions or reductions to the facility's customers during construction, Alternative D would result in similar peak daily construction emissions to those of the proposed project. • **Less than significant impacts** in peak daily emissions for construction**:** Same as Proposed Project

*The combination of equipment replacements is considered worst-case for the purpose of determining potential peak impacts. However, representatives from the electricity generating facility located on Santa Catalina Island indicated that they are also considering other combinations of equipment replacements such as installing NZE propane engines instead of the linear generators and fuel cells but this combination would not represent a worst-case scenario and would be expected to have fewer impacts.

Table 1-4 (continued)
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1135) and Alternatives

Air Quality & GHGs Impact Areas	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
Operation Criteria Pollutants	**Potentially Significant Impacts** due to delayed NOx emission reductions at the electricity generating facility located on Santa Catalina Island as follows: 116.71 lbs/day from 1/1/2024 to 1/1/2025 144.11 lbs/day from 1/1/2025 to 1/1/2026 319.45 lbs/day from 1/1/2026 to 1/1/2027 (with a potential extension up to three years) 175.34 lbs/day from 1/1/2027 (with a potential extension up to three years) to 1/1/2028 (with a potential extension up to three years) 93.15 lbs/day from 1/1/2028(with a potential extension up to three years) to 1/1/2030 (with a potential extension up to ~~three~~ six years)	• The November 2018 Final Mitigated SEA for Rule 1135 originally analyzed environmental impacts associated with compliance activities at six affected facilities (including the electricity generating facility located on Santa Catalina Island) and concluded **less than significant impacts** in peak daily operational emissions for all the affected facilities.	**Potentially Significant Impacts:** Same as Proposed Project	**Potentially Significant Impacts** due to delayed NOx emission reductions at the electricity generating facility located on Santa Catalina Island as follows: 116.71 lbs/day from 1/1/2024 to 1/1/2025 144.11 lbs/day from 1/1/2025 to 1/1/2026 319.45 lbs/day from 1/1/2026 to 1/1/2029 (with a potential extension up to three years) 93.15 lbs/day from 1/1/2029 (with a potential extension up to three years) to 1/1/2031 (with a potential extension up to three years) 38.36 lbs/day from 1/1/2031 (with a potential extension up to three years) to 1/1/2035 (with a potential extension up to ~~three~~ six years)	**Potentially Significant Impacts:** Same as Proposed Project

Table 1-4 (continued)
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1135) and Alternatives

Air Quality & GHGs Impact Areas	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
GHGs	**Less Than Significant Impacts:** • Implementation of PAR 1135 may result in the generation of 4.33 amortized MT/yr of CO2e emissions during construction and 1099.57 MT/yr of CO2e emissions during operation. • The maximum annual operational GHG emissions at Facility 2 come from the following activities to meet 45 tpy NOx limit: 1) increased annual barge trips for fuel delivery to Santa Catalina; and 2) incremental increases in annual operational GHG emissions from power producing units.	• The November 2018 Final Mitigated SEA for Rule 1135 originally estimated 36.35 MT/year of GHGs due to construction and operation activities at six affected facilities (including the electricity generating facility located on Santa Catalina Island) and thus, concluded **less than significant GHG impacts**.	**Less Than Significant Impacts:** • Compared to PAR 1135, the construction activities under Alternative B would occur over a longer period of time due to replacement of existing microturbines with more NZE units, thus resulting in slightly higher GHG emissions during construction. • Since Alternative B would have the same requirement as PAR 1135 to meet 45 tpy NOx limits, no changes to the maximum annual operational GHG emissions are expected under this alternative compared to PAR 1135.	**Less Than Significant Impacts:** • Compared to PAR 1135, the construction activities under Alternative C would occur over a shorter period of time due to no expected ZE installation, thus resulting in lower GHG emissions during construction. • Since Alternative C would remove the requirement to meet the 45 tpy NOx limit, lower operational GHG emissions are expected under this alternative compared to PAR 1135.	**Less Than Significant Impacts:** • Compared to PAR 1135, the construction activities under Alternative D would occur over a shorter period of time due to no expected ZE installation, thus resulting in lower GHG emissions during construction. • Since Alternative D would have the same requirement as PAR 1135 to meet 45 tpy NOx limit, no changes to maximum annual operational GHG emissions are expected under this alternative compared to PAR 1135.

Table 1-4 (continued)
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1135) and Alternatives

Air Quality & GHGs Impact Areas	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
Construction Health Risk Impacts and Odor Nuisance	**Less Than Significant Health Risk and Odor Nuisance Impacts**: • Sources of health risk are diesel particulate matter from construction activities. However, since the on- and off-road diesel equipment that may be used at PAR 1135 affected facilities are expected to occur over a short-term period during construction, a HRA was not conducted. While the entire construction period, expected to span several years (from the adoption of PAR 1135 until 2035), will include sequential phases such as replacing three diesel engines with three new Tier 4 Final engines, upgrading existing microturbines with NZE power-producing engines, and installing ZE technologies, each phase will occur with several months of gap before the next upcoming phase. • Moreover, the quantity of pollutants that may be generated from implementing the proposed project would be less than significant during construction period. Thus, the quantity of pollutants that may be generated during construction from implementing PAR 1135 would not be considered substantial, irrespective of whether sensitive receptors are located near the affected facilities.	• The November 2018 Final Mitigated SEA for Rule 1135 declared **less than significant impacts** for health risk and odor nuisance associated with construction activities at six affected facilities (including the electricity generating facility located on Santa Catalina Island).	**Less Than Significant Health Risk and Odor Nuisance Impacts**: Same as proposed project	**Less Than Significant Health Risk and Odor Nuisance Impacts**: Same as proposed project	**Less Than Significant Health Risk and Odor Nuisance Impacts**: Same as proposed project

Table 1-4 (concluded)
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1135) and Alternatives

Air Quality & GHGs Impact Areas	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
Operation Health Risk Impacts	**Potentially Significant Impacts:** • Potentially maximally impacted (PMI) cancer risk of greater than 10 in a million during the operation of the electricity generating facility located on Santa Catalina Island to meet 45 tpy, 30 tpy, and 13 tpy NOx limits by 1/1/2027 (with a potential extension up to three years), 1/1/2028 (with a potential extension up to three years), and 1/1/2030 (with a potential extension up to ~~three~~ six years), respectively. • Once the electricity generating facility located on Santa Catalina Island attains the 6 tpy NOx limit by 1/1/2035 (with a potential extension up to ~~three~~ six years), health risk impacts would be less than significant.	• The November 2018 Final Mitigated SEA for Rule 1135 estimated **less than significant impacts** for operational health risk at six affected facilities (including the electricity generating facility located on Santa Catalina Island).	• The overall conclusions for potentially significant health risk impacts are the same as the proposed project. • Once the electricity generating facility located on Santa Catalina Island attains the 1.8 tpy limit (instead of 6 tpy in PAR 1135) by 1/1/2035 (with a potential extension up to ~~three~~ six years), health risk impacts would be less than significant and also much lower compared to the proposed project.	• The overall conclusions for potentially significant health risk impacts are the same as the proposed project. However, under this alternative, operational health risk impacts would remain significant.	• The overall conclusions for potentially significant health risk impacts are the same as the proposed project. However, under this alternative, operational health risk impacts would remain significant.

Summary Chapter 6 - References

This chapter contains a list of the references, and the organizations and persons consulted for the preparation of this SEA.

Summary Chapter 7 - Acronyms

This chapter contains a list of the acronyms that were used throughout the SEA and the corresponding definitions.

Appendix A

This appendix contains the latest version of PAR 1135.

Appendix B: CalEEMod® Files

This appendix contains the CalEEMod Files for construction activities associated with removing existing diesel engines or microturbines, and installing linear generators to reduce annual NOx emissions from the electric generating facility located on Santa Catalina Island to BARCT levels.

Appendix C: CEQA Impact Evaluations

This appendix contains a summary of total construction emissions, a summary of total operational impacts, and construction impacts per affected facility by PAR 1135. In addition, the energy demand impacts are included in this Appendix.

Appendix D: Air Quality Impact Analysis and Health Risk Assessment

This appendix provides a comprehensive overview of the methodology used in conducting Air Quality Impact Analysis (AQIA) and Health Risk Assessment (HRA) for PAR 1135.

Appendix E: Comment Letters Received on the Draft SEA and Responses to Comments

This appendix contains the comment letters received on the Draft SEA. Comment letters were bracketed, and a response was provided for each bracketed section within each comment letter.

CHAPTER 2

PROJECT DESCRIPTION

Project Location

Project Background

Project Objectives

Project Description

Summary of Affected Facility

Technology Overview

2.1 PROJECT LOCATION

PAR 1135 applies to electric generating units at electricity generating facilities located in the South Coast AQMD jurisdiction, which includes the four-county South Coast Air Basin (all of Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portion of the Salton Sea Air Basin and the non-Palo Verde, Riverside County portion of the Mojave Desert Air Basin. The South Coast Air Basin, a subarea of South Coast AQMD's jurisdiction, is bounded by the Pacific Ocean to the west, the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east, and includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Riverside County portion of the Salton Sea Air Basin is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. A federal non-attainment area (known as the Coachella Valley Planning Area) is a subregion of Riverside County and the Salton Sea Air Basin that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (see Figure 2-1). However, only the electricity generating facility located on Santa Catalina Island within Los Angeles County, will be expected to undergo physical modifications necessary to achieve the NOx emission limits contained in PAR 1135.

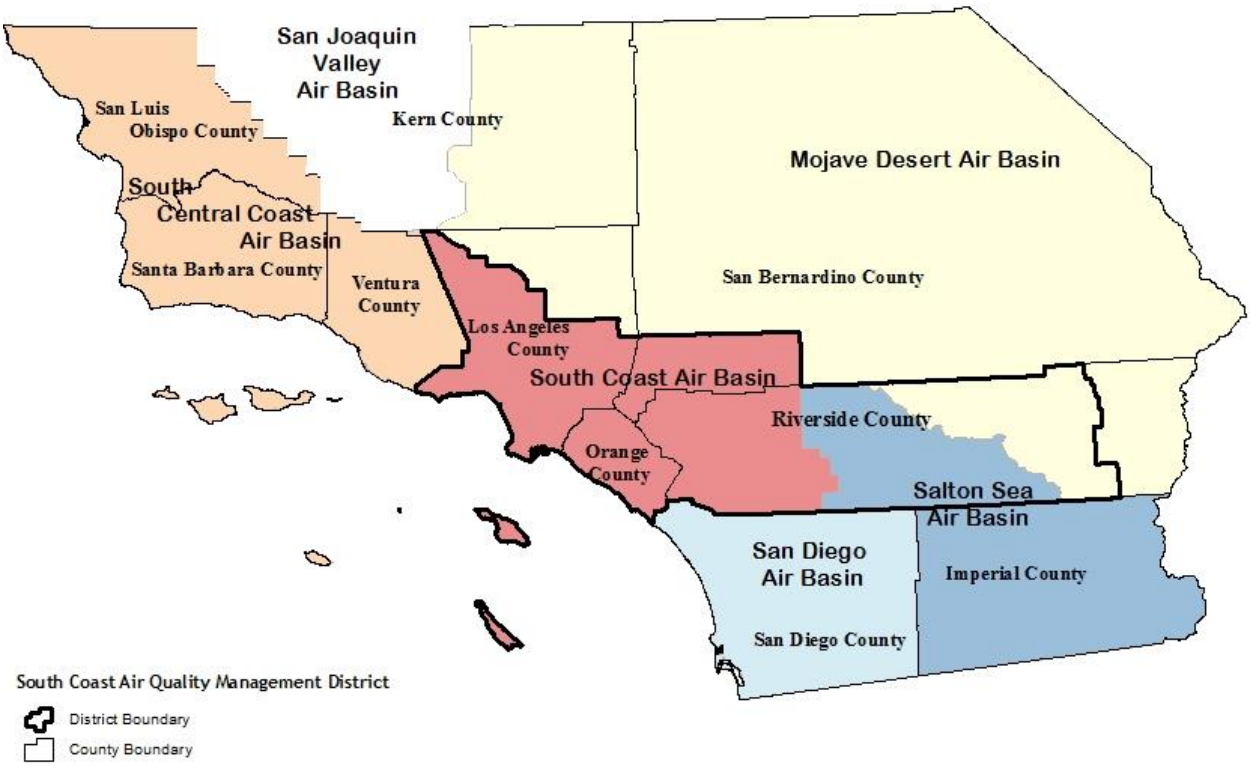

Figure 2-1
Southern California Air Basins and South Coast AQMD's Jurisdiction

2.2 PROJECT BACKGROUND

Rule 1135 is an industry-specific rule which applies to electric generating units (i.e., boilers, turbines, engines, etc.) that are at investor-owned electric utilities, publicly owned electric utilities, or have a generation capacity of at least 50 MW of electrical power for distribution in the state or local electrical grid system. Rule 1135, however, does not include facilities subject to Rule 1109.1, Rule 1150.3, or Rule 1179.1.

On November 2, 2018, amendments to Rule 1135 were adopted which established BARCT NOx limits necessary for transitioning electric generating facilities subject to the RECLAIM to a command-and-control regulatory structure and to implement Control Measure CMB-05 of the 2016 AQMP and AB 617. The 2018 amendments expanded Rule 1135 applicability to all electric generating units at RECLAIM NOx, former RECLAIM NOx, and non-RECLAIM NOx electricity generating facilities. The amendments updated emission limits to reflect current BARCT levels at that time and to provide implementation timeframes for boilers, gas turbines, and internal combustion engines located on Santa Catalina Island. Additionally, the 2018 amendments to Rule 1135 established provisions for monitoring, reporting, and recordkeeping, and exemptions from specific provisions. At the time, six facilities were identified as potentially needing modifications in order to achieve the emission limits in Rule 1135. Of these affected facilities, all but one facility, the electricity generating facility located on Santa Catalina Island, has either made modifications to achieve the emission limits in Rule 1135 or is no longer subject to Rule 1135 requirements.

More recently, Rule 1135 was amended on January 7, 2022 to: 1) remove ammonia limits; 2) update provisions for CEMS; 3) include a reference Rule 429.2 to clarify startup and shutdown requirements; and 4) revise requirements for diesel internal combustion engines on Santa Catalina Island. At the time, stakeholders commented that an updated BARCT assessment was warranted due to the change in averaging time and that the BARCT assessment should emphasize ZE technologies. The adopted resolution directed South Coast AQMD staff to re-initiate rule development in 2022 which included a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives as well as ZE and NZE technologies.

In December 2022, the South Coast AQMD adopted the 2022 AQMP which included a series of control measures to achieve the 2015 8-hour ozone NAAQS. In particular, Control Measure L-CMB-06 focused on large combustion sources and assessing low NOx and ZE technologies for power generation, and specifically mentioned replacing existing diesel internal combustion engines with lower-emitting technologies.

Additional amendments to Rule 1135 are currently proposed to address stakeholder comments raised during the January 2022 amendments and partially implement Control Measure L-CMB-06 of the 2022 AQMP. For the electricity generating facility located on Santa Catalina Island which operates six diesel internal combustion engines and 23 microturbines to generate power, staff conducted a BARCT assessment and ~~learned~~ confirmed that over 90% of the power generated is from diesel internal combustion engines. These six diesel engines were last modified in 2003 to install SCR technology. No other modifications have been made to address the 2018 amendments to Rule 1135. As such, PAR 1135 has been crafted to establish NOx emission limits for electric generating units located on Santa Catalina Island. PAR 1135 also includes monitoring, reporting, and recordkeeping requirements for electric generating units located on Santa Catalina Island.

Rule 1135 was amended on January 7, 2022 to remove ammonia limits, update provisions for Continuous Emission Monitoring Systems, reference South Coast AQMD Rule 429.2 – Startup and Shutdown Exemption Provisions for Oxides of Nitrogen from Electricity Generating Facilities for startup and shutdown requirements, and revise requirements for diesel internal combustion engines on Santa Catalina Island. Staff was directed to re-initiate rule development to include a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and NZE technologies.

2.3 PROJECT OBJECTIVES

The main objectives of the proposed project are to: 1) revise the BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and NZE technologies; and 2) reduce the final NOx mass emissions limit for the electricity generating facility located on Santa Catalina Island.

2.4 PROJECT DESCRIPTION

PAR 1135 has been developed to perform a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and NZE technologies. PAR 1135 will establish NOx emission limits for the electricity generating facility located on Santa Catalina Island. PAR 1135 includes monitoring, reporting, and recordkeeping requirements for electric generating units located on Santa Catalina Island.

The proposed BARCT limit is estimated to reduce NOx emissions at the electricity generation facility located on Santa Catalina Island by 65.3 tpy, or 0.18 ton per day. PAR 1135 will partially implement Control Measure L-CMB-06 of the 2022 AQMP.

Purpose – subdivision (a) and Applicability – subdivision (b)

There are no proposed changes to the purpose and applicability.

Definitions – subdivision (c)

PAR 1135 adds and modifies definitions to provide clarification New or modified definitions added to PAR 1135 include:

- *ANNUAL NOx MASS EMISSIONS means actual emissions of NOx produced from all electric generating units at an electricity generating facility between January 1st through December 31st.*

  This proposed definition provides clarity that NOx mass emission limits are calculated on a fixed basis per calendar year, rather than on a rolling basis.

- *ELECTRIC GENERATING UNIT means a boiler that generates electric power, a gas turbine that generates electric power with the exception of cogeneration turbines, or equipment that generates electric power and is located on Santa Catalina Island. An electric generating unit does not include emergency internal combustion engines and portable engines registered under the California Air Resources Board Statewide Portable Equipment Registration Program (PERP).*

The definition was modified to broaden the definition of electric generating units located on Santa Catalina Island. The proposed definition includes all prime power electric generating equipment located on Santa Catalina Island.

- *SANTA CATALINA ISLAND NEAR-ZERO EMISSION (NZE) ELECTRIC GENERATING UNIT means any electric generating unit located on Santa Catalina Island that produces NOx emissions greater than 0.01 pounds per Megawatt-hour (lb/MW- hr) but less than or equal to 0.07 lb/MW-hr as demonstrated by a South Coast AQMD permit condition or other method determined to be equivalent by the Executive Officer.*

  This proposed definition provides clarity on the rate of emissions considered to be near-zero emission on Santa Catalina Island. Through the permitting process, staff will determine if equipment meets the emission requirements from a manufacturer guarantee, source test, or other approved method.

- *SANTA CATALINA ISLAND ZERO-EMISSION (ZE) ELECTRIC GENERATING UNIT means any electric generating unit located on Santa Catalina Island that produces NOx emissions less than 0.01 lb/MW-hr as demonstrated by a South Coast AQMD permit condition or other method determined to be equivalent by the Executive Officer.*

This proposed definition provides clarity on the rate of emissions considered to be zero- emission on Santa Catalina Island. The emissions requirement of less than 0.01 lb/MW-hr NOx for Santa Catalina Island ZE electric generating units is intended to address any potential negligible emissions. However, Santa Catalina Island ZE electric generating units should have emissions of 0 lb/MW-hr NOx, as any equipment that may cause the issuance of air contaminants or may control air contaminants is required to have a permit, except for equipment specified in Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II.

Emission Limits – subdivision (d)

Current South Coast AQMD Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities (Rule 1135) subparagraph (d)(2)(A) was deleted to remove the first interim annual NOx mass emission limit of 50 tons of NOx by January 1, 2024, as the compliance deadline has passed. It is expected that the electricity generating facility located on Santa Catalina Island can meet the first interim limit of 45 tpy of NOx by January 1, 2027 by replacing two older diesel engines with Tier 4 Final diesel engines.

Subparagraph (d)(2)(A) prohibits the electricity generating facility located on Santa Catalina Island from installing more than three new diesel internal combustion engines. Furthermore, new diesel internal combustion engines installed cannot exceed a maximum cumulative rating of 5.5 MW. The maximum cumulative rating is the sum of the name plate rating of each new diesel internal combustion engine. The new Tier 4 Final diesel engines proposed to be installed are rated at 1.825 Megawatts (MW) each. Staff rounded the maximum cumulative rating for the proposed three Tier 4 final diesel engines to 5.5 MW for simplicity.

Subparagraph (d)(2)(B) extends the deadline prohibiting the installation of any new diesel internal combustion engine from January 1, 2024 to January 1, 2028 or six months after any applicable extensions. Installation of any new diesel internal combustion must be completed by January 1, 2028. Staff updated this provision due to the failure of the cleanest existing diesel engine's new catalyst block to meet particulate matter emission standards as specified by South Coast AQMD

Rule 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines[13]. It is expected that the electricity generating facility located on Santa Catalina Island can meet the second interim limit of 30 tpy of NOx by January 1, 2028 by replacing a third older diesel engine with Tier 4 Final diesel engine. Due to the existing capacities of fuel storage and limitations to expand fuel storage outside of existing facility footprint, the extension of the prohibition deadline will provide reliability and redundancy in the event barge trips for propane fuel deliveries cannot occur.

Subparagraph (d)(2)(C) will prohibit the installation of any equipment that does not meet the definition of a "Santa Catalina Island Near-Zero-Emission (NZE) Electric Generating Unit" or a "Santa Catalina Island Zero-Emission (ZE) Electric Generating Unit" after January 1, 2028 or six months after any applicable extensions. This provision was added to require the installation of cleaner power generation technologies that were demonstrated to be technologically feasible and cost-effective during the BARCT assessment.

Subparagraph (d)(2)(D) was also added to ensure that a minimum amount of Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units are installed. Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units will need to provide approximately 75% of the power at the electricity generating facility located on Santa Catalina Island to meet the final proposed NOx limit of 6 tpy. Throughout the rule development process, representatives of the electricity generating facility located on Santa Catalina Island ~~expressed~~ indicated that three Tier 4 final diesel engines are necessary to: 1) ensure that grid stability is maintained under all conditions; 2) provide sufficient power production capacity during peak electrical demand periods; and 3) provide redundancy during planned maintenance and unplanned outages. Similarly, backup Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units are necessary to provide sufficient power during planned maintenance and unplanned outages to meet the final proposed NOx limit as well as minimize the use of diesel engines. Subparagraph (d)(2)(D) requires Santa Catalina Island NZE electric generating units and/or Santa Catalina Island ZE electric generating units with a minimum cumulative rating of 1.8 MW to be installed by January 1, 2030 or six months after any applicable extensions. The minimum cumulative rating is the sum of the name plate rating of each Santa Catalina Island NZE electric generating unit and Santa Catalina Island ZE electric generating unit installed, excluding the highest rated Santa Catalina Island NZE electric generating unit and/or Santa Catalina Island ZE electric generating unit, solar photovoltaic cells, and battery storage. Battery storage does not generate electricity and does not meet the definition of an electric generating unit; however, staff specified that battery storage would be excluded for additional clarity. Compliance with subparagraph (d)(2)(D) can be achieved in many ways. For example, installation of three propane engines rated 1.5 MW each would comply with subparagraph (d)(2)(D) because the cumulative rating when subtracting the highest rated Santa Catalina Island NZE electric generating unit is 3.0 MW[14]. However, installation of two propane engines rated ~~1.8~~1.5 MW each would not comply with subparagraph (d)(2)(D) because the cumulative rating when subtracting the highest rated Santa Catalina Island NZE electric generating unit is 1.5 MW.

[13] South Coast AQMD, Rule 1470, http://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1470.pdf

[14] Staff assumed that propane engines can meet the proposed Santa Catalina Island NZE Electric Generating Unit standard of 0.07 lb/MW-hr NOx for the compliance examples contemplated in subparagraph (d)(2)(D).

Subparagraph (d)(2)(E) will establish progressively more stringent NOx mass emission limits for the electricity generating facility located on Santa Catalina Island. The final proposed NOx emission limit is 6 tpy. The NOx mass emission limits include emissions from startups, shutdowns, and missing data substitutions.

Subparagraph (d)(2)(F) requires all prime power diesel internal combustion engines for which installation was completed earlier than *[Date of Adoption]* to be removed from service by January 1, 2030 or six months after any applicable extensions. Therefore, all six existing prime power diesel internal combustion engines will be required to be removed from service by January 1, 2030 or six months after any appliable extensions. Removing from service means physically removing the equipment from the facility or altering the equipment in such a way that it cannot be used without new construction activities. The January 1, 2030, compliance deadline in subparagraph (d)(2)(F) aligns with the implementation date of the 13 tpy NOx limit.

Paragraph (d)(3)(A) requires that by January 1, 2028, the owner or operator conduct a feasibility analysis to determine if the proposed emission limits in clause (d)(2)(E)(iii) can be met by the compliance date. The analysis should identify the electric generating units under consideration, the progress in procuring and installing the electric generating units, a description of how those units would achieve the emission limits, and, if applicable, the length of time of up to three years for an extension to the implementation date.

Subparagraph (d)(3)(B) establishes a requirement that a request for a time extension shall be made available for public review no less than 30 days prior to approval.

Subparagraph (d)(3)(C) provides the criteria for which the Executive Officer will evaluate any extension request for approval.

Similarly, subparagraphs (d)(3)(D) through (d)(3)(F) require that by January 1, 2033, the owner or operator conduct a feasibility analysis to determine if the proposed emission limits in clause (d)(2)(E)(iv) can be met by the compliance date. The same requirements for public review and approval criteria apply.

Subparagraph (d)(5)(A) updates the time extension provision for the electricity generating facility on Santa Catalina Island. PAR 1135 allows the electricity generating facility located on Santa Catalina Island to request up to ~~two~~ four time extensions; one time extension for ~~the 13 tpy NOx limit and one time extension for the 6 tpy~~each of the proposed NOx limits. Each time extension can be approved for up to three years. If the request for the time extension is not submitted at least 365 days prior to the compliance deadlines specified in clauses (d)(2)(E)(iii) and (d)(2)(E)(iv), then the electricity generating facility located on Santa Catalina Island will not be eligible for the time extension.

Subparagraph (d)(5)(B) establishes a requirement that a request for a time extension shall be made available for public review no less than 30 days prior to approval.

Clause (d)(5)(C)(ii) was updated to specify that the extenuating circumstances that demonstrate the need for a time extension ~~are limited to unforeseen construction interruptions and/or supply chain disruptions~~.

Monitoring, Recordkeeping, and Reporting Requirements – subdivision (e)

Paragraphs (e)(1) through (e)(3) clarify that Santa Catalina Island NZE electric generating units rated less than or equal to 0.5 Megawatts (MW) and Santa Catalina Island ZE electric generating units do not require installation of continuous emission monitoring systems (CEMS), unless required by South Coast AQMD permit condition. South Coast AQMD permit conditions can be more stringent than South Coast AQMD rules.

Paragraph (e)(4) establishes a method to calculate NOx emissions from Santa Catalina Island NZE electric generating units rated less than or equal to 0.5 MW located on Santa Catalina Island, as those units will not be required to install CEMS. The NOx emissions calculated from Santa Catalina Island NZE electric generating units rated less than or equal to 0.5 MW are required to be added to the total annual NOx emissions from electricity generating units that have CEMS to demonstrate compliance with emission limits specified in paragraph (d)(2).

Paragraph (e)(5) requires records of all data used to calculate the annual NOx emissions from Santa Catalina Island NZE electric generating units rated less than or equal to 0.5 MW for compliance verification purposes. The data is required to be maintained onsite for a minimum of five years and be made available to the Executive Officer upon request.

Paragraph (e)(6) requires the installation of a non-resettable device to continuously record the megawatt-hours hours for each Santa Catalina Island NZE electric generating unit rated less than or equal to 0.5 MW.

2.5 SUMMARY OF AFFECTED FACILITY

The proposed amendments to Rule 1135 will impact one electricity generating facility located on Santa Catalina Island. The electricity generating facility on Santa Catalina Island currently operates six diesel internal combustion engines and 23 microturbines to generate power as well as one battery for energy storage. SCE has stated that the existing microturbines are at the end of their useful life and will require refurbishment to continue to provide 635,000 kilowatts (kW) of power each calendar year, as required per permit condition. Over 90% of the power generated at the electricity generating facility on Santa Catalina Island is from diesel internal combustion engines. The diesel internal combustion engines on Santa Catalina Island produce approximately 10 to 70 times more NOx than other electric generating units subject to Rule 1135. The electricity generating facility on Santa Catalina Island produces more than 10% of the NOx emissions from all electricity generating facilities in South Coast AQMD while providing less than 0.06% of the power[15] in South Coast AQMD jurisdiction. Table 2-1 contains the equipment affected by PAR 1135.

[15] Based on the Final Staff Report for the 2018 amendments to Rule 1135 (9 MWh/15,904 MWh and 0.2 tpd/1.9 tpd).

Table 2-1: PAR 1135 Affected Equipment

Equipment Type	Rating (MW)	Construction Year	NOx Emissions[16]
Diesel Engine Unit 7	1	1958	97 ppmv (15% O_2, dry)
Diesel Engine Unit 8	1.5	1964	97 ppmv (15% O_2, dry)
Diesel Engine Unit 10	1.125	1968	140 ppmv (15% O_2, dry)
Diesel Engine Unit 12	1.5	1976	82 ppmv (15% O_2, dry)
Diesel Engine Unit 14	1.4	1985	103 ppmv (15% O_2, dry)
Diesel Engine Unit 15	2.8	1995	51 ppmv (15% O_2, dry)
Microturbines (23 units)	1.49	2011	0.07 lb/MW-hr

2.6 TECHNOLOGY OVERVIEW

As part of the BARCT assessment, staff conducted a technology assessment to evaluate NOx pollution control technologies for electric generating units located on Santa Catalina Island. Staff reviewed scientific literature, vendor information, and strategies utilized in practice. The technologies are presented in the following discussion and the applicability for use with various electric generating units is noted.

Fuel Cells

A fuel cell is a device capable of producing electrical energy from chemical reactions through the conversion of a fuel such as hydrogen or propane, and an oxidizing agent such as oxygen, into electricity. A fuel cell works similarly to a battery and is comprised of two electrodes, an anode and a cathode, surrounding an electrolyte membrane (Figure 2-2). A fuel such as hydrogen or propane is supplied to the anode and oxygen enters the cathode. The porous electrolyte membrane only allows positively charged protons to pass through to the cathode. Negatively charged electrons that cannot pass through the electrolyte membrane flow through an external circuit to generate an electric current. Oxygen, protons, and unused electrons combine in the catalytic cathode to produce water and heat as a byproduct of waste.

[16] NOx emissions for diesel engines calculated by using the uncontrolled NOx emissions and control efficiency specified in Southern California Edison's Best Available Control Technology and Alternative Analysis for Pebbly Beach Generating Station (Version 00; Revised April 30, 2021) and NOx emissions for microturbines reflect the emission standard in the California Air Resources Board Distributed Generation Certification Regulation.

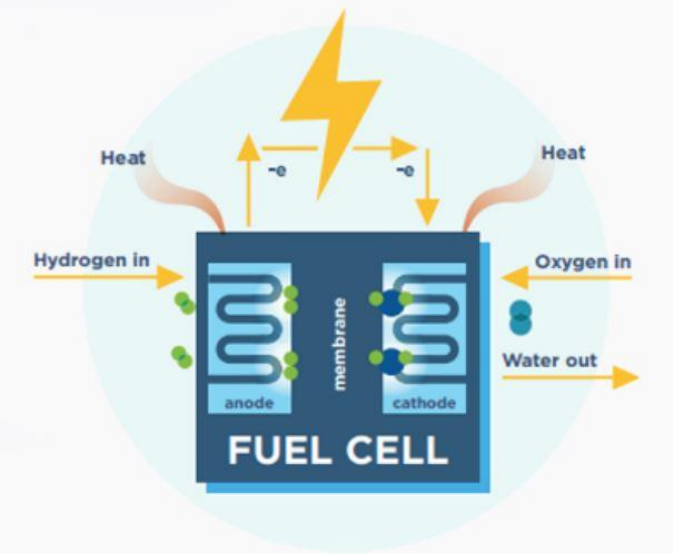

Figure 2-2: Typical Components of a Hydrogen Fuel Cell[17]

Fuel cells are two to three times more efficient than internal combustion engines, and provide the flexibility to operate utilizing a variety of fuels such as hydrogen, propane, and biogas. The products of a hydrogen fuel cell are electricity, water, and heat. Alternately, propane fuel cells are expected to produce less than 2.5 ppmv of NOx emissions.[18] Fuel cells can also be combined to form a fuel cell stack in series to yield a higher voltage or in parallel for a higher current and are complementary to other energy technologies such as batteries, solar panels, and wind turbines.

Internal Combustion Engines

Internal combustion engines work by releasing energy through the combustion of a fuel and air mixture. Gasoline or diesel are most commonly used but other fuels such as natural gas, propane, or biodiesel may also be utilized. An internal combustion engine consists of two components working together, a fixed cylinder and a piston. Expanding combustion gases within the engine pushes the piston, which in turn rotates the crankshaft. This high-speed motion generates an electric current.

Non-road diesel internal combustion engines contribute considerably to air pollution. To improve air quality, the U.S. EPA developed Tier 4 emission standards for nonroad diesel internal combustion engines to reduce harmful emissions. Replacement with a U.S. EPA Tier 4 Final diesel engine is expected to produce less than 45 ppmv NOx. Replacement with a propane internal combustion engine is expected to produce less than or equal to ~~11 ppmv NOx~~0.07 lb/MW-hr.

Linear Generators

A linear generator works to directly convert linear motion into electricity by compressing a mixture of fuel and air in a center reaction zone. The compression of fuel and air creates a chemical reaction that drives magnets through copper coils in a linear motion. Energy is created from the magnets

[17] Fuel Cell & Hydrogen Energy Association, Fuel Cell Basics, https://www.fchea.org/fuelcells

[18] Combined Heat and Power Partnership, Catalog of CHP Technologies, Section 6. Technology Characterization – Fuel Cells, https://www.epa.gov/sites/default/files/2015-07/documents/catalog_of_chp_technologies_section_6._technology_characterization_-_fuel_cells.pdf

attached to oscillators, which interact with the copper coils during linear motion to generate electricity (Figure 2-3).

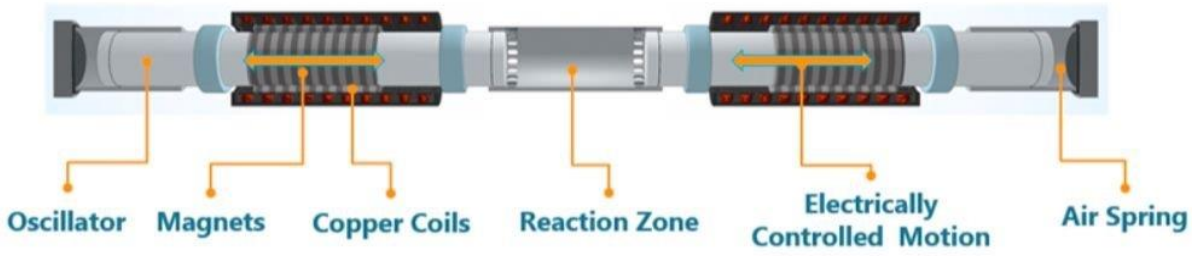

Figure 2-3: Components of a Linear Generator[19]

Linear generators maintain relatively low reaction temperatures which reduce NOx formation. Further, linear generators do not require add-on control technologies such as selective catalytic reduction to control NOx emissions and have lower start-up emissions since they are not dependent on a catalyst to reach a destruction temperature. In addition, linear generators utilize a parametric monitoring system to maintain proper combustion to meet energy demands. The parametric monitoring system works by monitoring air and fuel flow to ensure a proper air-to-fuel ratio is achieved, which also ensures emissions are under control. Lastly, linear generators provide the flexibility to operate utilizing various fuels including hydrogen and propane.

Solar Photovoltaic Cells

Solar PV cells generate ZE electricity by absorbing sunlight and utilizing light energy to create an electrical current. Light consists of photons vibrating at a range of wavelengths, and the wavelengths can be captured by a solar PV cell. Solar PV cells are made of a semiconductor material, typically silicon, that is treated in a way that allows it to interact with photons from sunlight. Sunlight energy absorbed by solar PV cells causes electrons to flow through two layers of silicon to create an electric field (Figure 2-4). The electric field forces loosen electrons to flow through in one direction, generating an electric current. Metals plates on each sides of the solar PV cell collect those electrons and transfer them to wires where electrons then flow as electricity. Solar PV cells are wired together and installed on top of a substrate such as metal or glass to create solar panels, which are then installed collectively as a group to form a solar power system.

[19] Greentech Media, "Mainspring Energy Lands $150M Deal to Deploy its Linear Generators with NextEra," https://www.greentechmedia.com/articles/read/mainspring-energys-linear-generators-to-roll-out-through-150m-deal-with-nextera.

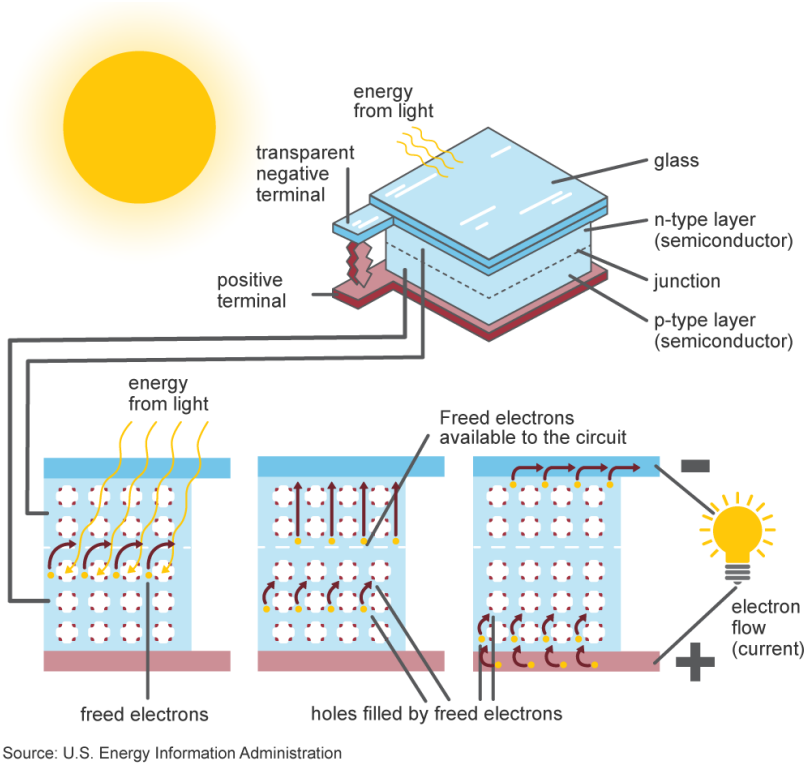

Figure 2-4: Inside a Solar PV Cell[20]

Solar PV cells can supply power through different systems. Through an on-grid system, excess power is produced by solar panels fed to the local utility grid, which can supply power that solar panels are not producing (e.g. at night). Off-grid systems contain solar panels that charge batteries where electricity is drawn. A hybrid system consists of solar panels connected to the grid and a battery backup to store excess power.

Tidal and Current Energy Harvesting Systems

Tidal and current energy harvesting systems are a renewable ZE technology that generates electricity from tidal streams and ocean currents (Figure 2-5). Tidal and current energy harvesting systems generate power by the wing utilizing the hydrodynamic lift force created by the underwater current and the turbine being pulled through the water at a water flow higher than the stream speed. The turbine shaft turns the generator which outputs electricity to the grid via a power cable.

[20] United States Energy Information Administration, Photovoltaics and Electricity, https://www.eia.gov/energyexplained/solar/photovoltaics-and-electricity.php#:~:text=The%20U.S.%20Energy%20Information%20Administration%20%28EIA%29%20estimates%20that,2020%2C%20up%20from%2011%20billion%20kWh%20in%202014.

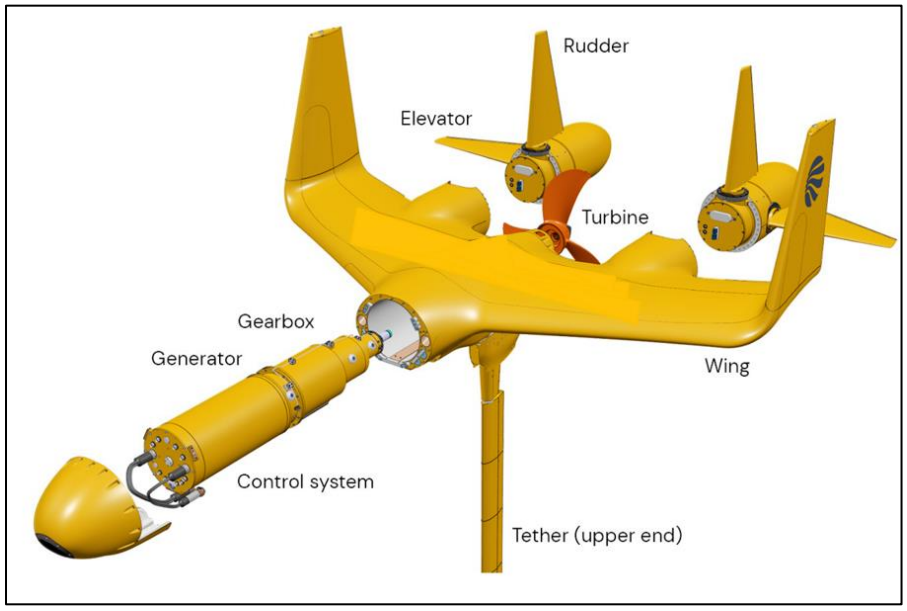

Figure 2-5: Tidal and Current Energy Harvesting System

Senate Bill (SB) 605 (Padilla, Chapter 405, Statutes of 2023) requires the California Energy Commission, in consultation with other state agencies, to evaluate the technological and economic feasibility of deploying wave and tidal energy[21]. Other requirements of SB 605 include identifying suitable sea space for wave and tidal energy projects and identifying monitoring strategies to evaluate impacts to marine and tidal ecosystems.

Initial BARCT Emission Limit and Other Considerations

Electricity Demand

The electricity generating facility on Santa Catalina Island historically produces approximately 29,000 MW-hr per year of power. The average hourly load is approximately 3.3 MW. In September 2022, the electricity generating facility located on Santa Catalina Island reached a new peak load of 6.3 MW during a heat wave. The historical annual power generation and new peak load were used to determine feasible repower scenarios to establish BARCT.

Space Limitations

A significant challenge for installing ZE and/or NZE technologies at the electricity generating facility located on Santa Catalina Island is limited space (Figure 2-6). The estimated available onsite space for ZE and/or NZE technologies is less than 5,000 square feet. The electricity generating facility located on Santa Catalina Island also provides water and gas service, which limits the equipment that could be removed and replaced with ZE and/or NZE equipment on the existing facility footprint. The BARCT analysis assumed that three of the six existing diesel engines that will not be replaced with Tier 4 Final diesel engines and all existing microturbines could be removed to install ZE and/or NZE technologies for power generation (see areas marked in red in (Figure 2-6). Nonetheless, representatives from the electricity generating facility located

[21] California SB 605, Padilla, Chapter 405 (2023), https://legiscan.com/CA/text/SB605/id/2844364.

on Santa Catalina Island indicated that they are considering installing some NZE technologies in other available areas within the PBGS footprint to meet the proposed BARCT limit.

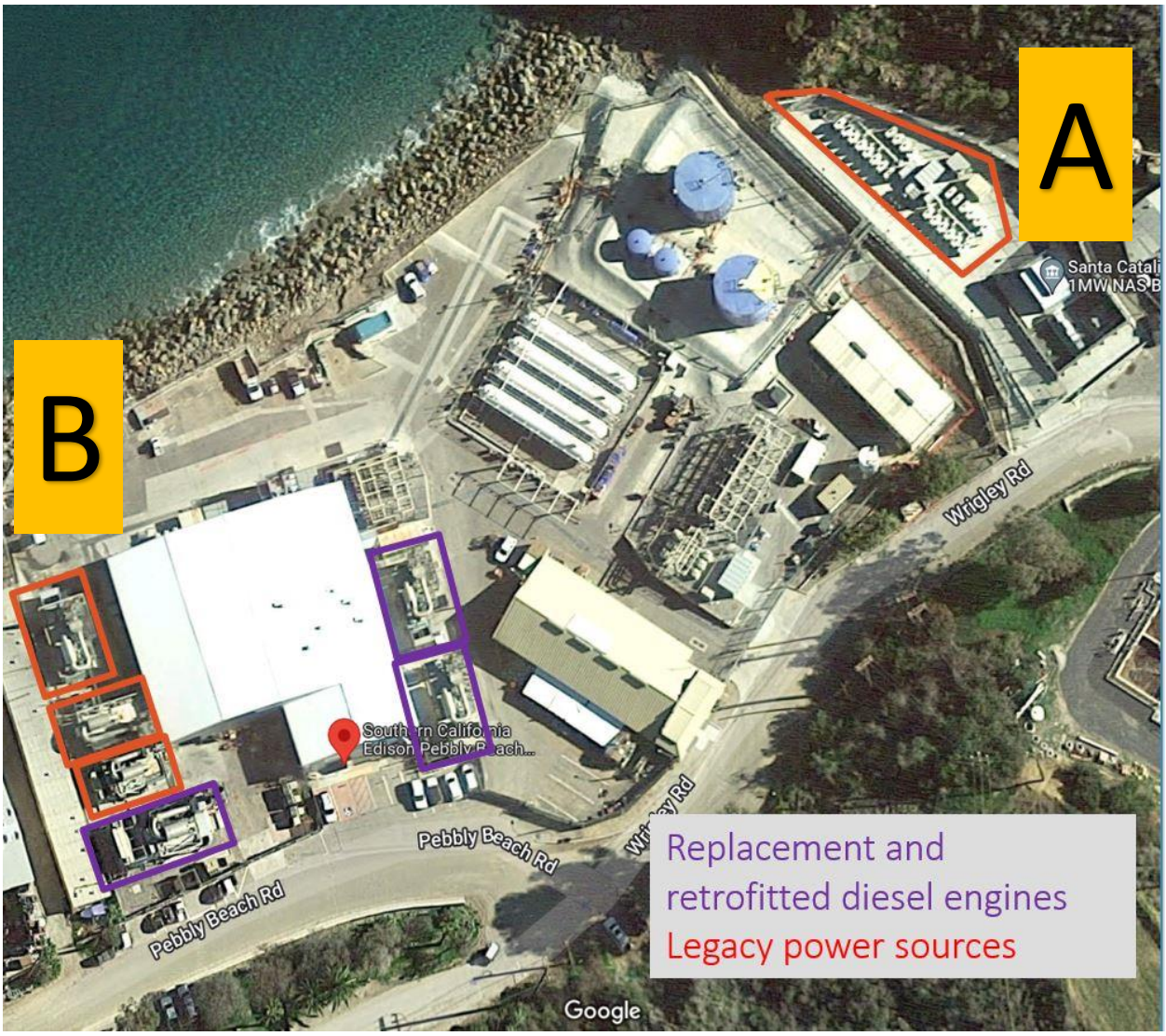

Figure 2-6: Land Availability at the Electricity Generating Facility Located on Santa Catalina Island
A – Microturbine platform
B – Diesel internal combustion engines

The estimated number of ZE and NZE units that could fit in the existing facility footprint is listed in Table 2-2.[22] It does not account for potential ancillary equipment needed, except for linear generators located on the microturbine pad. Representatives from t~~T~~he electricity generating facility located on Santa Catalina Island ~~has since stated~~have also indicated possible plans to install NZE units at location B.

[22] Staff's analysis assumed that ZE and/or NZE technologies were not stacked, however, some vendors stated that their technology has the capability of being stacked.

Table 2-2: Estimated Number of ZE or NZE Units Possible in Available On-Site Space

ZE or NZE Technology	Number of Units in Available Onsite Space	Electric Power Output (MW)
Propane Linear Generators	11	2.75
Hydrogen Linear Generators	11	2.75
Propane Fuel Cells	13	5.7
Hydrogen Fuel Cells	4	4

The possibility of land acquisition outside of the existing facility footprint to install ZE and/or NZE technologies was also considered. Additional land procurement or lease would be necessary for solar PV cells to provide a significant contribution of power generation to Santa Catalina Island. However, there is limited land available on Santa Catalina Island to accommodate the installation of solar PV cells, as most open land on the island is mountainous and solar energy production is optimal when the equipment is sited on flat land. A potential site on Santa Catalina Island for the installation of solar PV cells or other ZE and/or NZE technologies, is Middle Ranch (Figure 2-7). Middle Ranch is approximately 15 acres, which can accommodate solar PV installations that could provide approximately 30% of historical power generation needed for Santa Catalina Island. The electricity generating facility has been in discussion with the Catalina Island Conservancy who owns the Middle Ranch property. Complications in the permitting process and land use plans may present substantial obstacles to either acquiring or leasing additional land outside of boundaries of this electric generating facility for the purpose of installing solar PV cells. The current land use plan restricts energy facilities from being established on most areas of Santa Catalina Island, including the Middle Ranch site. Modifications to the Santa Catalina Island land use plan would require revisions to existing land use regulations, which could take several years.

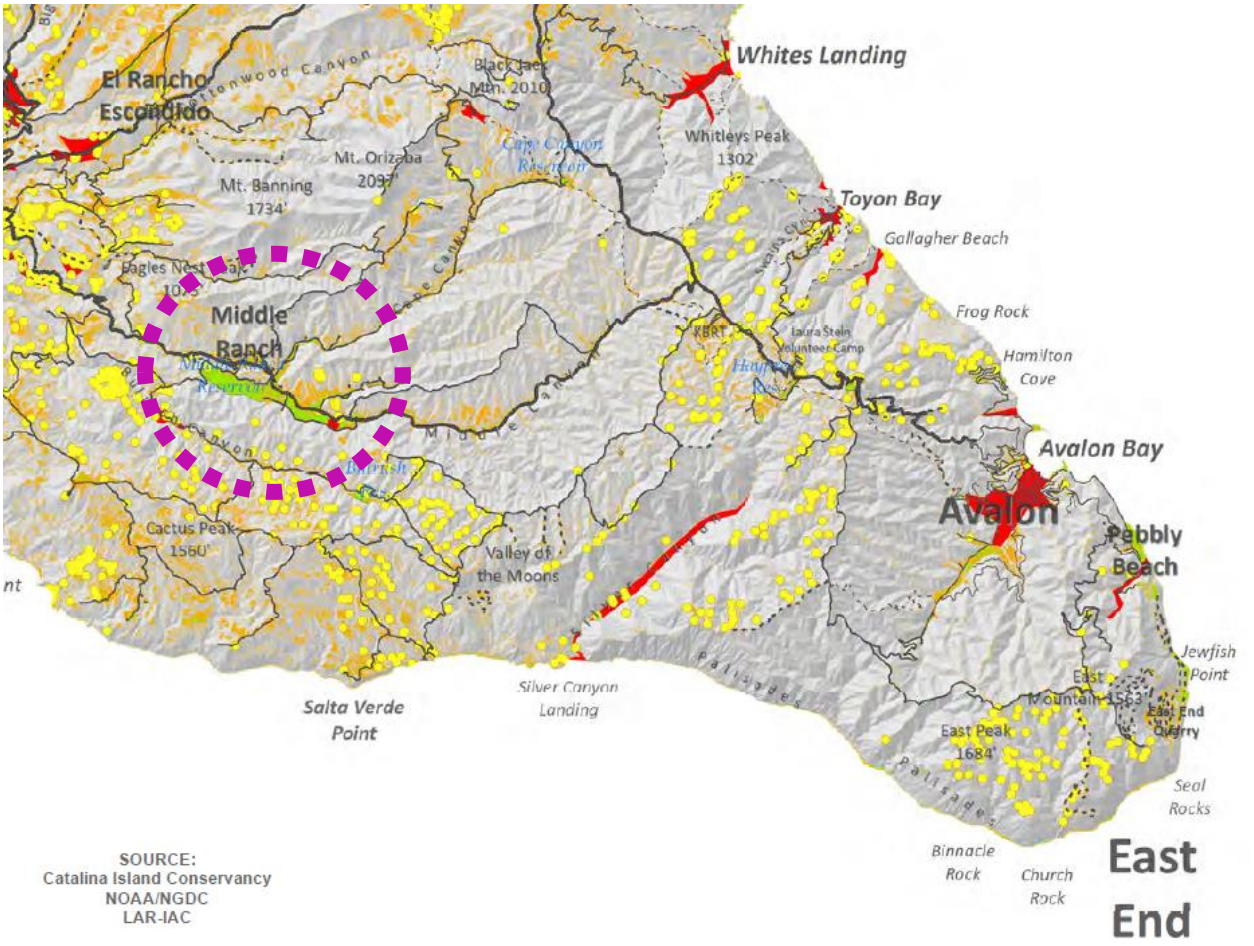

Figure 2-7: Middle Ranch Area of Santa Catalina Island[23]

Fuel Storage

Santa Catalina Island does not have fueling infrastructure on the island; all fuel must be brought in by barges. All repower scenarios for the electricity generating facility located on Santa Catalina Island include three diesel internal combustion engines for redundancy because the site already has 30-days of diesel fuel storage. The repower scenarios assume at least 5% power generation (MW-hr per year) from diesel engines in the event that the barge is not running, and fuel cannot be delivered. Fuel deliveries from 2017 to 2021 to Santa Catalina Island were analyzed, and it was found that the longest time lapse between fuel deliveries was five days and that the barge did not run for a maximum of 14 days in a calendar year (approximately 4% of a calendar year). Therefore, it is conservatively assumed that at least 5% of power generation (MW-hr per year) comes from diesel engines. The BARCT analysis assumes that three of the existing diesel engines would be replaced with U.S. EPA Tier 4 Final diesel engines.

Constructing additional fuel storage beyond the existing 30-day supply for diesel and propane storage tanks is limited on the existing facility footprint. If ZE technologies fueled by hydrogen were to be utilized, the electricity generating facility located on Santa Catalina Island would most likely need to expand its existing footprint to accommodate ancillary fuel storage facilities. Potential land for additional fuel storage was identified at a location adjacent to the electricity

[23] Catalina Island Conservancy, GIS Work for Large Solar Project on Island, Accessed July 21, 2022.

generating facility, but outside of the existing facility footprint. During the rule development process, it was determined that acquisition of the land could not be relied upon for the purpose of establishing a BARCT limit.

There are four 30,000-gallon propane storage tanks located at the electricity generating facility located on Santa Catalina Island. However, only three of the propane storage tanks are currently in service due to fire suppression requirements needed to bring the fourth propane storage tank online. Additional water storage for fire suppression is needed to operate the fourth propane storage tank.

SCE stated that a minimum fuel reserve of 25% storage tank capacity is required at all times.[24] The average capacity of the propane tanks is 67%, but the propane tanks can be filled up to a maximum aggregate capacity of 83%. There is a 2.9-day fuel reserve at average capacity.[25] Since the proposed BARCT limit incorporates ~~5~~20% diesel engines and 30% ZE technology based on annual power generation (MW-hr per year), existing propane fuel storage was determined to be sufficient.

Initial BARCT Emission Limit

Table 2-3 provides projections of fuel usage and associated fuel tanks delivered based on repower scenarios for the electricity generating facility located on Santa Catalina Island. A maximum capacity of 9,100-gallons (gal) of propane, 1,250-kilograms (kg), or 7,450 gallons of diesel was assumed per fuel tank[26]. The electricity generating facility located on Santa Catalina Island utilizes approximately two million gallons of diesel and 190,000 gallons of propane annually for power generation, which equates to approximately 300 fuel tanks. The electric generating facility located on Santa Catalina Island also utilizes approximately 650,000 gallons of propane annually for utility service, which equates to approximately 70 fuel tanks.

Table 2-3: Hydrogen and Propane Fuel Tanks Estimated for Various Repower Scenarios

	Estimated Annual Propane or Hydrogen	Estimated Annual Diesel (gallons)	Approximate Annual Number of Fuel Tanks Barged
Current	190,000 gal	2,030,000	300
50% NZE	900,000 gal	1,015,000	276
65% NZE*	1,859,000 gal	104,000	220
95% NZE	2,861,000 gal	104,000	330
65% ZE*	1,395,000 kg	104,000	1,130
95% ZE	2,146,000 kg	104,000	1,730

*Assumes 30% solar or other non-fuel based zero-emission technology

A 95% ZE scenario was determined to be technologically infeasible due to the number of fuel tanks that would be required for hydrogen-fueled ZE technologies. South Coast AQMD staff is

[24] Between 2019 to 2023, there were seven days in which the volume of propane stored in the tank was less than 25%.

[25] The days of propane storage were calculated based on three propane storage tanks, a 10-day utility fuel reserve, a 25% fuel reserve minimum, and fuel needed for 65% NZE technology for the proposed BARCT limit.

[26] Fuel tank capacity for barge deliveries is included in the Southern California Edison Pebbly Beach Alternatives Study, Revised Final Action Plan (July 14, 2022): http://www.aqmd.gov/docs/default-source/Agendas/hearing-board/case-documents/exh-d---pbgs-action-plan-(revised-7-14-22).pdf.

only aware of one barge that currently delivers fuel to Santa Catalina Island and this barge makes deliveries Monday through Friday. Based on historical fuel usage at the electricity generating facility on Santa Catalina Island, it is possible to deliver at least two tanks of fuel each day when the barge is operating and the maximum amount of fuel that could be delivered to the electricity generating facility on Santa Catalina Island is two fuel tanks for 260 days out of the year. Therefore, repower scenarios that required over 448 fuel tanks annually were considered to be technologically infeasible.[27] Approximately 1,730 fuel tanks would be required annually for a 95% ZE repower scenario using hydrogen-fueled technologies. Additionally, a 95% ZE scenario with any combination of both solar PV cells and hydrogen-fueled equipment was determined to be technologically infeasible. Due to limited land available that is suitable for solar PV cell installation, a maximum of 30% of power generation for Santa Catalina Island could be provided by solar PV cells. The remaining 65% of ZE hydrogen-fueled equipment needed for a 95% ZE scenario is estimated to result in approximately 1,130 fuel tanks annually.

Furthermore, a 95% ZE scenario including hydrogen-fueled technologies would likely require ancillary fuel storage facilities outside of the existing facility footprint. During the rule development process, it was determined that acquisition of the land could not be relied upon for the purposes of establishing a BARCT limit. Moreover, even if land for additional fuel storage could be acquired, the hydrogen fuel source would eventually be depleted as there are currently not enough barges to replenish the hydrogen fuel reserves.

The repower scenario comprised of 30% ZE, 65% NZE, and 5% diesel internal combustion engines is estimated to result in approximately 220 fuel tanks being delivered annually. The quantity of fuel tanks that would be delivered as a result of a repower scenario comprised of 30% ZE, 65% NZE, and 5% diesel internal combustion engines results in approximately 80 fewer fuel tanks being delivered for power generation than current operations.

For a repower scenario comprised of 30% ZE, 50% NZE, and 20% diesel internal combustion engines, approximately 276 fuel tanks per year would need to be delivered. Thus, for a repower scenario comprised of 30% ZE, 50% NZE, and 20% diesel internal combustion engines, approximately 24 fewer fuel tanks would need to be delivered relative to current operations.

The recommendation for the initial BARCT NOx emission limit is based on the technology assessment. A cost-effectiveness analysis, which includes an incremental cost-effectiveness analysis, is then made with cost information provided by stakeholders to further refine the determination for the final BARCT NOx emission limit. An initial BARCT emission limit of 1.6 tpy NOx was proposed for electric generating units located on Santa Catalina Island. The initial BARCT limit is based on any combination of technologies comprising of 30% ZE, 65% NZE, and 5% diesel internal combustion engines for power generation (MW-hr per year) on Santa Catalina Island. The initial BARCT limit was later revised to 1.8 tpy NOx after updating the emission factors used to calculate the final BARCT limit. The emission factors were updated to reflect the U.S. EPA standard for Tier 4 Final engines used in generator sets rated greater than 1,200 hp (1.48 lbs/MW-hr) and emission standard for Santa Catalina Island Zero-Emission Electric Generating Units defined in PAR 1135 (<0.01 lb/MW-hr). The updated emission factors used are conservative, as Tier 4 Final engines can achieve more than 20% lower emissions depending on load.

[27] Staff's calculations account for the propane tanks that are delivered for utility service.

Furthermore, Santa Catalina Island Zero-Emission Electric Generating Units are not counted towards emission calculations, as specified in paragraph (e)(4) of PAR 1135.

As noted earlier, BARCT is defined as "an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source." As such and to be consistent with state law, BARCT emission limits take into consideration environmental impacts, energy impacts, and economic impacts. As this facility is very unique being on an island and the only source of power including electricity, water movement, and waste systems, reliable sufficient power is crucial in avoiding blackouts and other public health issues related to polluted water and hazard health from biological waste exposure. When taking into consideration the various factors affecting a reliable energy supply, the final BARCT determination is for 6 tpy NOx limit. In addition to energy demand, other considerations such as power reliability, transmission, grid stability, space limitations, fuel delivery and storage, and challenges for the deployment of new ZE/NZE technologies were taken into account. The initial BARCT analysis at 1.8 tpy was based on delivery of a certain amount of propane per year being delivered to the island and enough storage capacity for 30-days in case of unforeseen circumstances preventing the required daily deliveries by barge while avoiding any loss of power needs on the island. Due to the uncertainty that the delivery can be met all the time and potential lack of storage capacity, a lesser amount of propane delivery was evaluated. This would be an increase from the current delivery of propane but would enable the facility to power near-zero equipment that could generate 50 percent (coupled with 30 percent zero emission equipment) of the demand needed to sufficiently and reliably power all of the island's needs for electricity, water transport, and waste systems, even during peak demand. With the remaining power needed based on the usage of Tier 4 Final diesel engines, this equates to 6 tpy of NOx emissions that can be feasibly achieved. In addition, the amount of propane ensures lower emissions while providing sufficient reliable power for critical infrastructure that supports compliance with the rule emission caps and seeks to avoid rule violations.

CHAPTER 3

EXISTING SETTING

3.0 INTRODUCTION

To determine the significance of the impacts associated with a proposed project, it is necessary to evaluate the proposed project's impacts against the backdrop of the environment as it exists at the time the environmental analysis is commenced. CEQA Guidelines Section 15360 defines environment as "the physical conditions that exist within the area which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance." [*See also* Public Resources Code Section 21060.5]. Furthermore, a CEQA document must include a description of the physical environment in the vicinity of the proposed project, as it exists at the time the environmental analysis is commenced, from both a local and regional perspective. [CEQA Guidelines Section 15125]. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. The description of the environmental setting shall be no longer than is necessary to provide an understanding of the significant effects of the proposed project and its alternatives.

The existing setting is the physical environmental conditions as they existed at the time the NOP was published, or if no NOP is published, at the time the environmental analysis is commenced. [CEQA Guidelines Section 15125].

3.1 EXISTING SETTING

PAR 1135 will impact one electricity generating facility located on Santa Catalina Island. PAR 1135 proposes to: 1) update NOx emission limits and compliance dates; 2) establish provisions for monitoring, reporting, and recordkeeping for NZE electric generating units without CEMS; 3) extend the deadline for prohibiting the installation of new diesel internal combustion engines from January 1, 2024 to January 1, 2028 or six months after any applicable extensions; 4) prohibit the installation of more than three new diesel internal combustion engines with a cumulative rating of 5.5 MW; 5) prohibit the installation of equipment that does not meet the definition of a Santa Catalina Island NZE electric generating unit or a Santa Catalina Island ZE electric generating unit after January 1, 2028 or six months after any applicable extensions; 6) require the installation of Santa Catalina Island NZE and/or ZE electric generating units by January 1, 2030 or six months after any applicable extensions ~~(with a three-year extension option to meet by January 1, 2033)~~ with a minimum cumulative rating of 1.8 MW, excluding the highest rated Santa Catalina Island NZE and/or ZE electric generating unit, solar photovoltaic cells, and battery storage; 7) remove all prime power diesel internal combustion engines for which installation was completed earlier than Date of Adoption from service by January 1, 2030 or six months after any applicable extensions; 8) require a feasibility analysis (e.g., progress in procuring and installing electric generating units) to be conducted for the 13 tpy and six tpy NOx emission limits by January 1, 2028 and January 1, 2033, respectively; and 9) update the time extension provision by including more specific criteria needed for approval, allowing the electricity generating facility located on Santa Catalina Island to request time extensions for extenuating circumstances (e.g., unforeseen construction interruptions and/or supply chain disruptions) for each compliance date or according to the feasibility analyses for meeting each of 13 tpy and six tpy NOx emission limits, and making requests for time extensions available for public review.

As allowed by CEQA Guidelines Sections 15152, 15162, and 15385, the proposed project is designed to amend and tier off of the previous CEQA assessment conducted in the November 2018

Final Mitigated SEA which was certified by the South Coast AQMD Governing Board on November 2, 2018.

The November 2018 Amendments to Rule 1135 were adopted with the goal of reducing NOx emissions from RECLAIM and non-RECLAIM electricity generating facilities which are owned or operated by an investor-owned electric utility, a publicly owned electric utility, or have electric generating units with a combined generation capacity of 50 MW or more of electrical power for distribution in the state or local electrical grid system. The November 2018 amendments to Rule 1135: 1) expanded the rule's applicability to include units at RECLAIM electricity generating facilities and units at electricity generating facilities that were not at electric power generating systems previously subject to Rule 1135; 2) updated the NOx and ammonia emission limits for boilers and gas turbines; 3) established NOx emission limits and added new emission limits for ammonia, CO, VOC, and particulate matter for internal combustion engines; 4) revised monitoring, reporting, and recordkeeping requirements; and 5) revised exemptions. Approximately 1.7 tons per day of NOx emission reductions were expected to be achieved as a result of implementing the November 2018 version of Rule 1135.

While the estimated reduction of NOx emissions from the November 2018 amendments to Rule 1135 were expected to create an environmental benefit, the November 2018 Final Mitigated SEA for Rule 1135, which is the certified regulatory program equivalent to a Mitigated Subsequent Negative Declaration under CEQA, analyzed the environmental impacts associated with the activities that six affected facilities (referred to as Facility 1, 2 3, 4, 5, and 6) were anticipated to undertake to ensure compliance with amended Rule 1135 and that these activities could create secondary adverse environmental impacts. Among all the previously analyzed environmental areas in the November 2018 Final Mitigated SEA for Rule 1135, potentially significant adverse environmental impacts were identified for the topic of hazards and hazardous materials due to the storage and use of aqueous ammonia. As such, mitigation measures were crafted that were shown to reduce the potentially significant adverse hazards and hazardous materials impacts to less than significant levels. To date, the construction activities undertaken in response to the 2018 amendments to Rule 1135 have already been completed at Facilities 1, 4, and 5. Regarding Facility 6, the November 2018 Final Mitigated SEA for Rule 1135 analyzed construction and operational emissions associated with catalyst module replacement in SCR for their simple cycle turbine; however, this facility permanently shut down their turbine at the beginning of 2020. Therefore, the previously analyzed construction and operational emissions attributed to Facility 6 in the November 2018 Final Mitigated SEA have not occurred and will not occur in the future. Regarding Facility 3, the November 2018 Final Mitigated SEA for Rule 1135 analyzed construction emissions associated with removing three existing boilers and installing up to three new turbines with three new SCRs and one new aqueous ammonia storage tank. Instead, Facility 3 indicated that their repower project would shut down and remove their three existing boilers by January 1, 2024, and install a set of batteries and three new prime natural gas IC engines. Because Rule 1135 is not applicable to prime natural gas IC engines and batteries, Facility 3 will no longer be subject to Rule 1135. Therefore, of the six affected facilities identified as being subject to Rule 1135 in the November 2018 Final Mitigated SEA, only Facility 2 has yet to undergo physical modifications necessary to achieve the NOx emission limits contained in the 2018 amendments to Rule 1135. Regarding Facility 2, the November 2018 Final Mitigated SEA for Rule 1135 originally analyzed the environmental impacts associated with replacing five diesel engines with five new Tier 4 Final diesel engines to comply with a NOx emission limit of 13 tpy by January 1, 2026.

CEQA Guidelines Section 15125 defines the existing setting as the physical environmental conditions as they existed at the time the NOP was published, or if no NOP is published, at the time the environmental analysis is commenced. For the November 2018 amendments to Rule 1135, no NOP was prepared, but the environmental analysis was commenced on September 14, 2018 when the NOC announcing the availability of the Draft Mitigated SEA was released for public review and comment. The Draft Mitigated SEA for PAR 1135 contained a detailed analysis of the environmental setting and corresponding environmental effects specifically tailored to implementing the proposed amendments at that time.

Recently, the amendments to Rule 1135 were adopted on January 7, 2022 to regulate NOx emissions from combustion equipment operating at electricity generating facilities. The 2022 amendments to Rule 1135 proposed to: 1) remove ammonia limits which will be addressed during permitting; 2) reference Rule 429.2 for startup and shutdown requirements; 3) add references to the recently amended and adopted Rule 218-series rules relating to requirements for CEMS; and 4) revise the requirements for diesel internal combustion engines located on Santa Catalina Island. The 2022 amendments to Rule 1135 specifically established interim NOx emission limits (i.e., 50 tpy by January 1, 2024 and 45 tpy by January 1, 2025) for the electricity generating facility located on Santa Catalina Island. Since the 2022 amendments to Rule 1135 were not expected to cause new physical modifications, no significant adverse impacts on the environment were identified. Thus, the South Coast AQMD Governing Board determined on January 7, 2022 that the 2022 amendments to Rule 1135 were exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3); and a NOE was prepared pursuant to CEQA Guidelines Section 15062.

Currently, PAR 1135 proposes to: 1) remove the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024; 2) delay the compliance date for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years); 3) delay the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years); and 4) include new NOx emission limits of 30 tpy and 6 tpy with compliance dates of January 1, 2028 (with a potential extension up to three years) and January 1, 2035 (with a potential extension up to ~~three~~ six years), respectively. Table 1-1 shows the previous, current and proposed NOx emissions limits for the electric generating facility located on Santa Catalina Island as well their corresponding compliance dates.

When comparing the types of activities and environmental impacts resulting from the implementation of Rule 1135 amendments that were previously analyzed in the November 2018 Final Mitigated SEA, to the currently proposed changes which comprise PAR 1135, the type and extent of the physical changes are expected to be similar and to cause similar secondary adverse environmental impacts for the same environmental topic areas that were identified and analyzed in the November 2018 Final Mitigated SEA for Rule 1135. Thus, the proposed project is expected to have generally the same or similar effects that were previously examined in the November 2018 Final Mitigated SEA for Rule 1135. However, the air quality impacts from PAR 1135 will cause delayed NOx emission reductions, interim exceedances of the air quality significance thresholds for the project-specific changes in the 24-hour average ~~ambient air quality standards for~~concentrations of PM2.5 and PM10, and interim operational cancer risks which will be more severe than what was discussed in November 2018 Final Mitigated SEA. Specifically, PAR 1135 will result in delayed NOx emission reductions due to: 1) removing the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024; 2) delaying the compliance date for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential

extension up to three years); 3) delaying the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years); and 4) including a new NOx emission limit of 30 tpy with compliance date of January 1, 2028 (with a potential extension up to three years). If any extension is granted for ~~the 13 tpy~~any NOx emission l~~L~~imit as presented in Table 1-1 ~~(up to three years)~~, the emission reductions will be delayed for a longer period of time.

Based on the preceding discussion, the baseline that was established at the time the NOC was published for the September 2018 Draft Mitigated SEA directly corresponds to the currently proposed project since the nature of the physical impacts that may occur as a result of implementing PAR 1135 are the same as or similar to the previous analysis in November 2018 Final Mitigated SEA.

For this reason, the baseline is the project analyzed in the November 2018 Final Mitigated SEA. As such, this SEA analyzes the incremental changes that may occur subsequent to the project analyzed in the November 2018 Final Mitigated SEA if PAR 1135 is implemented.

In addition, the analysis in this SEA independently considered whether the proposed project would result in new significant impacts for any of the environmental topic areas previously concluded in the November 2018 Final Mitigated SEA to have either no significant impacts or less than significant impacts (with or without mitigation) and no environmental topic area was identified as having potentially significant adverse impacts. A description and the basis for this conclusion is included in Chapter 4 of this SEA.

The baseline for the analysis in this SEA is the project analyzed in the November 2018 Final Mitigated SEA for Rule 1135. The 2018 amendments to Rule 1135 projected an overall NOx emission reduction of approximately 1.7 tpd from the six facilities identified as potentially needing modifications in order to achieve the emission limits in Rule 1135. Of these affected facilities, all but one facility, the electricity generating facility located on Santa Catalina Island, has either made modifications to achieve the emission limits in Rule 1135 or is no longer subject to Rule 1135 requirements. Relative to Facility 2, by establishing a 13 tpy NOx limit by January 1, 2026, the 2018 amendments to Rule 1135 initially projected that approximately 57 tpy NOx emission reductions (equivalent to 0.16 tpd) would be achieved by the electricity generating facility located on Santa Catalina Island by January 1, 2026. As explained earlier, over 90% of the power generated is from the operation of six diesel internal combustion engines and these six diesel engines were last modified in 2003 to install SCR technology. No other modifications have been made at Facility 2 to address the 2018 amendments to Rule 1135. Currently, the annual NOx emissions from Facility 2 are 71.3 tpy which is greater than the 70 tpy this facility was emitting at the time the November 2018 Final Mitigated SEA was prepared.

The November 2018 Final Mitigated SEA for Rule 1135 concluded that no environmental topic area (except for hazards and hazardous materials) would have potentially significant adverse environmental impacts. Mitigation measures were crafted in the November 2018 Final Mitigated SEA that were shown to reduce the potentially significant adverse hazards and hazardous materials impacts to less than significant levels. As analyzed in Chapter 4, PAR 1135 is anticipated to have significant adverse air quality impacts. As such, the following subchapter is devoted to describing the regional existing setting for the air quality which was the only environmental topic area with significant changes, if PAR 1135 is implemented.

3.2 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

Ambient air quality standards have been adopted at the state and federal levels for criteria air pollutants. In addition, both the state and federal government regulate the release of toxic air contaminants and GHG emissions. Projects within South Coast AQMD's jurisdiction are subject to the rules and regulations imposed by the South Coast AQMD as well as regulations adopted by CARB and U.S. EPA. Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized in this section.

3.2.1 Criteria Air Pollutants

South Coast AQMD has the responsibility to ensure that state and federal ambient air quality standards (AAQS or standards) are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone (O3), carbon monoxide (CO), nitrogen dioxide (NO2), particulate matter (PM, which includes PM10 and PM2.5), sulfur dioxide (SO2), and lead (Pb). These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. The California standards are sometimes more stringent than the federal standards, and in the case of PM10 and SO2, far more stringent. However, for ozone, the current 8-hour California Ambient Air Quality Standard (CAAQS) and the 2015 8-hour NAAQS are at an equivalent level and for PM2.5, the current annual CAAQS and the 2012 annual NAAQS are also at an equivalent level. As a result, the South Coast AQMD relies on the same measures to meet both federal and state ozone and PM2.5 standards. California has also established standards for sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride. The state and federal standards for each of these pollutants and their effects on health are summarized in Table 3-1.

South Coast AQMD monitors levels of various criteria pollutants at 38 monitoring stations. The 2020 air quality data (the latest data available) from South Coast AQMDs monitoring stations are presented in Tables 3-2 through 3-8 for the individual criteria air pollutants monitored by South Coast AQMD.

Table 3-1
State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standard[a]	Federal Primary Standard[b]	Most Relevant Effects
Ozone (O_3)	1-hour	0.09 ppm (180 μg/m^3)	0.12 ppm	(a) Short-term exposures: 1) Pulmonary function decrements and localized lung edema in humans and animals; and 2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; and (d) Property damage.
	8-hour	0.070 ppm (137 μg/m^3)	0.070 ppm (137 μg/m^3)	
Suspended Particulate Matter (PM10)	24-hour	50 μg/m^3	150 μg/m^3	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; and (b) Excess seasonal declines in pulmonary function, especially in children.
	Annual Arithmetic Mean	20 μg/m^3	No Federal Standard	
Suspended Particulate Matter (PM2.5)	24-hour	No State Standard	35 μg/m^3	(a) Increased hospital admissions and emergency room visits for heart and lung disease; (b) Increased respiratory symptoms and disease; and (c) Decreased lung functions and premature death.
	Annual Arithmetic Mean	12 μg/m^3	12 μg/m^3	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
	8-Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	

Table 3-1 (concluded)
State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standard[a]	Federal Primary Standard[b]	Most Relevant Effects
Nitrogen Dioxide (NO_2)	1-Hour	0.18 ppm (339 μg/m^3)	0.100 ppm (188 μg/m^3)	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
	Annual Arithmetic Mean	0.030 ppm (57 μg/m^3)	0.053 ppm (100 μg/m^3)	
Sulfur Dioxide (SO_2)	1-Hour	0.25 ppm (655 μg/m^3)	75 ppb (196 μg/m^3)	Broncho-constriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
	24-Hour	0.04 ppm (105 μg/m^3)	No Federal Standard	
Sulfates	24-Hour	25 μg/m^3	No Federal Standard	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage.
Hydrogen Sulfide (H_2S)	1-Hour	0.03 ppm (42 μg/m^3)	No Federal Standard	Odor annoyance.
Lead (Pb)	30-Day Average	1.5 μg/m^3	No Federal Standard	(a) Increased body burden; and (b) Impairment of blood formation and nerve conduction.
	Calendar Quarter	No State Standard	1.5 μg/m^3	
	Rolling 3-Month Average	No State Standard	0.15 μg/m^3	
Visibility Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	No Federal Standard	The statewide standard is intended to limit the frequency and severity of visibility impairment due to regional haze. This is a visibility-based standard not a health-based standard. Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent.
Vinyl Chloride	24-Hour	0.01 ppm (26 μg/m^3)	No Federal Standard	Highly toxic and a known carcinogen that causes a rare cancer of the liver.

ppb = parts per billion parts of air, by volume
ppm = parts per million parts of air, by volume
μg/m3 = micrograms per cubic meter
mg/m3 = milligrams per cubic meter

[a] The California ambient air quality standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM10, and PM2.5 are values not to be exceeded. All other California standards shown are values not to be equaled or exceeded.

[b] The national ambient air quality standards, other than O_3 and those based on annual averages are not to be exceeded more than once a year. The O_3 standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standards is equal to or less than one.

Carbon Monoxide

CO is a primary pollutant, meaning that it is directly emitted into the air, not formed in the atmosphere by chemical reaction of precursors, as is the case with ozone and other secondary pollutants. Ambient concentrations of CO in the Basin exhibit large spatial and temporal variations due to variations in the rate at which CO is emitted and in the meteorological conditions that govern transport and dilution. Unlike ozone, CO tends to reach high concentrations in the fall and winter months. The highest concentrations frequently occur on weekdays at times consistent with rush hour traffic and late night during the coolest, most stable portion of the day.

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise and electrocardiograph changes indicative of worsening oxygen supply to the heart. Inhaled CO has no direct toxic effect on the lungs but exerts its effect on tissues by interfering with oxygen transport by competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include patients with diseases involving heart and blood vessels, fetuses, and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes. Reductions in birth weight and impaired neurobehavioral development have been observed in animals chronically exposed to CO resulting in COHb levels similar to those observed in smokers. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels. These include preterm births and heart abnormalities.[28,29,30]

On August 12, 2011, U.S. EPA issued a decision to retain the existing NAAQS for CO, determining that those standards provided the required level of public health protection. However, U.S. EPA added a monitoring requirement for near-road CO monitors in urban areas with population of one million or more, utilizing stations that would be implemented to meet the 2010 NO_2 near-road monitoring requirements. The two new CO monitors are at the I-5 near-road site, located in Orange County near Anaheim, and the I-10 near-road site, located near Etiwanda Avenue in San Bernardino County near Ontario, Rancho Cucamonga, and Fontana.

As summarized in Table 3-2, CO concentrations were measured at 23 locations in the South Coast Air Basin and neighboring Salton Sea Air Basin in 2020 but did not exceed the state or federal standards in 2020. The highest 1-hour average CO concentration recorded was 4.5 parts per million (ppm) at the South Central Los Angeles County station, less than the federal and state 1-hour CO standards of 35 ppm and 20 ppm, respectively. The highest 8-hour average CO concentration recorded was 3.1 ppm at the South Central Los Angeles County station, less than the federal and state 8-hour CO standards of 9.0 ppm. All areas within the South Coast AQMD's jurisdiction are in attainment for both the federal and state 1-hour and 8-hour CO standards.

[28] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants, accessed on July 23, 2024.

[29] South Coast AQMD. 2015. Health Effects of Air Pollution. http://www.aqmd.gov/docs/default-source/publications/brochures/the-health-effects-of-air-pollution-brochure.pdf, accessed on July 23, 2024.

[30] South Coast AQMD. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. https://www.aqmd.gov/home/research/guidelines/planning-guidance/guidance-document, accessed on July 23, 2024.

Table 3-2
South Coast AQMD – 2020 Air Quality Data – CO[31]

CARBON MONOXIDE (CO)[a]				
Source Receptor Area No.	**Location of Air Monitoring Station**	**No. Days of Data**	**Max. Conc. in ppm 1-hour**	**Max. Conc. in ppm, 8-hour**
LOS ANGELES COUNTY				
1	Central Los Angeles	359	1.9	1.5
2	Northwest Coastal Los Angeles County	365	2.0	1.2
3	Southwest Coastal Los Angeles County	364	1.6	1.3
6	West San Fernando Valley	363	2.0	1.7
8	West San Gabriel Valley	361	2.6	2.2
9	East San Gabriel Valley 1	349	2.4	2.0
9	East San Gabriel Valley 2	310	2.3	1.9
10	Pomona/Walnut Valley	363	1.5	1.1
11	South San Gabriel Valley	362	3.1	1.7
12	South Central Los Angeles County	364	4.5	3.1
13	Santa Clarita Valley	363	1.2	0.8
ORANGE COUNTY				
16	North Orange County	347	2.1	1.2
17	Central Orange County	361	2.3	1.7
17	I-5 Near Road[##]	359	2.4	2.0
19	Saddleback Valley	366	1.7	0.8
RIVERSIDE COUNTY				
23	Metropolitan Riverside County 1	361	1.9	1.4
23	Metropolitan Riverside County 3	359	1.8	1.5
25	Elsinore Valley	358	0.9	0.7
30	Coachella Valley 1**	365	0.8	0.5
SAN BERNARDINO COUNTY				
32	Northwest San Bernardino Valley	364	1.5	1.1
33	I-10 Near Road[##]	363	1.5	1.2
34	Central San Bernardino Valley 1	358	1.7	1.2
34	Central San Bernardino Valley 2	360	1.9	1.4
DISTRICT MAXIMUM[(b)]			**4.5**	**3.1**
SOUTH COAST AIR BASIN[(c)]			**4.5**	**3.1**

ppm = parts per million of air, by volume **Salton Sea Air Basin

[##] Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO_2 are operating near the following freeways: I-5, I-10, CA-60, and I-710.

[a] The federal 8-hour standard (8-hour average CO > 9 ppm) and state 8-hour standard (8-hour average CO > 9.0 ppm) were not exceeded. The federal and state 1-hour standards (35 ppm and 20 ppm) were not exceeded either.

[b] District Maximum is the maximum value calculated at any station in the South Coast AQMD jurisdiction.

[c] Concentrations are the maximum value observed at any station in the South Coast Air Basin. Number of daily exceedances are the total number of days that the indicated concentration is exceeded at any station in the South Coast Air Basin.

[31] South Coast AQMD, 2021. "2020 Air Quality - South Coast Air Quality Management District – CO," Historical Air Quality Data for Year 2020 at locations where CO was monitored; http://www.aqmd.gov/docs/default-source/air-quality/historical-data-by-year/aq2020card_final.pdf, accessed on July, 2024.

Ozone

Ozone (O_3), a colorless gas with a sharp odor, is a highly reactive form of oxygen. High ozone concentrations exist naturally in the stratosphere. Some mixing of stratospheric ozone downward through the troposphere to the earth's surface does occur; however, the extent of ozone transport is limited. At the earth's surface in sites remote from urban areas ozone concentrations are normally very low (e.g., from 0.03 ppm to 0.05 ppm).

Ozone is highly reactive with organic materials, causing damage to living cells and ambient ozone concentrations in the Basin are frequently sufficient to cause health effects. Ozone enters the human body primarily through the respiratory tract and causes respiratory irritation and discomfort, makes breathing more difficult during exercise, and reduces the respiratory system's ability to remove inhaled particles and fight infection. Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible subgroups for ozone effects. Short-term exposures (lasting for a few hours) to ozone at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple sports and live in high ozone communities. Elevated ozone levels are also associated with increased school absences. Ozone exposure under exercising conditions is known to increase the severity of the previously mentioned observed responses. Animal studies suggest that exposures to a combination of pollutants which include ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.[32,33,34]

As summarized in Table 3-3, O_3 concentrations were measured at 29 locations in the South Coast Air Basin and the Coachella Valley portion of the Salton Sea Air Basin in 2020. Maximum ozone concentrations for all areas monitored were below the stage 1 episode level (0.20 ppm) and below the health advisory level (0.15 ppm). All counties in the Basin, as well as the Coachella Valley, exceeded the level of the 2015 federal 8-hour O_3 standard (0.070 ppm), the state 1-hour O_3 standard (0.09 ppm), and the state 8-hour O_3 standard (0.070 ppm) in 2020. All but one monitoring station (Southwest Coast LA County) exceeded the former 2008 federal 8-hour O_3 standard (0.075 ppm).

Maximum 1-hour average and 4th highest 8-hour average ozone concentrations were 0.185 ppm and 0.125 ppm, respectively (at the Central LA station and East San Bernardino Valley station, respectively), which are greater than the federal 1-hour and 8-hour ozone NAAQS of 0.12 ppm and 0.070 ppm, respectively. The federal 8-hour standard is met at an air quality monitor when the 3-year average of the annual fourth-highest daily maximum 8-hour average is less than 0.070 ppm. The maximum 1-hour concentration also exceeded the state 1-hour ozone standard of 0.09 ppm.

[32] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants https://www.epa.gov/criteria-air-pollutants, accessed on July 23, 2024.
[33] South Coast AQMD. 2015. Health Effects of Air Pollution. http://www.aqmd.gov/docs/default-source/publications/brochures/the-health-effects-of-air-pollution-brochure.pdf, accessed on July 23, 2024.
[34] South Coast AQMD. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. https://www.aqmd.gov/home/research/guidelines/planning-guidance/guidance-document, accessed on July 23, 2024.

All areas within South Coast AQMD's jurisdiction are in nonattainment for both the federal and state 1-hour and 8-hour ozone standards.

Table 3-3
South Coast AQMD – 2020 Air Quality Data – O_3[35]

OZONE (O_3)[(a)]										
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. in ppm 1-hr	Max. Conc. in ppm 8-hr	4th High Conc. ppm 8-hr	No. Days Standard Exceeded				
						Federal (ppm)			State (ppm)	
						Old > 0.124 1-hr	Current > 0.070 8-hr*	2008 > 0.075 8-hr	Current > 0.09 1-hr	Current > 0.070 8-hr
LOS ANGELES COUNTY										
1	Central LA	332	0.185	0.118	0.093	1	22	16	14	22
2	Northwest Coastal LA County	357	0.134	0.092	0.078	1	8	5	6	8
3	Southwest Coastal LA County	350	0.117	0.074	0.066	0	2	0	1	2
4	South Coastal LA County 4	332	0.105	0.083	0.071	0	4	2	4	4
6	West San Fernando Valley	345	0.142	0.115	0.097	0	49	23	14	49
7	East San Fernando Valley	359	0.133	0.108	0.102	5	49	33	31	49
8	West San Gabriel Valley	354	0.163	0.115	0.108	9	60	44	41	60
9	East San Gabriel Valley 1	347	0.168	0.125	0.105	11	61	43	53	61
9	East San Gabriel Valley 2	348	0.173	0.138	0.124	17	97	71	76	97
10	Pomona/Walnut Valley	353	0.180	0.124	0.106	10	84	53	51	84
11	South San Gabriel Valley	356	0.169	0.114	0.089	3	23	15	20	23
12	South Central LA County	354	0.152	0.115	0.072	1	4	3	3	4
13	Santa Clarita Valley	348	0.148	0.122	0.106	10	73	56	44	73
ORANGE COUNTY										
16	North Orange County	340	0.171	0.133	0.088	3	23	19	15	23
17	Central Orange County	356	0.142	0.097	0.079	2	15	4	6	15
19	Saddleback Valley	364	0.171	0.122	0.090	1	32	25	20	32
RIVERSIDE COUNTY										
23	Metropolitan Riverside County 1	348	0.143	0.115	0.102	6	81	59	46	81
23	Metropolitan Riverside County 3	350	0.140	0.117	0.103	7	89	62	51	89
24	Perris Valley	358	0.125	0.106	0.097	1	74	48	34	74
25	Elsinore Valley	355	0.130	0.100	0.093	1	52	30	18	52
26	Temecula Valley	364	0.108	0.091	0.084	0	37	20	5	37
29	San Gorgonio Pass	358	0.150	0.115	0.104	3	68	48	29	68
30	Coachella Valley 1**	360	0.119	0.094	0.089	0	49	28	9	49
30	Coachella Valley 2**	358	0.097	0.084	0.081	0	42	17	2	42
SAN BERNARDINO COUNTY										
32	Northwest San Bernardino Valley	360	0.158/	0.123	0.116	15	114	87	82	114
34	Central San Bernardino Valley 1	348	0.151	0.111	0.105	8	89	65	56	89
34	Central San Bernardino Valley 2	359	0.162	0.128	0.122	15	128	110	89	128
35	East San Bernardino Valley	361	0.173	0.136	0.125	16	141	127	104	141
37	Central San Bernardino Mountains	364	0.159	0.139	0.117	7	118	97	69	118
DISTRICT MAXIMUM[(b)]			**0.185**	**0.139**	**0.125**	**17**	**141**	**127**	**104**	**141**
SOUTH COAST AIR BASIN[(c)]			**0.185**	**0.139**	**0.125**	**27**	**157**	**142**	**132**	**157**

ppm = parts per million of air, by volume **Salton Sea Air Basin

[a] The current (2015) O_3 federal standard was revised effective December 28, 2015.

[b] District Maximum is the maximum value calculated at any station in the South Coast AQMD jurisdiction.

[c] Concentrations are the maximum value observed at any station in the South Coast Air Basin. Number of daily exceedances are the total number of days that the indicated concentration is exceeded at any station in the South Coast Air Basin.

[35] South Coast AQMD, 2021. 2020 Air Quality, South Coast Air Quality Management District, Historical Air Quality Data for Year 2020 at locations where O_3 was monitored; http://www.aqmd.gov/docs/default-source/air-quality/historical-data-by-year/aq2020card_final.pdf, accessed on July 23, 2024.

Nitrogen Dioxide

NO_2 is a reddish-brown gas with a bleach-like odor. Nitric oxide (NO) is a colorless gas, formed from the nitrogen (N_2) and oxygen (O_2) in air under conditions of high temperature and pressure which are generally present during combustion of fuels; NO reacts rapidly with the oxygen in air to form NO_2. NO_2 is responsible for the brownish tinge of polluted air. The two gases, NO and NO_2, are referred to collectively as NOx. In the presence of sunlight, NO_2 reacts to form nitric oxide and an oxygen atom. The oxygen atom can react further to form O_3, via a complex series of chemical reactions involving hydrocarbons. Nitrogen dioxide may also react to form nitric acid (HNO_3) which reacts further to form nitrates, components of PM2.5 and PM10.

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposures to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma and/or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these subgroups. More recent studies have found associations between NO_2 exposures and cardiopulmonary mortality, decreased lung function, respiratory symptoms, and emergency room asthma visits. In animals, exposure to levels of NO_2 considerably higher than ambient concentrations result in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO_2.[36,37,38]

With the revised NO_2 federal standard in 2010, near-road NO_2 measurements were required to be phased in for larger cities. The four near-road monitoring stations are: 1) I-5 near-road, located in Orange County near Anaheim; 2) I-710 near-road, located at Long Beach Blvd. in Los Angeles County near Compton and Long Beach; 3) State Route 60 (SR-60 or CA-60) near-road, located west of Vineyard Avenue near the San Bernardino/Riverside County border near Ontario, Mira Loma, and Upland; and 4) I-10 near-road, located near Etiwanda Avenue in San Bernardino County near Ontario, Rancho Cucamonga, and Fontana.

As summarized in Table 3-4, NO_2 concentrations were measured at 27 locations in the South Coast Air Basin and neighboring Salton Sea Air Basin in 2020 with one station (CA-60 Near Road) exceeding the federal 1-hour standard in 2020. There have been exceedances of the peak 1-hour standard at the I-710 near-road station in 2017, and the CA-60 near-road in 2020; however, the 98th percentile value has not exceeded the standard.[39] The highest annual average NO_2 concentration recorded was 29.1 ppb (at the CA-60 Near Road station), which is less than the federal and state annual NO_2 standards of 53 ppb and 30 ppb, respectively. All areas within South Coast AQMD's jurisdiction are in attainment for both the federal and state 1-hour and annual NO_2 standards.

[36] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed on July 23, 2024.

[37] South Coast AQMD. 2015. Health Effects of Air Pollution. http://www.aqmd.gov/docs/default-source/publications/brochures/the-health-effects-of-air-pollution-brochure.pdf, accessed on July 23, 2024.

[38] South Coast AQMD. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. https://www.aqmd.gov/home/research/guidelines/planning-guidance/guidance-document.

[39] South Coast AQMD, 2022. 2022 Draft Air Quality Management Plan, p. 2-49. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/05-ch2.pdf.

Table 3-4
South Coast AQMD – 2020 Air Quality Data – NO_2[40]

NITROGEN DIOXIDE (NO_2)[a]					
Source Receptor Area No.	**Location of Air Monitoring Station**	**No. Days of Data**	**Max. Conc. in ppb 1-hour**	**98th Percentile Conc. in ppb 1-hour**	**Annual Average AAM Conc. ppb**
LOS ANGELES COUNTY					
1	Central LA	364	61.8	54.7	16.9
2	Northwest Coastal LA County	360	76.6	43.9	10.6
3	Southwest Coastal LA County	364	59.7	50.9	9.5
4	South Coastal LA County 4	357	75.3	56.3	12.8
4	I-710 Near Road##	355	90.3	79.1	22.3
6	West San Fernando Valley	365	57.2	50.1	12.1
7	East San Fernando Valley	357	60.4	52.4	14.5
8	West San Gabriel Valley	354	61.2	49.7	13.6
9	East San Gabriel Valley 1	347	64.8	54.1	13.6
9	East San Gabriel Valley 2	366	50.4	41.9	8.5
10	Pomona/Walnut Valley	355	67.9	59.8	18.3
11	South San Gabriel Valley	365	69.2	573.8	17.8
12	South Central LA County	362	72.3	60.5	14.5
13	Santa Clarita Valley	361	46.3	35.9	9.4
ORANGE COUNTY					
16	North Orange County	347	57.2	50.1	12.7
17	Central Orange County	364	70.9	52.1	13.3
17	I-5 Near Road##	365	69.9	52.6	18.8
RIVERSIDE COUNTY					
23	Metropolitan Riverside County 1	359	66.4	54.1	13.6
23	Metropolitan Riverside County 3	352	58.1	49.9	12.3
25	Elsinore Valley	345	43.6	37.9	7.4
29	San Gorgonio Pass	363	51.1	47.1	8.5
30	Coachella Valley 1**	365	47.4	34.3	6.6
SAN BERNARDINO COUNTY					
32	Northwest San Bernardino Valley	364	55.4	44.8	13.9
33	I-10 Near Road##	345	94.2	75.1	28.7
33	CA-60 Near Road##	346	101.6	78.0	29.1
34	Central San Bernardino Valley 1	360	66.4	57.9	18.7
34	Central San Bernardino Valley 2	35	54.0	45.6	14.9
DISTRICT MAXIMUM[(b)]			**101.6**	**86.3**	**29.1**
SOUTH COAST AIR BASIN[(c)]			**101.6**	**86.3**	**29.1**

ppb = parts per billion
AAM = Annual Arithmetic Mean
*Incomplete data
**Salton Sea Air Basin
-- Pollutant not monitored
Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-5, I-10, CA-60, and I-710.
a The NO2 federal 1-hour standard is 100 ppb and the annual standard is annual arithmetic mean NO2 > 0.0534 ppm (53.4 ppb). The state 1-hour and annual standards are 0.18 ppm (180 ppb) and 0.030 ppm (30 ppb).
b District Maximum is the maximum value calculated at any station in the South Coast AQMD jurisdiction.
c Concentrations are the maximum value observed at any station in the South Coast Air Basin. Number of daily exceedances are the total number of days that the indicated concentration is exceeded at any station in the South Coast Air Basin.

[40] South Coast AQMD, 2021. 2020 Air Quality, South Coast Air Quality Management District, Historical Air Quality Data for Year 2020 at locations where NO_2 was monitored; http://www.aqmd.gov/docs/default-source/air-quality/historical-data-by-year/aq2020card_final.pdf, accessed on July 23, 2024.

Sulfur Dioxide

SO_2 is a colorless gas with a sharp odor. It reacts in the air to form sulfuric acid (H_2SO_4), which contributes to acid precipitation, and sulfates, which are components of PM10 and PM2.5. Most of the SO_2 emitted into the atmosphere is produced by burning sulfur-containing fuels.

Exposure of a few minutes to low levels of SO_2 can result in airway constriction in some asthmatics. All asthmatics are sensitive to the effects of SO_2. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, is observed after acute higher exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2. Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.[41,42,43]

As summarized in Table 3-5, SO_2 concentrations were measured at five locations in 2020. No exceedances of 1-hour federal or state standards of 75 ppb and 250 ppb respectively, for SO_2 occurred in 2020 at any of the five locations monitored the Basin. The maximum 1-hour SO_2 concentration was 6.0 ppb (recorded at the Southwest Coast LA County station). The 99th percentile of 1-hour SO_2 concentration was 9.4 ppb (recorded at the South Coastal Los Angeles County 3 station). Though SO_2 concentrations remain well below the standards, SO_2 is a precursor to sulfate, which is a component of fine particulate matter, PM10, and PM2.5. Historical measurements showed concentrations to be well below standards and monitoring has been discontinued at other stations. All areas within South Coast AQMD's jurisdiction are in attainment for both the federal and state 1-hour SO_2 standards.

[41] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed on July 23, 2024.

[42] South Coast AQMD. 2015. Health Effects of Air Pollution. http://www.aqmd.gov/docs/default-source/publications/brochures/the-health-effects-of-air-pollution-brochure.pdf, accessed on July 23, 2024.

[43] South Coast AQMD. 2005. May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. https://www.aqmd.gov/home/research/guidelines/planning-guidance/guidance-document, accessed on July 23, 2024.

Table 3-5
South Coast AQMD – 2020 Air Quality Data – SO_2[44]

SULFUR DIOXIDE (SO_2)[a]				
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Maximum Conc. ppb, 1-hour	99th Percentile Conc. ppb, 1-hour
LOS ANGELES COUNTY				
1	Central LA	333	3.8	3.3
3	Southwest Coastal LA County	361	6.0	3.3
4	South Coastal LA County 3	--	--	9.4
RIVERSIDE COUNTY				
23	Metropolitan Riverside County 1	356	2.2	1.7
34	Central San Bernardino Valley 1	363	2.5	1.7
DISTRICT MAXIMUM[b]			**6.0**	**3.3**
SOUTH COAST AIR BASIN[c]			**6.0**	**3.3**

ppb = parts per billion -- = Pollutant not monitored

[a] The SO_2 federal 1-hour standard is 75 ppb. The state 1-hour and 24-hour standards are 0.25 ppm (250 ppb) and 0.04 ppm (40 ppb), respectively.

[b] District Maximum is the maximum value calculated at any station in the South Coast AQMD jurisdiction.

[c] Concentrations are the maximum value observed at any station in the South Coast Air Basin. Number of daily exceedances are the total number of days that the indicated concentration is exceeded at any station in the South Coast Air Basin.

Particulate Matter (PM10 and PM2.5)

Of great concern to public health are the particles small enough to be inhaled into the deepest parts of the lung. Respirable particles (particulate matter less than about 10 micrometers in diameter (PM10)) can accumulate in the respiratory system and aggravate health problems such as asthma, bronchitis, and other lung diseases. Children, the elderly, exercising adults, and those suffering from asthma are especially vulnerable to adverse health effects of particulate matter.

A consistent correlation between elevated ambient fine particulate matter (PM2.5) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks, and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. Studies have reported an association between long-term exposure to air pollution dominated by PM2.5 and increased mortality, reduction in lifespan, and an increased mortality from lung cancer. Daily fluctuations in PM2.5 concentrations have also been related to hospital admissions for acute respiratory conditions, to school and kindergarten absences, to a decrease in respiratory function in normal children, and to increased medication use in children and adults with asthma. Studies have also shown lung function growth in children is reduced with long-term exposure to particulate matter. In addition to children, the elderly and people with preexisting respiratory and/or cardiovascular disease appear to be more susceptible to the effects of PM10 and PM2.5.[45,46,47]

[44] South Coast AQMD, 2021. 2020 Air Quality, South Coast Air Quality Management District, Historical Air Quality Data for Year 2020 at locations where SO_2 was monitored; http://www.aqmd.gov/docs/default-source/air-quality/historical-data-by-year/aq2020card_final.pdf, accessed on July 23, 2024.

[45] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed on June 10, 2022.

[46] South Coast AQMD. 2015. Health Effects of Air Pollution. http://www.aqmd.gov/docs/default-source/publications/brochures/the-health-effects-of-air-pollution-brochure.pdf, accessed on July 23, 2024.

[47] South Coast AQMD. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. https://www.aqmd.gov/home/research/guidelines/planning-guidance/guidance-document, accessed on July 23, 2024.

As summarized in Table 3-6, PM10 concentrations were measured at 23 locations in 2020. While the Coachella Valley Portion of the Salton Sea Air Basin is in nonattainment, the South Coast Air Basin has remained in attainment for the federal 24-hour PM10 standard (150 µg/m^3) since 2006, and it was not exceeded in 2020. The maximum 24-hour PM10 concentration of 259 µg/m^3 was recorded at the Coachella Valley 3 station, but this high reading was attributed to high winds and is excluded in accordance with the U.S. EPA Exceptional Event Rule. Also, due to rounding considerations, the federal standard is technically 155 µg/m^3. The state 24-hour PM10 (50 µg/m^3) standard was exceeded at several of the monitoring stations. All areas within South Coast AQMD's jurisdiction are in nonattainment for the state 24-hour PM10 standard, which was exceeded at 19 of the monitoring stations in 2020.

The maximum annual average PM10 concentration of 52.2 µg/m^3 was recorded at the Metropolitan Riverside County 3 station. The federal annual PM10 standard has been revoked. The state annual PM10 standard (20 µg/m^3) was exceeded in most stations in each county in the Basin and in the Coachella Valley. All areas within South Coast AQMD's jurisdiction are in nonattainment for the state annual PM10 standard, which was exceeded at most stations in each county in the South Coast Air Basin and in the Coachella Valley in 2020.

On December 14, 2012, U.S. EPA strengthened the annual NAAQS for PM2.5 to 12 µg/m^3 and, as part of the revisions, a requirement was added to monitor near the most heavily trafficked roadways in large urban areas. Particle pollution is expected to be higher along these roadways because of direct emissions from cars and heavy-duty diesel trucks and buses. South Coast AQMD installed the two required PM2.5 monitors at locations selected based upon the heavy-duty diesel traffic, which are: 1) I-710, located at Long Beach Blvd. in Los Angeles County near Compton and Long Beach; and 2) SR-60 near-road, located west of Vineyard Avenue near the San Bernardino/Riverside County border near Ontario, Mira Loma, and Upland.

As summarized in Table 3-7, PM2.5 concentrations were measured at 19 locations in 2020. While the Coachella Valley Portion of the Salton Sea Air Basin is in attainment, the South Coast Air Basin is in nonattainment for federal and state PM2.5 standards. The maximum 98th percentile 24-hour PM2.5 concentration of 34.7 µg/m^3 was recorded at the Metropolitan Riverside County station, less than the federal 24-hour PM2.5 standard of 35 µg/m^3. There is no state 24-hour standard for PM2.5. The maximum annual average PM2.5 concentration of 14.36 µg/m^3 was recorded at the CA-60 Near Road station, greater than the federal and state annual PM2.5 standard of 12 µg/m^3.

Table 3-6
South Coast AQMD – 2020 Air Quality Data – PM10[48]

SUSPENDED PARTICULATE MATTER PM10[a+]						
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. µg/m³, 24-hour	No. (%) Samples Exceeding Standard		Annual Average AAM Conc.[b] µg/m³
				Federal > 150 µg/m³, 24-hour	State > 50 µg/m³, 24-hour	
LOS ANGELES COUNTY						
1	Central LA	337	77	0	24 (7%)	23.0
3	Southwest Coastal LA County	37	43	0	0	22.3
4	South Coastal LA County 2	42	59	0	2 (5%)	24.9
4	South Coastal LA County 3	12	54	0	2 (17%)	27.8
9	East San Gabriel Valley 1	43	95	0	8 (19%)	37.7
9	East San Gabriel Valley 2	333	105	0	9 (3%)	25.2
13	Santa Clarita Valley	36	48	0	0	22.5
ORANGE COUNTY						
17	Central Orange County	329	120	0	13 (4%)	23.9
19	Saddleback Valley	42	53	0	1 (2%)	16.8
RIVERSIDE COUNTY						
22	Corona/Norco Area	44	100	0	10 (23%)	39.1
23	Metropolitan Riverside County 1	320	104	0	110 (34%)	30.0
23	Metropolitan Riverside County 3	304	124	0	154 (51%)	52.2
24	Perris Valley	37	77	0	6 (16%)	35.9
25	Elsinore Valley	334	84	0	7 (2%)	22.0
29	San Gorgonio Pass	42	46	0	0	19.2
30	Coachella Valley 1**	251	48	0	0	20.4
30	Coachella Valley 2**	317	77	0	8 (3%)	29.1
30	Coachella Valley 3**	320	259	1 (0%)	69 (22%)	38.0
SAN BERNARDINO COUNTY						
32	Northwest San Bernardino Valley	305	63	0	12 (4%)	30.5
34	Central San Bernardino Valley 1	40	61	0	6 (15%)	35.8
34	Central San Bernardino Valley 2	320	80	0	81 (25%)	38.7
35	East San Bernardino Valley	40	57	0	1 (3%)	23.4
37	Central San Bernardino Mountains	40	51	0	1 (3%)	18.1
DISTRICT MAXIMUM[(c)]			**259**	**1**	**154**	**52.2**
SOUTH COAST AIR BASIN[(d)]			**124**	**0**	**173**	**52.2**

µg/m³ = micrograms per cubic meter of air
AAM = Annual Arithmetic Mean
**Salton Sea Air Basin

\+ High PM10 (≥ 155 µg/m³) data recorded in Coachella Valley (due to high winds) and the Basin (due to Independence Day fireworks) are excluded in accordance with the U.S. EPA Exceptional Event Rule.

[a] PM10 statistics listed above are based on combined Federal Reference Method (FRM) and Federal Equivalent Method (FEM) data. Filter-based measurements for PM10 from March 28, 202 to June 2, 2020 are not available due to COVID-19 Pandemic.

[b] State annual average (AAM) PM10 standard is > 20 µg/m³. Federal annual PM10 standard (AAM > 50 µg/m³) was revoked in 2006.

[c] District Maximum is the maximum value calculated at any station in the South Coast AQMD jurisdiction.

[d] Concentrations are the maximum value observed at any station in the South Coast Air Basin. Number of daily exceedances are the total number of days that the indicated concentration is exceeded at any station in the South Coast Air Basin.

[48] South Coast AQMD, 2021. 2020 Air Quality, South Coast Air Quality Management District, Historical Air Quality Data for Year 2020 at locations where PM10 was monitored; http://www.aqmd.gov/docs/default-source/air-quality/historical-data-by-year/aq2020card_final.pdf, accessed on July 23, 2024.

Table 3-7
South Coast AQMD – 2020 Air Quality Data – PM2.5[49]

SUSPENDED PARTICULATE MATTER PM2.5 [a]						
Source Receptor Area No.	**Location of Air Monitoring Station**	**No. Days of Data**	**Max. Conc. µg/m³, 24-hour**	**98th Percentile Conc. in µg/m³ 24-hr**	**No. (%) Samples Exceeding Federal Std > 35 µg/m³, 24-hour**	**Annual Average AAM Conc.[b] µg/m³**
LOS ANGELES COUNTY						
1	Central LA	353	47.30	28.00	2 (1%)	12.31
4	South Coastal LA County 1	117	28.10	26.10	0	11.26
4	South Coastal LA County 2	357	39.00	28.00	1 (0%)	11.38
4	I-710 Near Road##	356	44.00	31.50	2 (1%)	12.93
6	West San Fernando Valley	116	27.60	26.40	0	10.13
8	West San Gabriel Valley	117	34.90	31.20	0	11.06
9	East San Gabriel Valley 1	116	33.00	25.80	0	11.13
11	South San Gabriel Valley	116	35.40	30.50	0	13.22
12	South Central LA County	352	43.20	34.10	7 (2%)	13.57
ORANGE COUNTY						
17	Central Orange County	355	41.40	27.10	1 (0%)	11.27
19	Saddleback Valley	120	35.00	32.70	0	8.81
RIVERSIDE COUNTY						
23	Metropolitan Riverside County 1	357	41.00	29.60	4 (1%)	12.63
23	Metropolitan Riverside County 3	358	38.70	34.70	5 (1%)	14.03
30	Coachella Valley 1**	122	23.90	16.90	0	6.42
30	Coachella Valley 2**	121	25.60	20.20	0	8.41
SAN BERNARDINO COUNTY						
33	CA-60 Near Road##	356	53.10	3.70	4 (1%)	14.36
34	Central San Bernardino Valley 1	117	46.10	27.40	1 (1%)	11.95
34	Central San Bernardino Valley 2	115	25.70	24.70	0	11.66
38	East San Bernardino Mountains	58	24.30	20.40	0	7.62
DISTRICT MAXIMUM[(c)]			**53.1**	**34.1**	**7**	**14.36**
SOUTH COAST AIR BASIN[(d)]			**53.1**	**34.1**	**13**	**14.36**

µg/m³ = micrograms per cubic meter of air AAM = Annual Arithmetic Mean
**Salton Sea Air Basin

[a] PM2.5 statistics listed above are for the FRM data only with the exception of Central Orange County, I-710 Near Road, Metropolitan Riverside County 1 and 3, CA-60 Near Road, and South Coastal LA Count 2 where FEM PM2.5 measurements are used to supplement missing FRM measurements because they pass the screening criteria for the South Coast AQMD Continuous Monitor Comparability Assessment and Request for Waiver dated July 1, 2021.
[b] Federal and State standards are annual average (AAM) > 12.0 µg/m³.
[c] District Maximum is the maximum value calculated at any station in the South Coast AQMD jurisdiction.
[d] Concentrations are the maximum value observed at any station in the South Coast Air Basin. Number of daily exceedances are the total number of days that the indicated concentration is exceeded at any station in the South Coast Air Basin.

Lead

Under the federal Clean Air Act, lead is classified as a "criteria pollutant." Lead causes observed adverse health effects at ambient concentrations. Lead is also deemed a carcinogenic toxic air contaminant (TAC) by the Office of Environmental Health Hazard Assessment (OEHHA). Lead in the atmosphere is a mixture of several lead compounds. Leaded gasoline and lead smelters have been the main sources of lead emitted into the air. Due to the phasing out of leaded gasoline, there was a dramatic reduction in atmospheric lead in the Basin over the past three decades. In fact, there were no violations of the lead standards at South Coast AQMD's regular air monitoring stations from 1982 to 2020, primarily due to the removal of lead from gasoline.

[49] South Coast AQMD, 2021. 2020 Air Quality, South Coast Air Quality Management District, Historical Air Quality Data for Year 2020 at locations where PM2.5 was monitored; http://www.aqmd.gov/docs/default-source/air-quality/historical-data-by-year/aq2020card_final.pdf, accessed on July 23, 2024.

Fetuses, infants, and children are more sensitive than others to the adverse effects of lead exposure. Exposure to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure. Lead poisoning can cause anemia, lethargy, seizures, and death. It appears that there are no direct effects of lead on the respiratory system. Lead can be stored in the bone from early-age environmental exposure, and elevated blood lead levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland), and osteoporosis (breakdown of bone tissue). Fetuses and breast-fed babies can be exposed to higher levels of lead because of previous environmental lead exposure of their mothers.[50, 51 52]

As summarized in Table 3-8, South Coast AQMD monitored lead concentrations at eight monitoring stations in 2020. The South Coast Air Basin (Los Angeles County area) is currently in nonattainment for lead. This nonattainment designation was due to the operations of specific stationary sources of lead emissions. The Mojave Desert Air Basin and Salton Sea Air Basin are both in attainment for lead. The South Coast AQMD has petitioned U.S. EPA for a redesignation to attainment for the federal lead standard for the Los Angeles County nonattainment area. Stringent South Coast AQMD rules governing lead-producing sources will help to ensure that there are no future violations of the federal standard. At the time of this report, South Coast AQMD has not yet received a response from U.S. EPA regarding the petition. The current lead concentrations in Los Angeles County are below the federal 3-month rolling average standard of 0.15 µg/m^3. Further, the state 30-day standard of 1.5 µg/m^3 was not exceeded in any areas under the jurisdiction of the South Coast AQMD in 2020.

Sulfates

Sulfates are chemical compounds which contain the sulfate ion and are part of the mixture of solid materials which make up PM10. Most of the sulfates in the atmosphere are produced by oxidation of SO_2. Oxidation of sulfur dioxide yields sulfur trioxide (SO_3), which reacts with water to form sulfuric acid, which then contributes to acid deposition. The reaction of sulfuric acid with basic substances such as ammonia yields sulfates, a component of PM10 and PM2.5.

Most of the health effects associated with fine particles and SO_2 at ambient levels are also associated with sulfates. Thus, both mortality and morbidity effects have been observed with an increase in ambient sulfate concentrations. However, efforts to separate the effects of sulfates from the effects of other pollutants have generally not been successful.[53,54,55]

[50] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed on July 23, 2024.
[51] South Coast AQMD. 2015. Health Effects of Air Pollution. http://www.aqmd.gov/docs/default-source/publications/brochures/the-health-effects-of-air-pollution-brochure.pdf, accessed on July 23, 2024.
[52] South Coast AQMD. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. https://www.aqmd.gov/home/research/guidelines/planning-guidance/guidance-document, accessed on July 23, 2024.
[53] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed on July 23, 2024.
[54] South Coast AQMD. 2015. Health Effects of Air Pollution. http://www.aqmd.gov/docs/default-source/publications/brochures/the-health-effects-of-air-pollution-brochure.pdf, accessed on July 23, 2024.
[55] South Coast AQMD. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. https://www.aqmd.gov/home/research/guidelines/planning-guidance/guidance-document, accessed on July 23, 2024.

Table 3-8
South Coast AQMD – 2020 Air Quality Data – Lead and Sulfates[56]

		LEAD[a++]		SULFATES[b]	
Source Receptor Area No.	**Location of Air Monitoring Station**	**Max. Monthly Average Conc. [m] µg/m³**	**Max. 3-Month Rolling Average [m] µg/m³**	**No. Days of Data**	**Max. Conc. µg/m³, 24-hour**
LOS ANGELES COUNTY					
1	Central LA	0.013	0.011	45	3.3
3	Southwest Coastal LA County	0.008	0.005	--	--
4	South Coastal LA County 2	0.008	0.006	--	--
4	South Coastal LA County 3	--	--	14	2.3
9	East San Gabriel Valley 1	0.010	0.007	45	3.1
11	South San Gabriel Valley	0.012	0.011	--	--
12	South Central LA County	0.010	0.009	--	--
ORANGE COUNTY					
17	Central Orange County	--	--	44	3.3
RIVERSIDE COUNTY					
23	Metropolitan Riverside County 1	0.016	0.010	84	5.2
30	Coachella Valley 2**	--	--	89	2.7
SAN BERNARDINO COUNTY					
34	Central San Bernardino Valley 1	--	--	44	3.0
34	Central San Bernardino Valley 2	0.010	0.09	--	--
DISTRICT MAXIMUM[(c)]		**0.016**	**0.011**		**5.2**
SOUTH COAST AIR BASIN[(d)]		**0.016**	**0.011**		**5.2**

µg/m^3 = micrograms per cubic meter of air
-- Pollutant not monitored
** Salton Sea Air Basin

++ Higher lead concentrations were recorded at near-source monitoring sites immediately downwind of stationary lead sources. Maximum monthly and 3-month rolling averages recorded were 0.96 µ/m^3 and 0.059 µ/m^3.

[a] Federal lead standard is 3-months rolling average > 0.15 µg/m^3; state standard is monthly average ≥ 1.5 µg/m^3. Lead standards were not exceeded.
[b] State sulfate standard is 24-hour ≥ 25 µg/m^3. There is no federal standard for sulfate.
[c] District Maximum is the maximum value calculated at any station in the South Coast AQMD jurisdiction.
[d] Concentrations are the maximum value observed at any station in the South Coast Air Basin. Number of daily exceedances are the total number of days that the indicated concentration is exceeded at any station in the South Coast Air Basin.

As summarized in Table 3-8, South Coast AQMD monitored sulfate at seven monitoring stations in 2020. The state 24-hour sulfate standard of 25 µg/m^3 was not exceeded in the South Coast Air Basin, which is in attainment for sulfate. The Mojave Desert Air Basin and Salton Sea Air Basin are also in attainment for sulfate. There are no federal sulfate standards.

Vinyl Chloride

Vinyl chloride is a colorless, flammable gas at ambient temperature and pressure. It is also highly toxic and is classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as A1 (confirmed carcinogen in humans) and by the International Agency for Research on Cancer (IARC) as 1 (known to be a human carcinogen).[57] At room temperature, vinyl chloride is a gas with a sickly-sweet odor that is easily condensed. However, it is stored as a liquid. Due to the hazardous nature of vinyl chloride to human health there are no end products that use vinyl

[56] South Coast AQMD, 2021. 2020 Air Quality, South Coast Air Quality Management District, Historical Air Quality Data for Year 2020 at locations where lead and sulfates were monitored; http://www.aqmd.gov/docs/default-source/air-quality/historical-data-by-year/aq2020card_final.pdf, accessed on July 23, 2024.
[57] International Agency for Research on Cancer. Vinyl Chloride Exposure Data, https://monographs.iarc.who.int/wp-content/uploads/2018/06/mono100F-31.pdf, accessed on June 10, 2022.

chloride in its monomer form. Vinyl chloride is a chemical intermediate, not a final product. It is an important industrial chemical chiefly used to produce polymer polyvinyl chloride (PVC). The process involves vinyl chloride liquid fed to polymerization reactors where it is converted from a monomer to a polymer PVC. The final product of the polymerization process is PVC in either a flake or pellet form. Billions of pounds of PVC are sold on the global market each year. From its flake or pellet form, PVC is sold to companies that heat and mold the PVC into end products such as PVC pipe and bottles.

In the past, vinyl chloride emissions have been associated primarily with sources such as landfills. Risks from exposure to vinyl chloride are considered to be localized impacts rather than regional impacts. Because landfills in the South Coast AQMD are subject to Rule 1150.1 – Control of Gaseous Emissions from Municipal Solid Waste Landfills, which contain stringent requirements for landfill gas collection and control, potential vinyl chloride emissions are expected to be below the level of detection. Therefore, South Coast AQMD does not monitor for vinyl chloride at its monitoring stations.

Volatile Organic Compounds

There are no state or NAAQS for VOCs because they are not classified as criteria pollutants. VOCs are regulated, however, because VOCs are a precursor to the formation of ozone in the atmosphere. VOCs are also transformed into organic aerosols in the atmosphere, contributing to higher PM10 and lower visibility levels.

Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOCs because of interference with oxygen uptake. In general, ambient VOC concentrations in the atmosphere are suspected to cause coughing, sneezing, headaches, weakness, laryngitis, and bronchitis, even at low concentrations. Some hydrocarbon components classified as VOC emissions are thought or known to be hazardous. Benzene, for example, one hydrocarbon component of VOC emissions, is known to be a human carcinogen.

Non-Criteria Pollutants

Although South Coast AQMD's primary mandate is attaining the state and NAAQS for criteria pollutants within the Basin, South Coast AQMD also has a general responsibility pursuant to Health and Safety Code Section 41700 to control emissions of air contaminants and prevent endangerment to public health. Additionally, state law requires South Coast AQMD to implement ATCMs adopted by CARB and to implement the Air Toxics "Hot Spots" Act. As a result, South Coast AQMD has regulated pollutants other than criteria pollutants such as TACs, GHGs, and stratospheric ozone depleting compounds. South Coast AQMD has developed several rules which are designed to control non-criteria pollutants from both new and existing sources. These rules originated through state directives, CAA requirements, or the South Coast AQMD rulemaking process.

In addition to promulgating non-criteria pollutant rules, South Coast AQMD has been evaluating control measures in the 2016 AQMP as well as existing rules to determine whether they would affect, either positively or negatively, emissions of non-criteria pollutants. For example, rules which target the VOC components of coating materials and that allow for the replacement of the VOC components with a non-photochemically reactive chlorinated substance would reduce the

impacts resulting from ozone formation but could increase emissions of toxic compounds or other substances that may have adverse impacts on human health.

Carcinogenic Health Risks from TACs: One of the primary health risks of concern due to exposure to TACs is the risk of contracting cancer. The carcinogenic potential of TACs is a public health concern because it is currently believed by many scientists that there is no 'safe' level of exposure to carcinogens. Any exposure to a carcinogen poses some risk of causing cancer. It is currently estimated that about one in four deaths in the United States is attributable to cancer. The proportion of cancer deaths attributable to air pollution has not been estimated using epidemiological methods.

Non-cancer Health Risks from TACs: Unlike carcinogens, for most non-carcinogens it is believed that there is a threshold level of exposure to the compound below which it will not pose a health risk. CalEPA's OEHHA develops Reference Exposure Levels (RELs) for TACs are health-conservative estimates of the levels of exposure at or below which health effects are not expected. The non-cancer health risk due to exposure to a TAC is assessed by comparing the estimated level of exposure to the REL. The comparison is expressed as the ratio of the estimated exposure level to the REL, called the hazard index (HI).

Multiple Air Toxics Exposure Study (MATES): In 1986, South Coast AQMD conducted the first MATES report to determine the risks associated with major airborne carcinogens in the South Coast Air Basin. The most current version (MATES V[58]) consists of a monitoring program, an updated emissions inventory of TACs, and a modeling effort to characterize risk across the South Coast Air Basin. The study focuses on the carcinogenic risk from exposure to air toxics but does not estimate mortality or other health effects from criteria pollutant exposures which are conducted as part of the 2016 AQMP. Two key updates were implemented in MATES V. First, cancer risk estimations now take into account multiple exposure pathways. Previous MATES studies quantified the cancer risks based on the inhalation pathway only; a cumulative cancer risk accounting for inhalation and non-inhalation pathways is approximately 8% higher than the inhalation-only calculation for the MATES V data. Second, along with cancer risk estimates, MATES V includes information on the chronic non-cancer health impacts from inhalation and non-inhalation pathways for the first time. The cumulative chronic hazard index accounting for the inhalation and non-inhalation pathways is approximately twice the inhalation-only calculation for the MATES V data.

3.2.2 Greenhouse Gas Emissions

Greenhouse gases (GHGs) trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The latter, anthropogenic sources of GHGs, is the focus of impacts under CEQA. Traditionally, GHGs and other global warming pollutants are perceived as solely global in their impacts, and that increasing emissions anywhere in the world contributes to climate change anywhere in the world. A study conducted on the health

[58] South Coast AQMD, MATES V, Multiple Air Toxics Exposure Study in the South Coast AQMD, Final Report, August 2021. http://www.aqmd.gov/docs/default-source/planning/mates-v/mates-v-final-report.pdf, accessed on July 23, 2024.

impacts of CO_2 'domes' that form over urban areas showed that they cause increases in local temperatures and local criteria pollutants, which have adverse health effects.[59]

3.2.2.1 Climate Change

Global climate change is a change in the average weather of the Earth, which can be measured by wind patterns, storms, precipitation, and temperature. Historical records have shown that temperature changes have occurred in the past, such as during previous ice ages. Data indicates that the current temperature record differs from previous climate changes in rate and magnitude.

Gases that trap heat in the atmosphere are often called greenhouse gases (GHGs), comparable to a greenhouse, which captures and traps radiant energy. GHGs are emitted by natural processes and human activities. The accumulation of greenhouse gases in the atmosphere regulates the earth's temperature. Global warming is the observed increase in average temperature of the earth's surface and atmosphere. The primary cause of global warming is an increase of GHGs in the atmosphere. The six major GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbon (PFCs). The GHGs absorb longwave radiant energy emitted by the Earth, which warms the atmosphere. The GHGs also emit longwave radiation both upward to space and back down toward the surface of the Earth. The downward part of this longwave radiation emitted by the atmosphere is known as the "greenhouse effect." Emissions from human activities such as fossil fuel combustion for electricity production and vehicles have elevated the concentration of these gases in the atmosphere.

- **Carbon dioxide (CO_2)** is an odorless, colorless greenhouse gas. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic (human caused) sources of CO_2 include burning coal, oil, gasoline, natural gas, and wood.

- **Methane (CH_4)** is a flammable gas and is the main component of natural gas.

- **Nitrous Oxide (N_2O)**, also known as laughing gas, is a colorless greenhouse gas. Some industrial processes such as fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions also contribute to the atmospheric load of N_2O.

- **Sulfur hexafluoride (SF_6)** is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

- **Hydrofluorocarbons (HFCs)** are synthetic man-made chemicals composed of hydrogen, fluorine, and carbon that are used as a substitute for chlorofluorocarbons (whose production was stopped as required by the Montreal Protocol) for use in automobile air conditioners and refrigerants.

[59] Jacobsen, Mark Z. "Enhancement of Local Air Pollution by Urban CO_2 Domes," Environmental Science and Technology, as described in Stanford University press release on March 16, 2010 available at: https://web.stanford.edu/group/efmh/jacobson/Articles/V/CO2SOM0310.pdf, accessed on July 23, 2024.

- **Perfluorocarbons (PFCs)** are synthetic man-made chemicals composed of fluorine and carbon that are used as a substitute for chlorofluorocarbons in producing aluminum and manufacturing semiconductors

Scientific consensus, as reflected in recent reports issued by the United Nations Intergovernmental Panel on Climate Change, is that the majority of the observed warming over the last 50 years can be attributable to increased concentration of GHGs in the atmosphere due to human activities. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants. In the past, gradual changes in temperature changed the distribution of species, availability of water, etc. However, human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but in a human's lifetime. Industrial activities, particularly increased consumption of fossil fuels (gasoline, diesel, coal, etc.), have heavily contributed to the increase in atmospheric levels of GHGs. The United Nations Intergovernmental Panel on Climate Change constructed several emission trajectories of greenhouse gases needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of greenhouse gases at 400 to 450 ppm carbon dioxide-equivalent (CO_2eq) concentration is required to keep global mean warming below two degrees Celsius, which has been identified as necessary to avoid dangerous impacts from climate change.[60]

The potential health effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme events, air quality impacts, and sea level rise. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems (e.g., heat rash and heat stroke). In addition, climate sensitive diseases may increase, such as those spread by mosquitoes and other insects. Those diseases include malaria, dengue fever, yellow fever, and encephalitis. Extreme events such as flooding, hurricanes, and wildfires can displace people and agriculture, which would have negative consequences. Drought in some areas may increase, which would decrease water and food availability. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution.[61]

The impacts of climate change will also affect projects in various ways. Effects of climate change are rising sea levels and changes in snowpack.[62] The extent of climate change impacts at specific locations remains unclear.

Federal, state, and local agencies are working towards more precisely quantifying impacts in various regions. As an example, the California Department of Water Resources is expected to formalize a list of foreseeable water quality issues associated with various degrees of climate change. Once state government agencies make these lists available, they could be used to more precisely determine to what extent a project creates global climate change impacts.

[60] Intergovernmental Panel on Climate Change (IPCC). 2014. *Fifth Assessment Report: Climate Change 2014*. New York: Cambridge University Press, https://www.ipcc.ch/report/ar5/syr/, accessed on July 23, 2024.

[61] Center for Disease Control. 2016. Climate Change Decreases the Quality of the Air We Breathe. https://www.cdc.gov/climate-health/media/pdfs/AIR-QUALITY-Final_508_1.pdf, accessed on July 23, 2024.

[62] Office of Environmental Health Hazards Assessment, 2018. Indicators of Climate Change in California. https://oehha.ca.gov/media/downloads/climate-change/report/2018caindicatorsreportmay2018.pdf, accessed on July 23, 2024.

3.2.2.1.1 Statewide Inventory

GHG emissions in the state have been inventoried by CARB. As shown in Figure 3-1, CO2 accounts for 83% of the total 418.2 million metric tons (MT) of CO_2eq emissions in the California in 2019. Figure 3-2 illustrates that transportation (primarily on-road travel) is the single largest source of CO_2 emissions in the state. Upstream transportation emissions from the refinery and oil and gas sectors are categorized as CO_2 emissions from industrial sources and constitute about 50% of the industrial source emissions. When these emissions sources are attributed to the transportation sector, the emissions from the transportation sector amount to approximately half of statewide GHG emissions. In addition to transportation, electricity production, and industrial and residential sources also are important contributors to CO_2 emissions. Figures 3-1 and 3-2 show state GHG emission contributions by GHG and sector based on the 2019 Greenhouse Gas Emission Inventory. The emissions presented in Figure 3-2 are depicted by Scoping Plan sector, which includes separate categories for high-global warming potential (GWP) and recycling/waste emissions that are otherwise typically included within other economic sectors.

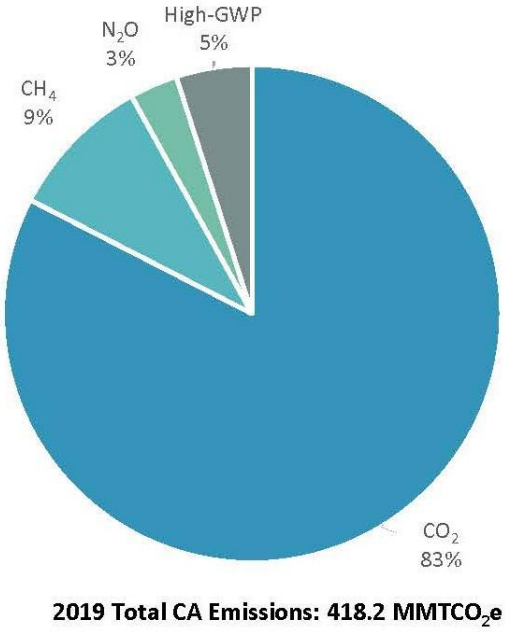

Figure 3-1
2019 Statewide GHG Emission Contributions by GHG[63]

[63] CARB, 2022. Draft 2022 Scoping Plan Update, Figure 1-7, page 33, https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp.pdf, accessed on July 23, 2024.

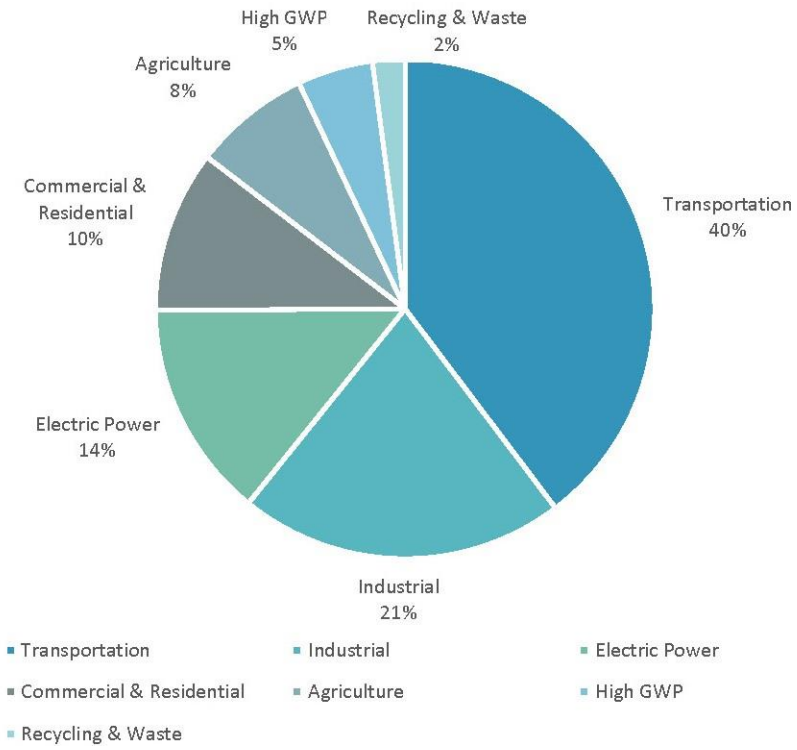

Figure 3-2
2019 Statewide GHG Emission Contributions by Scoping Plan Sector[64]

The GHG emission inventory encompasses emission sources within the state's border, as well as imported electricity consumed in the state. Statewide GHG emissions calculations use many data sources, including data from other state and federal agencies. However, the primary source of data comes from reports submitted to CARB through the CARB Regulation for the Mandatory Reporting of GHG Emissions, which requires facilities and entities with more than 10,000 metric tons of CO_2eq to report emissions directly to CARB. Reported emissions greater than 25,000 metric tons are required to be verified by a CARB-accredited third-part verification body.

3.2.2.2 Regulatory Setting

3.2.2.2.1 Federal

Greenhouse Gas Endangerment Findings: On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding greenhouse gases pursuant to the federal Clean Air Act (CAA) Section 202(a). The Endangerment Finding stated that CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 taken in combination endanger both the public health and the public welfare of current and future generations. The *Cause or Contribute Finding* stated that the combined emissions from motor vehicles and motor vehicle engines contribute to the greenhouse gas air pollution that endangers public health and welfare. These findings were a prerequisite for implementing GHG standards for vehicles. The U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) finalized emission standards for light-duty vehicles in May 2010 and for heavy-duty vehicles in August of 2011. Subsequently, the U.S. EPA rolled back the light duty GHG standards, a decision which is currently under litigation. In August 2021, the U.S. EPA proposed replacement

[64] CARB, 2022. Draft 2022 Scoping Plan Update, Figure 1-8, page 34, https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp.pdf, accessed on July 23, 2024.

GHG standards for light-duty vehicles and announced plans to reduce GHG emissions from heavy-duty trucks through a series of major rulemakings over the next three years with the first to be finalized in 2022.[65] On March 7, 2022, the U.S. EPA proposed the first step in the U.S. EPA's "Clean Trucks Plan" that would revise existing GHG standards for model year 2027 and beyond trucks in subsectors where electrification is advancing at a more rapid pace. The sectors include school buses, transit buses, commercial delivery trucks, and short-haul tractors.

Renewable Fuel Standard: The Renewable Fuel Standard (RFS) program was established under the Energy Policy Act (EPAct) of 2005 and required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the Energy Independence and Security Act (EISA) of 2007, the RFS program was expanded to include diesel, required that the volume of renewable fuel blended into transportation fuel be increased from nine billion gallons in 2008 to 36 billion gallons by 2022, established new categories of renewable fuel, and required U.S. EPA to apply lifecycle GHG performance threshold standards so that each category of renewable fuel emits fewer greenhouse gases than the petroleum fuel it replaces. In a separate measure, the U.S. EPA will be setting new GHG emission standards for heavy-duty vehicles as soon as model year 2030, which will more comprehensively address the long-term trend towards zero emission vehicles across the heavy-duty sector.[66]

GHG Tailoring Rule: On May 13, 2010, U.S. EPA finalized the GHG Tailoring Rule to phase in the applicability of the Prevention of Significant Deterioration (PSD) and Title V operating permit programs for GHGs. The GHG Tailoring Rule was tailored to include the largest GHG emitters, while excluding smaller sources (restaurants, commercial facilities and small farms). The first phase (from January 2, 2011 to June 30, 2011) addressed the largest sources that contributed 65% of the stationary GHG sources. Title V GHG requirements were triggered only when affected facility owners/operators were applying, renewing or revising their permits for non-GHG pollutants. PSD GHG requirements were applicable only if sources were undergoing permitting actions for other non-GHG pollutants and the permitted action would increase GHG emission by 75,000 metric tons of CO_2 equivalent emissions (CO_2eq) per year or more. The Tailoring Rule originally included a second phase for sources that were not otherwise major sources but had the potential to emit 100,000 metric tons of CO_2eq per year. In 2014, the U.S. Supreme Court held that U.S. EPA was limited to phase 1.

GHG Reporting Program: U.S. EPA issued the Mandatory Reporting of Greenhouse Gases Rule (40 CFR Part 98) under the 2008 Consolidated Appropriations Act. The Mandatory Reporting of Greenhouse Gases Rule requires reporting of GHG data from large sources and suppliers under the Greenhouse Gas Reporting Program. Suppliers of certain products that would result in GHG emissions if released, combusted or oxidized; direct emitting source categories; and facilities that inject CO_2 underground for geologic sequestration or any purpose other than geologic sequestration are included. Facilities that emit 25,000 metric tons or more per year of GHGs as CO_2eq are required to submit annual reports to U.S. EPA.

Ozone-Depleting Substances: Under the CAA Title VI, the U.S. EPA is assigned responsibility for implementing programs that protect the stratospheric ozone layer. 40 CFR Part 82 contains

[65] U.S. EPA, 2021. EPA to Overhaul Pollution Standards for Passenger Vehicles and Heavy-Duty Trucks, Paving Way for Zero-Emission Future, News Release, August 5, 2021. https://www.epa.gov/newsreleases/epa-overhaul-pollution-standards-passenger-vehicles-and-heavy-duty-trucks-paving-way, accessed on July 23, 2024.

[66] U.S. EPA, 2022. EPA Proposes Stronger Standards for Heavy-Duty Vehicles to Promote Clean Air, Protect Communities, and Support Transition to Zero-Emissions Future, News Release, March 7, 2022. https://www.epa.gov/newsreleases/epa-proposes-stronger-standards-heavy-duty-vehicles-promote-clean-air-protect, accessed on July 23, 2024.

U.S. EPA's regulations specific to protecting the ozone layer. These U.S. EPA regulations phase out the production and import of ozone-depleting substances (ODSs) consistent with the Montreal Protocol.[67] ODSs are typically used as refrigerants or as foam-blowing agents. ODS are regulated as Class I or Class II controlled substances. Class I substances have a higher ozone-depleting potential and have been completely phased out in the United States, except for exemptions allowed under the Montreal Protocol. Class II substances are HCFCs, which are transitional substitutes for many Class I substances and are being phased out.

3.2.2.2.2 State

Statewide GHG Reduction Targets

Executive Order S-3-05: In June 2005, Governor Schwarzenegger signed Executive Order S-3-05, which established emission reduction targets. The goals would reduce GHG emissions to 2000 levels by 2010, then to 1990 levels by 2020, and to 80% below 1990 levels by 2050.

Assembly Bill (AB) 32 – Global Warming Solutions Act: On September 27, 2006, AB 32, the California Global Warming Solutions Act of 2006, was signed by Governor Schwarzenegger. AB 32 expanded on Executive Order S-3-05. The California legislature stated that "global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." AB 32 represented the first enforceable statewide program in the U.S. to cap all GHG emissions from major industries that includes penalties for non-compliance. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB 32 laid out a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the state that serve California residents and businesses.

Consistent with the requirement to develop an emission reduction plan, CARB prepared a Scoping Plan indicating how GHG emission reductions will be achieved through regulations, market mechanisms, and other actions. The 2008 Scoping Plan called for reducing GHG emissions to 1990 levels by 2020. This means cutting approximately 30% from business-as-usual (BAU) emission levels projected for 2020, or about 15% from 2005 to 2008 levels.[68] However, as of January 1, 2020, SB 32 became the guiding GHG regulation.

Senate Bill (SB) 32 and AB 197: In September 2016, Governor Brown signed Senate Bill 32 and Assembly Bill 197, making the Executive Order goal of reducing GHG emissions to 40% below 1990 levels by 2030 into a statewide, mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires the CARB to prioritize direct emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources. CARB prepared a 2017 Climate Change Scoping Plan Update, which outlines potential regulations and programs, including strategies consistent with AB 197 requirements, to achieve the 2030 target. The 2017 Scoping Plan establishes a new emissions limit of 260 million $MTCO_2eq$ for the year 2030, which corresponds to a 40% decrease in 1990 levels

[67] The Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol) is an international treaty designed to phase out halogenated hydrocarbons such as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), which are considered ODSs. The Montreal Protocol was first signed on September 16, 1987 and has been revised seven times. The U.S. ratified the original Montreal Protocol and each of its revisions.

[68] California Air Resources Board. 2008, December. Climate Change Scoping Plan, A Framework for Change.

by 2030.[69] On May 10, 2022, CARB released the Draft 2022 Scoping Plan Update for public review and assessed progress toward the statutory 2030 target, while laying out a path to achieving carbon neutrality no later than 2045.

The major elements of the Draft 2022 Scoping Plan Update include: 1) "the aggressive reduction of fossil fuels wherever they are currently used in California, building on and accelerating carbon reduction programs that have been in place here for a decade and a half; and 2) re-envisioning of our forests, shrublands/chaparral, croplands, wetlands, and other lands (referred to as Natural and Working Lands) to ensure that they play as robust a role as possible in incorporating and storing more carbon in the trees, plants, soil, and wetlands that cover 90% of the state's 105 million acres. Specifically, the Draft 2022 Scoping Plan:

- Identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40% below 1990 emissions by 2030.
- Identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 or earlier.
- Focuses on strategies for reducing California's dependency on petroleum to provide consumers with clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.
- Integrates equity and protecting California's most impacted communities as a driving principle throughout the document.
- Incorporates the contribution of natural and working lands to the state's GHG emissions, as well as its role in achieving carbon neutrality.
- Relies on the most up to date science, including the need to deploy all viable tools to address the existential threat that climate change presents, including carbon capture and sequestration as well a direct air capture.
- Evaluates multiple options for achieving our GHG and carbon neutrality targets, as well as the public health benefits and economic impacts associated with each.[70]

California's climate strategy will require contributions from all sectors of the economy, including enhanced focus on zero emission and near-zero emission (ZE/NZE) vehicle technologies; continued investment in renewables such as solar roofs, wind, and other types of distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conserve agricultural and other lands. Requirements for GHG reductions at stationary sources complement local air pollution control efforts by the local air districts to tighten criteria air pollutants and TACs emissions limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

[69] CARB, 2017, California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target, https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf, accessed on July 23, 2024.

[70] CARB 2022, Draft 2022 Scoping Plan Update, May 10, 2022, Executive Summary, https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp.pdf , accessed on July 23, 2024.

- Implementing and/or increasing the stringency of the standards for the various strategies covered under the Mobile Source Strategy, which include increasing ZE buses and trucks.

- Low Carbon Fuel Standard (LCFS), with an increased stringency (18% by 2030).

- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50% RPS and doubles energy efficiency savings by 2030.

- California Sustainable Freight Action Plan, which improves freight system efficiency and utilizes near-zero emission technology and deployment of ZE trucks.

- Implementing the proposed Short-Lived Climate Pollutant Strategy, which focuses on reducing methane and hydrofluorocarbon emissions by 40% and anthropogenic black carbon emissions by 50% by year 2030.

- Post-2020 Cap-and-Trade Program that includes declining caps.

- Continued implementation of SB 375.

- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.[71]

In addition to the statewide strategies listed above, the 2017 Climate Change Scoping Plan also identified local governments as essential partners in achieving the state's long-term GHG reduction goals and recommended local actions to reduce GHG emissions—for example, statewide targets of no more than six $MTCO_2eq$ or less per capita by 2030 and two $MTCO_2eq$ or less per capita by 2050. CARB recommends that local governments evaluate and adopt robust and quantitative locally appropriate goals that align with the statewide per capita targets and sustainable development objectives and develop plans to achieve the local goals. The statewide per capita goals were developed by applying the percent reductions necessary to reach the 2030 and 2050 climate goals (i.e., 40% and 80%, respectively) to the state's 1990 emissions limit established under AB 32. For CEQA projects, CARB states that lead agencies have discretion to develop evidenced-based numeric thresholds (mass emissions, per capita, or per service population) consistent with the Scoping Plan and the state's long-term GHG goals. To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from VMT, and direct investments in GHG reductions within the project's region that contribute potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits.[72]

The Scoping Plan scenario is set against what is called the business-as-usual (BAU) yardstick—that is, what would the GHG emissions look like if the state did nothing at all beyond the existing policies that are required and already in place to achieve the 2020 limit. It includes the existing renewables requirements, advanced clean cars, the LCFS, and the SB 375 program for more vibrant communities, among others. However, it does not include a range of new policies or

[71] CARB, 2017. California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target, https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf, accessed on July 23, 2024.
[72] CARB, 2017. California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target, https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf, accessed on July 23, 2024.

measures that have been developed or put into statute over the past two years. The known commitments are expected to result in emissions that are 60 million $MTCO_2eq$ above the target in 2030. If the estimated GHG reductions from the known commitments are not realized due to delays in implementation or technology deployment, the post-2020 Cap-and-Trade Program would deliver the additional GHG reductions in the sectors it covers to ensure the 2030 target is achieved.

Mobile Sources

AB 1493 Vehicular Emissions: Prior to the U.S. EPA and NHTSA joint rulemaking, Governor Schwarzenegger signed Assembly Bill AB 1493 (2002). AB 1493 requires that CARB develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state." CARB originally approved regulations to reduce GHGs from passenger vehicles in September 2004, with the regulations to take effect in 2009 (see amendments to CCR Title 13 Sections 1900 and 1961 (13 CCR 1900, 1961), and the adoption of CCR Title 13 Section 1961.1 (13 CCR 1961.1)). California's first request to the U.S. EPA to implement GHG standards for passenger vehicles was made in December 2005 and subsequently denied by the U.S. EPA in March 2008. The U.S. EPA then granted California the authority to implement GHG emission reduction standards for new passenger cars, pickup trucks, and sport utility vehicles on June 30, 2009. On April 1, 2010, CARB filed amended regulations for passenger vehicles as part of California's commitment toward the national program to reduce new passenger vehicle GHGs from 2012 through 2016. In 2012, CARB approved the Low-Emission Vehicle (LEV) III regulations which include increasingly stringent emission standards for both criteria pollutants and greenhouse gases for new passenger vehicles of manufacture years 2017 through 2025.[73]

Low Carbon Fuel Standard (LCFS): In the 2008 Scoping Plan, CARB identified the LCFS as one of the nine discrete early action GHG reduction measures. The LCFS is designed to decrease the carbon intensity of California's transportation fuel pool and provide an increasing range of low-carbon and renewable alternatives, which reduce petroleum dependency and achieve air quality benefits. CARB approved the LCFS regulation in 2009 and began implementation on January 1, 2011 and has been amended several times since adoption. In 2018, CARB approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector. The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector. The LCFS standards are expressed in terms of the 'carbon intensity' of gasoline and diesel fuel and their respective substitutes. The program is based on the principle that each fuel has 'lifecycle' greenhouse gas emissions that include CO_2, CH_4, N_2O, and other GHG contributors. This lifecycle assessment examines the GHG emissions associated with the production, transportation, and use of a given fuel. The lifecycle assessment includes direct emissions associated with producing, transporting, and using the fuels, as well as significant indirect effects on GHG emissions, such as changes in land use for some biofuels. The carbon intensity scores assessed for each fuel are compared to a declining carbon intensity benchmark for each year. Low carbon fuels below the

[73] CARB, Low-Emission Vehicle Greenhouse Gas Program, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/lev-program/low-emission-vehicle-greenhouse-gas, accessed on July 23, 2024..

benchmark generate credits, while fuels above the carbon intensity benchmark generate deficits. Providers of transportation fuels must demonstrate that the mix of fuels they supply for use in California meets the LCFS carbon intensity standards, or benchmarks, for each annual compliance period. A deficit generator meets its compliance obligation by ensuring that the quantity of credits it earns or otherwise acquires from another party is equal to, or greater than, the deficits it has incurred.

EO S-1-07: Governor Schwarzenegger signed Executive Order S-1-07 in 2007 which established the transportation sector as the main source of GHG emissions in California. Executive Order S-1-07 proclaims that the transportation sector accounts for over 40% of statewide GHG emissions. Executive Order S-1-07 also establishes a goal to reduce the carbon intensity of transportation fuels sold in California by a minimum of 10% by 2020. Executive Order S-1-07 established the LCFS and directed the Secretary for Environmental Protection to coordinate the actions of the CEC, CARB, the University of California, and other agencies to develop and propose protocols for measuring the 'life-cycle carbon intensity' of transportation fuels. The analysis supporting development of the protocols was included in the State Alternative Fuels Plan adopted by CEC on December 24, 2007 and was submitted to CARB for consideration as an 'early action' item under AB 32. CARB adopted the LCFS on April 23, 2009.

EO B-16-2012: Executive Order B-16-2012 establishes long-term targets of reaching 1.5 million zero emission vehicles on California's roadways by 2025 and sets zero emission vehicle purchasing requirements for state government fleets. Executive Order B-16-2012 also sets a target for 2050 to achieve a reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels. In February 2013, an interagency working group developed the "Zero-Emission Vehicle Action Plan," which identified specific strategies and actions that state agencies needed to take to meet the milestones of this Executive Order. The Zero-Emission Vehicle Action Plan states: "*Zero-Emission Vehicles are crucial to achieving the state's 2050 greenhouse gas goal of 80 percent emission reductions below 1990 levels, as well as meeting federal air quality standards. Achieving 1.5 million Zero-Emission Vehicles by 2025 is essential to advance the market and put the state on a path to meet these requirements."*

EO N-79-20: On September 23, 2020, Governor Newsom signed Executive Order N-79-20 which included the following goals to have: 1) 100% of in-state sales of new passenger cars and trucks transition to zero emission vehicles by 2035; 2) 100% of drayage trucks transition to zero emission vehicles by 2035; 3) 100% of medium- and heavy-duty vehicles transition to zero emission vehicles by 2045 for all operations in California, where feasible; and 4) 100% of off-road vehicles and equipment to transition to zero emission vehicles and equipment by 2035, where feasible.

SB 44: The California Legislature passed SB 44, acknowledging the ongoing need to evaluate opportunities for mobile source emissions reductions and requires CARB to update the 2016 Mobile Source Strategy by January 1, 2021, and every five years thereafter. Specifically, SB 44 requires CARB to update the 2016 Mobile Source Strategy to include a comprehensive strategy for the deployment of medium- and heavy-duty vehicles for meeting air quality standards and reducing GHG emissions. It also directs CARB to set reasonable and achievable goals for reducing emissions by 2030 and 2050 from medium- and heavy-duty vehicles that are consistent with the California's overall goals and maximizes the reduction of criteria air pollutants.

SB 375: SB 375, signed into law in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. As part of the alignment, SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable

Communities Strategy (SCS) or Alternative Planning Strategy (APS) which prescribes land use allocation in that MPO's Regional Transportation Plan (RTP). CARB, in consultation with MPOs, is required to provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned GHG emission reduction targets. If MPOs do not meet the GHG reduction targets, transportation projects located in the MPO boundaries would not be eligible for funding programmed after January 1, 2012.

CARB appointed the Regional Targets Advisory Committee (RTAC), as required under SB 375, on January 23, 2009. The RTAC's charge was to advise CARB on the factors to be considered and methodologies to be used for establishing regional targets. The RTAC provided its recommendation to CARB on September 29, 2009. CARB was required to adopt final targets by September 30, 2010.[74]

CARB is required to update the targets for the MPOs every eight years. CARB adopted revised SB 375 targets for the MPOs in March 2018.[75,76] The updated targets became effective on October 1, 2018. The targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update (for SB 32), while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of percent per capita reduction in GHG emissions from automobiles and light trucks relative to 2005; this excludes reductions anticipated from implementation of state technology and fuels strategies, and any potential future state strategies, such as statewide road user pricing. The targets also call for greater per-capita GHG emission reductions from SB 375 than what were previously in place, which for 2035 translate into targets that either match or exceed the emission reduction levels in the MPOs' currently adopted SCS to achieve the SB 375 targets. For the next round of SCS updates, CARB's updated targets for the SCAG region are an 8% per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19% per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13%).[77] CARB adopted the updated targets and methodology on March 22, 2018. All SCSs adopted after October 1, 2018, are subject to these revised targets.

SCAG's Regional Transportation Plan / Sustainable Communities Strategy: SB 375 requires each MPO to prepare a sustainable communities strategy in its regional transportation plan. SCAG released the draft 2020-2045 RTP/SCS (Connect SoCal) on November 7, 2019. On September 3, 2020, SCAG's Regional Council unanimously voted to approve and fully adopt the Connect SoCal Plan.[78] In general, the SCS outlines a development pattern for the region that, when integrated with the transportation network and other transportation measures and policies, would reduce vehicle

[74] California Air Resources Board 2010, August. Staff Report Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375.

[75] California Air Resources Board, 2018, SB 375 Regional Greenhouse Gas Emissions Reduction Targets https://ww2.arb.ca.gov/sites/default/files/2020-06/SB375_Final_Targets_2018.pdf, accessed on July 23, 2024.

[76] California Air Resources Board, 2018, Updated Final Staff Report: Proposed Update to the SB 375 Greenhouse Gas Emissions Reduction Targets, https://ww2.arb.ca.gov/sites/default/files/2020-06/SB375_Updated_Final_Target_Staff_Report_2018.pdf, accessed on v July 23, 2024.

[77] California Air Resources Board. 2018, February. Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets. https://ww2.arb.ca.gov/sites/default/files/2020-06/SB375_Updated_Final_Target_Staff_Report_2018.pdf, , accessed on July 23, 2024

[78] Southern California Association of Governments (SCAG). 2020, September. Adopted Final Connect SoCal. https://scag.ca.gov/read-plan-adopted-final-plan, accessed on July 23, 2024.

miles traveled from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

Connect SoCal focuses on the continued efforts of the previous RTP/SCSs to integrate transportation and land uses strategies in development of the SCAG region through horizon year 2045. Connect SoCal forecasts that the SCAG region will meet its GHG per capita reduction targets of eight percent by 2020 and 19% by 2035. Additionally, Connect SoCal also forecasts that implementation of the plan will reduce VMT per capita in year 2045 by 4.1% compared to baseline conditions for that year. Connect SoCal includes a 'Core Vision' that centers on maintaining and better managing the transportation network for moving people and goods while expanding mobility choices by locating housing, jobs, and transit closer together, and increasing investments in transit and complete streets.

Adaptation

EO S-13-08: Governor Schwarzenegger signed Executive Order S-13-08 on November 14, 2008 which directed California to develop methods for adapting to climate change through preparation of a statewide plan. Executive Order S-13-08 directed OPR, in cooperation with the Resources Agency, to provide land use planning guidance related to sea level rise and other climate change impacts by May 30, 2009. Executive Order S-13-08 also directed the Resources Agency to develop a state Climate Adaptation Strategy by June 30, 2009 and to convene an independent panel to complete the first California Sea Level Rise Assessment Report. The assessment report was required to be completed by December 1, 2010 and required to meet the following four criteria:

1. Project the relative sea level rise specific to California by considering issues such as coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates;

2. Identify the range of uncertainty in selected sea level rise projections;

3. Synthesize existing information on projected sea level rise impacts to state infrastructure (e.g., roads, public facilities, beaches), natural areas, and coastal and marine ecosystems; and

4. Discuss future research needs relating to sea level rise in California.

Energy

SB 1078, SB 107 and EO S-14-08: SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20% of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date from 2017 to 2010. In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Portfolio Standard from 20% by 2010 to 33% renewable power by 2020.

SB X-1-2: SB X1-2 was signed by Governor Brown in April 2011. SB X1-2 created a new Renewables Portfolio Standard (RPS), which pre-empted CARB's 33% Renewable Electricity Standard. The new RPS applies to all electricity retailers in the state including publicly owned utilities (POUs), investor-owned utilities, electricity service providers, and community choice aggregators. These entities must adopt the new RPS goals of 20% of retails sales from renewables by the end of 2013, 25% by the end of 2016, and the 33% requirement by the end of 2020.

SB 1368: SB 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (CPUC)to establish a GHG emission performance standard for baseload generation from investor-owned utilities (IOUs) by February 1, 2007. The California Energy Commission (CEC) was also required to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the greenhouse gas emission rate from a baseload combined-cycle natural gas fired power plant. The legislation further required that all electricity provided to California, including imported electricity, must be generated from power plants that meet the standards set by the Public Utilities Commission (PUC) and CEC.

SB 350: Senate Bill 350 (de Leon) was signed into law September 2015 and establishes tiered increases to the RPS with 40% by 2024, 45% by 2027, and 50% by 2030. SB 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

SB 100: On September 10, 2018, Governor Brown signed SB 100. Under SB 100, the RPS for public-owned facilities and retail sellers consist of 44% renewable energy by 2024, 52% by 2027, and 60% by 2030. Additionally, SB 100 also established a new RPS requirement of 50% by 2026. Furthermore, the bill establishes an overall state policy that eligible renewable energy resources and zero-carbon resources supply 100% of all retail sales of electricity to California end-use customers and 100% of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100% carbon-free electricity target.

EO B-55-18: Executive Order B-55-18, signed September 10, 2018, sets a goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." Executive Order B-55-18 directed CARB to work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80% below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions be offset by equivalent net removals of CO_2eq from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

AB 2127: This bill requires the California Energy Commission (CEC), working with CARB and the CPUC, to prepare and biennially update a statewide assessment of the electric vehicle charging infrastructure needed to support the levels of electric vehicle adoption required for the state to meet its goals of putting at least five million zero emission vehicles on California roads by 2030 and of reducing emissions of greenhouse gases to 40% below 1990 levels by 2030. The bill requires the CEC to regularly seek data and input from stakeholders relating to electric vehicle charging infrastructure.[79]

California Building Code – Building Energy Efficiency Standards: Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The CEC updates building energy efficiency standards in Title 24 (Parts 6 and 11) every three years to allow for consideration and possible

[79] California Legislative Information, September 14, 2018, AB-2127 Electric Vehicle Charging Infrastructure: Assessment, https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB2127, accessed on July 23, 2024.

incorporation of new energy efficiency technologies and methods. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018 and went into effect on January 1, 2020. The 2019 standards move toward cutting energy use in new homes by more than 50% and will require installation of solar photovoltaic systems for single-family homes and multifamily buildings of three stories and less. The 2019 standards focus on four key areas: 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements.[80]

In addition, the CEC adopted the 2022 Building Energy Efficiency Standards adopted on August 11, 2021 but they do not go into effect until January 1, 2023. The 2022 Energy Code encourages efficient electric heat pumps, establishes electric-ready requirements for new homes, expands solar photovoltaic and battery storage standards, strengthens ventilation standards, and more. Buildings whose permit applications are applied for on or after January 1, 2023, must comply with the 2022 Energy Code.

California Building Code – CALGreen: On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR Part 11, known as 'CALGreen') was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[81] The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011 and were last updated in 2019. The 2019 CALGreen standards became effective January 1, 2020. Section 5.408 of CALGreen requires that at least 65% of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

Short-Lived Climate Pollutants

SB 1383: On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and methane. Black carbon is the light-absorbing component of fine particulate matter produced during incomplete combustion of fuels. SB 1383 required CARB, no later than January 1, 2018, to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40%, hydrofluorocarbon gases by 40%, and anthropogenic black carbon by 50% below 2013 levels by 2030, as specified. On March 14, 2017, CARB adopted the "Final Proposed Short-Lived Climate Pollutant Reduction Strategy," which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90% lower than in the early 1960s despite

[80] California Energy Commission (CEC). 2018. News Release: Energy Commission Adopts Standards Requiring Solar Systems for New Homes, First in Nation. https://www.nbcnews.com/news/us-news/california-becomes-first-state-require-solar-panels-new-homes-n872531, accessed on July 23, 2024.

[81] California Building Standards Commission, 2022. CalGreen as promulgated in the California Code of Regulations, Title 24, Part 11 (24 CCR Part 11). https://www.dgs.ca.gov/BSC/CALGreen.

the tripling of diesel fuel use. In-use on-road rules are expected to reduce black carbon emissions from on-road sources by 80% between 2000 and 2020.

Ozone Depleting Substances (ODSs)

Refrigerant Management Program: As part of implementing AB 32, CARB also adopted a Refrigerant Management Program in 2009. The Refrigerant Management Program is designed to reduce GHG emissions from stationary sources through refrigerant leak detection and monitoring, leak repair, system retirement and retrofitting, reporting and recordkeeping, and proper refrigerant cylinder use, sale, and disposal.

HFC Emission Reduction Measures for Mobile Air Conditioning – Regulation for Small Containers of Automotive Refrigerant: The Regulation for Small Containers of Automotive Refrigerant applies to the sale, use, and disposal of small containers of automotive refrigerant with a GWP greater than 150. Emission reductions are achieved through implementation of four requirements: 1) use of a self-sealing valve on the container; 2) improved labeling instructions; 3) a deposit and recycling program for small containers; and 4) an education program that emphasizes best practices for vehicle recharging. This regulation went into effect on January 1, 2010 with a one-year sell-through period for containers manufactured before January 1, 2010. The target recycle rate is initially set at 90% and increased to 95% beginning January 1, 2012.

3.2.2.2.3 South Coast AQMD

The South Coast AQMD adopted a "Policy on Global Warming and Stratospheric Ozone Depletion" on April 6, 1990. The policy commits the South Coast AQMD to consider global impacts in rulemaking and in drafting revisions to the AQMP. In March 1992, the South Coast AQMD Governing Board reaffirmed this policy and adopted amendments to the policy to include support of the adoption of a California GHG emission reduction goal.

Basin GHG Policy and Inventory: The South Coast AQMD has established a policy, adopted by the South Coast AQMD Governing Board at its September 5, 2008 meeting, to actively seek opportunities to reduce emissions of criteria, toxic, and climate change pollutants. The policy includes the intent to assist businesses and local governments implementing climate change measures, decrease the agency's carbon footprint, and provide climate change information to the public.

3.2.2.3. Ozone Depleting Substances (ODSs)

Policy on Global Warming and Stratospheric Ozone Depletion: The South Coast AQMD adopted a "Policy on Global Warming and Stratospheric Ozone Depletion" on April 6, 1990. The policy targeted a transition away from CFCs as an industrial refrigerant and propellant in aerosol cans. In March 1992, the South Coast AQMD Governing Board reaffirmed this policy and adopted amendments to the policy to include the following directives for ODSs:

- Phase out the use and corresponding emissions of CFCs, methyl chloroform (1,1,1-trichloroethane or TCA), carbon tetrachloride, and halons by December 1995.
- Phase out the large quantity use and corresponding emissions of HCFCs by the year 2000.
- Develop recycling regulations for HCFCs.
- Develop an emissions inventory and control strategy for methyl bromide.

CHAPTER 4

ENVIRONMENTAL IMPACTS

4.0 INTRODUCTION AND BACKGROUND

The CEQA Guidelines require environmental documents to identify significant environmental effects that may result from a proposed project. [CEQA Guidelines Section 15126.2(a)]. Direct and indirect significant effects of a project on the environment should be identified and described, with consideration given to both short- and long-term impacts. The discussion of environmental impacts may include, but is not limited to, the following: resources involved; physical changes; alterations of ecological systems; health and safety problems caused by physical changes; and other aspects of the resource base, including water, scenic quality, and public services. If significant adverse environmental impacts are identified, the CEQA Guidelines require a discussion of measures that could either avoid or substantially reduce any adverse environmental impacts to the greatest extent feasible. [CEQA Guidelines Section 15126.4].

The categories of environmental impacts to be studied in a CEQA document are established by CEQA (Public Resources Code Section 21000 et seq.), and the CEQA Guidelines, as codified in Title 14 California Code of Regulations Section 15000 et seq. Under the CEQA Guidelines, there are approximately 18 environmental categories in which potential adverse impacts from a project are evaluated. The South Coast AQMD, as lead agency, has taken into consideration the Appendix G environmental checklist form, but has tailored the 21 environmental topic areas to emphasize air quality assessment primarily by combining the "air quality" and "greenhouse gas emissions" areas into one section, combining the "cultural resources" and "tribal cultural resources" areas into one section, separating the "hazards and hazardous materials" factor into two sections: "hazards and hazardous materials" and "solid and hazardous waste," and folding the "utilities/service systems" area into other environmental areas such as "energy," "hydrology and water quality" and "solid and hazardous waste." For each environmental topic area, per CEQA Guidelines Section 15064.7(a), "a threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant." The South Coast AQMD has developed unique thresholds of significance for the determination of significance in accordance with CEQA Guidelines Section 15064.7(b).

Proposed Project and Focus of Environmental Effects and Analysis

As explained in Chapter 2, PAR 1135 has been primarily developed to update the NOx limits and compliance dates for the electricity generating facility located on Santa Catalina Island, with a specific focus on NZE and ZE technologies; this facility was referred to as Facility 2 in the November 2018 Final Mitigated SEA for Rule 1135. Compliance with PAR 1135 may be achieved through a variety of equipment configurations. However, for the purpose of identifying worst-case impacts, the analysis in this chapter focuses on ~~is expected to be achieved through~~ replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing existing microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells and solar powered batteries~~ at this facility~~. However, representatives from the electricity generating facility located on Santa Catalina Island indicated that they are also considering other combinations of equipment replacements such as installing NZE propane engines instead of the linear generators and fuel cells but this combination would not represent a worst-case scenario and would be expected to have fewer impacts.

Other changes are also proposed in PAR 1135 which are administrative in nature, such as the monitoring, reporting, and recordkeeping requirements for electric generating units located on Santa Catalina Island. These administrative components of PAR 1135 are not expected to require physical modifications that would create any secondary adverse environmental impacts for air quality or any other environmental topic area. Thus, the analysis in this SEA focuses only on the portion of PAR 1135 that would be expected to require physical modifications and their corresponding environmental effects.

The purpose of the November 2018 amendments to Rule 1135, the project upon which the currently proposed project, PAR 1135, is based, was to reduce NOx emissions from RECLAIM and non-RECLAIM electricity generating facilities which are owned or operated by an investor-owned electric utility, a publicly owned electric utility, or have electric generating units with a combined generation capacity of 50 MW or more of electrical power for distribution in the state or local electrical grid system. The November 2018 Final Mitigated SEA for Rule 1135 analyzed the environmental impacts associated with the activities that six affected facilities (referred to as Facility 1, 2, 3, 4, 5, and 6) were expected to undertake to ensure compliance with amended Rule 1135. While the reduction of NOx emissions was expected to create an environmental benefit, the November 2018 amendments to Rule 1135 were anticipated to create potentially significant adverse environmental impacts for the topic of hazards and hazardous materials due to the storage and use of aqueous ammonia. As such, mitigation measures were crafted to reduce the potentially significant adverse hazards and hazardous materials impacts to less than significant levels. To date, the construction activities undertaken in response to the 2018 amendments to Rule 1135 have been completed at Facilities 1, 4, and 5. Regarding Facility 6, the November 2018 Final Mitigated SEA for Rule 1135 analyzed construction and operational emissions associated with catalyst module replacement in SCR for their simple cycle turbine; however, this facility permanently shut down their turbine at the beginning of 2020. Therefore, the previously analyzed construction and operational emissions attributed to Facility 6 in the November 2018 Final Mitigated SEA have not occurred and will not occur in the future. Regarding Facility 3, the November 2018 Final Mitigated SEA for Rule 1135 analyzed construction emissions associated with removing three existing boilers and installing up to three new turbines with three new SCRs and one new aqueous ammonia storage tank. Instead, Facility 3 indicated that their repower project would shut down and remove their three existing boilers by January 1, 2024, and install a set of batteries and three new prime natural gas IC engines. Because Rule 1135 is not applicable to prime natural gas IC engines and batteries, Facility 3 will no longer be subject to Rule 1135. Therefore, of the six affected facilities identified as being subject to Rule 1135 in the November 2018 Final Mitigated SEA, only Facility 2 has yet to implement the physical modifications necessary to achieve the NOx emission limits contained in the 2018 amendments to Rule 1135. Regarding Facility 2, the November 2018 Final Mitigated SEA for Rule 1135 originally analyzed the environmental impacts associated with replacing five diesel engines with five new Tier 4 Final diesel engines to comply with a NOx emission limit of 13 tpy by January 1, 2026.

Rule 1135 was later amended on January 7, 2022 to specifically establish interim NOx limits (i.e., 50 tpy by January 1, 2024 and 45 tpy by January 1, 2025) for Facility 2 (i.e., the electricity generating facility located on Santa Catalina Island). These interim NOx limits from the 2022 amendments to Rule 1135 supplemented the initial NOx limit of 13 tpy by January 1, 2030 that was adopted in the November 2018 amendments to Rule 1135. Since the 2022 amendments to Rule 1135 were not expected to cause new physical modifications, no significant adverse impacts on the environment were identified. Thus, the South Coast AQMD Governing Board determined

on January 7, 2022 that the 2022 amendments to Rule 1135 were exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3); and a NOE was prepared pursuant to CEQA Guidelines Section 15062.

Currently, PAR 1135 proposes to: 1) remove the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024; 2) delay the compliance date for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years); 3) delay the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years); and 4) include new annual NOx emission limits of 30 tpy and 6 tpy with compliance dates of January 1, 2028 (with a potential extension up to three years) and January 1, 2035 (with a potential extension up to ~~three~~ six years), respectively. Table 1-1 shows the previous, current and proposed NOx emissions limits for the electric generating facility located on Santa Catalina Island as well their corresponding compliance dates.

While PAR 1135 is expected to have generally the same or similar effects that were previously examined in the November 2018 Final Mitigated SEA for Rule 1135, the air quality impacts from PAR 1135 will cause delayed NOx emission reductions, interim exceedances of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 ~~24-hour average ambient air quality standards~~, and interim operational cancer risks which will be more severe than what was discussed in November 2018 Final Mitigated SEA. Thus, PAR 1135 contains new information of substantial importance relative to the topic of air quality which was not known and could not have been known at the time the November 2018 Final Mitigated SEA for Rule 1135 was certified. [CEQA Guidelines Section 15162(a)(3)].

The purpose of this SEA, and this chapter in particular, is to compare the types of activities and environmental impacts subject to the Rule 1135 amendments that were previously analyzed in the November 2018 Final Mitigated SEA to the currently proposed changes which comprise PAR 1135. The CEQA Guidelines indicate that the degree of specificity required in a CEQA document depends on the type of project being proposed. [CEQA Guidelines Section 15146]. However, the detail of the environmental analysis for certain types of projects cannot be as great as for others. For this SEA, the baseline is the project analyzed in the November 2018 Final Mitigated SEA for Rule 1135, and the SEA tiers off of that previously conducted analysis. Lastly, because PAR 1135 proposes to amend an existing rule, this SEA is required to include the environmental analysis required by CEQA Guidelines Section 15187 which specifically pertains to the environmental review of rules and regulations.

Because PAR 1135 contains changes that would only adversely impact the topic of air quality, this SEA analyzes the potentially significant impacts specific to air quality. The analysis of the potentially significant air quality impacts in this chapter incorporates a "worst-case" approach. This approach entails the premise that whenever the analysis requires that assumptions be made, those assumptions that result in the greatest adverse impacts are typically chosen. This method ensures that all potential effects of PAR 1135 are documented for the decision-makers and the public.

In addition, this chapter independently considers whether the proposed project would result in new significant impacts for any of the other environmental topic areas previously concluded in the November 2018 Final Mitigated SEA for Rule 1135 to have either no significant impacts or less

than significant impacts (with or without mitigation); however, none were identified. See Section 4.3 of this chapter for a description and the basis for this conclusion.

4.1 POTENTIAL ENVIRONMENTAL IMPACTS FOUND TO BE SIGNIFICANT: AIR QUALITY AND GREENHOUSE GAS EMISSIONS IMPACTS

This chapter independently considers the currently proposed project (PAR 1135) and analyzes the incremental changes, if any, relative to the baseline established in the November 2018 Final Mitigated SEA for Rule 1135. The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed environmental impacts associated with the potential modifications that may be expected to occur at six affected electricity generating facilities to comply with the BARCT emission limits in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA for Rule 1135 analyzed the environmental topic area of air quality and GHG emissions, and concluded that less than significant adverse impacts to air quality and GHG emissions would occur.

Thus, this section evaluates the potential air quality and GHG emission impacts for PAR 1135 and compares the previous air quality and GHG emission impacts analysis conducted in the November 2018 Final Mitigated SEA for Rule 1135.

4.1.1 Significance Criteria

To determine whether air quality and GHG impacts from adopting and implementing the proposed project are significant, impacts will be evaluated and compared to the significance criteria on the following page. The significance thresholds for criteria pollutant emissions: the mass daily thresholds, were developed in 1993, and a full discussion can be found in the South Coast AQMD CEQA Handbook. Significance thresholds for toxic air contaminants and odor are based on requirements under Rules 1401 and 212, and 402 respectively. In December 2008, the Governing Board approved an interim GHG significance threshold for projects where the South Coast AQMD is lead agency. There has been ongoing development of the significance thresholds, and detailed discussion is available on the South Coast AQMD website.[82] A discussion regarding feasible mitigation measures is also included in this section. Significance determinations for construction impacts are based on the maximum or peak daily emissions during the construction period, which provides a "worst-case" analysis of the construction emissions. Similarly, significance determinations for operational emissions are based on the maximum or peak daily emissions during the operational phase. The proposed project will have significant adverse air quality impacts if any one of the thresholds in Table 4-1 are equaled or exceeded.

[82] South Coast AQMD, 1993. http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook.

Table 4-1
South Coast AQMD Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Construction**	**Operation**
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs), Odor, and GHG Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to South Coast AQMD Rule 402	
GHG	10,000 MT/yr CO_2eq for industrial facilities	
Ambient Air Quality Standards for Criteria Pollutants [b]		
NO_2 1-hour average annual arithmetic mean	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM_{10} 24-hour average annual average	10.4 μg/m^3 (construction)[c] & 2.5 μg/m^3 (operation) 1.0 μg/m^3	
$PM_{2.5}$ 24-hour average	10.4 μg/m^3 (construction)[c] & 2.5 μg/m^3 (operation)	
SO_2 1-hour average 24-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 μg/m^3 (state)	
CO 1-hour average 8-hour average	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day Average Rolling 3-month average	1.5 μg/m^3 (state) 0.15 μg/m^3 (federal)	

[a] Source: South Coast AQMD CEQA Handbook (South Coast AQMD, 1993)
[b] Ambient air quality thresholds for criteria pollutants based on South Coast AQMD Rule 1303, Table A-2 unless otherwise stated.
[c] Ambient air quality threshold based on South Coast AQMD Rule 403.

KEY: lbs/day = pounds per day ppm = parts per million μg/m^3 = microgram per cubic meter ≥ = greater than or equal to
MT/yr CO_2eq = metric tons per year of CO_2 equivalents > = greater than

Revision: March 2023

Project-Specific Air Quality Impacts During Construction

For the electricity generating facility located on Santa Catalina Island, PAR 1135 proposes to: 1) update NOx emission limits and compliance dates; 2) establish provisions for monitoring, reporting, and recordkeeping for NZE electric generating units without CEMS; 3) extend the deadline for prohibiting the installation of new diesel internal combustion engines from January 1, 2024 to January 1, 2028 or six months after any applicable extensions; 4) prohibit the installation of more than three new diesel internal combustion engines with a cumulative rating of 5.5 MW; 5) prohibit the installation of equipment that does not meet the definition of a Santa Catalina Island NZE electric generating unit or a Santa Catalina Island ZE electric generating unit after January 1, 2028 or six months after any applicable extensions; 6) require the installation of Santa Catalina Island NZE and/or ZE electric generating units by January 1, 2030 or six months after any applicable extensions ~~(with a three-year extension option to meet by January 1, 2033)~~ with a minimum cumulative rating of 1.8 MW, excluding the highest rated Santa Catalina Island NZE and/or ZE electric generating unit, solar photovoltaic cells, and battery storage; 7) remove all prime power diesel internal combustion engines for which installation was completed earlier than Date of Adoption from service by January 1, 2030 or six months after any applicable extensions; 8) require a feasibility analysis (e.g., progress in procuring and installing electric generating units) to be conducted for the 13 tpy and six tpy NOx emission limits by January 1, 2028 and January 1, 2033, respectively; and 9) update the time extension provision by including more specific criteria needed for approval, allowing the electricity generating facility located on Santa Catalina Island to request time extensions for extenuating circumstances (e.g., unforeseen construction interruptions and/or supply chain disruptions) for each compliance date or according to the feasibility analyses for meeting each of 13 tpy and six tpy NOx emission limits, and making requests for time extensions available for public review.

This section of the SEA will evaluate the construction-related emissions associated with the expected physical modifications at the affected facility to achieve compliance with PAR 1135. Construction-related emissions can be distinguished as either onsite or offsite. Onsite emissions generated during construction principally consist of exhaust emissions (NOx, SOx, CO, VOC, PM2.5 and PM10) from heavy-duty construction equipment operation, fugitive dust (primarily as PM10) from disturbed soil, and VOC emissions from asphaltic paving and painting. Offsite emissions during the construction phase normally consist of exhaust emissions and entrained paved road dust (primarily as PM10) from worker commute trips, material delivery trips, and haul truck material trips to and from the construction site.

PAR 1135 will impact one electricity generating facility located on Santa Catalina Island (referred to as Facility 2 in the November 2018 Final Mitigated SEA). The November 2018 Final Mitigated SEA for Rule 1135 originally analyzed the environmental impacts associated with replacing five diesel engines with five new Tier 4 Final diesel engines at Facility 2 to comply with a NOx limit of 13 tpy by January 1, 2026. Rule 1135 was later amended on January 7, 2022 to specifically establish interim NOx limits (i.e., 50 tpy by January 1, 2024 and 45 tpy by January 1, 2025) for this facility. Currently, PAR 1135 proposes to: 1) remove the 50 tpy NOx limit which has an expired compliance date of January 1, 2024; 2) delay the compliance date for the 45 tpy NOx limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years); 3) delay the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years); and 4) include new NOx limits of 30 tpy and 6 tpy with compliance dates of January 1, 2028 (with a potential extension up to

three years) and January 1, 2035 (with a potential extension up to ~~three~~ six years), respectively (see Table 1-1). Table 4-2 lists the expected physical modifications at Facility 2 to comply with PAR 1135 requirements.

Table 4-2
Potential Physical Modifications at Facility 2 to Comply with PAR 1135 Requirements

Annual NOx Limit	Compliance date	Potential Physical Modifications
Stage 1: 45 tpy	1/1/2027 (with a potential extension up to three years)	Replacement of two existing diesel engines with two new Tier 4 Final diesel engines
Stage 2: 30 tpy	1/1/2028 (with a potential extension up to three years)	Replacement of one existing diesel engine with one new Tier 4 Final diesel engine
Stage 3: 13 tpy	1/1/2030 (with a potential extension up to ~~three~~ six years)	Replacement of existing microturbines and three remaining diesel engines with five propane linear generators and three propane fuel cells*
Stage 4: 6 tpy	1/1/2035 (with a potential extension up to ~~three~~ six years)	Installation of ZE technologies such as solar PV cells/batteries

* Representatives from Facility 2 have indicated that they are considering installing NZE propane engines instead of the propane linear generators and propane fuel cells. However, no further details regarding this combination of equipment were provided.

According to Table 4-2, Facility 2 ~~compliance with PAR 1135~~ has several options with varying equipment configurations which can ~~be~~ achieve~~d~~ compliance with PAR 1135 such as ~~through~~ replacing three existing diesel internal combustion engine with three new Tier 4 Final diesel engines; replacing the remaining three existing diesel internal combustion engines and existing microturbines with five propane linear generators and three propane fuel cells; and installing ZE technologies such as solar PV cells.

It should be noted that there is limited land available on Santa Catalina Island to accommodate the installation of solar PV cells, as most open land on the island is mountainous and solar energy production is optimal when the equipment is sited on flat land. A potential site on Santa Catalina Island for the installation of solar PV cells or other ZE and/or NZE technologies, is Middle Ranch (Figure 2-7). Middle Ranch is approximately 15 acres, which can accommodate solar PV installations that could provide approximately 30% of historical power generation needed for Santa Catalina Island. However, because the facility is still in discussions with the Catalina Island Conservancy who owns the Middle Ranch property, it would be speculative to analyze the environmental impacts associated with the installation of solar PV cells on Santa Catalina Island. Therefore, in accordance with CEQA Guidelines Section 15145, an evaluation of the environmental impacts associated with installing solar PV cells is concluded to be speculative and will not be evaluated further in this SEA. Thus, the analysis in this SEA focuses on the potential secondary adverse environmental impacts associated with the following physical modifications at Facility 2: 1) replacement of three diesel internal combustions engines and SCRs with three new Tier 4 Final diesel internal combustion engines and SCRs; and 2) replacement of the remaining three existing diesel internal combustion engines and existing microturbines with five propane

linear generators and three propane fuel cells. Moreover, the analysis assumes that the replacement of each diesel engine and SCR with new Tier 4 Final diesel engine and SCR, and installation of linear generators would occur sequentially to minimize power disruptions or reductions to the facility's customers during construction.

Based on a discussion with a vendor, the following assumptions were made in order to estimate construction impacts from installing a linear generator:

- Each linear generator unit is assumed to be transported to Santa Catalina Island via barge from the Port of Los Angeles.

- All construction equipment and materials would need to be delivered to the facility via barge. Due to the limited space available at the facility, the hauling, unloading, and staging of construction equipment and materials would not occur on the same day as construction to install a linear generator.

- Each phase of construction is assumed to require the following number of days: demolition – 1 day, grading – 1 day, and building construction – 1 day; however, to provide a "worst-case" analysis, demolition and grading are assumed to occur on the same day.

- To remove the existing microturbines and install a linear generator, the following construction equipment and workers are assumed to be required:

    - Demolition: one tractor/loader/backhoe operating a maximum of four hours per day, a construction crew of six workers, and two waste haulers driving heavy-heavy duty trucks (HHDT).

    - Grading: a construction crew of four workers for pouring concrete, and two waste hauler trucks.

    - Building construction: one crane and one forklift operating a maximum of seven hours per day, a construction crew of six workers for rebar and frame placement, and one vendor driving a combination of heavy-heavy duty trucks and medium-heavy duty trucks (HHDT, MHDT).

Construction emissions for installing one linear generator at Facility 2 were estimated using the California Emission Estimator Model® version 2022.1.1.6 (CalEEMod). In addition, emissions from all on-road vehicles transporting workers, vendors, and material removal and delivery during construction were calculated using CalEEMod. The detailed output reports for the CalEEMod runs are included in Appendix B of this SEA. Because the installation of a fuel cell entails construction activities similar to those required for installing a linear generator, the construction emissions associated with installing a fuel cell were assumed to be equivalent to those of installing a linear generator.

This SEA relies on the previous analysis in the November 2018 Final Mitigated SEA regarding construction emissions from the replacement of an existing diesel engine and SCR with a new diesel engine and SCR. Furthermore, similar to the assumptions made in the November 2018 Final Mitigated SEA, PAR 1135 is assumed to cause one additional barge trip to Santa Catalina Island on a peak day to transport construction equipment and materials to Facility 2. The November 2018

Final Mitigated SEA for Rule 1135 previously estimated criteria pollutant and GHG emissions from the barge operating at that time as having one main engine (rated at 1800 horsepower (HP) and two 99 HP auxiliary engines. However, the electricity generating facility located on Santa Catalina Island provided data indicating that the current barge to Santa Catalina Island is equipped with three Caterpillar Tier III engines (each rated at 650 HP) and two 148 HP Tier III auxiliary engines. Compared to the analysis in the November 2018 Final Mitigated SEA for Rule 1135, the data provided by Facility 2 also includes a deterioration product and a substantially higher load factor (e.g., 85%) for the barge's main engines. South Coast AQMD reviewed the data provided by SCE and compared it to load factor data specific to barges from the Port of Los Angeles and Port of Long Beach, San Pedro Bay Ports Emission Inventory Methodology Report, Table 3.1: Harbor Craft Engine Load Factors,[83]which indicated that a load factor of 50% was more appropriate. Thus, a load factor of 50% was applied instead of 85% for the barge's main engines. The updated calculations of criteria pollutant and GHG emissions from barge trips are provided in Appendix C. Table 4-3 summarizes the results of the air quality analysis for the construction activities at Facility 2; the construction activities do not overlap as equipment will be introduced sequentially to minimize power disruptions or reductions to the facility's customers during construction. However, as a worst-case scenario, barge trips are assumed to occur on the same day as replacing an existing diesel engine with a new Tier 4 Final diesel engine. If Facility 2 decides to replace the existing microturbines and three remaining diesel engines with NZE propane engines in lieu of linear generators or fuel cells, no changes to peak daily construction emissions are anticipated in Table 4-3. This is because the physical modifications required for this replacement are expected to be similar to those involved in replacing an existing diesel engine with a new Tier 4 Final diesel engine. As shown in Table 4-3, the total peak daily construction emissions resulting from implementation of PAR 1135 would not exceed the South Coast AQMD's significance threshold for construction; however, the total peak daily construction emissions would be higher than what was analyzed in the November 2018 Final Mitigated SEA for Facility 2.

[83] Port of Los Angeles and Port of Long Beach, San Pedro Bay Ports Emission Inventory Methodology Report, Version 4, August 2023, https://kentico.portoflosangeles.org/getmedia/2f6e4e7c-6197-493b-bf3e-e3b7ea26b6eb/SPBP_Emissions_Inventory_Methodology_v4.

Table 4-3
Peak Daily Construction Emissions at Facility 2

Construction Activity	VOC (lb/day)	NOx (lb/day)	CO (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Removal of the Existing Microturbine and Installation of a Linear Generator or Fuel Cell [a]	0.45	4.47	4.02	0.01	0.26	0.19
Replacement of an Existing Diesel Engine and SCR with a New Diesel Engine and SCR [b]	4.3	40	27	0.1	3.4	2.3
1-Barge Round Trip to Transport Construction Equipment and Material to Facility 2 [c]	5.2	28.0	25.5	0.0	1.6	1.6
Total Peak Daily Construction Emissions (PAR 1135) [d]	**9.5**	**68.0**	**52.5**	**0.1**	**5.0**	**3.9**
Total Peak Daily Construction Emissions (November 2018 Final Mitigated SEA) [b]	**4.3**	**40**	**27**	**0.1**	**3.4**	**2.3**
SIGNIFICANCE THRESHOLD FOR CONSTRUCTION	**75**	**100**	**550**	**150**	**150**	**55**
SIGNIFICANT?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

a. The emissions are estimated using CalEEMod version 2022.1.1.6 and include emissions from on-road vehicles and offroad construction equipment. Appendix C contains the detailed calculations.
b. From the November 2018 Final Mitigated SEA for Rule 1135.
c. Data provided by the electricity generating facility located on Santa Catalina Island, but the load factor for the main engines was adjusted from 85% to 50%.
d. Facility 2 is assumed to replace diesel engines and install linear generators/fuel cells in sequential order to maintain a sufficient amount of power to its customers without causing a service disruption or reduced power supplies. Thus, on a peak day, there will be either a diesel engine replacement or a linear generator/fuel cell installation. As a worst-case scenario, barge trips are expected to occur on the same day as the installation of one new engine or linear generator.

Although PAR 1135 is only expected to impact Facility 2, the November 2018 Final Mitigated SEA for Rule 1135 analyzed environmental impacts associated with the physical modifications at five other facilities as well (referred to as Facility 1, 3, 4, 5, and 6 in the November 2018 Final Mitigated SEA for Rule 1135) to comply with the November 2018 version of Rule 1135. Table 4-4 shows the updated peak daily construction emissions at Facility 2 due to PAR 1135 as well as the previously reported peak daily construction emissions for other facilities that were previously analyzed in the November 2018 Final Mitigated SEA and are not affected by PAR 1135.

Table 4-4
Total Peak Daily Construction Emissions for Facility 2 and Other Facilities Analyzed in the November 2018 Final Mitigated SEA for Rule 1135

Facility	VOC (lb/day)	NOx (lb/day)	CO (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
PAR 1135: Facility 2	9.5	68.0	52.5	0.1	5.0	3.9
November 2018 Final Mitigated SEA: Facility 1	0.4	5.0	3.1	0.0	0.3	0.2
November 2018 Final Mitigated SEA: Facility 3	16	51	22	0.1	6.3	3.3
November 2018 Final Mitigated SEA: Facility 4	0.4	5.0	3.1	0.0	0.3	0.2
November 2018 Final Mitigated SEA: Facility 5	0.4	5.0	3.1	0.0	0.3	0.2
November 2018 Final Mitigated SEA: Facility 6	0.4	5.0	3.1	0.0	0.3	0.2

The construction activities at Facilities 1, 4, and 5 in response to the NOx limits in Rule 1135 have already been completed. Regarding Facility 6, while the November 2018 Final Mitigated SEA for Rule 1135 analyzed construction and operational emissions associated with catalyst module replacement in SCR of their simple cycle turbine, this facility permanently shut down their turbine at the beginning of 2020. Therefore, the previously analyzed construction and operational emissions for this facility in the November 2018 Final Mitigated SEA have not occurred and will not occur in the future. Regarding Facility 3, the November 2018 Final Mitigated SEA for Rule 1135 analyzed construction emissions associated with removing three existing boilers and installing up to three new turbines with three new SCRs and one new aqueous ammonia storage tank. However, Facility 3 later indicated that their repower project includes the shutting down and removal of their three existing boilers by January 1, 2024, and installing a set of batteries and three new prime natural gas IC engines. Because Rule 1135 does not apply to prime natural gas IC engines and batteries, this SEA will not analyze the air quality impacts associated with installing and operating such equipment at Facility 3. Based upon preceding discussion, construction activities at Facility 2 are not expected to overlap with any of the other five facilities that were previously analyzed in the November 2018 Final Mitigated SEA. **Thus, based upon these considerations, less than significant adverse air quality impacts relating to construction are expected from implementing PAR 1135.**

Project-Specific Air Quality Impacts During Operation

The November 2018 Final Mitigated SEA for Rule 1135 originally analyzed the environmental impacts associated with replacing five diesel engines with five new Tier 4 Final diesel engines at Facility 2 to comply with a NOx emission limit of 13 tpy by January 1, 2026. Rule 1135 was later amended in January 7, 2022 to specifically establish interim NOx emission limits (i.e., 50 tpy by January 1, 2024 and 45 tpy by January 1, 2025) for Facility 2.

Currently, PAR 1135 proposes to: 1) remove the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024; 2) delay the compliance date for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three

years); 3) delay the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years); and 4) include new annual NOx emission limits of 30 tpy and 6 tpy with compliance dates of January 1, 2028 (with a potential extension up to three years) and January 1, 2035 (with a potential extension up to ~~three~~ six years), respectively. Table 1-1 shows the previous, current and proposed NOx emissions limits for the electric generating facility located on Santa Catalina Island as well their corresponding compliance dates.

It is important to note that the ongoing, needed maintenance of the electric generating units is an operational activity which already takes place at Facility 2 and is considered part of the existing setting. PAR 1135 does not impose new maintenance or testing requirements that would alter these requirements. Moreover, once Facility 2 completes the expected construction activities presented in Table 4-2 to attain each of the proposed annual NOx limits, there would be: 1) no increases to the amount of urea that is currently delivered, stored, and utilized; and 2) no change to the current maintenance schedule for replacing spent SCR catalyst. PAR 1135 is expected to incrementally increase the annual number of diesel-fueled barge trips from 300 to 329, 319, and 326 during the compliance periods associated with attaining the NOx limits of 45 tpy, 30 tpy, and 13 tpy, respectively. However, because Santa Catalina Island currently receives a maximum of up to two barge visits due to space limitations at the pier, no changes to the number of barge visits on a peak day are expected.

Nonetheless, implementation of the proposed project is expected to result in delayed NOx emission reductions due to: 1) removing the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024; 2) delaying the compliance date for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years), and 3) delaying the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years). If any extension is granted for ~~the 13 tpy~~any NOx emission limits as presented in Table 1-1 ~~(up to three years)~~, the emission reductions will be delayed for a longer period of time. The emissions from the six prime power diesel internal combustion engines and other equipment located on Santa Catalina Island are currently 71.3 tons of NOx per year based on Annual Emission Report data. Figure 4-1 shows the delayed NOx emission reductions at Facility 2 due to the implementation of PAR 1135.

According to Figure 4-1, PAR 1135 will result the following delayed NOx emission reductions which vary by compliance year:

- 21.3 tpy (equal to 116.71 lb/day) from January 1, 2024 to January 1, 2025;
- 26.3 tpy (equal to 144.11 lb/day) from January 1, 2025 to January 1, 2026;
- 58.3 tpy (equal to 319.45 lb/day) from January 1, 2026 to January 1, 2027 (with a potential extension up to three years);
- 32 tpy (equal to 175.34 lb/day) from January 1, 2027 (with a potential extension up to three years) to January 1, 2028 (with a potential extension up to three years); and
- 17 tpy (equal to 93.15 lb/day) from January 1, 2028 (with a potential extension up to three years) to January 1, 2030 (with a potential extension up to ~~three~~ six years).

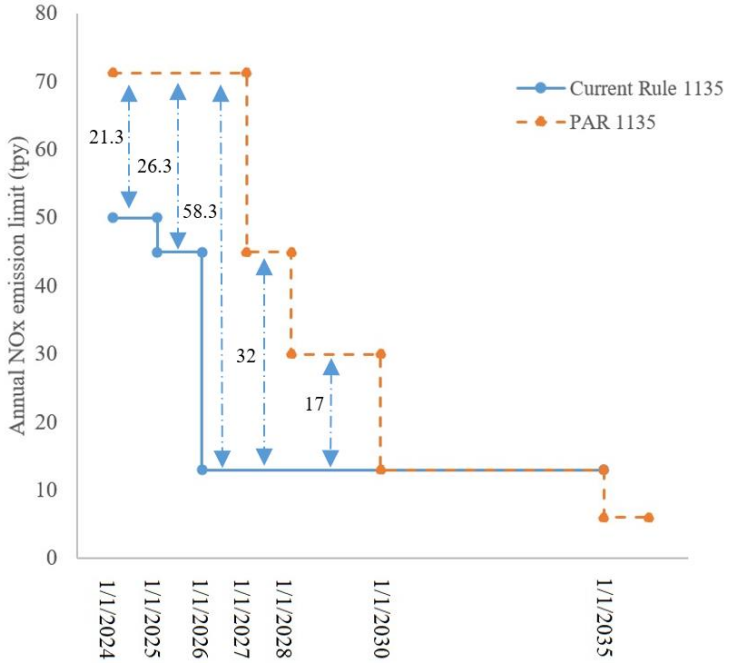

Figure 4-1
Delayed NOx Emission Reductions at Facility 2 due to PAR 1135

Overall, although the November 2018 Final Mitigated SEA for Rule 1135 identified no operational impacts at Facility 2 as part of implementing the 2018 version of Rule 1135, the delayed NOx emission reductions that will occur due to removing the 50 tpy NOx limit and from extending the compliance dates for the 45 and 13 tpy NOx emission limits in PAR 1135 would exceed the South Coast AQMD's daily NOx operational significance threshold of 55 pounds per day. **Thus, the peak daily operational NOx emissions impacts at Facility 2 from implementing PAR 1135 are significant until January 1, 2030 (with a potential extension up to ~~three~~ six years) over the short-term, but less than significant after January 1, 2030 (with a potential extension up to ~~three~~ six years) over the long-term.**

Project-Specific Mitigation: If significant adverse environmental impacts are identified, the CEQA document shall describe feasible measures that could minimize the significant adverse impacts of the proposed project. [CEQA Guidelines Section 15126.4]. Therefore, feasible mitigation measures for reducing operational NOx impacts are required. However, the reason PAR 1135 is proposing to update the annual NOx emission limits and compliance dates at Facility 2 is because the facility cannot feasibly attain the current annual NOx limits by the compliance dates adopted in the November 2018 and January 2022 versions of Rule 1135. In addition, PAR 1135 will eventually reduce the annual NOx limits from 13 tpy to 6 tpy by January 1, 2035 (with a potential extension up to ~~three~~ six years) which will result in an air quality and health benefit. Thus, there are no feasible mitigation measures that would eliminate or reduce the significant adverse operational air quality impacts for NOx emissions to less than significant levels.

Remaining Criteria Air Pollutant Impacts: While operational air quality impacts for NOx emissions are expected to be significant for the interim compliance dates over the short-term (e.g.,

until January 1, 2030 (with a potential extension up to ~~three~~ six years), no feasible mitigation measures have been identified that would eliminate or reduce the significant adverse operational air quality impacts for NOx emissions to less than significant levels. Therefore, operational air quality impacts for NOx emissions are significant and unavoidable for the interim compliance dates. After January 1, 2030 (with a potential extension up to ~~three~~ six years), the peak daily operational NOx emissions impacts at Facility 2 will be less than significant over the long-term because the maximum NOx emission reductions will be realized.

Construction and Operation Overlap Impact

While PAR 1135 is only expected to require physical modifications at Facility 2, the November 2018 Final Mitigated SEA for Rule 1135 analyzed environmental impacts associated with the physical modifications anticipated at that time to occur at five other facilities as well (referred to as Facility 1, 3, 4, 5, and 6 in the November 2018 Final Mitigated SEA for Rule 1135) in order to attain the NOx limits in the November 2018 version of Rule 1135.

As explained earlier, construction activities undertaken in response to the 2018 amendments to Rule 1135 have been completed at Facilities 1, 4, and 5. Regarding Facility 6, the November 2018 Final Mitigated SEA for Rule 1135 analyzed construction and operational emissions associated with catalyst module replacement in SCR for their simple cycle turbine; however, this facility permanently shut down their turbine at the beginning of 2020. Therefore, the previously analyzed construction and operational emissions attributed to Facility 6 in the November 2018 Final Mitigated SEA have not occurred and will not occur in the future. Regarding Facility 3, the November 2018 Final Mitigated SEA for Rule 1135 analyzed construction emissions associated with removing three existing boilers, and installing up to three new turbines with three new SCRs and one new aqueous ammonia storage tank. Instead, Facility 3 indicated that their repower project would shut down and remove their three existing boilers by January 1, 2024, and install set of batteries and three new prime natural gas IC engines. Because Rule 1135 is not applicable to prime natural gas IC engines and batteries, Facility 3 will no longer be subject to Rule 1135. Therefore, this SEA will not analyze the construction and operational impacts associated with installing and running such equipment at Facility 3.

Based upon the preceding discussion, the most conservative scenario for construction and operation overlap would occur if: 1) Facility 2 is undergoing peak daily construction activities to replace one of the diesel engines with a new Tier 4 Final diesel engine; 2) peak delayed NOx emission reductions of 58.3 tpy (319.45 lb/day) occur at Facility 2 from January 1, 2026 to January 1, 2027 (with a potential extension up to three years) (see Figure 4-1); and 3) Facilities 1, 4, and 5 are undergoing operational activities. According to South Coast AQMD policy, in the event that there is an overlap of construction and operation phases, the peak daily emissions from the construction and operation overlap period should be summed and compared to the South Coast AQMD's air quality significance thresholds for operation because the latter are more stringent, and thus, more conservative. As such, peak daily emissions in construction and operation overlap phase are presented in Table 4-5 and the total peak daily emissions have been compared to the air quality significance thresholds for operation.

Table 4-5
Peak Daily Emissions in Construction and Operation Overlap Phase

Construction and Operation Overlap Phase	VOC (lb/day)	NOx (lb/day)	CO (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
PAR 1135: Peak daily Construction Emissions at Facility 2 (see Table 4-3)	9.5	68.0	52.2	0.1	5.0	3.9
PAR 1135: Peak Delayed NOx Emission Reductions at Facility 2 (see Figure 4-1)	N/A	319.45	N/A	N/A	N/A	N/A
November 2018 Final Mitigated SEA: Peak Operational Emissions at Facility 1	0.08	0.52	0.34	0.00	0.03	0.02
November 2018 Final Mitigated SEA: Peak Operational Emissions at Facility 4	0.08	0.52	0.34	0.00	0.03	0.02
November 2018 Final Mitigated SEA: Peak Operational Emissions at Facility 5	0.08	0.52	0.34	0.00	0.03	0.02
Total Overlapping Emissions	9.74	389.01	53.22	0.10	5.09	3.96
SIGNIFICANCE THRESHOLD FOR OPERATION	**75**	**55**	**550**	**150**	**150**	**55**
SIGNIFICANT?	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**

The calculated emissions in Table 4-5 are likely an overestimation because they do not take into account the operational emission reductions from Facilities 1, 4, and 5 that have been occurring since the facilities made their modifications. These modifications not only offset the facilities' daily operational emissions, but also offset the peak daily impacts from Facility 2.

As indicated in Table 4-5, the peak daily emissions during the construction and operational overlap period would exceed the South Coast AQMD's air quality significance thresholds for operation. **Therefore, the proposed project is expected to result in significant adverse air quality impacts during the construction and operation overlap period.**

Ambient Air Quality Impacts During Operation

Table 4-6 lists the power generation configurations at Facility 2 for each stage of the proposed annual NOx emission limits in PAR 1135.

Table 4-6
PAR 1135 Proposed Emission Stages, and Generation Configuration

Annual NOx Limit (tpy)	Compliance Date	Anticipated Equipment to Meet Emission Limit	Power Generation Distribution (%)
Stage 1: 45	1/1/2027 (with a potential extension up to three years)	Two New Tier 4 Final Diesel Engines	72
		Existing Diesel IC Engines	25
		Existing Propane Microturbines	3
Stage 2: 30	1/1/2028 (with a potential extension up to three years)	Three New Tier 4 Final Diesel Engines	88
		Existing Diesel IC Engines	9
		Existing Propane Microturbines	3
Stage 3: 13	1/1/2030 (with a potential extension up to six~~three~~ years)	Three New Tier 4 Final Diesel Engines	52
		NZE (e.g., Five Propane Linear Generators and Three Propane Fuel Cells*)	48
Stage 4: 6	1/1/2035 (with a potential extension up to ~~three~~ six years)	Three New Tier 4 Final Diesel Engines	22
		NZE (e.g., Five Propane Linear Generators and Three Propane Fuel Cells*)	48
		ZE	30

* Representatives from Facility 2 have indicated that they are considering installing NZE propane engines instead of the propane linear generators and propane fuel cells. However, no further details regarding this combination of equipment were provided.

An Air Quality Impact Analysis (AQIA) was completed to evaluate whether criteria pollutant concentrations from the operation of newly installed power generation units (i.e., Tier 4 Final diesel engines and NZE units) listed in Table 4-6 would cause or contribute significantly to an exceedance of the CAAQS or NAAQS. The American Meteorological Society (AMS)/EPA Regulatory Model (AERMOD) was used to simulate the atmospheric transport and dispersion of airborne pollutants and to quantify the maximum expected ground-level concentrations (GLCs) from project emissions. The modeling approach and inputs, including meteorological data and background air quality data, are described in greater detail in Appendix D of this SEA. Table 4-7 summarizes the results of the AQIA for criteria pollutants after meeting the proposed annual NOx limits in PAR 1135.

Table 4-7
AQIA for Criteria Pollutants After Meeting the Proposed Annual NOx Limits in PAR 1135

			45 tpy NOx Limit		30 tpy NOx Limit		13 tpy NOx Limit[a]		6 tpy NOx Limit[a]	
Standard	**Allowed Limit**	**Background**	**Modeled Level**	**Total Level[b]**	**Modeled Level**	**Total Level[b]**	**Modeled Level**	**Total Level[b]**	**Modeled Level**	**Total Level[b]**
NO2 CAAQS, 1 hr (max)	339	57.1[c]	92.88	149.98	170.28	227.38	100.62	157.72	42.57	99.67
NO2 CAAQS (NAAQS), annual	57 (100)	9.4	7.68	17.08	14.08	23.48	8.32	17.72	3.52	12.92
PM2.5 24-hr ~~NAAQS~~ and PM10 24-hr ~~CAAQS~~[d]	2.5	--	1.584	1.684[e]	2.904	3.004[e]	1.716	1.816[e]	0.726	0.826[e]
PM10 24-hr NAAQS	150	58[f]	1.584	59.68[e]	2.904	3.004[e]	1.716	1.816[e]	0.726	0.826[e]
PM10 annual ~~CAAQS~~[d]	1	--	0.1728	0.1728[e]	0.3168	0.3168[e]	0.1872	0.1872[e]	0.0792	0.0792[e]
CO CAAQS (NAAQS), 1 hr	23,000 (40,000)	1,145	413.76	1,559	758.56	1,904	448.24	1593.24	189.64	1334.64

Table 4-7 (concluded)
AQIA for Criteria Pollutants After Meeting the Proposed Annual NOx Limits in PAR 1135

			45 tpy NOx Limit		30 tpy NOx Limit		13 tpy NOx Limit[a]		6 tpy NOx Limit[a]	
Standard	**Allowed Limit**	**Background**	**Modeled Level**	**Total Level[b]**	**Modeled Level**	**Total Level[b]**	**Modeled Level**	**Total Level[b]**	**Modeled Level**	**Total Level[b]**
CO CAAQS (NAAQS), 8-hr	10,000 (10,000)	916	209.28	1,125	383.68	1,300	226.72	1142.72	95.92	1011.92
SO2 CAAQS, 1-hr (max)	655	7.9	1.92	10	3.52	11	2.08	9.98	0.88	8.78
SO2 NAAQS, 1-hr (99th percentile)	196	7.9	1.44	9	2.64	11	1.56	9.46	0.66	8.56
SO2 CAAQS, 24-hr	105	2.5	0.72	3	1.32	4	0.78	3.28	0.33	2.83

[a] Although NZE units are expected to be operated in addition to the three new Tier 4 Final diesel engines to meet the 13 tpy and 6 tpy NOx limits, this AQIA only evaluated the criteria pollutant concentrations from the operation of three new diesel engines. Since the AQIA results for meeting the 13 tpy and 6 tpy NOx limits are much lower than the air quality significance threshold, the addition of NZE units is not expected to result in significant operational air quality impacts.

[b] To estimate the ambient concentrations of criteria pollutants, background concentrations were added to the AERMOD outputs.

[c] Even though time-varying NO2 backgrounds are included in the model results, the maximum background was added to the scaled up NO2 concentrations.

[d] Due to nonattainment designations for PM2.5 and PM10, only the Significant Change in Concentration (~~no~~ without background) is ~~used~~ relied upon to compare against the air quality significance thresholds~~standard~~.

[e] Added the U.S. EPA's Modeled Emission Rates for Precursors (MERPs)-estimated daily and annual average secondary PM2.5 of 0.1 and 0.003 µg/m³, respectively

[f] Staff used the 4th highest PM10 daily average from the South Long Beach monitor, measured between 2019-2021. This was used instead of the El-Rio monitor in Ventura County, since Los Angeles County is currently in attainment with the PM10 NAAQS.

According to Table 4-7, the project-specific changes in ~~ambient~~ the 24-hour average concentrations of PM2.5 and PM10 ~~criteria pollutants~~ would exceed the ~~24-hr PM2.5 and PM10~~ air quality significance thresholds during the operation of newly installed units to meet the 30 tpy NOx limits by January 1, 2028 (with a potential extension up to three years). Although the electricity generating facility located on Santa Catalina Island is expected to operate NZE units in addition to the three new Tier 4 Final diesel engines to meet the existing NOx limit of 13 tpy and the proposed NOx limit of 6 tpy, this AQIA only evaluated the criteria pollutant concentrations from the operation of three new diesel engines. Since the AQIA results for meeting the 13 tpy and 6 tpy NOx limits are much lower than the applicable air quality significance thresholds, the addition of NZE units is not expected to result in significant operational air quality impacts. **Overall, significant operational air quality impacts are expected at Facility 2 over the short-term from January 1, 2028 (with a potential extension up to three years) until January 1, 2030 (with a potential extension up to ~~three~~ six years) due to exceedance of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 ~~air quality significance thresholds~~. After January 1, 2030 (with a potential extension up to ~~three~~ six years), these thresholds will not be exceeded.**

Project-Specific Mitigation: If significant adverse environmental impacts are identified, the CEQA document shall describe feasible measures that could minimize the significant adverse impacts of the proposed project. [CEQA Guidelines Section 15126.4]. Therefore, feasible mitigation measures for reducing project-specific changes in the 24-hour average ~~operational~~ concentrations of ~~24-hr~~ PM2.5 and PM10 are required. However, as noted above, project-specific changes in the 24-hour average concentrations of ~~r~~ PM2.5 and PM10 ~~concentrations~~ only exceed the air quality significance thresholds over the short-term (i.e., two years from January 1, 2028 (with a potential extension up to three years) until January 1, 2030 (with a potential extension up to six years)) and no further exceedances are expected when meeting 13 tpy NOx limit by January 1, 2030 (with a potential extension up to ~~three~~ six years). Moreover, PAR 1135 will eventually reduce the NOx limit from 13 tpy to 6 tpy by January 1, 2035 (with a potential extension up to ~~three~~ six years) which will result in an overall air quality and health benefit. Thus, there are no feasible mitigation measures that would eliminate or reduce the significant adverse operational air quality impacts for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 ~~concentrations~~ to less than significant levels for the period from January 1, 2028 (with a potential extension up to three years) until January 1, 2030 (with a potential extension up to ~~three~~ six years).

Remaining Ambient Air Quality Impacts: While operational air quality impacts for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 ~~concentrations~~ are expected to be significant over the short-term of two years, no feasible mitigation measures have been identified that would eliminate or reduce the significant adverse operational air quality impacts for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 ~~concentrations~~ to less than significant levels for the period from January 1, 2028 (with a potential extension up to three years) until January 1, 2030 (with a potential extension up to ~~three~~ six years). Therefore, operational air quality impacts for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 ~~concentrations~~ are significant and unavoidable for the period from January 1, 2028 (with a potential extension up to three years) until January 1, 2030 (with a potential extension up to ~~three~~ six years). However, after January 1, 2030 (with a potential extension up to ~~three~~ six years), these thresholds will not be exceeded.

Toxic Air Contaminants

Health Risk Assessment During Construction

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed health risk impacts associated with the expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to attain the NOx limits for electric power generating units in the November 2018 version of Rule 1135. As noted earlier, PAR 1135 is only expected to result in physical modifications at Facility 2 through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the three remaining existing diesel internal combustion engines and microturbines with NZE power producing engines (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells and solar powered batteries. Diesel particulate matter (DPM) is considered a carcinogenic and chronic TAC that can be emitted from on- and off-road construction equipment at affected facilities by PAR 1135. However, since the on- and off-road diesel equipment that may be used at PAR 1135-affected facilities are expected to be needed over a short-term period during construction, a Health Risk Assessment (HRA) was not conducted. While the entire construction period, expected to span several years (from the adoption of PAR 1135 until 2035), will include sequential phases such as replacing three diesel engines with three new Tier 4 engines, replacing existing diesel internal combustion engines and microturbines with NZE technologies, and installing ZE technologies, each phase will occur with a gap of several months before the next upcoming phase. Moreover, as noted earlier, the quantity of pollutants that may be generated from implementing the proposed project would be less than significant during construction period. Thus, the quantity of pollutants that may be generated during construction from implementing PAR 1135 would not be considered substantial, irrespective of whether sensitive receptors are located near the affected facilities. For these reasons, implementation of PAR 1135 is not expected to expose sensitive receptors to substantial pollutant concentrations during the construction phase at Facility 2.

Health Risk Assessment During Operation

A health risk analysis was prepared for PAR 1135 to evaluate health risk impacts due to operational TAC emissions from the newly installed power generation units listed in Table 4-6 (i.e., Tier 4 Final diesel engines and NZE units). Additional details on the methodology and results of HRA are provided in Appendix D of this SEA. Table 4-8 summarizes the results of the health risk evaluation of the operational emissions for all receptor types which include the point of maximum impact (PMI), the maximally exposed individual workplace (MEIW), and the maximum sensitive receptors. It should be noted that in a worst-case approach, the health risk impacts associated with operation of each of the three new Tier 4 Final diesel engines were calculated separately and summed up to provide an estimate of the total health risk impacts for the proposed project.

Table 4-8
Operational Health Risk Assessment

Operation of Newly Installed Units	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index (HI)*	Significance Threshold		SIGNIFICANT ?
				Cancer Risk	Chronic HI	
Stage 1: Two New Tier 4 Final Diesel Engines (72% of Electricity Load)	PMI	10.64	0.00	10 in a million	1.0	**YES**
	MEIW	3.38	0.01			
	Maximum Sensitive Receptor	0.39	0.00			
Stage 2: Three New Tier 4 Final Diesel Engines (88% of Electricity Load)	PMI	19.39	0.00			**YES**
	MEIW	6.35	0.02			
	Maximum Sensitive Receptor	0.72	0.00			
Stage 3: Three New Tier 4 Final Diesel Engines (52% of Electricity Load) & NZE Units (48% of Electricity Load)**	PMI	11.46	0.00			**YES**
	MEIW	3.75	0.01			
	Maximum Sensitive Receptor	0.43	0.00			
Stage 4: Three New Tier 4 Final Diesel Engines (22% of Electricity Load), NZE Units (48% of Electricity Load) & ZE Tech (30% of Electricity Load)***	PMI	4.85	0.00			**NO**
	MEIW	1.59	0.00			
	Maximum Sensitive Receptor	0.18	0.00			

* There is no acute Reference Exposure Level (REL) for DPM, so the Acute HI is not applicable.

**Although Stage 3 entails the operation of NZE units (to provide 48% of total electricity load), the PMI cancer risks are already greater than the significance threshold due to the operation of three new Tier 4 Final diesel engines (to provide 52% of electricity load). Thus, similar to Stages 1 and 2, the health risk impacts remain significant for Stage 3.

***Since the HRA results after meeting the final 6 tpy NOx limit are much less than the air quality significance threshold for health risk, the addition of NZE units (to provide 48% of the electricity load) is not expected to result in significant impacts from toxic air contaminants.

As shown in Table 4-8, the estimated cancer risks from the operation of newly installed units at Facility 2 to comply with the 45 tpy and 30 tpy NOx limits exceed the air quality significance threshold for health risk of 10 in one million. Although the electricity generating facility located on Santa Catalina Island is expected to operate NZE units (to provide 48% of electricity load) in addition to the three new Tier 4 Final diesel engines (to provide 52% of electricity load) to meet the existing NOx limit of 13 tpy, this HRA only evaluated the health risk impacts from the operation of three new diesel engines. Nonetheless, the estimated PMI cancer risks are significant due to the operation of the three new Tier 4 Final diesel engines. On the other hand, since the HRA results for operation of Tier 4 Final diesel engines (to provide 22% of electricity load) to meet the final 6 tpy NOx limit are much less than the air quality significance threshold for health risk, the addition of NZE units is not expected to result in overall significant impacts from toxic air contaminants**.**

Conclusion – Toxic Air Contaminants: Significant operational impacts from toxic air contaminants are expected at Facility 2 when operating equipment to comply with the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits. However, less than significant operational impacts from toxic air contaminants are expected once Facility 2 meets the 6 tpy NOx limit.

Project-Specific Mitigation: If significant adverse environmental impacts are identified, the CEQA document shall describe feasible measures that could minimize the significant adverse impacts of the proposed project. [CEQA Guidelines Section 15126.4]. Therefore, feasible mitigation measures for reducing operational impacts from toxic air contaminants are required. However, the reason PAR 1135 is proposing to update the annual NOx emission limits and compliance dates at Facility 2 is because the facility cannot feasibly attain the current annual NOx limits by the compliance dates adopted in the November 2018 and January 2022 version of Rule 1135. Moreover, although compliance with the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits results in significant operational impacts from toxic air contaminants for Stages 1, 2 and 3, less than significant operational impacts from toxic air contaminants are expected once Facility 2 meets the 6 tpy NOx limit on and after January 1, 2035 (with a potential extension up to ~~three~~ six years) (e.g., at Stage 4). Thus, there are no feasible mitigation measures that would eliminate or reduce the significant adverse operational impacts from toxic air contaminants to less than significant levels for Stages 1, 2 and 3.

Remaining Criteria Air Pollutant Impacts: While operational impacts from toxic air contaminants are expected to be significant at Facility 2 when making modifications to attain the proposed 45 tpy, 30 tpy, and 13 tpy NOx limits during Stages 1, 2 and 3, respectively, no feasible mitigation measures have been identified that would eliminate or reduce these significant adverse operational impacts to less than significant levels for Stages 1, 2 and 3. Therefore, the operational impacts from toxic air contaminants are significant and unavoidable for Stages 1, 2 and 3. However, when Facility 2 meets the 6 tpy NOx limit on and after January 1, 2035 (with a potential extension up to ~~three~~ six years) (e.g., at Stage 4), less than significant operational impacts from toxic air contaminants are expected.

Odor Impacts

The air quality significance threshold for odor is whether the project creates an odor nuisance pursuant to South Coast AQMD Rule 402. Odor problems depend on individual circumstances. For example, individuals can differ quite markedly from the populated average in their sensitivity to odor due to any variety of innate, chronic or acute physiological conditions. This includes

olfactory adaptation or smell fatigue (i.e., continuing exposure to an odor usually results in a gradual diminution or even disappearance of the smell sensation).

With regard to odors, for all diesel-fueled equipment and vehicles that may be used during construction and operation at the affected facility, the diesel fuel is required to have a low sulfur content (e.g., 15 ppm by weight or less) in accordance with South Coast AQMD Rule 431.2 – Sulfur Content of Liquid Fuels and such fuel is expected to minimize odor. Further, construction equipment will be primarily utilized within the confines of the facility and dispersion of diesel emissions over distance generally occurs so that odors associated with diesel emissions may not be discernable to offsite receptors, depending on the location of the equipment and its distance relative to the nearest offsite receptor. The diesel trucks that may be used during both construction and operation activities will be operated on road until arriving at the facility. Once on-site, the diesel trucks will not be allowed to idle longer than five minutes at any one location in accordance with the CARB idling regulation, so odors from these vehicles would not be expected for a prolonged period of time. Therefore, the addition of several pieces of construction equipment and trucks that will operate intermittently over a relatively short period of time, are not expected to generate diesel exhaust odor substantially greater than what is already typically present at the affected facility.

With regard to barge trips for transporting construction equipment, fuel, and material to Facility 2, the operation of the barge will occur over a short period of time (less than one day) and dispersion of diesel emissions over distance generally occurs so that odors associated with diesel emissions may not be discernable to nearby receptors, especially since the barge would be traveling across the ocean. Therefore, operation of the barge is not expected to create objectionable odors affecting a substantial number of people.

Gasoline fueled passenger vehicles will primarily be utilized to transport construction workers to and from the facility during construction. The quantity of gasoline fueled passenger vehicles used as part of the proposed project is relatively low when compared to the total population of passenger vehicles within the South Coast AQMD. Also, the gasoline fueled passenger vehicles would be used over a relatively short period of time and are not expected to generate gasoline exhaust odor substantially greater than what is already typically present on existing roadways. Thus, PAR 1135 is not expected to create significant adverse objectionable odors during construction or operation.

Conclusion – Odors: Based on preceding discussion, less than significant odor impacts are expected from PAR 1135 during construction and operation.

Project-Specific Mitigation: Since less than significant odor impacts were identified for construction and operation, no mitigation measures are necessary or required.

Remaining Odor Impacts: With less than significant odor impacts identified during construction and operation such that no mitigation measures are necessary or required, **air quality impacts relative to odors remain less than significant**.

4.1.2 Cumulative Air Quality Impacts

Pursuant to CEQA Guidelines Section 15130(a), the SEA shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. In general, the preceding analysis concluded that significant adverse environmental impacts may occur during

Stages 1, 2 and 3 for the topic of air quality during operation due to interim delayed NOx emission reductions, interim exceedances of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 ~~ambient air quality standards~~, and interim health risk impacts. In addition, there are no feasible mitigation measures that would eliminate or reduce the significant adverse operational air quality impacts for NOx emissions, project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 ~~ambient concentrations~~, and health risk to less than significant levels for Stages 1, 2 and 3. Thus, the air quality impacts due to operations during Stages 1, 2 and 3 are cumulatively considerable pursuant to CEQA Guidelines Section 15064(h)(1) and therefore, generate significant adverse cumulative air quality impacts.

The analysis also indicates that the proposed project will result in less than significant increases of all criteria air pollutants during the construction phase of the proposed project. Moreover, there will be less than significant increases to odor impacts. Pursuant to CEQA Guidelines Section 15130(a)(2), when the combined cumulative impact associated with the project's incremental effect is not significant, the SEA must indicate why the cumulative impact is not significant. Because construction emissions and odor impacts do not exceed the air quality significance thresholds, which also serve as the cumulative significance thresholds, they are not considered to be cumulatively considerable. [CEQA Guidelines Section 15064 (h)(1)].

This identical standard is appropriate because the South Coast AQMD air quality significance thresholds for criteria pollutants were set by evaluating the effect an individual project may have on the ability of the South Coast Air Basin to attain the NAAQS established by the U.S. EPA, and are therefore, cumulative in nature. Specifically, the South Coast AQMD Governing Board adopted 1993 CEQA Air Quality Handbook, which identified that the thresholds for criteria pollutants are based on the emissions levels in the Clean Air Act for a major source in an area designated as extreme non-attainment for ozone. [1993 CEQA Handbook, Chapter 6]. So, for example, a major source of VOC emissions, a precursor for ozone, is defined as a source that has a potential to emit at least 10 tons per year of VOC. [Federal Clean Air Act Section 182(e)]. The South Coast AQMD converted the 10 tons per year in terms of pounds per day, which resulted in a significance threshold of 55 pounds per day for operational emissions. The 1993 CEQA Handbook also explains that this approach is appropriate because the regulatory framework to establish the state and federal ambient air quality standards, and the method to achieve attainment of those standards, are intended to be protective of public health.

Conclusion – Cumulative Air Quality Impacts: The operational air quality impacts relative to NOx emissions, changes in the ~~ambient~~ 24-hour average concentrations of PM2.5 and PM10 ~~concentrations~~ and health risks are cumulatively considerable because: 1) the peak daily NOx operational impacts associated with the delayed NOx emission reductions exceed the South Coast AQMD's significance threshold for NOx during operation until meeting the 13 tpy NOx limit by January 1, 2030 (with a potential extension up to six years)~~during Stages 1, 2 and 3~~; 2) changes in the ~~ambient~~ 24-hour average concentrations of PM2.5 and PM10 ~~concentrations~~ exceed the South Coast AQMD's significance threshold from January 1, 2028 (with a potential extension up to three years) to January 1, 2030 (with a potential extension up to ~~three~~ six years); and 3) the operational cancer risk impacts exceed the South Coast AQMD's significance threshold when meeting the 45 tpy, 30 tpy, and 13 tpy NOx limits in PAR 1135 during Stages 1, 2 and 3; and 4) there are no feasible mitigation measures that would eliminate or reduce the temporary significant adverse operational air quality impacts for NOx emissions, changes in the ~~ambient~~ 24-hour average

concentrations of PM2.5 and PM10 ~~concentrations~~, and health risks to less than significant levels during Stages 1, 2 and 3. However, when Facility 2 meets the 6 tpy NOx limit on and after January 1, 2035 (with a potential extension up to ~~three~~ six years) (e.g., at Stage 4), less than significant cumulative air quality impacts are expected.

Cumulative Mitigation: No feasible mitigation measures are available that would eliminate or reduce the temporary cumulatively considerable operational air quality impacts for NOx emissions, changes in the ~~ambient~~ 24-hour average concentrations of PM2.5 and PM10 ~~concentrations~~, and health risks to less than significant levels during Stages 1, 2 and 3. Cumulatively considerable impacts during Stage 4 are not expected due to the emission reduction goals of PAR 1135 being fully realized.

Remaining Cumulative Air Quality Impacts: While operational air quality impacts for NOx emissions, changes in the ~~ambient~~ 24-hour concentrations of PM2.5 and PM10 ~~concentrations~~, and health risks are cumulatively significant during Stages 1, 2 and 3, no feasible mitigation measures have been identified that would eliminate or reduce the significant adverse operational air quality impacts for NOx emissions, ~~ambient~~ changes in the 24-hour average concentrations of PM2.5 and PM10 ~~concentrations~~ and health risks to less than significant levels during Stages 1, 2 and 3. Therefore, the cumulative operational air quality impacts for NOx emissions, changes in the ~~ambient~~ 24-hour average concentrations of PM2.5 and PM10 ~~concentrations~~, and health risks remain significant and unavoidable during Stages 1, 2 and 3. However, when Facility 2 meets the 6 tpy NOx limit on and after January 1, 2035 (with a potential extension up to ~~three~~ six years) (e.g., at Stage 4), no remaining cumulative air quality impacts are expected.

4.1.3 Greenhouse Gas Impacts and Mitigation Measures

Significant changes in global climate patterns have recently been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to accumulation of GHG emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities, appears to be closely associated with global warming. State law defines GHG to include the following: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). [Health and Safety Code Section 38505(g)]. The most common GHG that results from human activity is CO2, followed by CH4 and N2O.

Traditionally, GHGs and other global warming pollutants are perceived as solely global in their impacts and that increasing emissions anywhere in the world contributes to climate change anywhere in the world. A study conducted on the health impacts of CO2 "domes" that form over urban areas cause increases in local temperatures and local criteria pollutants, which have adverse health effects.[84]

[84] Jacobsen, Mark Z. "Enhancement of Local Air Pollution by Urban CO2 Domes," Environmental Science and Technology, as describe in Stanford University press release on March 16, 2010 available at: https://web.stanford.edu/group/efmh/jacobson/Articles/V/CO2SOM0310.pdf, accessed July 23, 2024.

The analysis of GHGs is a different analysis than the analysis of criteria pollutants for the following reasons. For criteria pollutants, the significance thresholds are based on daily emissions because attainment or non-attainment is primarily based on daily exceedances of applicable ambient air quality standards. Further, several ambient air quality standards are based on relatively short-term exposure effects on human health (e.g., one-hour and eight-hour standards). Since the half-life of CO2 is approximately 100 years, for example, the effects of GHGs occur over a longer term which means they affect the global climate over a relatively long time-frame. As a result, the South Coast AQMD's current position is to evaluate the effects of GHGs over a longer timeframe than a single day (i.e., annual emissions). GHG emissions are typically considered to be cumulative impacts because they contribute to global climate effects.

The South Coast AQMD convened a "Greenhouse Gas CEQA Significance Threshold Working Group" to consider a variety of benchmarks and potential significance thresholds to evaluate GHG impacts. On December 5, 2008, the South Coast AQMD adopted an interim CEQA GHG Significance Threshold for projects where South Coast AQMD is the lead agency (South Coast AQMD, 2008). This interim threshold is set at 10,000 metric tons of CO2 equivalent emissions (MT/yr of CO2eq). The South Coast AQMD prepared a "Draft Guidance Document – Interim CEQA GHG Significance Thresholds" that outlined the approved tiered approach to determine GHG significance of projects (South Coast AQMD, 2008, pg. 3-10). The first two tiers involve: 1) exempting the project because of potential reductions of GHG emissions allowed under CEQA; and 2) demonstrating that the project's GHG emissions are consistent with a local general plan. Tier 3 proposes a limit of 10,000 MT/yr CO2eq as the incremental increase representing a significance threshold for projects where South Coast AQMD is the lead agency (South Coast AQMD, 2008, pp. 3-11). Tier 4 (performance standards) is yet to be developed. Tier 5 allows offsets that would reduce the GHG impacts to below the Tier 3 brightline threshold. Projects with incremental increases below this threshold will not be cumulatively considerable.

The main focus of PAR 1135 is to update annual NOx emission limits and compliance dates for the electric generating facility located on Santa Catalina Island (referred to as Facility 2 in the November 2018 Final Mitigated SEA for Rule 1135) with a specific focus on NZE and ZE technologies. As noted earlier, compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining three diesel internal combustion engines and existing microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells and solar powered batteries. During the construction phase at Facility 2, additional barge trips are necessary to transport construction, material, and power producing units to Santa Catalina Island. Therefore, GHG emission impacts from implementing PAR 1135 were calculated at the project-specific level according to the above-noted construction activities. <u>While this SEA calculates construction-related GHG emissions for replacing existing microturbines and three remaining diesel engines with five linear generators and three fuel cells as potential NZE units, representatives from Facility 2 have indicated that they are considering installing NZE propane engines instead of propane linear generators and propane fuel cells. However, minimal changes in construction-related GHG emissions are expected due to installing NZE propane engines in lieu of propane linear generators and propane fuel cells.</u>

During operation, compliance with PAR 1135 is expected to increase the number of required diesel-fueled barge trips for fuel delivery to Facility 2 from 300 (the previous estimate in

November 2018 Final Mitigated SEA for Rule 1135) to 329, 319, and 326 to comply with the annual NOx limits of 45, 30, and 13 tpy, respectively. Incremental changes in operational GHG emissions from power producing units are estimated for meeting the 45 tpy, 30 tpy, 13 tpy, and 6 tpy NOx limits based on the data provided by Facility 2. Facility 2 provided calculations showing GHG emissions if petroleum diesel is used and if renewable diesel is used (both are presented in Appendix C) but estimates based on petroleum diesel usage are incorporated for the comparison against the GHG significance threshold. Facility 2 also reported their 2023 GHG emissions to be 23,516 MT CO_2e; while CARB has not published the 2023 GHG emissions data, the 2022 GHG emissions reporting was 23,754 MT CO_2e.[85] In order to quantify the incremental operational GHG emissions from implementing PAR 1135, the 2023 CARB GHG emissions data was subtracted from the peak annual GHG emissions which corresponded to Stage 1 (e.g., the 45 tpy by January 1, 2027 (with a potential extension up to three years)). Thus, the operational GHG impacts from implementing PAR 1135 are also calculated at the project-specific level associated with above operational activities.

Table 4-9 summarizes the GHG analysis, which shows that the implementation of PAR 1135 may result in the generation of 4.33 amortized[86] MT/yr of CO2e emissions during construction and 1099.57 MT/yr of CO2e emissions during operation from all the affected facilities, which is less than the South Coast AQMD's air quality significance threshold of 10,000 MT/yr of CO2e for GHGs. Detailed calculations of project GHG emissions can be found in Appendix C. It should be noted that similar to criteria pollutant analysis, the construction-related and operation-related GHG emissions from Facilities 1, 4, and 5 are also included in Table 4-9.

Table 4-9
GHG Emissions from PAR 1135

Activity	CO2e (MT/year [a])
PAR 1135: Construction [b] – on-road vehicles, barges, and off-road equipment	4.33
PAR 1135: Operation- on-road vehicles, barges, and incremental changes in operational GHG emissions from power producing equipment at Facility 2	1099.57
PAR 1135: Total project emissions [c]	1103.90
November 2018 Final Mitigated SEA: Total project emissions [d]	126.35
SIGNIFICANCE THRESHOLD	**10,000**
SIGNIFICANT?	**NO**

a. 1 metric ton=2,205 pounds
b. GHG from short-term construction activities are amortized over 30 years.
c. Total GHG emissions for PAR 1135 refer to construction and operation-related activities at Facilities 1, 2, 4, and 5.
d. Total GHG emission in the November 2018 Final Mitigated SEA refer to construction and operation-related activities at six facilities, including Facilities 1, 2, 3, 4, 5, and 6.

Conclusion – GHG Impacts: As shown in Table 4-9, the South Coast AQMD GHG significance threshold will not be exceeded. For this reason, implementing the proposed project is not expected to generate significant adverse GHG air quality impacts. Further, PAR 1135 is not expected to

[85] CARB, Mandatory GHG Reporting, 2022 GHG Facility and Entity Emissions (11/6/2023), https://ww2.arb.ca.gov/mrr-data.
[86] GHGs from short-term construction activities are amortized over 30 years. To amortize GHGs from temporary construction activities over a 30-year period (*est. life of the project/ equipment*), the amount of CO2e emissions during construction is calculated and then divided by 30.

generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG gases. **Thus, PAR 1135 will have less than significant GHG impacts.**

Project-Specific Mitigation: Since less than significant GHG emissions impacts were identified, no mitigation measures are necessary or required.

Conclusion – Cumulative GHG Impacts: Since PAR 1135 will have less than significant GHG impacts, GHG impacts are not also cumulatively considerable.

Remaining Cumulative GHG Impacts: Since GHG impacts are not expected from PAR 1135 and thus, are not considered to be cumulative considerable, there are no remaining cumulative GHG impacts.

4.2 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

CEQA Guidelines Section 15126(c) requires an environmental analysis to consider "any significant irreversible environmental changes which would be involved if the proposed action should be implemented." This Draft SEA identified that interim delayed NOx emission reductions, interim exceedances of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 ~~ambient air quality standards~~, and interim health risk impacts would cause significant and unavoidable adverse environmental impacts to air quality from operation if PAR 1135 is implemented. However, upon full implementation, PAR 1135 will reduce the annual NOx limits from 13 tpy to 6 tpy on and after January 1, 2035 (with a potential extension up to ~~three~~ six years), which will provide air quality and health benefits.

4.3 OTHER ENVIRONMENTAL IMPACTS FOUND NOT TO BE SIGNIFICANT

CEQA requires this section of the SEA to identify the environmental topic areas that were analyzed and concluded to have no impacts or less than significant impacts, if the proposed project is implemented. For the effects of a project that were determined not to be significant, CEQA Guidelines Section 15128 requires the analysis to contain a statement briefly indicating the reasons that various effects of a project were determined not to have significant impacts and were therefore not discussed in detail.

PAR 1135 will impact one electricity generating facility located on Santa Catalina Island (referred to as Facility 2 in the November 2018 Final Mitigated SEA for Rule 1135) by proposing to: 1) update NOx emission limits and compliance dates; 2) establish provisions for monitoring, reporting, and recordkeeping for NZE electric generating units without CEMS; 3) extend the deadline for prohibiting the installation of new diesel internal combustion engines from January 1, 2024 to January 1, 2028 or six months after any applicable extensions; 4) prohibit the installation of more than three new diesel internal combustion engines with a cumulative rating of 5.5 MW; 5) prohibit the installation of equipment that does not meet the definition of a Santa Catalina Island NZE electric generating unit or a Santa Catalina Island ZE electric generating unit after January 1, 2028 or six months after any applicable extensions; 6) require the installation of Santa Catalina

Island NZE and/or ZE electric generating units by January 1, 2030 or six months after any applicable extensions ~~(with a three-year extension option to meet by January 1, 2033)~~ with a minimum cumulative rating of 1.8 MW, excluding the highest rated Santa Catalina Island NZE and/or ZE electric generating unit, solar photovoltaic cells, and battery storage; 7) remove all prime power diesel internal combustion engines for which installation was completed earlier than Date of Adoption from service by January 1, 2030 or six months after any applicable extensions; 8) require a feasibility analysis (e.g., progress in procuring and installing electric generating units) to be conducted for the 13 tpy and six tpy NOx emission limits by January 1, 2028 and January 1, 2033, respectively; and 9) update the time extension provision by including more specific criteria needed for approval, allowing the electricity generating facility located on Santa Catalina Island to request time extensions for extenuating circumstances (e.g., unforeseen construction interruptions and/or supply chain disruptions) for each compliance date or according to the feasibility analyses for meeting each of 13 tpy and six tpy NOx emission limits, and making requests for time extensions available for public review.

Thus, this subchapter of the SEA identifies the environmental topic areas that were previously analyzed in the November 2018 Final Mitigated SEA for six affected facilities (including Santa Catalina Island electricity generating facility, referred to as Facility 2) and concluded to have either less than significant impacts (with or without mitigation) or no impacts (e.g., aesthetics; agriculture and forestry resources; air quality and GHG emissions, biological resources; cultural resources; energy, geology and soils; hazards and hazardous materials; hydrology and water quality; land use and planning; mineral resources; noise; population and housing; public services; recreation; solid and hazardous waste; and transportation and traffic). For all environmental topic areas except air quality and GHG emissions which is discussed and further analyzed in Section 4.1 of this chapter, this section assesses whether these previously evaluated environmental topic areas in the November 2018 Final Mitigated SEA would be affected by PAR 1135. Also, since two new environmental topic areas, tribal cultural resources and wildfire, were added to the CEQA Guidelines after the November 2018 Final Mitigated SEA for Rule 1135 was certified, this section examines whether the PAR 1135 would contribute to any impacts on tribal cultural resources and wildfires.

Environmental Topic Areas Previously Concluded In the November 2018 Final Mitigated SEA To Have No Impacts

The following environmental topic areas were previously analyzed and concluded in the November 2018 Final Mitigated SEA for Rule 1135 to have no impacts: aesthetics; agriculture and forestry resources; biological resources; cultural resources; geology and soils; ~~hydrology and water quality~~; land use and planning; mineral resources; population and housing; and recreation.

This SEA independently considers the PAR 1135 and analyzes the incremental changes, if any, relative to the baseline which is the project analyzed in the November 2018 Final Mitigated SEA for Rule 1135. When comparing the types of activities and environmental impacts subject to the November 2018 version of Rule 1135 as previously analyzed in the November 2018 Final Mitigated SEA for Rule 1135 to the currently proposed project (PAR 1135), similar impacts to the same environmental topic areas that were previously analyzed are expected to occur for all of the environmental topic areas analyzed except air quality and GHG emissions which is discussed in Sections 4.1 and 4.2 of this chapter. For this reason, the incremental changes associated with implementing the proposed project will not be expected to alter the previous conclusions reached

in the November 2018 Final Mitigated SEA for Rule 1135 for the environmental topic areas which were identified as having no impacts (aesthetics; agriculture and forestry resources; biological resources; cultural resources; geology and soils; ~~hydrology and water quality;~~ land use and planning; mineral resources; population and housing; and recreation). Therefore, since no impacts to these environmental topic areas would occur if the PAR 1135 implemented, they are not further evaluated in this SEA. A brief summary of the previous conclusions reached as well as the reasoning why the no impact conclusions would remain the same for PAR 1135 is provided for each of the aforementioned environmental topic areas.

It is important to note that the Draft SEA for PAR 1135 included a summary from the November 2018 Final Mitigated SEA for Rule 1135 stating that there were no impacts for the topic of hydrology and water quality. However, the conclusion in the November 2018 Final Mitigated SEA for Rule 1135 indicated less than significant hydrology and water quality impacts. For this reason, the summary of hydrology and water quality impacts has been relocated from this section to "Environmental Topic Areas Previously Concluded in the November 2018 Final Mitigated SEA To Have Less Than Significant Impacts."

Aesthetics

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed aesthetics impacts associated with the expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits for electric power generating units in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA for Rule 1135 concluded that no aesthetics impacts would occur because: 1) required construction equipment is not expected to be substantially discernable from what typically exists on-site for conducting routine operations and maintenance activities in these electricity generating facilities; 2) the majority of construction equipment that may be needed is expected to be relatively low in height and not substantially visible to the surrounding area due to existing fencing along the property lines and existing structures currently within the facilities that may buffer the views of the construction activities; 3) most of the heavy equipment and construction activities are expected to occur within the confines of each existing facility property and are expected to introduce only minor visual changes to areas outside each electricity generating facility, if at all, depending on the location of the construction activities within each facility; 4) any new equipment that is installed would be expected to blend in with the existing industrial profile of these electricity generating facilities because the modified and/or replaced equipment will be at the same or similar heights of the existing equipment and surrounding structures; and 5) the construction activities are expected to be temporary in nature and any construction equipment that has been rented will be removed from each facility following completion of the modifications.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.

It should be noted that there is limited land available on Santa Catalina Island to accommodate the installation of solar PV cells, as most open land on the island is mountainous and solar energy production is optimal when the equipment is sited on flat land. A potential site on Santa Catalina Island for the installation of solar PV cells or other ZE and/or NZE technologies, is Middle Ranch (Figure 2-7). Middle Ranch is approximately 15 acres, which can accommodate solar PV installations that could provide approximately 30% of historical power generation needed for Santa Catalina Island. However, because the facility is still in discussions with the Catalina Island Conservancy, the owner of the Middle Ranch property, it would be speculative to analyze the environmental impacts associated with the installation of solar PV cells on Santa Catalina Island. Therefore, in accordance with CEQA Guidelines Section 15145, an evaluation of the environmental impacts associated with installing solar PV cells is concluded to be speculative and will not be evaluated further in this SEA. Further, it is important to note that the environmental topic area of aesthetics will need to be evaluated by the land use authority prior to the Middle Ranch property being granted a change in land use to accommodate installations of new equipment to generate electricity.

Therefore, physical modifications that may occur at Facility 2 in response to PAR 1135 are expected to occur within the existing boundary of Facility 2, and in a similar fashion and with similar construction equipment as to what was analyzed for the November 2018 version of Rule 1135. Thus, the same reasoning for why the November 2018 Final Mitigated SEA for Rule 1135 concluded that no aesthetic impacts would occur, also applies to PAR 1135. Therefore, the previous conclusion of no impact to aesthetics in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.

Agriculture and Forestry Resources

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed agriculture and forestry resources impacts associated with expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits for electric power generating unit in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA for Rule 1135 concluded that no agriculture and forestry resources impacts would occur since compliance with the November 2018 version of Rule 1135 would not result in the loss of forest land, conversion of farmland to non-agricultural use or conflict with zoning for agriculture use.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.

It should be noted that there is limited land available on Santa Catalina Island to accommodate the installation of solar PV cells, as most open land on the island is mountainous and solar energy production is optimal when the equipment is sited on flat land. A potential site on Santa Catalina Island for the installation of solar PV cells or other ZE and/or NZE technologies, is Middle Ranch (Figure 2-7). Middle Ranch is approximately 15 acres, which can accommodate solar PV installations that could provide approximately 30% of historical power generation

needed for Santa Catalina Island. However, because the facility is still in discussions with the Catalina Island Conservancy, the owner of the Middle Ranch property, it would be speculative to analyze the environmental impacts associated with the installation of solar PV cells on Santa Catalina Island. Therefore, in accordance with CEQA Guidelines Section 15145, an evaluation of the environmental impacts associated with installing solar PV cells is concluded to be speculative and will not be evaluated further in this SEA. Further, it is important to note that the environmental topic area of agriculture and forestry resources will need to be evaluated by the land use authority prior to the Middle Ranch property being granted a change in land use to accommodate installations of new equipment to generate electricity.

Therefore, physical modifications that may occur at Facility 2 in response to PAR 1135 are expected to occur within the existing boundary of Facility 2, and in a similar fashion and with similar construction equipment as to what was analyzed for the November 2018 version of Rule 1135, and these ongoing activities will not require the use of forest land, conversion of farmland to non-agricultural use, or conflict with zoning for agriculture use. Thus, the previous conclusion of no impact to agriculture and forestry resources reached in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.

Biological Resources

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed biological resources impacts associated with expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits for electric power generating units in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA for Rule 1135 concluded that no biological resources impacts would occur because these activities would occur inside the boundaries of existing developed and established industrial facilities which have been previously cleared of vegetation and have already been paved for safety and fire prevention reasons and as such, would not result in or have the potential to result in the removal of vegetation with potential to support wildlife.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.

It should be noted that there is limited land available on Santa Catalina Island to accommodate the installation of solar PV cells, as most open land on the island is mountainous and solar energy production is optimal when the equipment is sited on flat land. A potential site on Santa Catalina Island for the installation of solar PV cells or other ZE and/or NZE technologies, is Middle Ranch (Figure 2-7). Middle Ranch is approximately 15 acres, which can accommodate solar PV installations that could provide approximately 30% of historical power generation needed for Santa Catalina Island. However, because the facility is still in discussions with the Catalina Island Conservancy, the owner of the Middle Ranch property, it would be speculative to analyze the environmental impacts associated with the installation of solar PV cells on Santa Catalina Island. Therefore, in accordance with CEQA Guidelines Section 15145, an evaluation of the environmental impacts associated with installing solar PV cells is concluded to be

speculative and will not be evaluated further in this SEA. Further, it is important to note that the environmental topic area of biological resources will need to be evaluated by the land use authority prior to the Middle Ranch property being granted a change in land use to accommodate installations of new equipment to generate electricity.

Therefore, physical modifications that may occur at Facility 2 in response to PAR 1135 are expected to occur within the existing boundary of Facility 2 which has been previously cleared of vegetation and has already been paved for safety and fire prevention reasons. Thus, PAR 1135 would not be expected to result in, or have the potential to result in, the removal of vegetation with potential to support wildlife. Therefore, the previous conclusion of no impact to biological resources in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.

Cultural Resources

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed cultural resources impacts associated with expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits for electric power generating units in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA for Rule 1135 concluded that no cultural resources impacts would occur since the construction-related activities are expected to be confined within the existing footprint of the affected facilities that have been fully developed and paved such that no physical changes to the environment which may disturb paleontological, archaeological, or historical resources would occur. For the same reason, the analysis in the November 2018 Final Mitigated SEA for Rule 1135 also concluded that no site, feature, place cultural landscape, sacred place, or object with cultural value to a California Native American Tribe would be disturbed.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.

It should be noted that there is limited land available on Santa Catalina Island to accommodate the installation of solar PV cells, as most open land on the island is mountainous and solar energy production is optimal when the equipment is sited on flat land. A potential site on Santa Catalina Island for the installation of solar PV cells or other ZE and/or NZE technologies, is Middle Ranch (Figure 2-7). Middle Ranch is approximately 15 acres, which can accommodate solar PV installations that could provide approximately 30% of historical power generation needed for Santa Catalina Island. However, because the facility is still in discussions with the Catalina Island Conservancy, the owner of the Middle Ranch property, it would be speculative to analyze the environmental impacts associated with the installation of solar PV cells on Santa Catalina Island. Therefore, in accordance with CEQA Guidelines Section 15145, an evaluation of the environmental impacts associated with installing solar PV cells is concluded to be speculative and will not be evaluated further in this SEA. Further, it is important to note that the environmental topic area of cultural resources will need to be evaluated by the land use

authority prior to the Middle Ranch property being granted a change in land use to accommodate installations of new equipment to generate electricity.

Therefore, physical modifications that may occur at Facility 2 in response to PAR 1135 are expected to occur within the existing footprint of Facility 2 which has been fully developed, previously cleared of vegetation and has already been paved for safety and fire prevention reasons, such that there will be no physical changes to the environment which may cause disturbance to archaeological or historical resources or human remains. Furthermore, it is envisioned that these areas are already either devoid of significant cultural resources or whose cultural resources have been previously disturbed. Thus, PAR 1135 has no potential to cause a substantial adverse change to a historical or archaeological resource, and no potential to directly or indirectly disturb any human remains, including those interred outside formal cemeteries. Therefore, the previous conclusion of no impact to cultural resources in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.

Geology and Soils

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed geology and soils impacts associated with expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the NOx limits in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA for Rule 1135 concluded that no geology and soils impacts would occur because the affected facilities are located in developed industrial-zoned settings and:

(1) relatively minor site preparation activities may be required prior to installing equipment and these activities would occur within facility boundaries. Nevertheless, the degree of site preparation that may be needed would not be on a scale that could adversely affect geophysical conditions.

(2) the anticipated physical modifications of electric power generating units and their associated air pollution control equipment at affected facilities was expected to conform to stringent requirements in the Uniform Building Code and all other applicable state and local building codes, which consider seismic design requirements and liquefaction potential for constructing foundations in areas potentially subject to liquefaction;

(3) the expected physical modifications would require no alteration to the exposure of people or property to geological hazards such as earthquakes, landslides, mudslides, ground failure, or other natural hazards;

(4) substantial exposure of people or structures to the risk of loss, injury, or death involving the rupture of an earthquake fault, seismic ground shaking, ground failure or landslides is not anticipated;

(5) people or property will not be exposed to new impacts related to expansive soils or soils incapable of supporting water disposal; and

(6) all of the affected facilities have existing wastewater treatment systems so no soil changes associated with the installation of septic tanks or alternative wastewater disposal system would occur;

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.

It should be noted that there is limited land available on Santa Catalina Island to accommodate the installation of solar PV cells, as most open land on the island is mountainous and solar energy production is optimal when the equipment is sited on flat land. A potential site on Santa Catalina Island for the installation of solar PV cells or other ZE and/or NZE technologies, is Middle Ranch (Figure 2-7). Middle Ranch is approximately 15 acres, which can accommodate solar PV installations that could provide approximately 30% of historical power generation needed for Santa Catalina Island. However, because the facility is still in discussions with the Catalina Island Conservancy, the owner of the Middle Ranch property, it would be speculative to analyze the environmental impacts associated with the installation of solar PV cells on Santa Catalina Island. Therefore, in accordance with CEQA Guidelines Section 15145, an evaluation of the environmental impacts associated with installing solar PV cells is concluded to be speculative and will not be evaluated further in this SEA. It is important to note that the environmental topic area of geology and soils will need to be evaluated by the land use authority prior to the Middle Ranch property being granted a change in land use to accommodate installations of new equipment to generate electricity.

Therefore, physical modifications that may occur at Facility 2 in response to PAR 1135 are expected to occur within the existing boundary of Facility 2 such that the same reasoning as listed in items 1) through 6) for why no geological and soils impacts would occur for the November 2018 amendments to Rule 1135 would also apply to the proposed project. Therefore, the previous conclusion of no impact to geology and soils in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.

Hydrology and Water Quality

It is important to note that the Draft SEA for PAR 1135 included a summary from the November 2018 Final Mitigated SEA for Rule 1135 stating that there were no impacts for the topic of hydrology and water quality. However, the conclusion in the November 2018 Final Mitigated SEA for Rule 1135 indicated less than significant hydrology and water quality impacts. For this reason, the summary of hydrology and water quality impacts has been relocated from this section to "Environmental Topic Areas Previously Concluded in the November 2018 Final Mitigated SEA To Have Less Than Significant Impacts."

~~The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed hydrology and water impacts associated with expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits for electric power generating units in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA for Rule 1135 concluded that no hydrology and water impacts would occur because the November 2018 version of Rule 1135 would not:~~

~~(1) generate wastewater and would not trigger the need for an adequate wastewater capacity determination by any wastewater treatment provider that may be serving each affected facility;~~

~~(2) require or result in the construction of new water or wastewater treatment facilities or new storm water drainage facilities, or expansion of existing facilities;~~

~~(3) violate any water quality standards, waste discharge requirements, exceed wastewater treatment requirements of the applicable Publicly Owned Treatment Works (POTW) or Regional Water Quality Control Board, or otherwise substantially degrade water quality;~~

~~(4) utilize groundwater, substantially deplete groundwater supplies, or interfere substantially with groundwater recharge;~~

~~(5) require a determination by the water providers which currently serve the affected facilities that there would be adequate existing capacity to provide water;~~

~~(6) alter the course of a stream or river, existing drainage patterns or the procedures for how surface runoff water is handled; and~~

~~(7) result in placing houses or structures within 100-year flood hazard areas that could create new flood hazards or create significant adverse risk impacts from flooding as a result of failure of a levee or dam or inundation by seiches, tsunamis, or mudflows;~~

~~The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.~~

~~Similar to the November 2018 version of Rule 1135, compliance activities under PAR 1135 would not require water (and generate wastewater) and the same reasoning as listed in items 1) through 7) for why no hydrology and water impacts would occur also apply to the proposed project. Therefore, the previous conclusion of no impact to hydrology and water in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.~~

Land Use and Planning

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed land use and planning impacts associated with expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits for electric power generating units in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA for Rule 1135 concluded that no land use and planning impacts would occur because the expected physical modifications to meet the BARCT emission limits would occur within the boundary of existing industrial facilities and:

1) Physical division of an established community would not be expected.

2) There would be no conflict with any applicable land use plan, policy, or regulation due to the absence of an agency with jurisdiction over the Rule 1135.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.

It should be noted that there is limited land available on Santa Catalina Island to accommodate the installation of solar PV cells, as most open land on the island is mountainous and solar energy production is optimal when the equipment is sited on flat land. A potential site on Santa Catalina Island for the installation of solar PV cells or other ZE and/or NZE technologies, is Middle Ranch (Figure 2-7). Middle Ranch is approximately 15 acres, which can accommodate solar PV installations that could provide approximately 30% of historical power generation needed for Santa Catalina Island. However, because the facility is still in discussions with the Catalina Island Conservancy, the owner of the Middle Ranch property, it would be speculative to analyze the environmental impacts associated with the installation of solar PV cells on Santa Catalina Island. Therefore, in accordance with CEQA Guidelines Section 15145, an evaluation of the environmental impacts associated with installing solar PV cells is concluded to be speculative and will not be evaluated further in this SEA. It is important to note that the environmental topic area of land use and planning will need to be evaluated by the land use authority prior to the Middle Ranch property being granted a change in land use to accommodate installations of new equipment to generate electricity.

Therefore, physical modifications that may occur at Facility 2 in response to PAR 1135 are expected to occur within the existing boundary of Facility 2 such that the same reasoning as listed in items 1) and 2) for why no land use and planning impacts would occur as a result of the November 2018 amendments to Rule 1135 also apply to the proposed project. Therefore, the previous conclusion of no impact to land use and planning in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.

Mineral Resources

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed mineral resources impacts associated with expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits for electric power generating units in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA for Rule 1135 concluded that no impacts to mineral resources would occur because compliance with the November 2018 version of Rule 1135 would not result in the loss of availability of a known mineral resource of value to the region and the residents of the state such as gravel, asphalt, bauxite, gypsum, et cetera, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.

None of the compliance activities necessary to implement PAR 1135 would require the use of a known mineral resource. Thus, PAR 1135 would also not result in the loss of availability of a known mineral resource of value to the region and the residents of the state such as aggregate, coal, clay, shale, et cetera, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Therefore, the previous conclusion of no impact to mineral resources in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.

Population and Housing

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed population and housing impacts associated with expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits for electric power generating units in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA for Rule 1135 concluded that no population and housing impacts would occur because:

1) The construction activities at the affected facilities are relatively minimal such that they would not be expected to require the relocation of individuals, require new housing or commercial facilities, or change the distribution of the population;

2) The physical modifications expected to take place at electricity generating facilities would not require new employees to operate and maintain the equipment because each of the affected facilities already have existing electric power generating units in place with personnel trained to maintain the equipment; and

3) The November 2018 version of Rule 1135 would not create any industry that would affect population growth, directly or indirectly induce the construction of housing units, or require the displacement of persons or housing elsewhere in the South Coast AQMD.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.

Consistent with previous conclusion, the same reasoning as listed in items 1) through 3) for why no population and housing impacts would occur also applies to PAR 1135. Therefore, the

previous conclusion of no impact to population and housing in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.

Recreation

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed recreation impacts associated with expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits for electric power generating units in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA concluded that no recreation impacts would occur because the November 2018 version of Rule 1135 would not:

1) directly or indirectly increase or redistribute population;

2) increase the use of existing neighborhood and regional parks or other recreational facilities; and

3) include recreational facility or require the construction of new or the expansion of existing recreational facilities that might have an adverse physical effect on the environment.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.

The affected facilities who need to perform any construction activities to comply with PAR 1135 can draw from the existing labor pool in the local Southern California area. Further, the expected physical modifications by PAR 1135 would not be expected to require new employees to operate and maintain the equipment because the affected facilities already have existing electric power generating units in place with personnel trained to maintain the units. There are also no provisions in PAR 1135 that would affect or increase the demand for or use of existing neighborhood and regional parks or other recreational facilities. In addition, PAR 1135 would not require the construction of new or the expansion of existing recreational facilities that might, in turn, cause adverse physical effects on the environment because PAR 1135 will not directly or indirectly substantively increase or redistribute population. Therefore, consistent with the previous conclusion in the November 2018 Final Mitigated SEA for Rule 1135, PAR 1135 would not result in any recreation impacts as summarized in items 1) through 3). Therefore, the previous conclusion of no impact to recreation in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.

Tribal Cultural Resources and Wildfire

At the time the November 2018 Final Mitigated SEA for Rule 1135 was certified, the environmental checklist did not include tribal cultural resources and wildfires as environmental topic areas to be evaluated. However, in 2019, these two environmental topic areas, were added to the environmental checklist in the CEQA Guidelines. To make the analysis of environmental

impacts consistent with these changes to the environmental checklist, Tables 4-10 and 4-11 provide the environmental checklist questions for both of these additional topic areas and an analysis of whether the proposed project would be expected to contribute to impacts on tribal cultural resources and wildfire, respectively.

Table 4-10
Evaluation of Tribal Cultural Resources Impacts

Tribal Cultural Resources: Would the project:	**ANALYSIS AND CONCLUSION**
Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code §21074, as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is either: • Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code §5020.1(k)? • A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code §5024.1(c)? (In applying the criteria set forth in Public Resources Code §5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.)	**No Impact.** As noted earlier in this SEA, it would be speculative to analyze the potential land acquisition for solar PV cell installation outside of the footprint of the electric generating facility on Santa Catalina Island. Therefore, activities undertaken in response to PAR 1135 will continue to occur within the footprint of Facility 2 which has been fully developed and paved. PAR 1135 is not expected to require physical changes to a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American Tribe. However, as part of releasing the November 2018 Final Mitigated SEA for Rule 1135 for public review and comment, South Coast AQMD provided a formal notice to all California Native American Tribes (Tribes) that requested to be on the Native American Heritage Commission's (NAHC) notification list per Public Resources Code Section 21080.3.1(b)(1). Furthermore, the proposed project is not expected to result in a physical change to a resource determined to be eligible for inclusion or listed in the California Register of Historical Resources or included in a local register of historical resources. Similarly, the proposed project is not expected to result in a physical change to a resource determined by the South Coast AQMD to be significant to any tribe. For these reasons, the proposed project is not expected to cause any substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074.

Based on the analysis presented in Table 4-10, PAR 1135 would not be expected to have any impacts on tribal cultural resources.

Table 4-11
Evaluation of Wildfire Impacts

WILDFIRE: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	**ANALYSIS AND CONCLUSION**
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	**No Impact.** Facility 2 is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones. In the November 2018 Final Mitigated SEA for Rule 1135, the response to question f) in Section VIII – Hazards and Hazardous Materials, poses the same question and the analysis concluded that the project analyzed in November 2018 Final Mitigated SEA for Rule 1135 would have no impact on any adopted emergency response plan or emergency evacuation plan. Because the previous conclusion of less than significant impact to hazard and hazardous materials reached in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to the proposed project, implementation of the proposed project would also not be expected to substantially impair an adopted emergency response plan or emergency evacuation plan.
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	**No Impact.** Facility 2 is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones. Facility 2 is located on Santa Catalina Island in an established industrial area which is not near wildlands. In the event of a wildfire, no exacerbation of wildfire risks, and no consequential exposure of the project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, or other factors would be expected to occur.

Table 4-11 (continued)
Evaluation of Wildfire Impacts

WILDFIRE: **If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:**	**ANALYSIS AND CONCLUSION**
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	**No Impact.** As noted earlier in this SEA, it would be speculative to analyze the potential land acquisition for solar PV cell installation outside of the footprint of the electric generating facility on Santa Catalina Island. Therefore, activities undertaken in response to PAR 1135 will continue to occur within the footprint of Facility 2, which is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones. Also, because the proposed project does not require any construction beyond the existing facility footprint, the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment are not required and would not be expected to occur.
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	**No Impact.** Facility 2 is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones. In the November 2018 Final Mitigated SEA for Rule 1135, the response to question c) in Section VII – Geology and Soils, poses a similar question relative to landslides and the analysis concluded that the project analyzed in the November 2018 Final Mitigated SEA for Rule 1135 would have no impact. Also, the response to question f) in Section IX –Hydrology and Water Quality of the same document, poses a similar question relative to flooding and the analysis concluded that the project analyzed in November 2018 Final Mitigated SEA for Rule 1135 would have no impact. Because the previous conclusion of no impact to geology and soils and hydrology and water quality reached in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to the proposed project, PAR 1135 would also not be expected to expose people or structures to new significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Table 4-11 (concluded)
Evaluation of Wildfire Impacts

WILDFIRE: **If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:**	**ANALYSIS AND CONCLUSION**
e) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildfires?	**No Impact.** Facility 2 is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones. In the November 2018 Final Mitigated SEA for Rule 1135, the response to question g) in Section VIII – Hazards and Hazardous Materials, poses essentially the same question and the analysis concluded that the project analyzed in the November 2018 Final Mitigated SEA for Rule 1135 would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. Because the previous conclusion of less than significant impact to hazards and hazardous materials in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to the proposed project, implementation of PAR 1135 would also not be expected to expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildfires.

Based on the analysis presented in Table 4-11, PAR 1135 would not be expected to have any impacts on wildfires.

Environmental Topic Areas Previously Concluded in the November 2018 Final Mitigated SEA To Have Less Than Significant Impacts

The following environmental topic areas were previously analyzed in the November 2018 Final Mitigated SEA for Rule 1135 to have less than significant impacts with or without mitigation: air quality and greenhouse gas emissions; energy; hazards and hazardous materials; hydrology and water quality; noise; public services; solid and hazardous waste; and transportation and traffic.

The following discussion independently considers the currently proposed project and analyzes the incremental changes, if any, relative to the baseline which is the project analyzed in the November 2018 Final Mitigated SEA for Rule 1135, in order to determine if the previous conclusions of less than significant impacts for the environmental topic areas of air quality and greenhouse gas emissions; energy; hazards and hazardous materials; hydrology and water quality; noise; public services; solid and hazardous waste; and transportation and traffic need to be changed.

Air Quality and Greenhouse Gas Emissions

The November 2018 Final Mitigated SEA for Rule 1135 previously concluded less than significant air quality and greenhouse gas emissions impacts from the expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Specifically, PAR 1135 proposes to : 1) remove the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024; 2) delay the compliance date for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years); 3) delay the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years); and 4) include new annual NOx emission limits of 30 tpy and 6 tpy with compliance dates of January 1, 2028 (with a potential extension up to three years) and January 1, 2035 (with a potential extension up to ~~three~~ six years), respectively. For Facility 2, compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells and solar powered batteries.

Sections 4.1 and 4.2 of this SEA analyze the proposed project's air quality and GHG impacts and conclude that significant adverse environmental impacts may occur for the topic of air quality during operation due to interim delayed NOx emission reductions, interim exceedances of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10 ambient air quality standards, and interim health risk impacts.

Energy

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed energy impacts associated with the potential modifications that may be expected to occur at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA concluded less than significant energy impacts because the November 2018 version of Rule 1135 would not:

1) conflict with any adopted energy conservation plans or violate any energy conservation standards because affected facilities would be expected to continue implementing any existing energy conservation plans;

2) result in the loss of utility systems because the affected facilities would continue to generate the same amount of electricity after the completion of the modifications and new equipment installations. Post-project, the new equipment will continue to be able to handle local and regional needs as well as peak demands;

3) result in the need for new or substantially altered power or natural gas utility systems; and

4) cause significant adverse impact on gasoline and diesel fuel supplies during construction and operation.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Specifically, PAR 1135 proposes to: 1) remove the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024; 2) delay the compliance date for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years); 3) delay the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years); and 4) include new annual NOx emission limits of 30 tpy and 6 tpy with compliance dates of January 1, 2028 (with a potential extension up to three years) and January 1, 2035 (with a potential extension up to ~~three~~ six years), respectively. For Facility 2, compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells and solar powered batteries. As noted in Subchapter 4.1, compliance with PAR 1135 is expected to increase the number of required diesel-fueled barge trips for fuel delivery to Facility 2 from 300 (the previous estimate in November 2018 Final Mitigated SEA for Rule 1135) to 329, 319, and 326 to comply with annual NOx limits of 45, 30, and 13 tpy, respectively. Thus, compared to what was analyzed in November 2018 Final Mitigated SEA for Rule 1135, 29 additional barge trips are expected on a peak year for fuel delivery to Santa Catalina Island (the city of Avalon).

The November 2018 Final Mitigated SEA for Rule 1135 also analyzed the energy impacts associated with the additional barge trips required for transporting construction equipment and diesel engines to Facility 2. Compared to what was analyzed in the November 2018 Final Mitigated SEA for Rule 1135, implementation of PAR 1135 will require 42 additional diesel-fueled barge trips to transport construction equipment and NZE technologies (i.e., five linear generators and three fuel cells) to and from the Port of Los Angeles to Santa Catalina Island (the city of Avalon). Appendix C shows the detailed calculations of diesel fuel consumption by the barge activities. In addition, due to minimal construction and demolition activities, installing linear generators/fuel cells is not expected to result in higher gasoline and diesel consumption than what was previously analyzed for the replacement of diesel combustion engines with new Tier 4 engines in the November 2018 Final Mitigated SEA for Rule 1135.

Table 4-12 summarizes the projected fuel use impacts associated with the proposed changes at Facility 2. The 2016 California Annual Retail Fuel Outlet Report Results from the California Energy Commission (CEC) stated that 749 million gallons of diesel and 6,997 million gallons of gasoline were consumed in 2016 in the Basin. Therefore, according to Table 4-12, while implementing the proposed project might result in incremental increases in total gasoline and diesel fuel consumption, the increases are well below the South Coast AQMD significance threshold of 1% of baseline fuel supply. Thus, no significant adverse impact on fuel supplies would be expected during construction and operation. Therefore, the same reasoning for why the November 2018 Final Mitigated SEA for Rule 1135 concluded that less than significant energy impacts would occur also applies to PAR 1135 and there is no change to the overall less than significant conclusion of energy impacts if the proposed project is implemented.

Table 4-12
Total Projected Fuel Usage for Construction and Operation Activities by PAR 1135

Fuel Type	Phase	Expected Incremental Increases in Fuel Consumption by PAR 1135 (mmgal)	Estimated Consumption Analyzed in the November 2018 Final Mitigated SEA (mmgal)	Estimated Consumption by PAR 1135 (mmgal)	Percent Above Baseline	Significant?
Diesel	Construction	0.0201	0.0772	0.0973	0.0130	**NO**
	Operation	0.0139	0.0017	0.0156	0.0021	**NO**
Gasoline	Construction	---	0.0007	0.0007	0.00001	**NO**
	Operation	---	---	---	---	---

Hazards and Hazardous Materials

The November 2018 Final Mitigated SEA for Rule 1135 previously concluded less than significant (after mitigation) hazards and hazardous materials impacts associated with the potential modifications that may be expected to occur at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits in the November 2018 version of Rule 1135. The analysis in the November 2018 Final Mitigated SEA for Rule 1135 concluded that there would be:

1) no new significant hazards to the public or environment through the routine transport, storage, use, and disposal of hazardous materials (e.g., aqueous ammonia or urea) at affected facilities; no new significant hazard (after mitigation) to the public or the environment through reasonably foreseeable upset conditions involving the release of hazardous materials into the environment; no new hazardous emissions, or new or increased handling of hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school; or no significant increase in fire hazard in areas with flammable materials.

2) no changes in how the hazardous materials are stored at affected facilities while awaiting to be transported off-site to a recycling facility or a hazardous waste landfill; no changes in how affected facilities comply with their current hazardous waste handling practices for any facilities that are identified on lists of California Department of Toxics Substances Control hazardous waste facilities per Government Code Section 65962.5. In fact, any facility that is subject to the requirements in Government Code Section 65962.5 would still be required need to comply with any regulations relating to that code section.

3) no new safety hazards would be expected to people working or residing in the vicinity of public/private airports.

4) no impairment of the implementation of or physically interference with an adopted emergency response plan or emergency evacuation plan.

5) no significant exposure to people or structures to risk of loss, injury or death involving wildland fires.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.

Facility 2 currently receives deliveries of urea, and stores and converts it to aqueous ammonia on-site as part of existing operations for their SCR system. The amount of urea that may be needed by Facility 2 as a result of PAR 1135 is not expected to increase, and the current quantity of urea and frequency of deliveries to Facility 2 should be sufficient. Thus, there will be no increase in the number of peak daily truck trips and no new significant transportation impacts associated with deliveries of urea to Facility 2 will be expected to occur. In addition, when compared to what was previously analyzed in the November 2018 Final Mitigated SEA for Facility 2, the amount of urea delivery, storage, and use would remain the same or decrease as a result of the proposed changes by PAR 1135 since three new Tier 4 Final diesel combustion engines along with NZE and ZE technologies would operate to achieve 6 tpy NOx emission limit instead of the previously analyzed five new Tier 4 Final diesel engines in the November 2018 Final Mitigated SEA for Rule 1135.

Therefore, consistent with previous conclusion, the same reasoning as listed in items 1) through 5) for why less than significant hazards and hazardous materials impacts would occur also applies to PAR 1135. Thus, the previous conclusion of less than significant impacts to hazards and hazardous materials in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.

Hydrology and Water Quality

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed hydrology and water impacts associated with expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits for electric power generating units in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA for Rule 1135 concluded that less than significant hydrology and water impacts would occur because the November 2018 version of Rule 1135 would not:

(1) generate wastewater and would not trigger the need for an adequate wastewater capacity determination by any wastewater treatment provider that may be serving each affected facility;

(2) require or result in the construction of new water or wastewater treatment facilities or new storm water drainage facilities, or expansion of existing facilities;

(3) violate any water quality standards, waste discharge requirements, exceed wastewater treatment requirements of the applicable Publicly Owned Treatment Works (POTW) or Regional Water Quality Control Board, or otherwise substantially degrade water quality;

(4) utilize groundwater, substantially deplete groundwater supplies, or interfere substantially with groundwater recharge;

(5) require a determination by the water providers which currently serve the affected facilities that there would be adequate existing capacity to provide water;

(6) alter the course of a stream or river, existing drainage patterns or the procedures for how surface runoff water is handled; and

(7) result in placing houses or structures within 100-year flood hazard areas that could create new flood hazards or create significant adverse risk impacts from flooding as a result of failure of a levee or dam or inundation by seiches, tsunamis, or mudflows;

PAR 1135 is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.

According to the data provided by Facility 2, construction activities will require approximately 250 gallons per day of potable water to control dust while preparing foundations for each diesel engine. However, the proposed project will not appreciably change the current use of water and treatment of wastewater during operation at Facility 2. Thus, the proposed project is not expected to exceed the significance threshold of potable water or wastewater discharge and the same reasoning as listed in items 1) through 7) for why less than significant hydrology and water impacts would occur also apply to the proposed project. Therefore, the previous conclusion of less than significant impact to hydrology and water in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.

Noise

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed noise impacts associated with expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits for electric power generating units in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA concluded that less than significant noise impacts would occur because:

1) all of the construction activities are expected to occur within the confines of the existing facilities where the existing noise environment at each of the affected facilities is typically dominated by noise from existing equipment onsite, vehicular traffic around the facilities, and trucks entering and exiting facility premises. In addition, Operation of the construction equipment would be expected to comply with all existing noise control laws and ordinances;

2) since the affected facilities are located in industrial land use areas, which have a higher background noise level when compared to other areas, the noise generated during construction will likely be indistinguishable from the background noise levels at the property line;

3) once the construction is complete, the noise from operation activities will be similar to the existing noise setting currently generated on-site because replacement equipment will have a similar noise profile as the equipment being replaced. but if additional noise is generated, each facility will be required to comply with all existing noise control laws or ordinances, including noise standards established by OSHA and Cal/OSHA to protect worker health

4) the November 2018 version of Rule 1135 is not expected to cause changes to electric power generating units at the facilities located within two miles of an airport and if construction activities were to occur it is expected construction activities would be in accordance with all appropriate building, land use and fire codes;

5) the November 2018 version of Rule 1135 would not expose people residing or working in the vicinity of any affected facility to the same degree of excessive noise levels associated with airplanes because all noise producing equipment at the affected facilities must comply with local noise ordinances and applicable OSHA or CAL-OSHA workplace noise reduction requirements.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.

It should be noted that there is limited land available on Santa Catalina Island to accommodate the installation of solar PV cells, as most open land on the island is mountainous and solar energy production is optimal when the equipment is sited on flat land. A potential site on Santa Catalina Island for the installation of solar PV cells or other ZE and/or NZE technologies, is Middle Ranch (Figure 2-7). Middle Ranch is approximately 15 acres, which can accommodate solar PV installations that could provide approximately 30% of historical power generation needed for Santa Catalina Island. However, because the facility is still in discussions with the Catalina Island Conservancy, the owner of the Middle Ranch property, it would be speculative to analyze the environmental impacts associated with the installation of solar PV cells on Santa Catalina Island. Therefore, in accordance with CEQA Guidelines Section 15145, an evaluation of the environmental impacts associated with installing solar PV cells is concluded to be speculative and will not be evaluated further in this SEA. It is also important to note that the environmental topic area of noise will need to be evaluated by the land use authority prior to the Middle Ranch property being granted a change in land use to accommodate installations of new equipment to generate electricity.

Therefore, physical modifications that may occur at Facility 2 in response to PAR 1135 are expected to occur within the existing boundary of Facility 2 such that the same reasoning as listed in items 1) through 5) for why less than significant noise impacts would occur as a result of the November 2018 amendments to Rule 1135 also apply to the proposed project. Therefore, the previous conclusion of less than significant impact to noise in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.

Public Services

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed public services impacts associated with expected physical modifications at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits for electric power generating units in the November 2018 version of Rule 1135. The November 2018 Final Mitigated SEA concluded that less than significant public services impacts related to fire and police protection would occur because:

1) new safety hazards are not expected to occur the during construction phase for the affected electric power generating units since the construction activities at each of the affected facilities would require a building permit typically undergoing a thorough "plan check" process before a permit to build is issued;

2) ammonia delivery, storage, and use at affected facilities is not expected to significantly impact the hazardous material ("Haz Mat") response capabilities of the Los Angeles County Fire Authority; and

3) the frequency and amount of urea delivery to Facility 2 is expected to remain the same.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells, and solar powered batteries.

Since PAR 1135 is not expected to increase ammonia and urea delivery, storage, and use compared to what was analyzed in the November 2018 Final Mitigated SEA at Facility 2, the same reasoning as listed in items 1) and 2) for why less than significant public service impacts relating to fire and police protection services would occur also apply to the proposed project.

The analysis in the November 2018 Final Mitigated SEA for Rule 1135 also concluded no impacts to public services from schools and other facilities because the November 2018 version of Rule 1135 would not cause an increase in the local population such that:

1) additional personnel at local schools would not be needed; and

2) no new or physically altered government facilities would be needed in order to maintain acceptable service ratios, response times, or other performance objectives.

Since no increase in local population would be anticipated as a result of implementing PAR 1135, the same reasoning as listed in items 1) and 2) for why no public service impacts relating to schools and other facilities would occur also apply to the proposed project. Therefore, the previous conclusion of less than significant public services impacts relating to fire and police protection services and the no impacts conclusion relating to schools and other facilities in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to PAR 1135.

Solid and Hazardous Waste

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed solid and hazardous waste impacts at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits. The November 2018 Final Mitigated SEA concluded that less than significant solid and hazardous waste impacts would occur because:

1) the waste disposal needs are expected to be served by existing landfills with sufficient permitted capacity to accommodate each affected facility's solid waste disposal needs; and

2) implementation of the November 2018 version of Rule 1135 is not expected to interfere with any affected facility's ability to comply with applicable local, state, or federal waste disposal regulations in a manner that would cause a significant adverse solid and hazardous waste impact.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells and solar powered batteries.

Since installing ZE technologies and replacing diesel engines and microturbines are expected to occur over a long period of time and require minimal construction and demolition activities, no significant volumes of waste are expected to be generated at Facility 2. Therefore, the waste disposal needs are expected to be served by existing landfills with sufficient permitted capacity. Moreover, no increases are expected for the amount of urea delivered to and stored at Facility 2, and the current maintenance schedule to replace spent SCR catalysts is expected to remain the same (or decrease). Thus, the amount of waste disposal during Facility 2 operations would not increase.

Based on the preceding discussion, the proposed project would not result in the generation of substantial solid and hazardous waste affecting concerns summarized in items 1) and 2) and therefore, the previous conclusion of less than significant impact to solid and hazardous waste in the November 2018 Final Mitigated SEA will continue to apply to the proposed project.

Transportation and Traffic

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed the construction and operational transportation and traffic impacts at six affected facilities (including the Santa Catalina Island electricity generating facility, referred to as Facility 2) to comply with the proposed emission limits. The November 2018 Final Mitigated SEA concluded less than significant transportation and traffic impacts relative to: 1) the peak daily work force that would be needed during construction and their associated trips; 2) peak daily number of heavy-duty truck trips during construction; and 3) peak daily number of heavy-duty truck trips during operation.

The proposed project is expected to impact one electricity generating facility (i.e., Facility 2) located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., via any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells and solar powered batteries.

As noted earlier, it would be speculative to analyze the potential land acquisition for solar PV cell installation outside of the footprint of the electric generating facility on Santa Catalina Island. While the estimated construction round trips on a peak day for replacing a diesel engine with a new Tier 4 engine at Facility 2 would remain the same as what was analyzed in the November 2019 Final Mitigated SEA (i.e., 43 construction round trips on a peak day), only 21 construction round trips would be required on a peak day to replace existing diesel internal combustion engines or microturbines with a NZE unit (linear generator, propane engine, or fuel cell). Because replacing each diesel engine with a new Tier 4 engine and replacing existing diesel internal combustion engines or microturbines with each NZE unit is assumed to be sequential to minimize power disruptions or reductions to the facility's customers during construction, implementation of PAR 1135 is not expected to increase construction round trips on a peak day compared to what was previously analyzed for Facility 2 in the November 2018 Final Mitigated SEA for Rule 1135. In addition, as noted earlier, compared to the previous analysis in the November 2018 Final Mitigated SEA, no additional operational trips are expected to Facility 2 for ammonia and urea delivery and storage. Moreover, no changes are expected to the number of barge trips for fuel delivery to Santa Catalina Island on a peak day.

Thus, while implementing the proposed project might result in incremental increases in the number of trips that may occur during construction and operation, the increases do not exceed the significance criteria of 350 round trips per day for transportation and traffic. In addition, the California Department of Transportation (Caltrans) recommends the implementation of a traffic control plan to minimize disruptions to traffic and ensure adequate emergency access in the event of traffic lane closure during construction (i.e., incorporating channelizing devices preceded by approved warning signs). Moreover, a Caltrans transportation permit is required in the event that oversized transport vehicles traveling on state highways are needed to deliver construction equipment and materials. Regardless of whether a Caltrans transportation permit is required, Caltrans recommends that large size truck trips be limited to off-peak commute periods.

While PAR 1135 does not contain any requirements that would interfere with traffic patterns and Caltrans permit requirements, it is important to note that construction activities are anticipated as part of implementation of PAR 1135 except that the construction will occur on Santa Catalina Island, where there are no state highways. In addition, the construction equipment needed to implement PAR 1135 will be transported from the mainland to Santa Catalina Island by barge. However, because the method of transporting the construction equipment on the mainland on the way to/from the port where the barge is loaded/off-loaded could occur via state highways, the aforementioned Caltrans requirements would apply. Therefore, the previous conclusion of less than significant impacts to transportation and traffic impacts during construction and operation in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to the proposed project.

4.4 POTENTIAL GROWTH-INDUCING IMPACTS

CEQA Guidelines Section 15126(d) requires an environmental analysis to consider the "growth-inducing impact of the proposed action." CEQA defines growth-inducing impacts as those impacts of a proposed project that "could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects, which would remove obstacles to population growth." [CEQA Guidelines Section 15126.2(d)].

To address this issue, potential growth-inducing effects are examined through the following considerations:

- Facilitation of economic effects that could result in other activities that could significantly affect the environment;
- Expansion requirements for one or more public services to maintain desired levels of service as a result of the proposed project;
- Removal of obstacles to growth through the construction or extension of major infrastructure facilities that do not presently exist in the project area or through changes in existing regulations pertaining to land development;
- Adding development or encroachment into open space; and/or
- Setting a precedent that could encourage and facilitate other activities that could significantly affect the environment.

4.4.1 Economic and Population Growth, and Related Public Services

A project would be considered to directly induce growth if it would directly foster economic or population growth or the construction of new housing in the surrounding environment (e.g., if it would remove an obstacle to growth by expanding existing infrastructure such as new roads or wastewater treatment plants).

The project evaluated in the November 2018 Final Mitigated SEA for Rule 1135 was concluded to not remove barriers to population growth, since implementation of the November 2018 version of Rule 1135 involved no changes to a General Plan, zoning ordinance, or a related land use policy.

The proposed project evaluated in this SEA contains incremental changes to the project previously evaluated in the November 2018 Final Mitigated SEA for Rule 1135. The proposed project would also not be expected to remove barriers to population growth, since implementation of the proposed project does not involve any changes to a General Plan, zoning ordinance, or a related land use policy.

Further, the proposed project, as with the project evaluated in the November 2018 Final Mitigated SEA for Rule 1135, does not include policies that would encourage the development of new housing or population-generating uses or infrastructure that would directly encourage such uses. The proposed project, as with the project evaluated in the November 2018 Final Mitigated SEA for Rule 1135, does not change jurisdictional authority or responsibility concerning land use or

property issues. Land use authority falls solely under the purview of the local governments. The South Coast AQMD is specifically excluded from infringing on existing city or county land use authority (Health and Safety Code Section 40414). Therefore, PAR 1135 would not directly trigger new residential development in the area.

The proposed project may result in construction activities associated with installing new or modifying existing air pollution control equipment, NZE, and ZE technologies to achieve NOx reductions. However, PAR 1135 would not directly or indirectly stimulate substantial population growth, remove obstacles to population growth, or necessitate the construction of new community facilities that would lead to additional growth within South Coast AQMD's jurisdiction. It is expected that construction workers will be largely drawn from the existing workforce pool in southern California. PAR 1135 would not require relocation of any workers and it would not be expected to result in an increase in local population, housing, or associated public services (e.g., fire, police, schools, recreation, and library facilities) since no increase in population or the number of permanent workers is expected. Likewise, PAR 1135 would not create new demand for secondary services, including regional or specialty retail, restaurant or food delivery, recreation, or entertainment uses. As such, the proposed project would not foster economic or population growth in the surrounding area in a manner that would be growth-inducing.

Thus, implementing PAR 1135 will not, by itself, have any direct or indirect growth-inducing impacts on businesses in the South Coast AQMD's jurisdiction because it is not expected to foster economic or population growth or the construction of additional housing and primarily affects existing facilities.

4.4.2 Removal of Obstacles to Growth

The facilities that may be affected by the proposed project are located within an existing industrial area. PAR 1135 would not employ activities or uses that would result in growth inducement, such as the development of new infrastructure (e.g., new roadway access or utilities) that would directly or indirectly cause the growth of new populations, communities, or currently undeveloped areas. While construction and operation activities that may occur as a result of PAR 1135 will require trips associated with construction workers, delivery of supplies and haul trips, the trips are expected to occur via existing roadways and transportation corridors. Thus, PAR 1135 is not expected to require the development of new roads or freeways. Likewise, PAR 1135 would not result in an expansion of existing public service facilities (e.g., police, fire, libraries, and schools) or the development of public service facilities that do not already exist.

4.4.3 Development or Encroachments into Open Space

Development can be considered growth-inducing when it is not contiguous to existing urban development and introduces development into open space areas. PAR 1135 is situated within the existing South Coast Air Basin, which is urbanized. The areas of the Basin where construction activities may occur would be at existing electric generating facilities that are generally located within commercial and industrial (urbanized) areas. Any related construction activities would be expected to be within the confines of the existing facilities and would not encroach into open space. Further, the associated trips would occur along existing transportation corridors. Therefore, PAR 1135 would not result in development within or encroachment into an open space area.

4.4.4 Precedent Setting Action

Rule 1135 was adopted in August 1989 to reduce NOx emissions from electricity generating facility. The rule has been amended four times with the last amendment in January 2022. The purpose of the January 2022 amendments to Rule 1135 was to remove ammonia limits, update provisions for Continuous Emission Monitoring Systems, reference Rule 429.2 for startup and shutdown requirements, and revise requirements for diesel internal combustion engines on Santa Catalina Island. The January 2022 amendments to Rule 1135 also directed staff to re-initiate rule development to include a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and NZE technologies. Thus, PAR 1135 mainly proposes to update the annual NOx emission limits and compliance dates for the electricity generating facility located on Santa Catalina Island with a focus on NZE, and ZE technologies. As noted earlier, implementation of the proposed project is expected to result in potentially significant delayed NOx emission reductions due to: 1) removing the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024; 2) delaying the compliance dates for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years); and 3) delaying the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years). Eventually, PAR 1135 will reduce the NOx mass emission limit from 13 tpy to 6 tpy on and after January 1, 2035, with a ~~three~~six-year extension option to achieve 6 tpy by January 1, ~~2038~~2041. If any extension is granted for ~~the 13 tpy~~any NOx emission limits as presented in Table 1-1 ~~(up to three years)~~, the emission reductions will be delayed for a longer period of time. The proposed project aims to achieve NOx emission reductions from electric generating units located on Santa Catalina Island in order to comply with state and federal air quality planning regulations and requirements. PAR 1135 would not result in precedent-setting actions that might cause other significant environmental impacts.

4.4.5 Conclusion

PAR 1135 is not expected to foster economic or population growth or result in the need to construct additional housing or other infrastructure, either directly or indirectly, that would further encourage growth. While PAR 1135 could result in construction projects at existing facilities, the proposed project would not be considered growth-inducing, because it would not result in an increase in production of resources or cause a progression of growth that could significantly affect the environment either individually or cumulatively.

4.5 RELATIONSHIP BETWEEN SHORT-TERM AND LONG-TERM ENVIRONMENTAL GOALS

CEQA documents are required to explain and make findings about the relationship between short term uses and long-term productivity [CEQA Guidelines Section 15065(a)(2)]. An important consideration when analyzing the effects of a proposed project is whether it will result in short-term environmental benefits to the detriment of achieving long-term goals or maximizing productivity of these resources. Implementing the proposed project is not expected to achieve short-term goals at the expense of long-term environmental productivity or goal achievement.

For the electricity generating facility located on Santa Catalina Island, PAR 1135 contains both short- and long-term goals which proposes to: 1) remove the 50 tpy NOx emission limit which has

an expired compliance date of January 1, 2024; 2) delay the compliance date for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years); 3) delay the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years); and 4) include new annual NOx emission limits of 30 tpy and 6 tpy with compliance dates of January 1, 2028 (with a potential extension up to three years) and January 1, 2035 (with a potential extension up to ~~three~~ six years), respectively. Thus, implementation of the proposed project is expected to result in the following delayed NOx emission reductions which vary according to compliance year and exceed the South Coast AQMD significance threshold for mass daily emissions of NOx:

- 21.3 tpy (equal to 116.71 lb/day) from January 1, 2024 to January 1, 2025;
- 26.3 tpy (equal to 144.11 lb/day) from January 1, 2025 to January 1, 2026;
- 58.3 tpy (equal to 319.45 lb/day) from January 1, 2026 to January 1, 2027 (with a potential extension up to three years);
- 32 tpy (equal to 175.34 lb/day) from January 1, 2027 (with a potential extension up to three years) to January 1, 2028 (with a potential extension up to three years); and
- 17 tpy (equal to 93.15 lb/day) from January 1, 2028 (with a potential extension up to three years) to January 1, 2030 (with a potential extension up to ~~three~~ six years)

If any extension is granted for ~~the 13 tpy~~any NOx emission limits as presented in Table 1-1 ~~(up to three years)~~, the emission reductions will be delayed for a longer period of time. However, upon full implementation of PAR 1135 (e.g., when the NOx limit will reach 6 tpy by January 1, 2035 (with a potential extension up to ~~three~~ six years)), the emission reductions of NOx, a precursor to the formation of ozone and PM2.5, will help the South Coast AQMD region attain federal and state air quality standards which, in turn, will be expected to enhance the short- and long-term environmental productivity in the region.

CHAPTER 5

ALTERNATIVES

5.0 INTRODUCTION

This SEA provides a discussion of alternatives to the proposed project as required by CEQA. The alternatives discussion includes measures for attaining the objectives of the proposed project and provides a means for evaluating the comparative merits of each alternative. A 'no project' alternative must also be evaluated. The range of alternatives must be sufficient to permit a reasoned choice but need not include every conceivable project alternative. CEQA Guidelines Section 15126.6(c) specifically notes that the range of alternatives required in a CEQA document is governed by a 'rule of reason' and only necessitates that the CEQA document set forth those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decision making and public participation. A CEQA document need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. In addition, South Coast AQMD's certified regulatory program pursuant to Public Resources Code Section 21080.5, CEQA Guidelines Section 15125(l), and South Coast AQMD Rule 110 does not impose any greater requirements for a discussion of project alternatives in a SEA than is required for an EIR under CEQA.

5.1 METHODOLOGY FOR DEVELOPING PROJECT ALTERNATIVES

The alternatives typically included in CEQA documents for proposed South Coast AQMD rules, regulations, or plans are developed by breaking down the project into distinct components (e.g., emission limits, compliance dates, applicability, exemptions, pollutant control strategies, etc.) and varying the specifics of one or more of the components. Different compliance approaches that generally achieve the objectives of the project may also be considered as project alternatives. CEQA Guidelines Section 15126.6(b) states that the purpose of alternatives is to identify ways to mitigate or avoid significant effects that a project may have on the environment.

The initial analysis of PAR 1135 determined that, of the amendments proposed for the electricity generating facility located on Santa Catalina Island, only the components in PAR 1135 that pertain to the proposed revisions to the annual NOx limits and delayed compliance dates, could have potentially significant adverse operational air quality impacts. As such, alternatives to the proposed project were crafted by varying the annual NOx limits and/or varying the corresponding compliance dates to meet such limits.

5.2 DESCRIPTION OF ALTERNATIVES TO THE PROPOSED PROJECT

Four alternatives to PAR 1135 were analyzed and are summarized in Table 5-1: Alternative A – No Project, Alternative B – More Stringent Proposed Project, Alternative C – Less Stringent Proposed Project, and Alternative D – No ZE Equipment. The primary components of the alternatives vary by modifications to the annual NOx limits and their corresponding compliance dates as well as the manner in which the annual NOx limits may be achieved. Unless otherwise specifically noted, all other components of the project alternatives are identical to the components of PAR 1135.

The following subsections provide a brief description of the alternatives.

5.2.1 Alternative A – No Project

CEQA requires the specific alternative of "No Project" to be evaluated. A No Project Alternative consists of what would occur if the proposed project (PAR 1135) was not approved; in this case, not proposing amendments to Rule 1135. Alternative A, the no project alternative, means that the January 2022 version of Rule 1135 would remain in effect. Under Alternative A, the electricity generating facility located on Santa Catalina Island would have to comply with the annual NOx limits in the January 2022 version of Rule 1135. In other words, this facility would be required to reduce their annual NOx emissions to less than or equal to 50 tpy, 45 tpy, and 13 tpy by January 1, 2024, January 1, 2025, and January 1, 2026 (with a three-year extension option to meet 13 tpy by January 1, 2029), respectively. Moreover, under Alternative A, the owner or operator of the electricity generating facility located on Santa Catalina Island would be prohibited from installing any new diesel internal combustion engines after January 1, 2024.

5.2.2 Alternative B – More Stringent Proposed Project

There are some elements in PAR 1135 that could be adjusted to create a more stringent version of the proposed project. To increase the stringency, more requirements would need to be imposed such as further reducing the NOx limits with earlier compliance dates. PAR 1135 requires the electricity generating facility located on Santa Catalina Island to reduce their emissions to eventually meet the 6 tpy NOx limit by January 1, 2035 (with a ~~three~~six-year extension option provision to meet 6 tpy by January 1, ~~2038~~2041); however, under Alternative B, a more stringent NOx limit of 1.8 tpy (instead of 6 tpy) by January 1, 2035 (with a ~~three~~six-year extension option provision to meet 1.8 tpy by January 1, ~~2038~~2041) is considered. The overall NOx emission reductions from Alternative B will be 4.2 tpy more than those of the proposed project. All other elements, NOx limits, and deadlines would remain the same under Alternative B as for the proposed project.

5.2.3 Alternative C – Less Stringent Proposed Project

In contrast to Alternative B, there are a number of elements in PAR 1135 that could be adjusted to create a less stringent version of the proposed project. To reduce the stringency, fewer requirements would need to be imposed such as higher NOx limits with delayed compliance dates. PAR 1135 requires the electricity generating facility located on Santa Catalina Island to reduce their emissions to eventually meet the 6 tpy NOx limit by January 1, 2035 (with a ~~three~~six-year extension option provision to meet 6 tpy by January 1, ~~2038~~2041); however, under Alternative C, more flexibility to the electricity generating facility located on Santa Catalina Island would be provided by: 1) removing the 45 tpy and 6 tpy NOx limits; 2) delaying the compliance date of the 30 tpy NOx limit by one year; 3) including a new interim NOx emission limit of 20 tpy with a compliance date of January 1, 2031 (with a potential extension up to three years); 4) postponing the prohibition deadline to install a new diesel engine and install equipment that does not meet the definition of NZE or ZE electric generating unit for one year; 5) delaying the compliance date to attain 13 tpy NOx limit by five years; 6) postponing the deadline to install NZE and/or ZE electric generating units with a cumulative rating greater than or equal to (≥) 1.8 MW for five years; and 7) delaying the deadline to remove all prime power diesel engines with a construction date earlier than date of adoption from service for five years. The overall NOx emission reductions from Alternative C will be 7 tpy fewer than the proposed project.

5.2.4 Alternative D – No ZE Equipment

As noted earlier in this SEA, there is limited land available on Santa Catalina Island to accommodate the installation of solar PV cells, as most open land on the island is mountainous and solar energy production is optimal when the equipment is sited on flat land. Complications in the permitting process and land use plans may also be substantial obstacles to either acquiring or leasing additional land outside of boundaries of this electric generating facility for the purpose of installing solar PV cells. For example, modifications to the Santa Catalina Island land use plan would require the revisions of existing land use regulations, which could take several years. For these reasons, Alternative D was crafted to examine a scenario that does not rely on ZE equipment such as solar batteries and PV cells.

While PAR 1135 requires the electricity generating facility located on Santa Catalina Island to reduce their NOx emissions to 6 tpy on and after January 1, 2035 (with a potential extension up to ~~three~~ six years), Alternative D will instead set the final NOx limit to 13 tpy with a compliance date of January 1, 2030 (with a potential extension up to ~~three~~ six years). Alternative D is expected to be achieved with a mix of ~~52~~48% NZE, and ~~48~~52% diesel internal combustion engines for power generation. Under Alternative D, the electricity generating facility located on Santa Catalina Island would forego ZE solar batteries and PV cells, and opt instead for NZE and new Tier 4 Final diesel engines to attain the 13 tpy NOx limit. The overall NOx emission reductions from Alternative D will be 7 tpy fewer than the proposed project. All other elements, limits, and deadlines would be the same under Alternative D as is in the proposed project.

5.3 ALTERNATIVES ANALYSIS

The same environmental topic areas evaluated for the proposed project are analyzed for each alternative. The following subsections re-summarize impacts and significance conclusions from the proposed project before discussing each alternative. A comparison of the environmental impacts for each project alternative is also provided in Table 5-2.

5.3.1 Air Quality and Greenhouse Gas Emissions

5.3.1.1 Proposed Project

Potential direct and indirect air quality and GHG emissions impacts from the proposed project are summarized in the following subsection. For the complete analysis, refer to Section 4.1 - Air Quality and Greenhouse Gas Emissions.

As explained previously, PAR 1135 will only impact one electricity generating facility located on Santa Catalina Island. Compliance with PAR 1135 is expected to be achieved through replacing three existing diesel internal combustion engines with three new Tier 4 Final diesel engines, replacing the remaining existing diesel internal combustion engines and microturbines with NZE technologies (e.g., any combination of propane engines, linear generators, and/or fuel cells), and installing ZE technologies such as solar PV cells and solar powered batteries. These construction activities are expected to generate less than significant air quality and GHG impacts.

For the electricity generating facility located on Santa Catalina Island, PAR 1135 proposes to: 1) remove the 50 tpy NOx emission limit which has an expired compliance date of January 1, 2024;

2) delay the compliance date for the 45 tpy NOx emission limit by two years from January 1, 2025 to January 1, 2027 (with a potential extension up to three years); 3) delay the compliance date for the 13 tpy NOx emission limit by four years from January 1, 2026 to January 1, 2030 (with a potential extension up to ~~three~~ six years); and 4) include new annual NOx emission limits of 30 tpy and 6 tpy with compliance dates of January 1, 2028 (with a potential extension up to three years) and January 1, 2035 (with a potential extension up to ~~three~~ six years), respectively. Thus, implementation of the proposed project is expected to result in the following delayed NOx emission reductions which vary according to compliance year and exceed the South Coast AQMD significance threshold for mass daily emissions of NOx:

- 21.3 tpy (equal to 116.71 lb/day) from January 1, 2024 to January 1, 2025;
- 26.3 tpy (equal to 144.11 lb/day) from January 1, 2025 to January 1, 2026;
- 58.3 tpy (equal to 319.45 lb/day) from January 1, 2026 to January 1, 2027 (with a potential extension up to three years);
- 32 tpy (equal to 175.34 lb/day) from January 1, 2027 (with a potential extension up to three years) to January 1, 2028 (with a potential extension up to three years); and
- 17 tpy (equal to 93.15 lb/day) from January 1, 2028 (with a potential extension up to three years) to January 1, 2030 (with a potential extension up to ~~three~~ six years).

If any extension is granted for ~~the 13 tpy~~any NOx emission limits as presented in Table 1-1 ~~(up to three years)~~, the emission reductions will be delayed for a longer period of time. Implementation of the proposed project may result in the generation of 4.33 amortized MT/yr of CO2e emissions during construction and 1099.57 MT/yr of CO2e emissions during operation from all the affected facilities, which is less than the South Coast AQMD significance threshold of 10,000 MT/yr of CO2e for GHGs.

Moreover, potentially significant cancer risk impacts are expected during the operation of electricity generating facility located on Santa Catalina Island to meet the 45 tpy, 30 tpy, and 13 tpy NOx limits by January 1, 2027 (with a potential extension up to three years), January 1, 2028 (with a potential extension up to three years), and January 1, 2030 (with a potential extension up to ~~three~~ six years), respectively. However, once this facility meets the 6 tpy NOx limit by January 1, 2035 (with a potential extension up to ~~three~~ six years), the operational cancer risk would not exceed the South Coast AQMD significance threshold (i.e., 10 in a million).

5.3.1.2 Alternative A – No Project

Under Alternative A, the electricity generating facility located on Santa Catalina Island would be subject to the following annual NOx limits in the January 2022 version of Rule 1135: 50 tpy by January 1, 2024; 45 tpy by January 1, 2025; and 13 tpy by January 1, 2026 (with a three-year extension option to meet 13 tpy by January 1, 2029).

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed and showed less than significant environmental impacts associated with physical activities at six affected facilities,

including the replacement of five existing diesel engines with five new Tier 4 Final diesel engines to meet the 13 tpy NOx limit by January 1, 2026 at the electricity generating facility located on Santa Catalina Island. However, this facility has indicated that they can neither attain the original 13 tpy NOx limit by January 1, 2026 from the November 2018 amendments to Rule 1135 nor the current annual NOx limits and compliance dates adopted in the January 2022 version of Rule 1135. Under this No Project Alternative, installations of new diesel engines after January 1, 2024 are prohibited.

5.3.1.3 Alternative B – More Stringent Proposed Project

As explained in Chapter 2, PAR 1135 has been developed to update the NOx limits and compliance dates for the electricity generating facility located on Santa Catalina Island, with a specific focus on NZE and ZE technologies. Under Alternative B, in lieu of 6 tpy that is currently proposed in PAR 1135, the electricity generating facility located on Santa Catalina Island would have to comply with a more stringent NOx limit of 1.8 tpy by January 1, 2035, (with a ~~three~~six-year extension option to meet 6 tpy by January 1, 2038). Because the electricity generating facility affected by PAR 1135 is unique, located on an island and serving as the sole provider of power, including electricity, water movement, and waste systems, providing reliable and sufficient power is crucial to avoid blackouts and other public health issues related to polluted water and hazard health from biological waste exposure. Overall, the electricity generating facility located on Santa Catalina Island should consider several repower parameters including electricity demand, power reliability, transmission, grid stability, space limitations, fuel delivery and storage, and challenges for the deployment of new ZE/NZE technologies while trying to meet any proposed NOx emission limits. Under Alternative B, the final 1.8 tpy NOx limit would require increased quantities of propane to be delivered to the island on an annual basis and enough storage capacity for 30-days in case of unforeseen circumstances preventing the required daily deliveries by barge while avoiding any loss of power needs on the island. Compared to the proposed project, Alternative B would introduce uncertainty about whether the delivery can be consistently met and a potential lack of storage capacity.

As previously shown in Table 4-6, the 6 tpy NOx limit is expected to be achieved via a variety of technologies which comprise a combination of 30% solar, 48% NZE, and 22% Tier 4 Final diesel engines; however, under Alternative B, the 1.8 tpy NOx limit would be achieved based on a portfolio of 30% solar, 65% NZE, and 5% diesel Tier 4 Final engines. Thus, when compared to PAR 1135, more NZE units (e.g., any combination of linear generators, fuel cells, and/or propane engines) are expected to be installed under Alternative B. Because the replacement of each diesel engine and SCR with new diesel engine and SCR, and installation of NZE units are assumed to be sequential to minimize power disruptions or reductions to the facility's customers during construction, Alternative B would result in similar peak daily construction emissions to those of the proposed project. However, when compared to PAR 1135, the construction activities under Alternative B would occur over a longer period of time (as more NZE equipment may need to be installed), thus resulting in slightly higher GHG emissions from construction.

As explained in Chapter 4 and shown in Appendix C, the maximum annual operational GHG emissions at Facility 2 come from the following activities to meet 45 tpy NOx limit: 1) increased annual barge trips for fuel delivery to Santa Catalina and 2) incremental increases in annual operational GHG emissions from power producing units. Since Alternative B would have the same

requirement as PAR 1135 to meet 45 tpy NOx limit, no changes to the maximum annual operational GHG emissions are expected under this alternative compared to PAR 1135. Thus, although Alternative B would result in slightly higher GHG emissions than PAR 1135 during construction, the maximum annual GHG emissions under this alternative would remain below the South Coast AQMD significance threshold of 10,000 MT/yr of CO2e for GHGs.

Alternative B would result in the same amount of delayed NOx emission reductions as PAR 1135. Thus, Alternative B would result in significant operational air quality impacts. However, the overall NOx emission reductions from Alternative B will be 4.2 tpy more than those of the proposed project.

Since the analysis for PAR 1135 concluded potentially significant cancer risk impacts during the operation of the electricity generating facility located on Santa Catalina Island to meet the proposed 45 tpy, 30 tpy, and 13 tpy limits, and since Alternative B is not changing the above noted interim emission limits and their corresponding compliance dates, potentially significant operational health risk impacts are still expected under Alternative B for the same time period as PAR 1135. However, Alternative B would result in lower operational cancer risk impacts when meeting the final 1.8 tpy NOx limit instead of the 6 tpy NOx limits in PAR 1135. Nonetheless, both the 6 tpy NOx limit in PAR 1135 and 1.8 tpy NOx limit in this alternative would result in less than significant operational cancer risk impacts.

5.3.1.4 Alternative C – Less Stringent Proposed Project

Alternative C adjusts elements in PAR 1135 to create a less stringent proposed project by removing the 45 tpy and 6 tpy NOx limits; delaying the compliance date to attain 30 tpy NOx limit for one year; including a new annual NOx emission limit of 20 tpy by January 1, 2031 (with a potential extension up to three years); postponing the prohibition deadline to install a new diesel engine and install equipment that does not meet the definition of NZE or ZE electric generating unit for one year; delaying the compliance date to attain the 13 tpy NOx limit for five years; postponing the deadline to install NZE and/or ZE electric generating units with a cumulative rating ≥ 1.8 MW for five years; and delaying the deadline to remove all prime power diesel engines with a construction date earlier than date of adoption from service for five years.

As previously explained in Chapter 4, the analysis of the proposed project concluded less than significant impacts from construction air quality and GHG emissions associated with replacing three diesel engines with three new Tier 4 Final diesel engines, replacing existing microturbines with NZE units, and installing ZE technologies such as solar PV cells and solar powered batteries. When compared to PAR 1135, compliance with Alternative C is not expected to require installation of any ZE technologies; thus, Alternative C would also be expected to have less than significant impacts on construction air quality and GHG emissions.

As explained in Chapter 4 and shown in Appendix C, the source of the peak annual operational GHG emissions at Facility 2 is from the following activities to meet the 45 tpy NOx limit: 1) increased annual barge trips for fuel delivery to Santa Catalina; and 2) incremental increases in the annual operational GHG emissions from power producing units. Since Alternative C would remove the requirement to meet the 45 tpy NOx limit, fewer peak operational GHG emissions are expected under this alternative when compared to PAR 1135. Thus, the peak annual GHG

emissions under this alternative would remain less than the South Coast AQMD significance threshold of 10,000 MT/yr of CO2e for GHGs.

By providing more flexibility to the electricity generating facility located on Santa Catalina Island, implementation of Alternative C would cause additional delayed NOx emission reductions compared to PAR 1135. Thus, Alternative C would result in significant operational air quality impacts. As shown in Figure 5-1, Alternative C would result in the following delayed emission reductions:

- 116.71 lbs/day from January 1, 2024 to January 1, 2025;
- 144.11 lbs/day from January 1, 2025 to January 1, 2026;
- 319.45 lbs/day from January 1, 2026 to January 1, 2029 (with a potential extension up to three years);
- 93.15 lbs/day from January 1, 2029 (with a potential extension up to three years) to January 1, 2031 (with a potential extension up to three years); and
- 38.36 lbs/day from January 1, 2031 (with a potential extension up to three years) to January 1, 2035 (with a potential extension up to ~~three~~ six years).

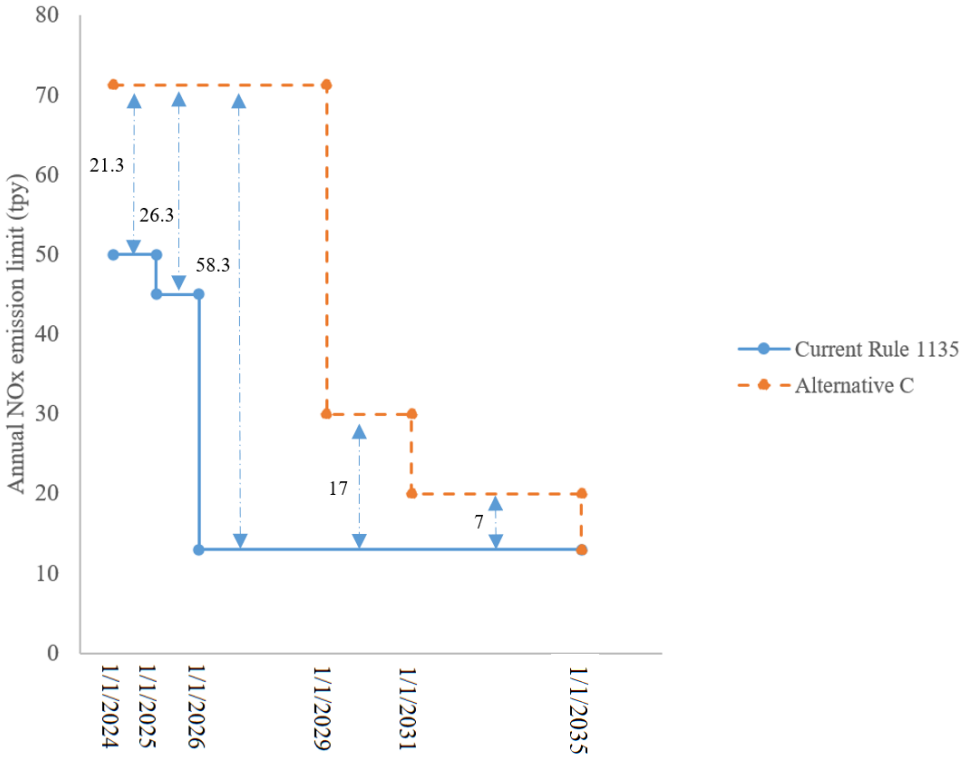

Figure 5-1
Delayed NOx Emission Reductions at Facility 2 due to Alternative C

If any extension is granted for ~~the 13 tpy~~any NOx emission limits ~~(up to three years)~~under this alternative, the emission reductions will be delayed for a longer period of time.

Since the analysis of PAR 1135 concluded potentially significant cancer risk impacts during the operation of the electricity generating facility located on Santa Catalina Island to achieve the 13 tpy NOx limit, and since Alternative C eventually requires the facility to achieve the 13 tpy NOx limit with a compliance date that is five years delayed when compared to PAR 1135, potentially significant operational health risk impacts are still expected under Alternative C. In addition, unlike PAR 1135, operational health risk impacts would remain significant under this alternative.

5.3.1.4 Alternative D – No ZE Equipment

Under Alternative D, the electricity generating facility located on Santa Catalina Island is not required to meet the 6 tpy NOx limit by January 1, 2035. All other elements, limits, and deadlines would be the same under Alternative D as is in the proposed project. Thus, Alternative D would impose a 13 tpy NOx limit by January 1, 2030 (with a potential extension for up to ~~three~~ six years) as the end point which is expected to be achieved by ~~52~~48% NZE, and ~~48~~52% diesel internal combustion engines for power generation.

As previously explained in Chapter 4, the analysis of the proposed project concluded less than significant impacts on construction air quality and GHG emissions associated with replacing three diesel engines with three new Tier 4 Final diesel engines, replacing existing microturbines with NZE units, and installing ZE technologies such as solar PV cells, and solar powered batteries. When compared to PAR 1135, compliance with Alternative D is not expected to require installation of any ZE technologies; thus, Alternative D would also be expected to have less than significant impacts on construction air quality and GHG emissions.

As explained in Chapter 4 and shown in Appendix C, the source of the peak annual operational GHG emissions at Facility 2 is from the following activities to meet 45 tpy NOx limit: 1) increased annual barge trips for fuel delivery to Santa Catalina; and 2) incremental increases in annual operational GHG emissions from power producing units. Since Alternative D would have the same requirement as PAR 1135 to achieve the 45 tpy NOx limit, no changes to the peak annual operational GHG emissions are expected under this alternative when compared to PAR 1135. Thus, the peak annual GHG emissions under this alternative would remain less than the South Coast AQMD's air quality significance threshold of 10,000 MT/yr of CO_2e for GHGs.

Alternative D would result in the same amount of delayed NOx emission reductions as PAR 1135. Thus, Alternative D would result in significant operational air quality impacts. However, the overall NOx emission reductions from Alternative D will be 7 tpy fewer than the proposed project.

Since the analysis for PAR 1135 concluded potentially significant cancer risk impacts during the operation of electricity generating facility located on Santa Catalina Island to meet the 13 tpy NOx limit, and since Alternative D eventually requires the facility owner/operator of this facility to meet 13 tpy NOx limit (by the same compliance date as PAR 1135), potentially significant operational health risk impacts are still expected under Alternative D. In addition, unlike PAR 1135 which has

a final NOx limit of 6 tpy, operational health risk impacts from Alternative D would remain significant.

5.4 COMPARISON OF ALTERNATIVES TO THE PROPOSED PROJECT

Pursuant to CEQA Guidelines Section 15126.6(d), a CEQA document "shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project." A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed." Accordingly, Table 5-1 provides a matrix displaying the major differences in characteristics between the proposed project and each alternative, and Table 5-2 compares the environmental impacts between the proposed project and each alternative.

Table 5-1
Summary of the Proposed Project (PAR 1135) and Alternatives

Rule Elements	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
Annual NOx Emission Limits	45 tpy by 1/1/2027 30 tpy by 1/1/2028 13 tpy by 1/1/2030 6 tpy by 1/1/2035	50 tpy by 1/1/2024 45 tpy by 1/1/2025 13 tpy by 1/1/2026	45 tpy by 1/1/2027 30 tpy by 1/1/2028 13 tpy by 1/1/2030 1.8 tpy by 1/1/2035	30 tpy by 1/1/2029 20 tpy by 1/1/2031 13 tpy by 1/1/2035	45 tpy by 1/1/2027 30 tpy by 1/1/2028 13 tpy by 1/1/2030
Potential NOx Emission Reductions	65.3 tpy by 1/1/2035 (with a potential extension up to ~~three~~ six years)	58.3 tpy by 1/1/2026 (with potential extension up to three years)	69.5 tpy by 1/1/2035 (with a potential extension up to ~~three~~ six years)	58.3 by 1/1/2035 (with a potential extension up to ~~three~~ six years)	58.3 tpy by 1/1/2030 (with a potential extension up to ~~three~~ six years)
Prohibition Deadline to Install New Diesel Internal Combustion Engines	1/1/2028 (with a potential of six additional months after any time extension is provided)	1/1/2024	Same as Proposed Project	1/1/2029 (with a potential of six additional months after any time extension is provided)	Same as Proposed Project
Prohibition Deadline to Install Equipment that Does Not Meet the definition of NZE or ZE Electric Generating Unit	1/1/2028 (with a potential of six additional months after any time extension is provided)	N/A	Same as Proposed Project	1/1/2029 (with a potential of six additional months after any time extension is provided)	Same as Proposed Project
Deadline to Install NZE and/or ZE Electric Generating Units With a Cumulative Rating ≥ 1.8 MW	1/1/2030 (with a potential of six additional months after any time extension is provided ~~up to three years~~)	N/A	Same as Proposed Project	1/1/2035 (with a potential of six months after any time extension ~~-~~ is provided ~~up to three -years~~)	Same as Proposed Project
Deadline to Remove All Prime Power Diesel Internal Combustion Engines With an Installation Date Earlier than Date of Adoption From Service	1/1/2030 (with a potential of six additional months after any time extension is provided)	N/A	Same as Proposed Project	1/1/2035 (with a potential of six additional months after any time extension is provided)	Same as Proposed Project

Table 5-1 (concluded)
Summary of the Proposed Project (PAR 1135) and Alternatives

Rule Elements	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
Time Extension Provision for Meeting the Annual NOx Emission Limits	An option for a three-year extension to meet 45 tpy, and 30 tpy by 1/1/2030, and 1/1/2031, respectively An option for a ~~three~~six-year extension to meet 13 tpy by 1/1/~~2033~~2036 Up to ~~three~~six-year extension option to meet 6 tpy by 1/1/~~2038~~2041	An option for a three-year extension to meet 13 tpy by 1/1/2029	An option for a three-year extension to meet 45 tpy, and 30 tpy by 1/1/2030, and 1/1/2031, respectively An option for a ~~three~~six-year extension to meet 13 tpy by 1/1/~~2033~~2036 Up to ~~three~~six-year extension option to meet 1.8 tpy by 1/1/~~2038~~2041	An option for a three-year extension to meet 30 tpy, and 20 tpy by 1/1/2032, and 1/1/2034, respectively An option for a ~~three~~six-year extension to meet 13 tpy by 1/1/~~2038~~2041	An option for a three-year extension to meet 45 tpy, and 30 tpy by 1/1/2030, and 1/1/2031, respectively An option for a ~~three~~six-year extension to meet 13 tpy by 1/1/~~2033~~2036

Table 5-2
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1135) and Alternatives

Air Quality & GHGs Impact Areas	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
Construction Criteria Pollutants	• PAR 1135 only impacts one electricity generating facility located on Santa Catalina Island. • Compliance with the proposed project may be achieved through replacing three existing diesel engines with three new Tier 4 Final diesel engines, replacing existing microturbines with five linear generator and three fuel cells, and installing solar powered batteries and photovoltaic (PV) cells. * • **Less than significant impacts** in peak daily emissions for construction: VOC: 9.5 lbs/day NOx: 68.0 lbs/day CO: 52.5 lbs/day SOx: 0.1 lbs/day PM10: 5.0 lbs/day PM2.5: 3.9 lbs/day	• Under this alternative, the electricity generating facility located on Santa Catalina Island would be required to meet 13 tpy NOx limit by 1/1/2026 (with a potential extension up to three years). However, no new diesel engine installations are allowed after 1/1/2024, so this facility would need to find non-diesel technology in order to satisfy the annual NOx limit. • The November 2018 Final Mitigated SEA for Rule 1135 originally analyzed environmental impacts associated with compliance activities at six affected facilities (including the electricity generating facility located on Santa Catalina Island) and concluded **less than significant impacts** in peak daily construction emissions for all the affected facilities.	Compared to PAR 1135, more NZE units are expected to be installed under this alternative. Because replacing three existing diesel engines with three new Tier 4 Final diesel engines, replacing existing microturbines with NZE units, and installing ZE technologies are assumed to be sequential to minimize power disruptions or reductions to the facility's customers during construction, Alternative B would result in similar peak daily construction emissions to those of the proposed project. • **Less than Significant Impacts** in peak daily emissions for construction: Same as Proposed Project	Compared to PAR 1135, compliance with Alternative C is not expected to require installation of any ZE technologies. Because replacing three existing diesel engines with three new Tier 4 Final diesel engines, and replacing existing microturbines with NZE units are assumed to be sequential to minimize power disruptions or reductions to the facility's customers during construction, Alternative C would result in similar peak daily construction emissions to those of the proposed project. • **Less than Significant Impacts** in peak daily emissions for construction: Same as Proposed Project	Compared to PAR 1135, compliance with Alternative D is not expected to require installation of any ZE technologies. Because replacing three existing diesel engines with three new Tier 4 Final diesel engines, and replacing existing microturbines with NZE units are assumed to be sequential to minimize power disruptions or reductions to the facility's customers during construction, Alternative D would result in similar peak daily construction emissions to those of the proposed project. • **Less than significant impacts** in peak daily emissions for construction**:** Same as Proposed Project

*The combination of equipment replacements is considered worst-case for the purpose of determining potential peak impacts. However, representatives from the electricity generating facility located on Santa Catalina Island indicated that they are also considering other combinations of equipment replacements such as installing NZE propane engines instead of the linear generators and fuel cells but this combination would not represent a worst-case scenario and would be expected to have fewer impacts.

Table 5-2 (continued)
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1135) and Alternatives

Air Quality & GHGs Impact Areas	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
Operation Criteria Pollutants	**Potentially Significant Impacts** due to delayed NOx emission reductions at the electricity generating facility located on Santa Catalina Island as follows: 116.71 lbs/day from 1/1/2024 to 1/1/2025 144.11 lbs/day from 1/1/2025 to 1/1/2026 319.45 lbs/day from 1/1/2026 to 1/1/2027 (with a potential extension up to three years) 175.34 lbs/day from 1/1/2027 (with a potential extension up to three years) to 1/1/2028 (with a potential extension up to three years) 93.15 lbs/day from 1/1/2028 (with a potential extension up to three years) to 1/1/2030 (with a potential extension up to ~~three~~ six years)	• The November 2018 Final Mitigated SEA for Rule 1135 originally analyzed environmental impacts associated with compliance activities at six affected facilities (including the electricity generating facility located on Santa Catalina Island) and concluded **less than significant impacts** in peak daily operational emissions for all the affected facilities.	**Potentially Significant Impacts:** Same as Proposed Project	**Potentially Significant Impacts** due to delayed NOx emission reductions at the electricity generating facility located on Santa Catalina Island as follows: 116.71 lbs/day from 1/1/2024 to 1/1/2025 144.11 lbs/day from 1/1/2025 to 1/1/2026 319.45 lbs/day from 1/1/2026 to 1/1/2029 (with a potential extension up to three years) 93.15 lbs/day from 1/1/2029 (with a potential extension up to three years) to 1/1/2031 (with a potential extension up to three years) 38.36 lbs/day from 1/1/2031 (with a potential extension up to three years) to 1/1/2035 (with a potential extension up to ~~three~~ six years)	**Potentially Significant Impacts:** Same as Proposed Project

Table 5-2 (continued)
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1135) and Alternatives

Air Quality & GHGs Impact Areas	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
GHGs	**Less Than Significant Impacts:** • Implementation of PAR 1135 may result in the generation of 4.33 amortized MT/yr of CO2e emissions during construction and 1099.57 MT/yr of CO2e emissions during operation. • The maximum annual operational GHG emissions at Facility 2 come from the following activities to meet 45 tpy NOx limit: 1) increased annual barge trips for fuel delivery to Santa Catalina; and 2) incremental increases in annual operational GHG emissions from power producing units.	• The November 2018 Final Mitigated SEA for Rule 1135 originally estimated 36.35 MT/year of GHGs due to construction and operation activities at six affected facilities (including the electricity generating facility located on Santa Catalina Island) and thus, concluded **less than significant GHG impacts**.	**Less Than Significant Impacts:** • Compared to PAR 1135, the construction activities under Alternative B would occur over a longer period of time due to replacement of existing microturbines with more NZE units, thus resulting in slightly higher GHG emissions during construction. • Since Alternative B would have the same requirement as PAR 1135 to meet 45 tpy NOx limits, no changes to the maximum annual operational GHG emissions are expected under this alternative compared to PAR 1135.	**Less Than Significant Impacts:** • Compared to PAR 1135, the construction activities under Alternative C would occur over a shorter period of time due to no expected ZE installation, thus resulting in lower GHG emissions during construction. • Since Alternative C would remove the requirement to meet the 45 tpy NOx limit, lower operational GHG emissions are expected under this alternative compared to PAR 1135.	**Less Than Significant Impacts:** • Compared to PAR 1135, the construction activities under Alternative D would occur over a shorter period of time due to no expected ZE installation, thus resulting in lower GHG emissions during construction. • Since Alternative D would have the same requirement as PAR 1135 to meet 45 tpy NOx limit, no changes to maximum annual operational GHG emissions are expected under this alternative compared to PAR 1135.

Table 5-2 (continued)
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1135) and Alternatives

Air Quality & GHGs Impact Areas	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
Construction Health Risk Impacts and Odor Nuisance	**Less Than Significant Health Risk and Odor Nuisance Impacts**: • Sources of health risk are diesel particulate matter from construction activities. However, since the on- and off-road diesel equipment that may be used at PAR 1135 affected facilities are expected to occur over a short-term period during construction, a HRA was not conducted. While the entire construction period, expected to span several years (from the adoption of PAR 1135 until 2035), will include sequential phases such as replacing three diesel engines with three new Tier 4 Final engines, upgrading existing microturbines with NZE power-producing engines, and installing ZE technologies, each phase will occur with several months of gap before the next upcoming phase. • Moreover, the quantity of pollutants that may be generated from implementing the proposed project would be less than significant during construction period. Thus, the quantity of pollutants that may be generated during construction from implementing PAR 1135 would not be considered substantial, irrespective of whether sensitive receptors are located near the affected facilities.	• The November 2018 Final Mitigated SEA for Rule 1135 declared **less than significant impacts** for health risk and odor nuisance associated with construction activities at six affected facilities (including the electricity generating facility located on Santa Catalina Island).	**Less Than Significant Health Risk and Odor Nuisance Impacts**: Same as proposed project	**Less Than Significant Health Risk and Odor Nuisance Impacts**: Same as proposed project	**Less Than Significant Health Risk and Odor Nuisance Impacts**: Same as proposed project

Table 5-2 (concluded)
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1135) and Alternatives

Air Quality & GHGs Impact Areas	Proposed Project: PAR 1135	Alternative A: No Project	Alternative B: More Stringent Proposed Project	Alternative C: Less Stringent Proposed Project	Alternative D: No ZE Equipment
Operation Health Risk Impacts	**Potentially Significant Impacts:** • Potentially maximally impacted (PMI) cancer risk of greater than 10 in a million during the operation of the electricity generating facility located on Santa Catalina Island to meet 45 tpy, 30 tpy, and 13 tpy NOx limits by 1/1/2027 (with a potential extension up to three years), 1/1/2028 (with a potential extension up to three years), and 1/1/2030 (with a potential extension up to ~~three~~ six years), respectively. • Once the electricity generating facility located on Santa Catalina Island attains the 6 tpy NOx limit by 1/1/2035 (with a potential extension up to ~~three~~ six years), health risk impacts would be less than significant.	• The November 2018 Final Mitigated SEA for Rule 1135 estimated **less than significant impacts** for operational health risk at six affected facilities (including the electricity generating facility located on Santa Catalina Island).	• The overall conclusions for potentially significant health risk impacts are the same as the proposed project. • Once the electricity generating facility located on Santa Catalina Island attains the 1.8 tpy limit (instead of 6 tpy in PAR 1135) by 1/1/2035 (with a potential extension up to ~~three~~ six years), health risk impacts would be less than significant and also much lower compared to the proposed project.	• The overall conclusions for potentially significant health risk impacts are the same as the proposed project. However, under this alternative, operational health risk impacts would remain significant.	• The overall conclusions for potentially significant health risk impacts are the same as the proposed project. However, under this alternative, operational health risk impacts would remain significant.

5.5 ALTERNATIVES REJECTED AS INFEASIBLE

In accordance with CEQA Guidelines Section 15126.6(c), a CEQA document should identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. CEQA Guidelines Section 15126.6(c) also states that among the factors that may be used to eliminate alternatives from detailed consideration in a CEQA document are: 1) failure to meet most of the basic project objectives; 2) infeasibility; or 3) inability to avoid significant environmental impacts. As noted in Section 5.1, the range of feasible alternatives to the proposed project is limited by the nature of PAR 1135 and associated legal requirements. Similarly, the range of alternatives considered, but rejected as infeasible is also relatively limited. This subsection identifies Alternative A, as being rejected due to infeasibility, for the reasons explained in the following discussion.

5.5.1 Alternative A - No Project

CEQA documents typically assume that the adoption of a No Project alternative would result in no further action on the part of the project proponent or lead agency. For example, in the case of a proposed land use project such as a housing development, adopting the No Project alternative terminates further consideration of that housing development or any housing development alternative identified in the associated CEQA document. In that case, the existing setting would typically remain unchanged.

By not adopting PAR 1135, Alternative A would require the electricity generating facility located on Santa Catalina Island to meet the annual NOx limits in the January 2022 version of Rule 1135 even though the facility has indicated that they cannot attain these annual NOx limits by their respective compliance dates. Currently, the annual NOx emissions from the electricity generating facility located on Santa Catalina Island already exceed the ~~45~~ 50 tpy NOx limit which had a compliance date of January 1, 2024. Also, because the January 2022 version of Rule 1135 contains a prohibition to install new diesel engines after January 1, 2024, this facility would not be able to replace their existing diesel engines with new Tier 4 Final diesel engines to meet any of the annual NOx limits and compliance dates in the January 2022 version of Rule 1135.

In addition, during the 2022 amendments to Rule 1135, stakeholders commented that an updated BARCT assessment was warranted due to the change in averaging time and that the BARCT assessment should emphasize ZE technologies. The adopted resolution for Rule 1135 at that time directed staff to re-initiate the rule development process and develop a proposal that included a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and NZE technologies.

The main objectives of the proposed project are to: 1) revise the BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and NZE technologies; and 2) reduce the final NOx mass emission limit for the facility located on Santa Catalina Island.

Alternative A is rejected as infeasible because it neither meets the objectives of the proposed project nor takes into consideration the direction of adopted resolution during 2022 amendments

to Rule 1135 to include a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and NZE technologies.

5.6 LOWEST TOXIC ALTERNATIVE AND ENVIRONMENTALLY SUPERIOR ALTERNATIVE

5.6.1 Lowest Toxic Alternative

In accordance with South Coast AQMD's policy document: Environmental Justice Program Enhancements for FY 2002-03, Enhancement II-1 recommends for all South Coast AQMD CEQA documents which are required to include an alternatives analysis, the alternative analysis shall also include and identify a feasible project alternative with the lowest air toxics emissions. In other words, for any major equipment or process type under the scope of the proposed project that creates a significant environmental impact, at least one alternative, where feasible, shall be considered from a "least harmful" perspective with regard to hazardous or toxic air contaminants.

As previously shown in Table 4-8, implementation of the proposed project, which requires attainment with the 45 tpy, 30 tpy, and 13 tpy NOx limits, was concluded to cause significant cancer risk impacts during the operation of the electricity generating facility located on Santa Catalina Island. However, once the requirement for attainment with the 6 tpy NOx limit by January 1, 2035 (with a potential extension up to ~~three~~ six years) goes into effect, less than significant impacts to operational cancer risk are expected.

In order to qualify as the lowest toxic alternative, the alternative would need to have the least amount of toxic air contaminants during operation of the electricity generating facility located on Santa Catalina Island. PAR 1135 and all of the alternatives concluded a potentially significant operational cancer risk at the 13 tpy NOx limit, though the alternatives have varying compliance dates.

However, when compared to the proposed project which has a final NOx limit of 6 tpy by January 1, 2035 (with a potential extension up to ~~three~~ six years) and less than significant impacts to operational cancer risk, Alternative B with its more stringent 1.8 tpy NOx limit by January 1, 2035 (with a potential extension up to ~~three~~ six years), would result fewer operational cancer risk impacts. Nonetheless, both the 6 tpy NOx limit in PAR 1135 and 1.8 tpy NOx limit in Alternative B would result in less than significant operational cancer risk impacts.

Therefore, when considering all of the alternatives from toxic impacts perspective, Alternative B is the lowest toxic alternative, because unlike other alternatives, this alternative would cause fewer operational cancer risk impacts due to fewer NOx emissions overall.

5.6.2 Environmentally Superior Alternative

Pursuant to CEQA Guidelines Section 15126.6(e)(2), if the environmentally superior alternative is the No Project alternative, the CEQA document shall also identify an alternate environmentally superior alternative from among the other alternatives.

Alternative A is equivalent to the January 2022 version of Rule 1135, which requires the electricity generating facility located on Santa Catalina Island to attain the 50 tpy, 45 tpy, and 13 tpy NOx limits by January 1, 2024, January 1, 2025, and January 1, 2026 (with a three-year extension option to meet 13 tpy by January 1, 2029), respectively. However, the facility has indicated that they cannot attain any of these NOx limits by their respective compliance dates. It should be noted that the annual NOx emissions from this facility are already greater than the NOx limit currently in effect (i.e., 45 tpy by January 1, 2025). Under Alternative A, installations of new diesel engines are prohibited after January 1, 2024 and thus, this facility would not be able to replace their existing diesel engines with new Tier 4 Final diesel engines to attain any of the annual NOx limits by their respective compliance dates in the January 2022 version of Rule 1135. This means that the actual NOx emission reductions achieved from Alternative A would be fewer than originally projected for this facility. Also, as explained in Section 5.6.1, Alternative A would result in significant operational cancer risk impacts when attaining any of the annual NOx limits. Based upon these considerations, Alternative A is not the environmentally superior alternative.

As discussed in Section 5.3.1, Alternatives B and D would result in the same quantity of delayed NOx emission reductions as the proposed project, while Alternative C would cause further additional delayed reductions. Alternatives C and D would cause significant operational cancer risk impacts even when attaining the final annual NOx limit requirements. However, as discussed in Section 5.6.1, Alternative B is the only alternative to the proposed project with less than significant operational cancer risk impacts when meeting its final annual NOx limit (e.g., 1.8 tpy). Also, as shown in Table 5-1, Alternative B would result in greater NOx emission reductions compared to the other alternatives and the proposed project over the long-term. Based upon above considerations, Alternative B would be considered the environmentally superior alternative. Nonetheless, similar to the proposed project, Alternative B is also expected to cause significant and unavoidable adverse environmental impacts for the topic of air quality during operation due to interim delayed NOx emission reductions, interim exceedances of the air quality significance thresholds for project-specific changes in the 24-hour average concentrations of PM2.5 and PM10, and interim cancer risk impacts.

5.7 CONCLUSION

As discussed previously, Alternative A was dismissed as infeasible because it would not fulfill the objectives of PAR 1135, nor take into consideration the direction of adopted resolution during 2022 amendments to Rule 1135 to include a revised BARCT assessment for the electric generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE and NZE technologies. Alternatives B and D would result in the same quantity of delayed NOx emission reductions as the proposed project, while Alternative C would cause further additional delayed reductions. Similar to the proposed project, Alternative B would be the only alternative resulting in less than significant cancer risk impacts when meeting the final annual NOx limit. Compared to PAR 1135, Alternatives A, C, and D would result in fewer overall NOx emission reductions over the long-term. On the other hand, Alternative B would provide more air quality and health benefits compared to PAR 1135 due to greater NOx emission reductions and the smallest operational cancer risk over the long-term. **Due to uncertainties associated with the ability of the electricity generating facility located on Santa Catalina Island to feasibly attain the final 1.8 tpy NOx limit by January 1, 2035 (or January 1, ~~2038~~ 2041 with a ~~three~~six-year extension provision), the proposed project provides the best balance in achieving the project**

objectives while minimizing the significant adverse environmental impacts to operational air quality.

CHAPTER 6

REFERENCES

6.0 REFERENCES

The following list of references is presented by chapter, in order of appearance:

Chapter 1 – Executive Summary

1. The Lewis-Presley Air Quality Management Act, 1976 Cal. Stats., Ch. 324 (codified at Health and Safety Code Section 40400-40540).

2. CEQA Guidelines, Title 14 California Code of Regulations Section 15000 et seq.

3. Health and Safety Code Section 40460(a).

4. Health and Safety Code Section 40440(a).

5. South Coast AQMD, 2017. Final 2016 Air Quality Management Plan, March 2017. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf.

6. South Coast AQMD, 2022. Final 2022 Air Quality Management Plan, December 2022. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf.

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CHAPTER 7

ACRONYMS

7.0 ACRONYMS

µg/m= micrograms per cubic meter

APS = Alternative Planning Strategy (APS)

AQMP = Air Quality Management Plan

ATCM = Airborne Toxic Control Measure

BACT = Best Available Control Technology

BARCT = Best Available Retrofit Control Technology

Basin = South Coast Air Basin

BAU = business-as-usual

CAA = Clean Air Act

CalEEMod = California Emission Estimator Model

CalEPA = California Environmental Protection Agency

CARB = California Air Resources Board

CCR = California Code of Regulations

CEC = California Energy Commission

CEMS = Continuous Emission Monitoring Systems

CEQA = California Environmental Quality Act

CFR = Code of Federal Regulations

CH4 = methane

CO = carbon monoxide

CO2 = carbon dioxide

CO2eq = carbon dioxide equivalent

COHb = carboxyhemoglobin

CPR = Consumer Products Regulation

CPUC = California Public Utilities Commission

DLN = Dry Low NOx

EA = Environmental Assessment

EIR = Environmental Impact Report

EISA = Energy Independence and Security Act

EJ = Environmental Justice

gal = gallons

GHG = greenhouse gases

GWP = global warming potential

H2S = hydrogen sulfide

H2SO4 = sulfuric acid

HCFC = hydrochlorofluorocarbon

HF = hydrofluoric acid

HFC = hydrofluorocarbons

HHDT = heavy-heavy duty trucks

HI = hazard index

HSC = Health and Safety Code

IOUs = investor-owned utilities (IOUs)

IS = Initial Study

LADWP = Los Angeles Department of Water and Power

LAER = Lowest Achievable Emission Reduction

LCFS = Low Carbon Fuel Standard

MATES = Multiple Air Toxics Exposure Studies

MDAB = Mojave Desert Air Basin

MHDT = medium-heavy duty trucks

mpg = miles per gallon

MPOs = Metropolitan Planning Organizations

N2O = nitrous oxide

NAAQS = National Ambient Air Quality Standards

NAHC = Native American Heritage Commission

ND = Negative Declaration

NHTSA = National Highway Traffic and Safety Administration

NO = nitric oxide

NO2 = nitrogen dioxide

NOC = Notice of Completion

NOE = Notice of Exemption

NOP/IS = Notice of Preparation/Initial Study

NOx = oxides of nitrogen

O2 = oxygen

O3 = ozone

ODS = ozone depleting substance

OEHA = Office of Environmental Health Hazard Assessment

OES = Office of Emergency Services

OPR = Office of Planning and Research

OSHA = Occupational Safety and Health Administration

PAR = Proposed Amended Rule

PBGS = Pebbly Beach Generating Station

PFC = perfluorocarbon

PM = particulate matter

PM10 = particulate matter with an aerodynamic diameter of 10 microns or less

PM2.5 = particulate matter with an aerodynamic diameter of 2.5 microns or less

ppb = parts per billion

ppm = parts per million

PRDI = Planning, Rule Development, and Implementation

PV = photovoltaic

RECLAIM = Regional Clean Air Incentives Market

RELs = Reference Exposure Levels

RFS = renewable fuel standard

RPS = renewables portfolio standard

RTAC = Regional Target Advisory Committee

RTP = Regional Transportation Plan

SCAB = South Coast Air Basin

SCAG = Southern California Association of Governments

SCE = Southern California Edison

South Coast AQMD = South Coast Air Quality Management District

SCR = Selective Catalytic Reduction

SCS = sustainable communities strategy

SEA = Subsequent Environmental Assessment

SF6 = sulfur hexafluoride

SIP = State Implementation Plan

SO2 = sulfur dioxide

SO3 = sulfur trioxide

SOx = oxides of sulfur

SSAB = Salton Sea Air Basin

SEA = Subsequent Environmental Assessment

TACs = toxic Air Contaminants

tpd = tons per day

tpy = tons per year

U.S. EPA = United States Environmental Protection Agency

Vehicle Mile Traveled = VMT

VOC = volatile organic compound(s)

ZE/NZE = zero emission and near-zero emission

APPENDIX A

Proposed Amended Rule (PAR) 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities

In order to save space and avoid repetition, please refer to the latest version of PAR 1135 located elsewhere in the Governing Board Agenda for the public hearing scheduled on October 4, 2024. The version of PAR 1135 that was circulated with the Draft SEA for a 46-day public review and comment period from August 2, 2024 to September 17, 2024 was identified as the "Preliminary Draft Rule PAR 1135, revision date July 19, 2024," which is available from the South Coast AQMD's website at: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1135/par-1135_version-07182024-final.pdf. An original hard copy of the Draft SEA, which included the draft version of PAR 1135 listed above, can be obtained through the South Coast AQMD Public Information Center by phone at (909) 396-2001 or by email at PICrequests@aqmd.gov.

APPENDIX B

CalEEMod® Files

PAR 1135- Linear Generator installation Detailed Report

Table of Contents

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	PAR 1135- Linear Generator installation
Construction Start Date	5/1/2023
Lead Agency	South Coast AQMD
Land Use Scale	Project/site
Analysis Level for Defaults	Air District
Windspeed (m/s)	2.20
Precipitation (days)	31.0
Location	33.671809251787664, -118.01529635821899
County	Los Angeles-South Coast
City	—
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5854
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.7

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	10,000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.45	4.47	4.02	0.01	0.19	0.20	0.26	0.18	0.05	0.19	—	1,084	1,084	0.04	0.05	1,090
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.57	4.57	< 0.005	< 0.005	4.63
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.76	0.76	< 0.005	< 0.005	0.77

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.45	4.47	4.02	0.01	0.19	0.20	0.26	0.18	0.05	0.19	—	1,084	1,084	0.04	0.05	1,090
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.57	4.57	< 0.005	< 0.005	4.63
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.76	0.76	< 0.005	< 0.005	0.77

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.90	1.21	< 0.005	0.06	—	0.06	0.05	—	0.05	—	163	163	0.01	< 0.005	164
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.45	0.45	< 0.005	< 0.005	0.45
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.07	0.07	< 0.005	< 0.005	0.07
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.39	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	83.0	83.0	< 0.005	< 0.005	84.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.18	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	144	144	0.01	0.02	151
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.22	0.22	< 0.005	< 0.005	0.22
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.39	0.39	< 0.005	< 0.005	0.41
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	0.04
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	0.07

3.3. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	55.3	55.3	< 0.005	< 0.005	56.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.18	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	144	144	0.01	0.02	151
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.15	0.15	< 0.005	< 0.005	0.15
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.39	0.39	< 0.005	< 0.005	0.41
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	0.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	0.07

3.5. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	4.42	3.72	0.01	0.19	—	0.19	0.18	—	0.18	—	1,000	1,000	0.04	0.01	1,003
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.74	2.74	< 0.005	< 0.005	2.75
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.45	0.45	< 0.005	< 0.005	0.46
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	59.5	59.5	< 0.005	< 0.005	60.5
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.2	25.2	< 0.005	< 0.005	26.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	0.16
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	0.07
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	0.03
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	5/1/2023	5/2/2023	5.00	1.00	—
Grading	Grading	5/1/2023	5/2/2023	5.00	1.00	—
Building construction	Building Construction	5/9/2023	5/10/2023	5.00	1.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	1.00	4.00	92.0	0.38
Building construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building construction	Forklifts	Diesel	Average	1.00	7.00	82.0	0.20

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	6.00	18.5	LDA,LDT1,LDT2
Demolition	Vendor	0.00	10.2	HHDT,MHDT
Demolition	Hauling	2.00	20.0	HHDT

Demolition	Onsite truck	0.00	—	HHDT
Grading	—	—	—	—
Grading	Worker	4.00	18.5	LDA,LDT1,LDT2
Grading	Vendor	0.00	10.2	HHDT,MHDT
Grading	Hauling	2.00	20.0	HHDT
Grading	Onsite truck	0.00	—	HHDT
Building construction	—	—	—	—
Building construction	Worker	6.00	13.2	LDA,LDT1,LDT2
Building construction	Vendor	1.00	7.75	HHDT,MHDT
Building construction	Hauling	0.00	20.0	HHDT
Building construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Ton of Debris)	Material Exported (Ton of Debris)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	—	—
Grading	0.00	0.00	2.50	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Industrial	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	8.34	annual days of extreme heat
Extreme Precipitation	3.45	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A

Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	32.1
AQ-PM	58.3
AQ-DPM	21.4
Drinking Water	36.2
Lead Risk Housing	1.80
Pesticides	66.6
Toxic Releases	88.2
Traffic	40.0
Effect Indicators	—
CleanUp Sites	28.9
Groundwater	0.00
Haz Waste Facilities/Generators	19.2
Impaired Water Bodies	33.2
Solid Waste	80.0
Sensitive Population	—
Asthma	29.1
Cardio-vascular	39.6
Low Birth Weights	14.2
Socioeconomic Factor Indicators	—
Education	17.8
Housing	4.25
Linguistic	22.9
Poverty	2.68
Unemployment	0.91

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	99.58937508
Employed	61.27293725
Median HI	98.56281278
Education	—
Bachelor's or higher	91.97998204
High school enrollment	100
Preschool enrollment	78.10855896
Transportation	—
Auto Access	98.98626973
Active commuting	10.49659951
Social	—
2-parent households	95.73976646
Voting	81.21390992
Neighborhood	—
Alcohol availability	80.94443732
Park access	81.35506224
Retail density	27.17823688
Supermarket access	28.17913512
Tree canopy	21.85294495
Housing	—
Homeownership	97.81855511
Housing habitability	99.80751957
Low-inc homeowner severe housing cost burden	91.71050943

Low-inc renter severe housing cost burden	99.08892596
Uncrowded housing	96.93314513
Health Outcomes	—
Insured adults	98.58847684
Arthritis	24.0
Asthma ER Admissions	80.3
High Blood Pressure	16.4
Cancer (excluding skin)	6.6
Asthma	91.1
Coronary Heart Disease	43.7
Chronic Obstructive Pulmonary Disease	74.0
Diagnosed Diabetes	72.3
Life Expectancy at Birth	74.3
Cognitively Disabled	78.9
Physically Disabled	74.5
Heart Attack ER Admissions	66.1
Mental Health Not Good	96.5
Chronic Kidney Disease	64.9
Obesity	93.4
Pedestrian Injuries	19.6
Physical Health Not Good	89.8
Stroke	70.4
Health Risk Behaviors	—
Binge Drinking	55.6
Current Smoker	96.2
No Leisure Time for Physical Activity	90.4
Climate Change Exposures	—

Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	94.0
Elderly	8.9
English Speaking	73.2
Foreign-born	36.6
Outdoor Workers	93.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	51.8
Traffic Density	31.1
Traffic Access	23.0
Other Indices	—
Hardship	1.0
Other Decision Support	—
2016 Voting	88.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	11.0
Healthy Places Index Score for Project Location (b)	97.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	user-defined
Construction: Construction Phases	user-defined
Construction: Off-Road Equipment	user-defined
Construction: Dust From Material Movement	user-defined
Construction: Trips and VMT	user-defined
Characteristics: Project Details	The average windspeed and precipitation days per year are obtained for the city of Avalon from the November 2018 Final Mitigated SEA for Rule 1135 Appendix B.

APPENDIX C-1

CEQA Impact Evaluations – Assumptions and Calculations

Construction Summary

Appendix C-1
CEQA Construction Impact Evaluations - Assumptions and Calculations

Criteria Pollutant Emissions Summary

PAR 1135 Requirement	VOC (lbs/day)	NOx (lbs/day)	CO (lbs/day)	SOx (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)
November 2018 Final Mitigated SEA: Facility 1	0.40	5.00	3.10	0.00	0.30	0.20
PAR 1135: Facility 2	9.46	67.99	52.49	0.15	4.97	3.87
November 2018 Final Mitigated SEA: Facility 3	N/A	N/A	N/A	N/A	N/A	N/A
November 2018 Final Mitigated SEA: Facility 4	0.40	5.00	3.10	0.00	0.30	0.20
November 2018 Final Mitigated SEA: Facility 5	0.40	5.00	3.10	0.00	0.30	0.20
November 2018 Final Mitigated SEA: Facility 6	N/A	N/A	N/A	N/A	N/A	N/A
Peak Day - Worst Case Construction Emissions from PAR 1135	9.46	67.99	52.49	0.15	4.97	3.87
SIGNIFICANCE THRESHOLD FOR CONSTRUCTION	75	100	550	150	150	55

Notes:

1. Facility 2 is the only affected facility by PAR 1135.

2. No further construction activities are currently expected at other facilities (i.e., Facilities 1, 3, 4, 5 and 6) that were previously analyzed in the November 2018 Final Mitigated SEA.

3. Facility 3 has already indicated that their repower project includes the shutting down and removal of their 3 existing boilers by January 1, 2024; and installing a set of batteries and 3 new prime natural gas IC engines. Because Rule 1135 does not apply to prime natural gas IC engines and batteries, this SEA will not analyze the air quality impacts associated with installing and operating such equipment at Facility 3.

4. Facility 6 has permanently shut down (instead of catalyst module replacement in SCR of their simple cycle turbine) their turbine as of the beginning of 2020. Therefore, this SEA will not analyze the air quality impacts associated with construction activities at this facility to comply with Rule 1135.

GHG Emissions Summary

PAR 1135 Requirement	CO2, MT/yr	CH4, MT/yr	N2O, MT/yr	CO2e, MT/yr	Amortized CO2e (MT/yr)	
November 2018 Final Mitigated SEA: Facility 1	5.5	0.0	0.0	5.5		
PAR 1135: Facility 2	115.76	0.01	0.00	116.25		
November 2018 Final Mitigated SEA: Facility 4	1.4	0.0	0.0	1.4		
November 2018 Final Mitigated SEA: Facility 5	6.8	0.0	0.0	6.9		
Total Emissions During Construction	129	0	0	130	**4.33**	Total GHG Emissions Amortized over 30 Years

Notes:

1. Facility 2 is the only affected facility by PAR 1135.

2. Construction-related GHG emissions for Facilities 1, 4, and 5 are from the Appendix C of the November 2018 Final Mitigated SEA for Rule 1135.

3. Construction-related GHG emissions are amortized over 30 years.

APPENDIX C-2

CEQA Impact Evaluations – Assumptions and Calculations

Operation Summary

Appendix C-2
CEQA Operation Impact Evaluations - Assumptions and Calculations

Criteria Pollutant Emissions Summary

PAR 1135 Requirement	VOC (lbs/day)	NOx (lbs/day)	CO (lbs/day)	SOx (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)
PAR 1135- Peak daily NOx emission reductions foregone: Facility 2	N/A	319.45	N/A	N/A	N/A	N/A
The November 2018 Final Mitigated SEA: Facility 1	0.08	0.52	0.34	0.00	0.03	0.02
The November 2018 Final Mitigated SEA: Facility 4	0.08	0.52	0.34	0.00	0.03	0.02
The November 2018 Final Mitigated SEA: Facility 5	0.08	0.52	0.34	0.00	0.03	0.02
Peak Day - Worst Case Operational Emissions	0.2	321.0	1.0	0.0	0.1	0.1
SIGNIFICANCE THRESHOLD FOR OPERATION	75	100	550	150	150	55

Notes:
1. Facility 2 is the only affected facility by PAR 1135.
2. Facility 2 was assumed to not create any new operational impacts in the November 2018 Final Mitigated SEA for Rule 1135.
3. PAR 1135 is expected to result in delayed operational NOx emission reductions foregone (see Figure 4-1 for more details).
4. Operational emissions for Facilities 1, 4, and 5 are from the Appendix C of the November 2018 Final Mitigated SEA for Rule 1135.

GHG Emissions Summary

PAR 1135 Requirement	CO2, MT/yr	CH4, MT/yr	N2O, MT/yr	CO2e, MT/yr
November 2018 Final Mitigated SEA: Facility 1	0.54	0.00	0.0	0.54
PAR 1135: Facility 2*				1097.92
November 2018 Final Mitigated SEA: Facility 4	0.13	0.00	0.00	0.13
PAR 1135: Facility 5	0.98	0.00	0.00	0.98
Total Emissions During Operation	1.65	0.00	0.00	1099.57

Notes:
1. Facility 2 is the only affected facility by PAR 1135.
2. Operation-related GHG emissions for Facilities 1, 4, and 5 are from the Appendix C of the November 2018 Final Mitigated SEA for Rule 1135.
3. For Facility 2, the maximum incremental increases in GHG emissions from the power producing units was summed up with the maximum GHG impacts due to barge trip for fuel delivery to Island to estimate the total operational GHG emissions at Facility 2

* Operational GHG emission at Facility 2= (Peak annual GHG emissions from Facility 2 operation- CARB 2023 GHG emission data as Facility 2 baseline)+maximum annual GHG emissions from additional barge trips for fuel delivery to Santa Catalina Island

Facility 2 Operation (data provided by SCE)											
			Using Petroleum Diesel				Using R99 Renewable Diesel				
PAR 1135	Unit	Fuel Consumption (gal)	Project CO2 Emissions using Diesel No. 2, where applicable (Metric tons)	Project CH4 Emissions using Diesel No. 2, where applicable (Metric tons)	Project N2O Emissions using Diesel No. 2, where applicable (Metric tons)	Project CO2e (Metric tons)	Project CO2 Emissions (Metric tons)[1]	Project CH4 Emissions (Metric tons)	Project N2O Emissions (Metric tons)	Project CO2e (Metric tons)
Stage 1 45 TPY	New Diesel T4F	1,605,730	16,394.50	0.66	0.13	16,451.22	163.95	0.66	0.13	220.66
	Older Diesel ICEs	674,252	6,884.11	0.28	0.05	6,907.93	68.84	0.28	0.05	92.66
	Microturbines	208,689	1,185.35	0.06	0.01	1,190.72	1,185.35	0.06	0.01	1,190.72
	Total	2,488,671	**24,463.97**	**0.99**	**0.19**	**24,549.87**	**1,418.14**	**0.99**	**0.19**	**1,504.04**
Stage 2 30 TPY	New Diesel T4F	1,958,207	19,993.29	0.80	0.16	20,062.46	199.93	0.80	0.16	269.10
	Older Diesel ICEs	240,972	2,460.32	0.10	0.02	2,468.84	24.60	0.10	0.02	33.11
	Microturbines	208,689	1,185.35	0.06	0.01	1,190.72	1,185.35	0.06	0.01	1,190.72
	Total	2,407,868	**23,638.97**	**0.96**	**0.19**	**23,722.01**	**1,409.89**	**0.96**	**0.19**	**1,492.93**
Stage 3 13 TPY	New Diesel T4F	1,207,137	12,324.87	0.49	0.10	12,367.50	123.25	0.49	0.10	165.88
	NZE	1,500,000	8,520.00	0.42	0.09	8,558.58	8,520.00	0.42	0.09	8,558.58
	Total	2,707,137	**20,844.87**	**0.91**	**0.19**	**20,926.08**	**8,643.25**	**0.91**	**0.19**	**8,724.46**
Stage 4 6 TPY	New Diesel T4F	495,721	5,061.31	0.20	0.04	5,078.82	50.61	0.20	0.04	68.12
	NZE	1,500,000	8,520.00	0.42	0.09	8,558.58	8,520.00	0.42	0.09	8,558.58
	ZE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	1,995,721	**13,581.31**	**0.62**	**0.13**	**13,637.40**	**8,570.61**	**0.62**	**0.13**	**8,626.70**
Maximum GHG impacts						**24,549.87**				**8,724.46**

1) Per CARB guidance, 99% of R99 diesel is considered biogenic, while 1% is anthropogenic. Only the anthropogenic portion of CO2 is considered here [https://ww2.arb.ca.gov/sites/default/files/2023-12/2000_2021_ghg_inventory_trends.pdf].

2023 CARB GHG Reporting

Subpart C: General Stationary Fuel Combustion

Gas Information Details

Gas Name	Gas Quantity (Metric Tons)
Methane	0.929852
Exempt Biogenic Carbon dioxide	1,337.82485
Nitrous Oxide	0.183977
Carbon Dioxide	22,100.419714
Total CO2e	23,516.316151

CARB/EPA GHG Emission Factors

CO2 Emission Factor for Diesel No.2 (kg/gal)	CH4 Emission Factor for Diesel No.2 (g/gal)	N2O Emission Factor for Diesel No.2 (g/gal)
10.21	0.41	0.08
CO2 Emission Factor for LPG (kg/gal)	**CH4 Emission Factor for LPG (g/gal)**	**N2O Emission Factor for LPG (g/gal)**
5.68	0.28	0.06

Emission Factors for Greenhouse Gas Inventories (epa.gov)

Facility 2 operation	Increased number of barge trips	CO2, MT/yr	CH4, MT/yr	N2O, MT/yr	CO2e, MT/yr
Stage 1: 45 tpy	29	64.15093984	0.002475657	0.000618914	64.37119595
Stage 2: 30 tpy	19	42.0299261	0.001621982	0.000405496	42.17423183
Stage 3: 13 tpy	26	57.51463572	0.002219554	0.000554889	57.71210671
Maximum GHG impacts					64.37119595

GHG emissions from a barge trip were estimated from the data provided by Facility 2; but the load factor for the main engines was adjusted from 85% to 50%.

APPENDIX C-3

CEQA Impact Evaluations – Assumptions and Calculations

Construction (Facility 2)

Appendix C-3
CEQA Construction Impact Evaluations - Construction Emissions at Facility 2

Criteria Pollutant Emissions

PAR 1135 Requirement	VOC (lbs/day)	NOx (lbs/day)	CO (lbs/day)	SOx (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)
Replacing an Existing Microturbine with a Linear Generator or Fuel Cell [1]	0.5	4.5	4.0	0.0	0.3	0.2
Replacing an Existing Diesel Engine and SCR with a New Diesel Engine and SCR [2]	4.3	40.0	27.0	0.1	3.4	2.3
1-Barge Round Trip to Transport Construction Equipment and Material [3]	5.2	28.0	25.5	0.0	1.6	1.6
Daily Peak Construction emissions[4]	**9.5**	**68.0**	**52.5**	**0.1**	**5.0**	**3.9**
SIGNIFICANCE THRESHOLD FOR CONSTRUCTION	75	100	550	150	150	55

Notes:
1. The construction emissions from a linear generator installation are estimated using CalEEMod.
2. From the November 2018 Final Mitigated SEA for Rule 1135
3. Criteria pollutant emissions from a barge trip were derived according to the data provide by Facility 2
4. On a peak day, there will be either a diesel engine replacement or a linear generator/fuel cell installation. As a worst case scenario, the barge roundtrip is assumed to occur on the same day as the installation of one new engine, linear generator. or fuel cell.

GHG Emissions Summary

PAR 1135 Requirement	CO2, MT/yr	CH4, MT/yr	N2O, MT/yr	CO2e, MT/yr
1 Linear Generator Installation [1]	0.76	0.00	0.00	0.77
5 Linear Generator Installation	3.80	0.00	0.00	3.85
3 Fuel Cell Installation [2]	2.28	0.00	0.00	2.31
Replacing 3 Existing Diesel Engines and SCRs with 3 New Diesel Engines and SCRs [3]	10.14	0.00	0.00	10.20
45 Barge Round Trip to Transport Construction Equipment and Material [4]	99.54	0.00	0.00	99.89
Total Emissions During Construction [5]	115.76	0.01	0.00	116.25

3.87 Amortized over 30 Years

Notes:
1. The construction-related GHG emissions from a linear generator installation are estimated using CalEEMod.
2. The construction-related GHG emissions from installing a fuel cell was assumed to be the same as installing a linear generator.
3. From the November 2018 Final Mitigated SEA for Rule 1135
4. Barge-related GHG emissions were estimated according to the data provided by Facility 2.
5. Total construction-related GHG emissions are amortized over 30 years.

Note: PAR 1135 is expected to require 45 additional barge trips during construction to bring three new Tier 4 diesel engines, five linear generators, three fuel cells, and other construction equipment to Santa Catalina Island.

Appendix C-3
CEQA Construction Impact Evaluations - Linear Generator Installation at Facility 2

Emissions Summary - Linear Generator installation at Facility 2

PAR 1135 Requirement	VOC (lbs/day)	NOx (lbs/day)	CO (lbs/day)	SOx (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)
Replacing an Existing Diesel Engine or Microturbine with a Linear Generator	0.5	4.5	4.0	0.0	0.3	0.2
Daily Peak Construction Emissions	0.5	4.5	4.0	0.0	0.3	0.2
SIGNIFICANCE THRESHOLD FOR CONSTRUCTION	75	100	550	150	150	55

Notes:

1. The emissions are estimated using CalEEMod.
2. Equipment demolition and installation is expected to occur on different days in multiple stages.
3. This analysis is conservative as minimal overlap is expected to occur among the installation of each linear generators.

GHG Emissions Summary - Linear Generator installation at Facility 2

PAR 1135 Requirement	CO2, MT/yr	CH4, MT/yr	N2O, MT/yr	CO2e, MT/yr		
1 Linear Generator Installation	0.76	0.00	0.000	0.77		
5 Linear Generator Installation	3.80	0.00	0.00	3.85		
Total Emissions During Construction	3.80	0.00	0.00	3.85	0.128333	Amortized over 30 Years

Notes:

1. The emissions are estimated using CalEEMod.
2. Construction emissions are amortized over 30 years.

Appendix C-3
CEQA Construction Impact Evaluations - Barge trips

Marine Vessel (Barge) Emissions - Catalina Provider (provided by SCE)								South Coast AQMD	
Pollutant	EF (main)	DR (main)	EFD (main)	EF (aux)	Peak at Sea	Peak at Berth	Peak Day	Peak at Sea (Adjusted)	Peak Day (Adjusted)
	g/BHP-hr	g/BHP-hr-hr	g/BHP-hr	g/BHP-hr	lbs/hr	lbs/hr	lbs/day	lbs/hr	lbs/day
ROG	0.09	0.000023	0.544	0.58	2.15	0.05	8.7	1.26	5.16
NO_X	2.32	0.00003	2.913	3.6	11.65	0.29	47.2	6.85	27.99
CO	2.61	0	2.61	3.73	10.58	0.3	42.94	6.22	25.49
SO_2	0.005	0	0.005	0.005	0.02	0	0.08	0.01	0.05
Exhaust PM_{10}	0.088	0.0000044	0.175	0.077	0.66	0.01	2.66	0.39	1.57
Exhaust $PM_{2.5}$	0.087	0.0000044	0.174	0.076	0.66	0.01	2.64	0.39	1.57
CO_2	517.72	0	517.72	517.72	2,037.12	42.23	8,232.93	1198.31	4877.68
CH_4	0.021	0	0.021	0.021	0.08	0	0.33	0.05	0.19
N_2O	0.004	0	0.004	0.004	0.02	0	0.07	0.01	0.05
CO_2e (AR4)	519.497	0	519.497	519.497	2,044.11	42.38	8,261.19	1202.42	4894.43

Data and Parameters:
Main engine power rating at sea 1657.5 *3 x Caterpillar C-16, 650 BHP, Tier 3, 85% LF, Carl Moyer Table D-9, Eqn. C-6*

South Coast AQMD reviewed the data provided by SCE and compared it to load factor (LF) data specific to barges from the Port of Los Angeles and Port of Long Beach, San Pedro Bay Ports Emission Inventory Methodology Report, Table 3.1: Harbor Craft Engine Load Factors, which indicated that a load factor of 50% was more appropriate. The revised calculations are shown in the "Peak at Sea (Adjusted)" and "Peak Day (Adjusted)" columns.

Auxiliary engine power rating at sea 127.3 *2 x 148 BHP, Tier 3, 43% LF, Carl Moyer Table D-18, Eqn. C-6*
Auxiliary engine power rating at berth 37.0 *1 x 148 BHP, Tier 3, 25% LF, Carl Moyer Table D-18, Eqn. C-6*
Hours per round trip (daily at sea) 4 *per South Coast AQMD PAR 1135 SEA, Appendix C-5*
Hours per round trip (daily at berth) 2 *per vessel operation, for 1 auxiliary engine, 25% LF*
No. of extra trips for project 12 *4 trips/unit x 3 units*
Deterioration hours per year (Mains) 1040 *1 trip/day, 5 days/week, 52 weeks/yr (assumed)*
Deterioration years in 2024 19 *since 2006 (max possible age assumed)*
DPM emissions at Berth 0.15 *lbs total (all 3 units)*

Notes:
*The Catalina Provider is operated by Avalon Freight Services and has three Caterpillar Tier III engines that are 650 horsepower (HP) each. Additionally, the barge is equipped with two 148 HP Tier III auxiliary engines (assume same age)
* Mains ROG, NOx, PM10 per Carl Moyer Guidelines (2017) Table D-9; Equation C-6
*Aux ROG, NOx, PM10 per Carl Moyer Guidelines (2017) Table D-17b; Equation C-6
*EF: Emission Factor; DR: Deterioration Rate; EFD: Emission Factor, Deteriorated
*PM2.5 = 99% of PM10 per SCAQMD LST
*CO per EPA Tier 3 standards SO2 for 15 ppmw S ULSD
*GHGs per 40 CFR 98 Subpart C GWPs per IPCC AR4
*Heat rate = 7,000 BTU/BHP-hr per AP-42 Table 3.3-1
*HHV = 19,300 BTU/lb per AP-42 Table 3.3-1

APPENDIX C-4

CEQA Impact Evaluations – Assumptions and Calculations

Energy

Appendix C-4
CEQA Energy Impact Evaluations - Assumptions and Calculations

GHG emissions from a barge trip (kg CO2)	Default CO_2 emission factors (kg CO2/mmbtu)[1]	Default high heat value (mmbtu/gal)[1]	Diesel Fuel Consumption (gal)
4877.68	73.96	0.138	477.90

1. From Table C-1 to Subpart C of Part 98—Default CO2 Emission Factors and High Heat Values for Various Types of Fuel

Fuel Use by a Barge (gal) = GHG Emissions from a Barge trip (Kg CO2) x CO2 Emission Factors (kg CO2/mmbtu) x Default High Heat Value (mmbtu/gal)

Fuel type	Phase	Expected incremental increases in fuel consumption by PAR 1135 (mmgal)	Estimated consumption by November 2018 Final Mitigated SEA (mmgal)[1]	Estimated consumption by PAR 1135	% above baseline	Exceeding threshold?
Diesel	Construction	0.0201	0.0772	0.0973	0.0130	**NO**
	Operation	0.0139	0.0017	0.0156	0.0021	**NO**
Gasoline	Construction	---	0.0007	0.0007	0.00001	**NO**
	Operation	---	---	---	---	---

1. PAR 1135 is expected to require: i) a maximum of 29 additional barge trips per year for fuel delivery to the Island; and ii) 42 additonal barge trips for transporting construction equipment and material to the Island.

APPENDIX D

Air Quality Impact Analysis and Health Risk Assessment – Assumptions and Calculations

1. INTRODUCTION

Compliance with PAR 1135 is expected to be achieved through replacement of three existing diesel engines with three new Tier 4 Final diesel engines, replacement of existing remaining diesel engines and microturbines with NZE units, and installing ZE technologies such as solar batteries and PV cells at the electricity generating facility located on Santa Catalina Island.

It should be noted that there is limited land available on Santa Catalina Island to accommodate the installation of solar PV cells, as most open land on the island is mountainous and solar energy production is optimal when the equipment is sited on flat land. A potential site on Santa Catalina Island for the installation of solar PV cells or other ZE and/or NZE technologies, is Middle Ranch. Middle Ranch is approximately 15 acres, which can accommodate solar PV installations that could provide approximately 30% of historical power generation needed for Santa Catalina Island. However, because the facility is still in discussions with the Catalina Island Conservancy, the owner of the Middle Ranch property, it would be speculative to analyze the environmental impacts associated with the installation of solar PV cells on Santa Catalina Island. Therefore, in accordance with CEQA Guidelines Section 15145, an evaluation of the environmental impacts associated with installing solar PV cells is concluded to be speculative and will not be evaluated further in this SEA.

This appendix provides a comprehensive overview of the methodology used in conducting the Air Quality Impact Analysis (AQIA) and Health Risk Assessment (HRA) from the operation of three new Tier 4 Final diesel engines. Tables D-1 and D-2 present the stack parameters and criteria pollutant emissions factors (for a full-time, 24 hour, and 365 day per year operation scenario) for the three new Tier 4 Final diesel engines according to the data provided by the electricity generating facility located on Santa Catalina Island, respectively.

Table D-1
Stack Parameters

Modeled Source	Stack Height (m)	Exhaust Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
Each of the Three New Tier 4 Final Diesel Engines	11.73	730.4	22.97	0.61

Table D-2
Criteria Pollutant Emissions Factors

Source	NOx		SO_2	PM10/PM2.5		CO
	1-hour	Annual	1-hour/ 24-hour	24-hour	Annual	1-hour/ 8-hour
Each of the Three New Tier 4 Final Diesel Engines	1.55E+00	5.21E-01	4.18E-03	9.12E-03	9.12E-03	9.03E-01

The following sections (i.e., Sections 2 and 3) of this Appendix were prepared by SLR International Corporation and reviewed by South Coast AQMD.

2. AIR DISPERSION MODEL SELECTION

Selection of the appropriate dispersion model for use in the analysis was based on the available meteorological input data, the physical characteristics of the permit unit that is to be simulated, the land use designation in the vicinity of the facility, the complexity of the nearby terrain, and applicable guidance to be used for demonstrating compliance with CEQA requirements.

Overall, the current version of the U.S. EPA-approved American Meteorological Society/U.S. EPA Regulatory Model (AERMOD) modeling system was implemented to meet the dispersion modeling requirements for this analysis. AERMOD is recommended for use in modeling multi-source emissions, and can account for plume downwash, stack tip downwash, and point, area, and volume sources(U.S. EPA 2022; 2017).

Current version numbers of the AERMOD model and pre-processors that were used are:

- AERMAP Version 18081
- AERMOD Version 22112

2.1. MODEL INPUT OPTIONS

The U.S. EPA and South Coast AQMD regulatory default dispersion options were used in the analyses. AERMOD's non-default urban option was not used because the land use within a 3 kilometer (km) radius of the facility (including the over-water areas northeast and east of the PBGS) is generally undeveloped. This determination was made based on a qualitative analysis of aerial imagery following U.S. EPA procedures and a quantitative analysis of National Land Cover Database (NLCD) data.

In 40 CFR Part 51, Appendix W, Section 7.2.1.1(b)(i), U.S. EPA recommends that land use within 3-km of the source be evaluated to determine what percentage of the area is comprised of "urban" land use types following the Auer land use typing scheme. If urban land use types account for 50% or more of the 3-km area, the use of urban dispersion coefficients is justified. Otherwise, default dispersion coefficients should be used. Urban land use types under the Auer scheme include:

- Heavy Industrial;
- Light/Moderate Industrial;
- Commercial;
- Compact Residential (Single Family); and
- Compact Residential (Multi-Family)

All other land use types are considered rural. Figure D-1 shows an aerial photograph of Catalina Island and a 3-km radius around PBGS. Inspection of the aerial imagery within the 3-km radius indicates that the land use is greater than 50 percent open water and undeveloped land. Therefore, default dispersion coefficients are recommended.

A quantitative analysis using the U.S. EPA surface characteristics preprocessor, AERSURFACE, was also conducted. AERSURFACE uses NLCD data to calculate the surface roughness lengths within a prescribed radius. AERSURFACE outputs, in a log file, a table of the land cover counts

of grid cells within the prescribed radius. These data can be used to calculate the percentage of urban and rural land use types.

For this analysis, AERSURFACE was run using a 3-km radius around PBGS. Urban land use types in the NLCD data include:

- Developed, open space;
- Developed, low intensity;
- Developed, medium intensity; and
- Developed, high intensity

All other land use types are considered rural. Figure D-2 shows an aerial photo of Catalina Island overlaid with the NLCD data and a 3-km radius around PBGS. Table D-3 presents the land cover counts from the AERSURFACE log file and the percentage of the total for each land use type. The data show that 94 percent of the 3-km area is rural.

Based on the visual inspection of the aerial photo and the land use analysis using ERSURFACE, the land use within the 3-km area surrounding PBGS is rural and therefore, default dispersion coefficients were used in the modeling analysis.

Other dispersion modeling methods followed U.S. EPA procedures and guidance as well as the South Coast AQMD's AERMOD modeling guidelines.

Table D-3
AERSURFACE Land Use Counts within 3-km of PBGS

LAND USE TYPE	URBAN/RURAL	GRID CELL COUNT	PERCENT TOTAL
Open Water	Rural	17,722	56
Developed, Open Space	Urban	556	2
Developed, Low Intensity	Urban	559	2
Developed, Medium Intensity	Urban	428	1
Developed, High Intensity	Urban	176	1
Barren Land (Rock/Sand/Clay)	Rural	866	3
Deciduous Forest	Rural	1	< 1
Evergreen Forest	Rural	62	< 1
Mixed Forest	Rural	1,548	5
Shrub/Scrub	Rural	8,195	26
Grasslands/Herbaceous	Rural	1,307	4
Emergent Herbaceous Wetlands	Rural	1	< 1
Total	Rural Urban	29,702 1,719	94 6

Figure D-1
3 km Area Surrounding PBGS

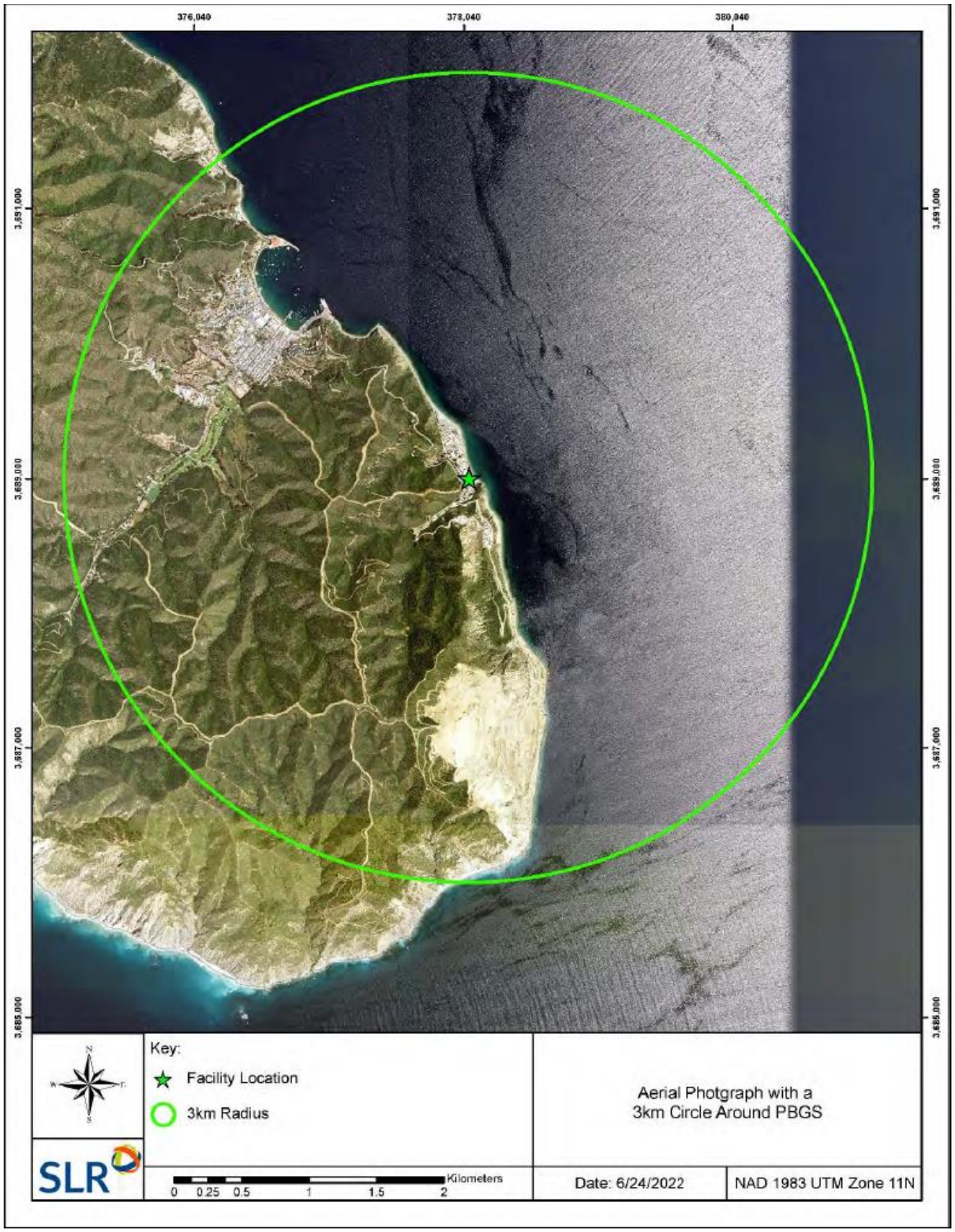
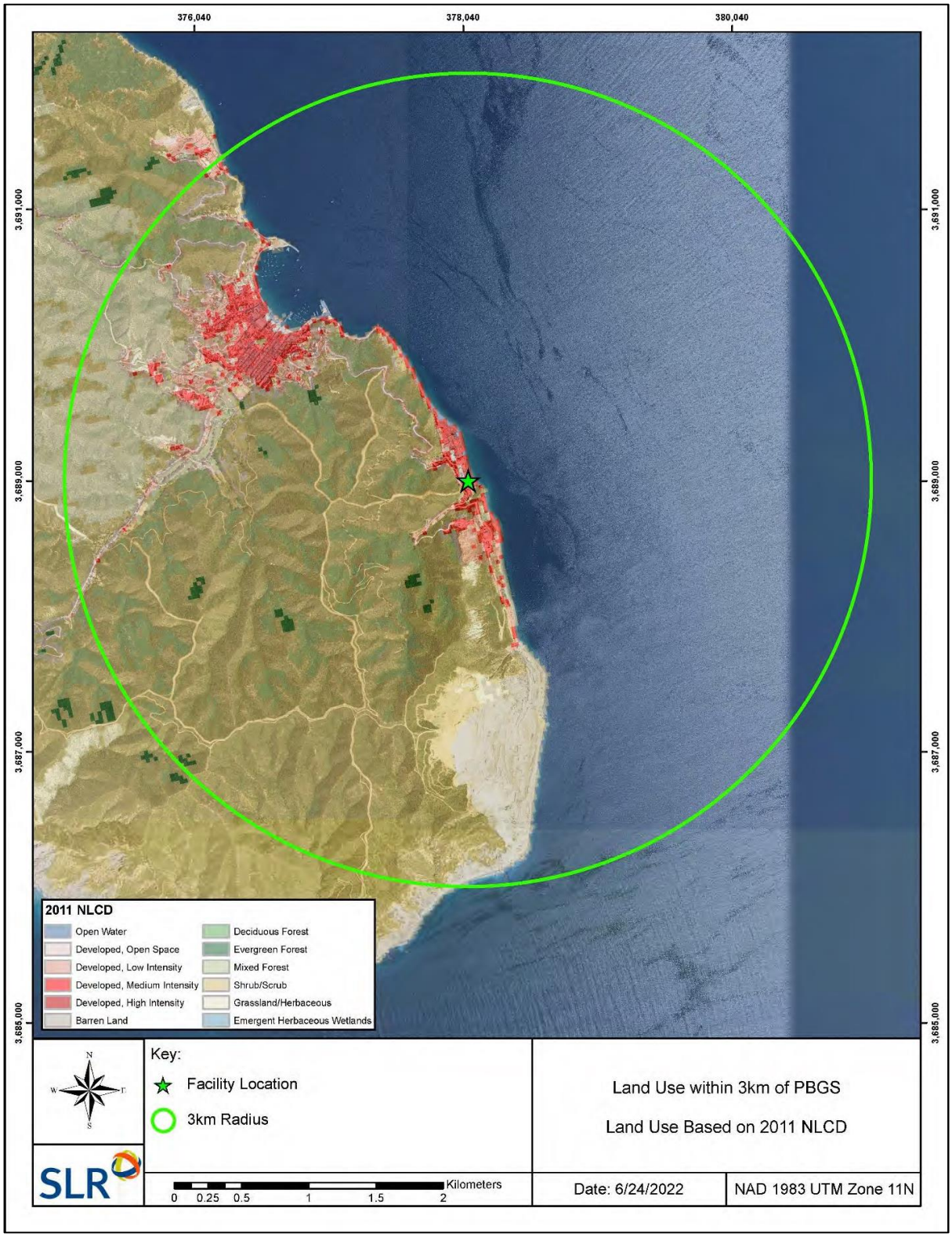


Figure D-2
NLCD Data with 3-km Surrounding PBGS



2.2. PLUME DOWNWASH

Each of the three new Tier 4 Final diesel engines was modeled as a point source and the effects of plume downwash were accounted for in the analysis. Direction-specific building dimensions were calculated using the current version of the U.S. EPA-approved Building Profile Input Program (BPIPPRM Version 04274). PBGS and nearby off-site structure dimensions and heights were obtained from the recent Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB2588) HRA for the PBGS (SLR 2019) that was approved by the South Coast AQMD.

In addition to calculating direction-specific building dimensions, the BPIPPRM program also calculates the Good Engineering Practice (GEP) stack height. The PBGS stack heights were checked to verify that they are within the GEP stack height limit.

A simplified plot plan of the PBGS facility showing the locations of all modeled structures and emission sources is provided in Figure D-3.

2.3. METEOROLOGICAL DATA

Site-specific meteorological observations that are considered suitable for regulatory dispersion modeling are not available for the PBGS area. The nearest National Weather Service observing station is located at the Avalon Airport, which is several kilometers inland in complex terrain with very little coastal influence. The wind and temperature data at the airport are not considered representative of the Pebbly Beach area and were therefore not used.

Since there are no site-specific meteorological observations in the PBGS area, the South Coast AQMD provided one calendar year (2018) of prognostic data from the Weather Research and Forecasting (WRF) model for a grid node west of PBGS, near the Avalon Country Club. The 2018 WRF output was processed by South Coast AQMD using the Mesoscale Model Interface Program (MMIF) program and South Coast AQMD provided the surface and profile files to be used as input to AERMOD.

2.4. PROPERTY BOUNDARY

The PBGS property boundary was digitized using aerial imagery and plot plans provided by SCE for the 2019 HRA. The property boundary was used to define the receptor network described in Section 2.5. The PBGS property boundary is shown in Figure D-3.

2.5. RECEPTOR NETWORK

2.5.1. CRITERIA POLLUTANT RECEPTORS

For criteria pollutant modeling, Cartesian receptor grids centered on the PBGS were defined using Universal Transverse Mercator (UTM) Zone 11 North American Datum 1983 (NAD83) coordinates. For purposes of air dispersion modeling, the NAD83 spatial reference system is equivalent to WGS840F0F[1]. The grids were designed to resolve the highest predicted pollutant impacts while at the same time allowing for reasonable execution time. Several receptor grids of

[1] U.S.EPA, See AERMAP User's Guide (EPA 454/B 18 004), Section 2.1.

varying resolution were defined following guidance found in South Coast AQMD (2022a). The grids consisted of a set of nested receptors placed at:

- 20-m spacing along the property boundary;
- 50-m resolution extending to approximately 500 m from the property boundary;
- 100-m resolution extending to approximately 1 km from the property boundary; and
- 250-m resolution extending to approximately 5 km from the property boundary.

Receptor elevations and scale heights were obtained using the AERMAP terrain processor. The digital elevation dataset provided as input to AERMAP was the National Elevation Dataset (NED) data at 1/3 arc second resolution, which is equivalent to approximately 10 m in the project area. Receptor elevations obtained from AERMAP were reviewed for reasonableness against Google Earth elevations or 7.5-minute topographic maps. Figure D-4 and Figure D-5 show the far-field and near-field views of the receptor grids, respectively.

Figure D-3
Facility Site Layout

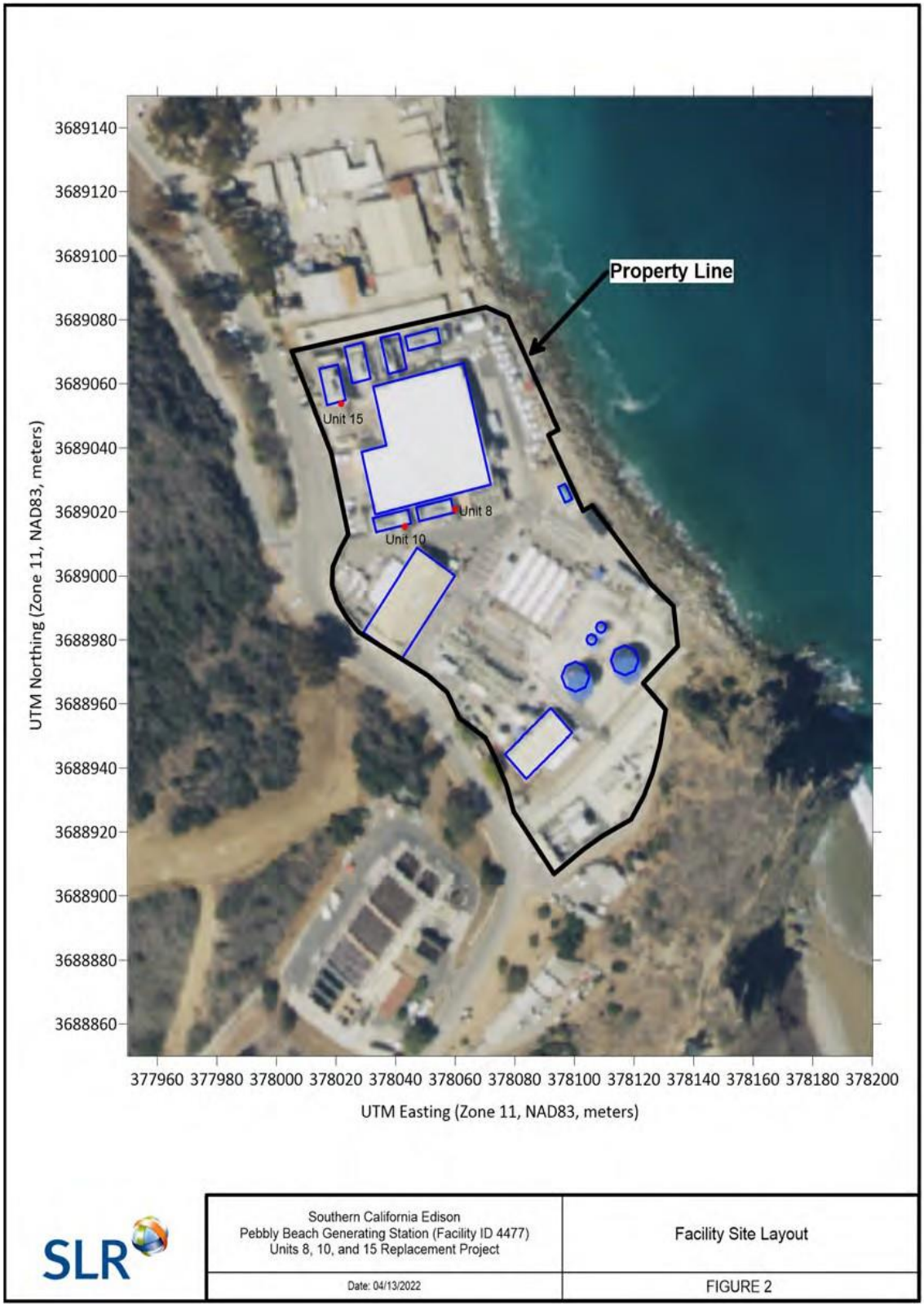


Figure D-4
Far-Field View of the Receptor Grid

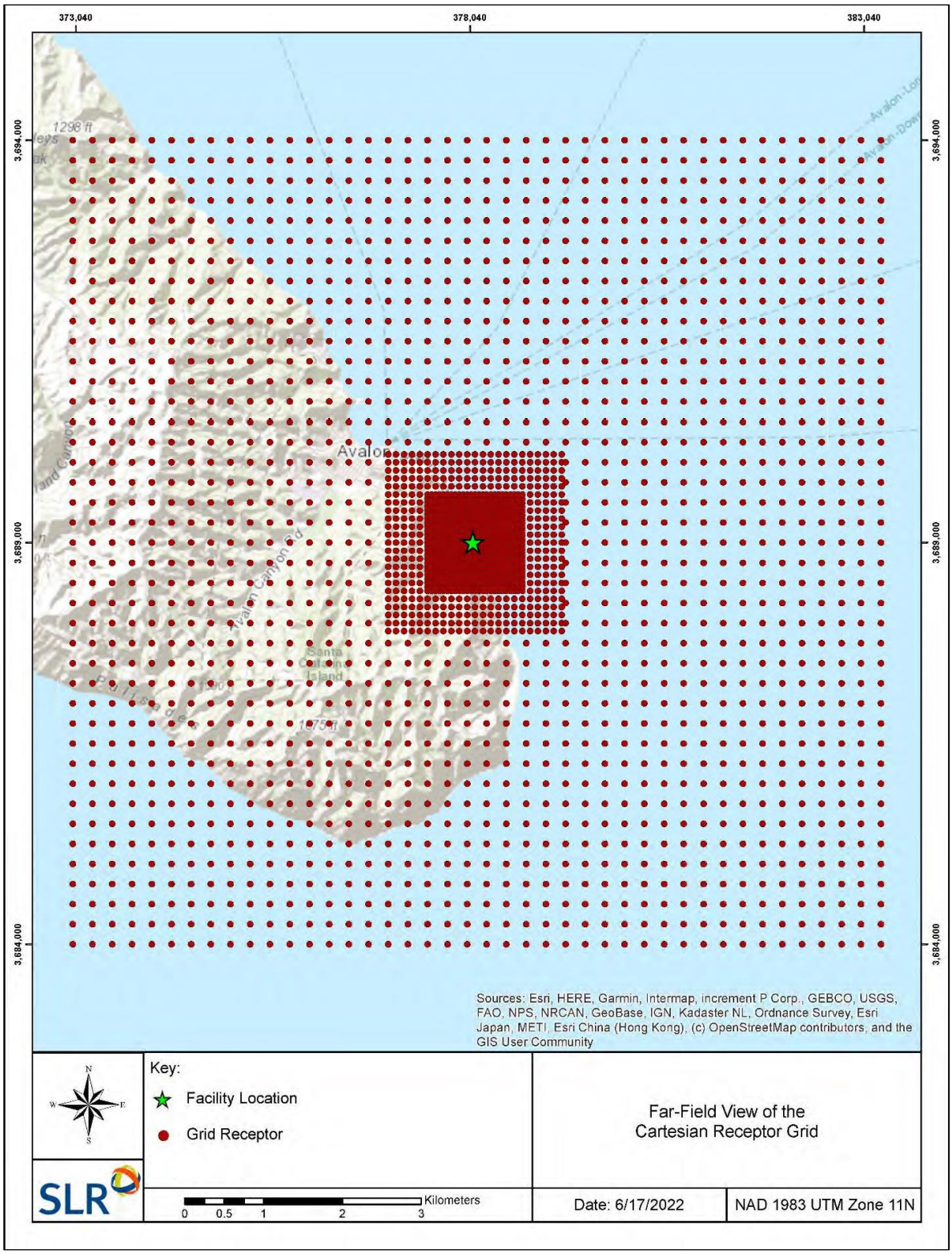
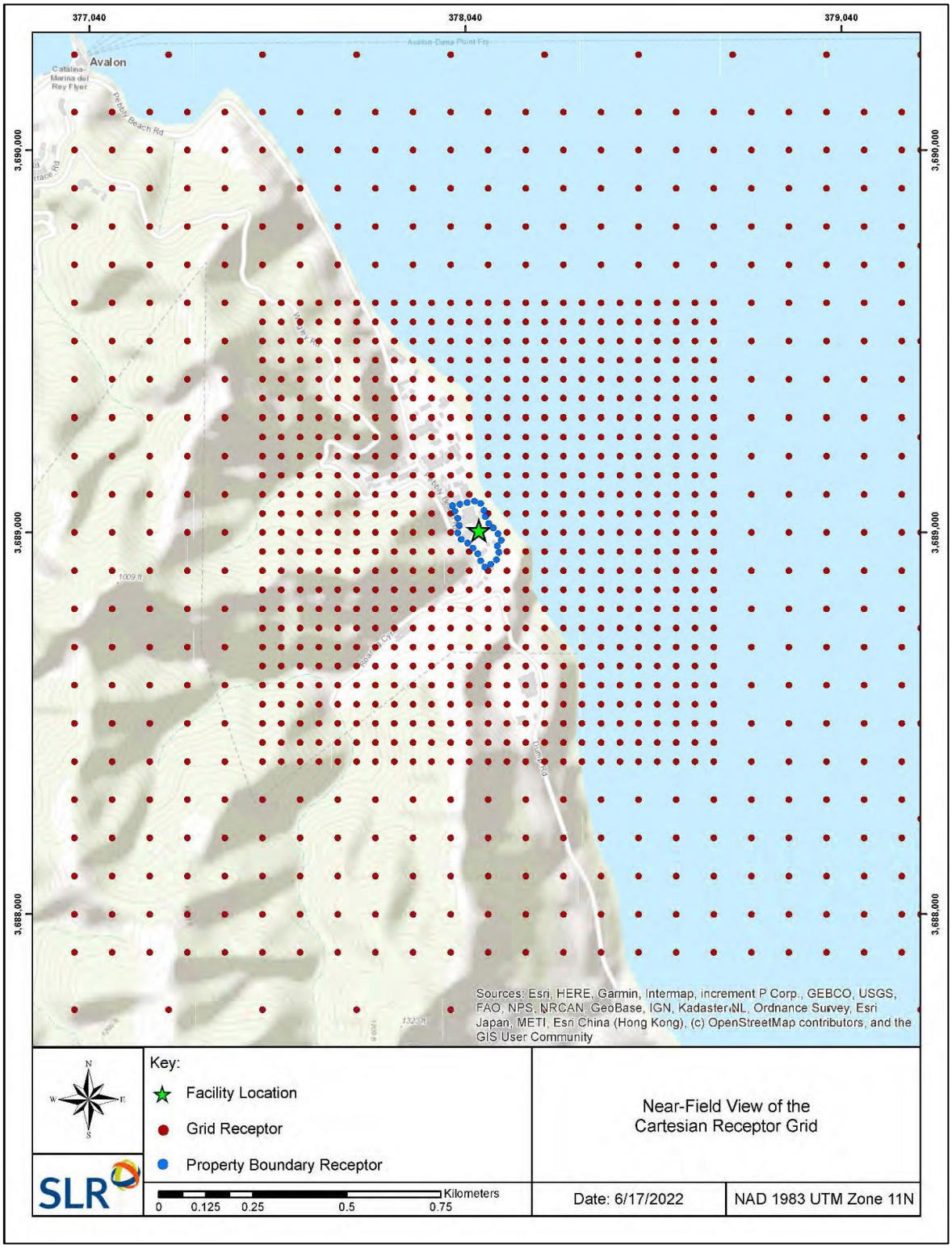


Figure D-5
Near-Field View of the Receptor Grid



2.5.2. HEALTH RISK ASSESSMENT RECEPTORS

For the HRA, the same receptor grids in the approved 2019 HRA (SLR 2019) were used. These grids have been developed to estimate the risks for potentially exposed portions of the community. Residential, off-site worker, and sensitive receptor areas require different exposure assumptions for cancer risk in the HRA; therefore, several receptor sets were generated in the following areas:

- Existing and potential residential areas within the populated portion of the City of Avalon residential zoning area. Residential receptors were included in Avalon Harbor. Receptors were placed at 100-m spacing within the residential zoning area.
- Existing and potential off-site worker areas along Pebbly Beach Road, the Avalon business district, and industrial facilities south of the PBGS. Existing businesses were placed at their approximate locations based on aerial photographs. Receptors located in the Avalon business district and a quarry area south of the PBGS were placed at 100-m spacing.
- Existing residential locations at Pebbly Village (Santa Catalina Island Company employee housing area). Receptors were placed at 20-m spacing within this area using aerial photographs.
- Sensitive receptor locations consisted of schools including preschools and daycare centers; health facilities such as hospitals; retirement and nursing homes; long term care hospitals; and hospices. Sensitive receptor locations were identified from internet searches and the street addresses were converted to UTM Zone 11, NAD83 coordinates for input to AERMAP. Table D-4 presents the sensitive receptors that will be included in the HRA.

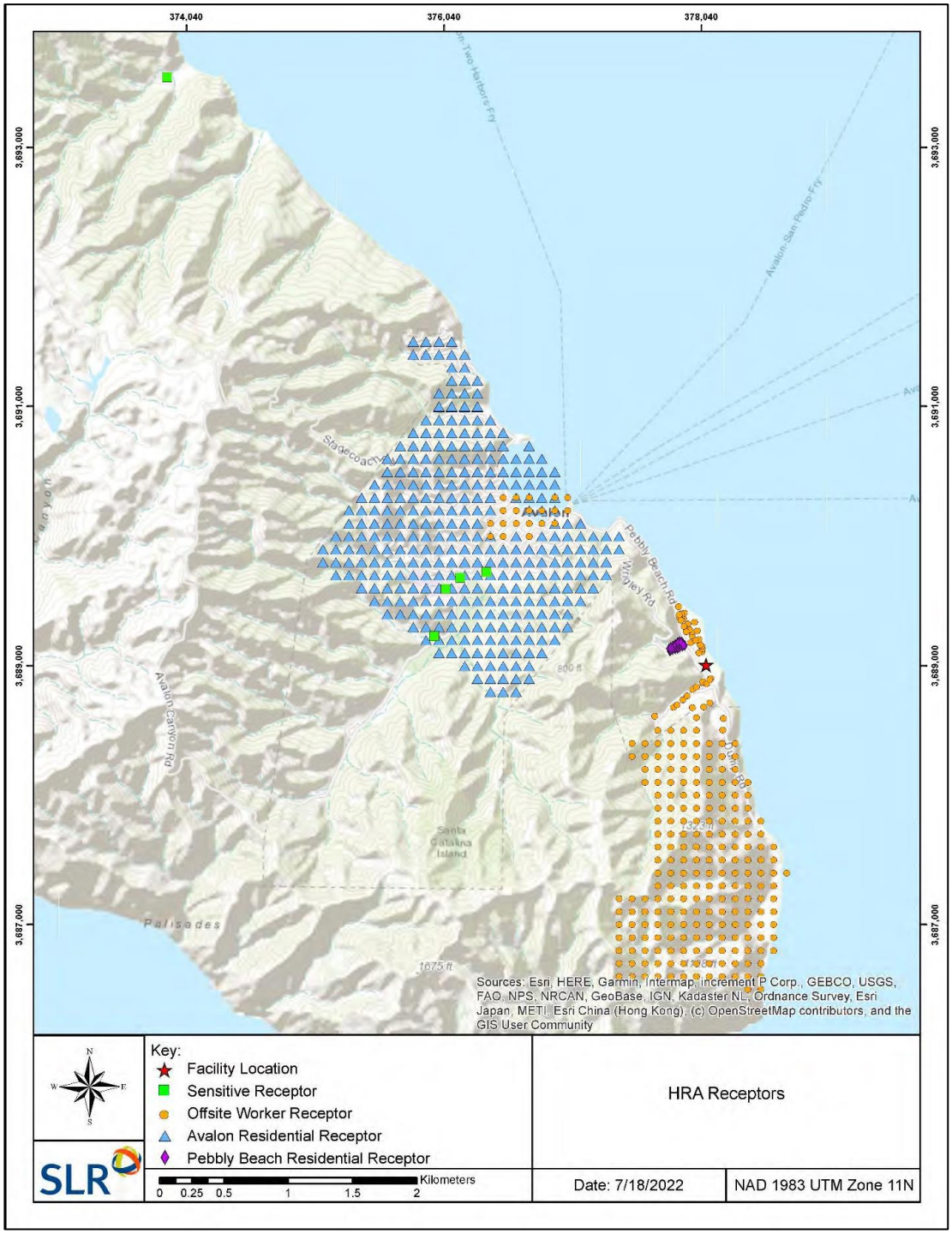
Table D-4
Sensitive Receptor Locations

Receptor	UTM Easting [1] (m)	UTM Northing [1] (m)
Avalon K-12 School	376052	3689595
Preschool Learning for Avalon Youth	375964	3689230
Catalina Island Marine Institute	373890	3693544
Catalina Island Medical Center	376165	3689682
Catalina Kid Ventures Child Care	376370	3689724

[1] Coordinates are in UTM Zone 11, NAD83.

The receptor locations were generated in UTM Zone 11, NAD83 coordinates. Receptor elevations and scale heights will be obtained using the AERMAP terrain processor consistent with the methodology in Section 2.5.1. The HRA receptor grids are shown in Figure D-6. Refer to the approved 2019 HRA report for further details regarding the adequacy of the HRA receptors grids for evaluating potential public exposure to PBGS emissions.

Figure D-6
HRA Receptors



2.6. BACKGROUND CONCENTRATIONS

Since recent ambient monitoring data are not available on Catalina Island, current monitoring stations along the Southern California mainland were evaluated for use as background concentrations in the criteria pollutant modeling. The area around the PBGS project site contains mostly open space/ocean and light industrial development along Pebbly Beach Road. Land use around the available mainland air monitors was reviewed to identify monitors that would provide adequately representative1F1F[2] background data while not being overly influenced by heavy industrial or urban development, where possible. This section provides is a discussion of the monitor selection. Monitor design concentrations from the most recent three years of data (2018-20202F2F[3]) are provided in Table D-5.

Table D-5
Ambient Monitor Design Concentrations (2018-2020)

Pollutant	Averaging Period	Design Concentration ($\mu g/m^3$)	SITE	AQS ID
NO_2[1]	1-hour	--	El Rio	06-111-3001
	Annual	9.4		
CO	1-hour	1,145	Mission Viejo	06-059-2022
	8-hour	916		
SO_2	1-hour	7.9	Los Angeles	06-037-1103
	24-hour	2.5		

1. 1-hour NO_2 background concentrations are included in the modeling using seasonal-diurnal values. See Section 2.6.3.

2.6.1. CARBON MONOXIDE AND SULFUR DIOXIDE

SLR reviewed monitors within the South Coast AQMD, and in adjacent Air Districts, for coastal locations that would be representative of the PBGS project area. There are no active CO monitors at or near coastal locations within the search area; therefore, the following four monitors were considered as possible locations to provide ambient concentrations for the modeling analysis:

- Compton (AQS ID# 06-037-1302)
- Anaheim (AQS ID# 06-05-0007)
- Anaheim – Near Road (AQS ID# 06-059-0008)
- Mission Viejo (AQS ID# 06-059-2022)

The land use surrounding all four sites is largely dense residential or industry but of the four locations, Mission Viejo is the least dense and least likely to be influenced by industry or urban

[2] U.S. EPA's Guideline on Air Quality Models (GAQM, U.S. EPA 2017) Section 8.3.1.b.
[3] Some monitors may not have their 2021 data certified yet so the 3-year period of 2018 through 2020 was used.

development. Therefore, the Mission Viejo monitor was chosen to represent ambient CO background concentrations for the modeling analysis.

There are no active SO_2 monitors at or near coastal locations within the search area. There are currently two active SO_2 monitors in the greater Los Angeles area, one in Long Beach (AQS ID# 06-037-4009) and a second in downtown Los Angeles (AQS ID# 06-037-1103). The Long Beach monitor has only been active since 2021. Therefore, monitor concentrations from the downtown Los Angeles monitor were used for background concentrations in the modeling analysis.

2.6.2. PARTICULATE MATTER

Because Los Angeles County, including Catalina Island, is non-attainment for the California PM_{10}, California $PM_{2.5}$, and Federal $PM_{2.5}$ ambient air quality standards, the project particulate matter modeled impacts will be compared against the significant change in air quality concentration described in Table 4.2 of the draft SEA. This evaluation does not consider background concentrations; therefore, background PM_{10} and $PM_{2.5}$ data are not required for this project.

2.6.3. NITROGEN DIOXIDE

In the absence of NO_2 ambient monitoring data near the PBGS, the U.S. EPA's Guideline on Air Quality Models (GAQM, U.S. EPA 2017) Section 8.3.2.b, states:

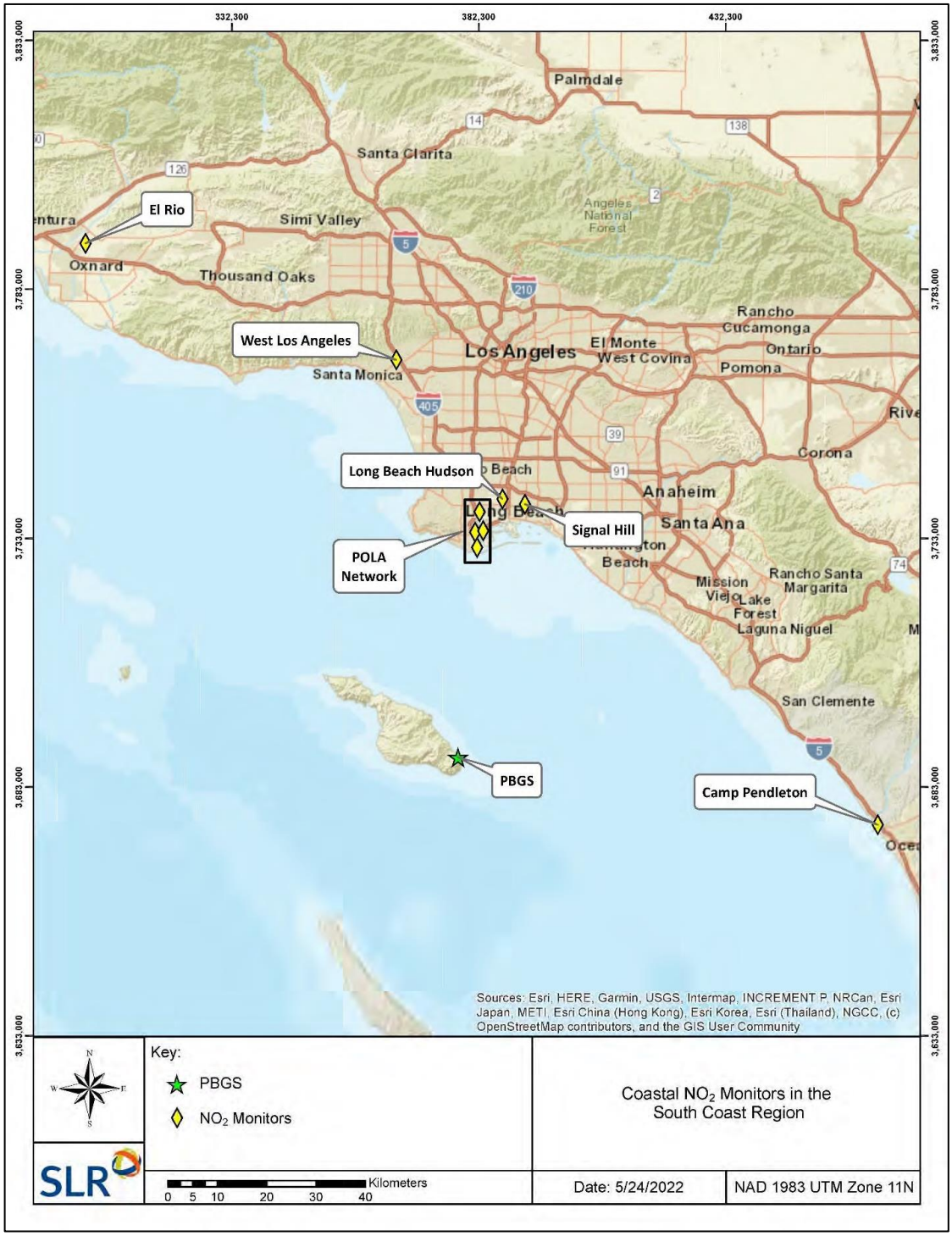
If there are no monitors located in the vicinity of the new or modifying source, a ''regional site'' may be used to determine background concentrations. A regional site is one that is located away from the area of interest but is impacted by similar or adequately representative sources.

Figure D-7 shows available NO_2 monitors at or near coastal locations within the search area, as follows:

- El Rio in the Ventura County Air Pollution Control District (VCAPCD; AQS ID# 06-111-3001)
- West Los Angeles (AQS ID# 06-037-0113)
- Long Beach Hudson (AQS ID# 06-037-4006; 2018-2019)
- Signal Hill (AQS ID# 06-037-4009; 2020)
- Port of Los Angeles (POLA) ambient air monitoring network3F3F[4]
- Camp Pendleton in the San Diego County Air Pollution Control District (AQS ID# 06-073-1008)

[4] Reports of the Air Quality Monitoring Programs at the Ports of Los Angeles and Long Beach, https://monitoring.cleanairactionplan.org/reports/

Figure D-7
Coastal NO_2 Monitors in the South Coast Region



The land use and industrial activity around these monitors were reviewed to identify the most suitable background data that is not overly influenced by heavy industrial or urban development.

In the South Coast AQMD, mobile sources (heavy-duty diesel trucks, ships, airplanes, locomotives, and construction equipment) account for more than 80 percent of NO_X emissions (South Coast AQMD 2022b). Heavy-duty diesel trucks, medium-duty and heavy-duty gas trucks, buses, passenger vehicles and motorcycles, and residential fuel combustion account for about 50 percent of the South Coast AQMD daily NO_X emissions. These emission sources are concentrated in densely populated areas within the Basin. To illustrate the mobile source activity around the NO_2 monitors listed above and on Catalina Island, population density data, major highways, and airports were overlaid on topographic and census tract maps. Title V facilities and port activity were also overlaid on the maps to denote the locations of major industrial activity.

Figure D-8 shows the population density and Title V facilities on Catalina Island and within the PBGS modeling domain. The map shows that Catalina Island is sparsely populated, with the bulk of the population living in Avalon, has a single small airport far removed from the PBGS area, no highways, and a single major industrial source (the PBGS). Vehicles on Catalina consist primarily of autoettes (golf carts), with very limited numbers of full-size cars and trucks permitted to be on the island. As a result, the air quality on the island and within the PBGS modeling domain is relatively pristine and will continue to be so due to growth restrictions on the island, compared to the densely populated and developed mainland.

As shown in Figure D-9 and Figure D-10, the Long Beach, Signal Hill, POLA, and West Los Angeles monitors are not representative of background NO_2 concentrations for the PBGS modeling domain. These monitors are in densely populated urban areas that are traversed by several major highways, including Interstates 405, 710, and 110, and a dense grid of surface streets that produce large volumes of vehicle traffic. The Long Beach, Signal Hill, and the POLA network are also proximate to many major industrial facilities, including refineries, and the Ports of Los Angeles and Long Beach. These monitors are impacted by NO_X emissions that are not present on Catalina Island and are not representative of the PBGS modeling domain. Therefore, the West Los Angeles, Long Beach, Signal Hill and, and POLA NO_2 monitors are not suitable for this modeling analysis.

While the Camp Pendleton monitor is located due east of Catalina Island close to the coastline, this monitor may be impacted by Marine Corps Base Camp Pendleton (MCBCP) operations and surrounding City of Oceanside NO_X emission sources. MCBCP operations surround this monitor in nearly all directions. Aerial imagery of the area around the Camp Pendleton monitor presented in Figure D-11 shows large fleets of military vehicles at locations of MCBCP operations. Emissions from these large vehicles, assault amphibian school activities in the adjacent harbor, and other MCBCP operations very close to the monitor may not be representative of ambient NO_2 concentrations for the PBGS modeling domain. In addition, hours 02:00 and 03:00 are consistently missing in the hourly data for this monitor, leading to relatively low data completeness with an average of 86 percent over the 2018-2020 three-year period. Addressing this in the development of seasonal-diurnal profiles of background concentrations would require filling or interpolation with bracketing available hours. Based on this information, the Camp Pendleton monitor was not considered for use in the modeling analysis.

Figure D-8
Catalina Source Environment

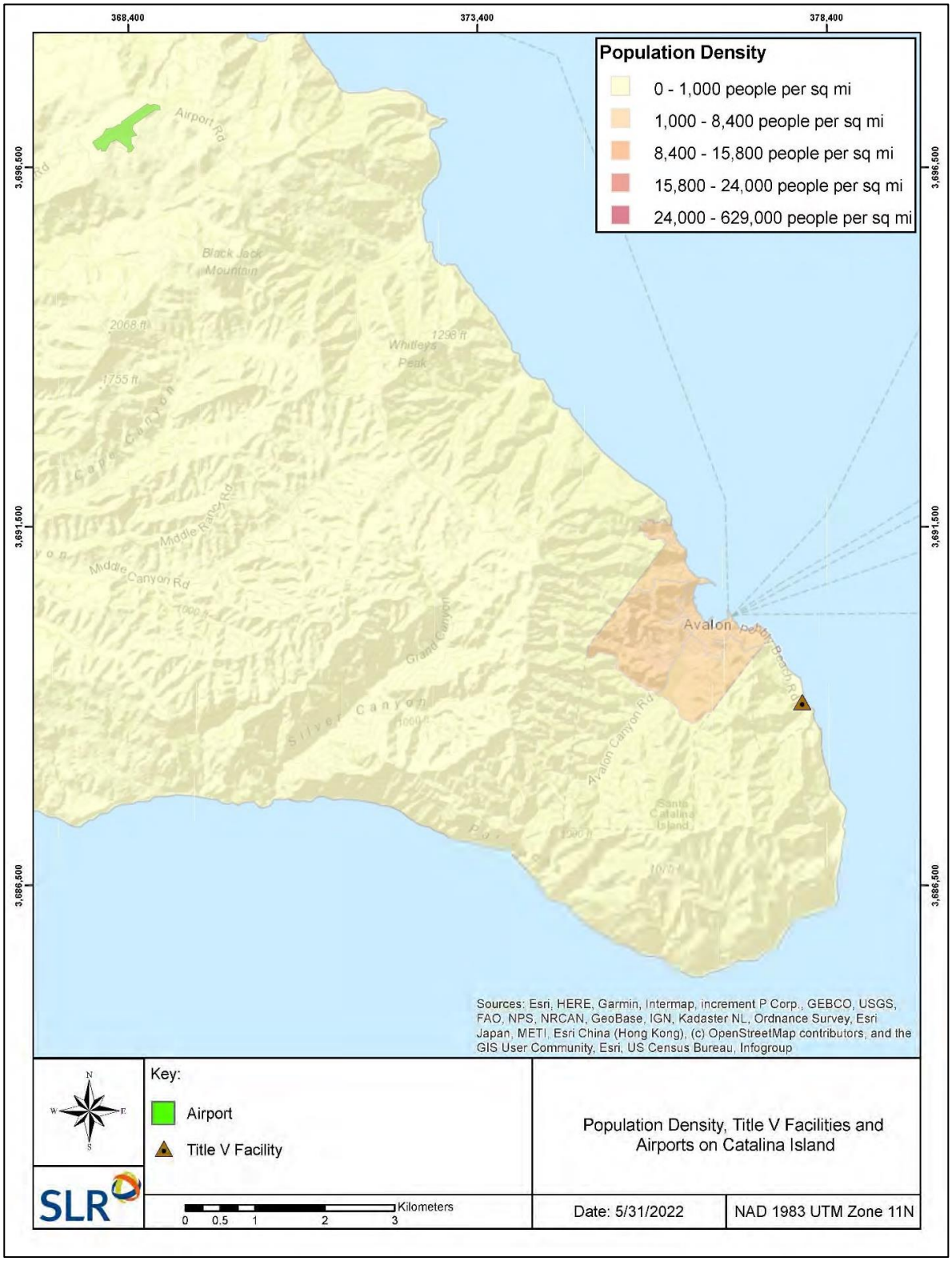


Figure D-9
Long Beach Area Source Environment

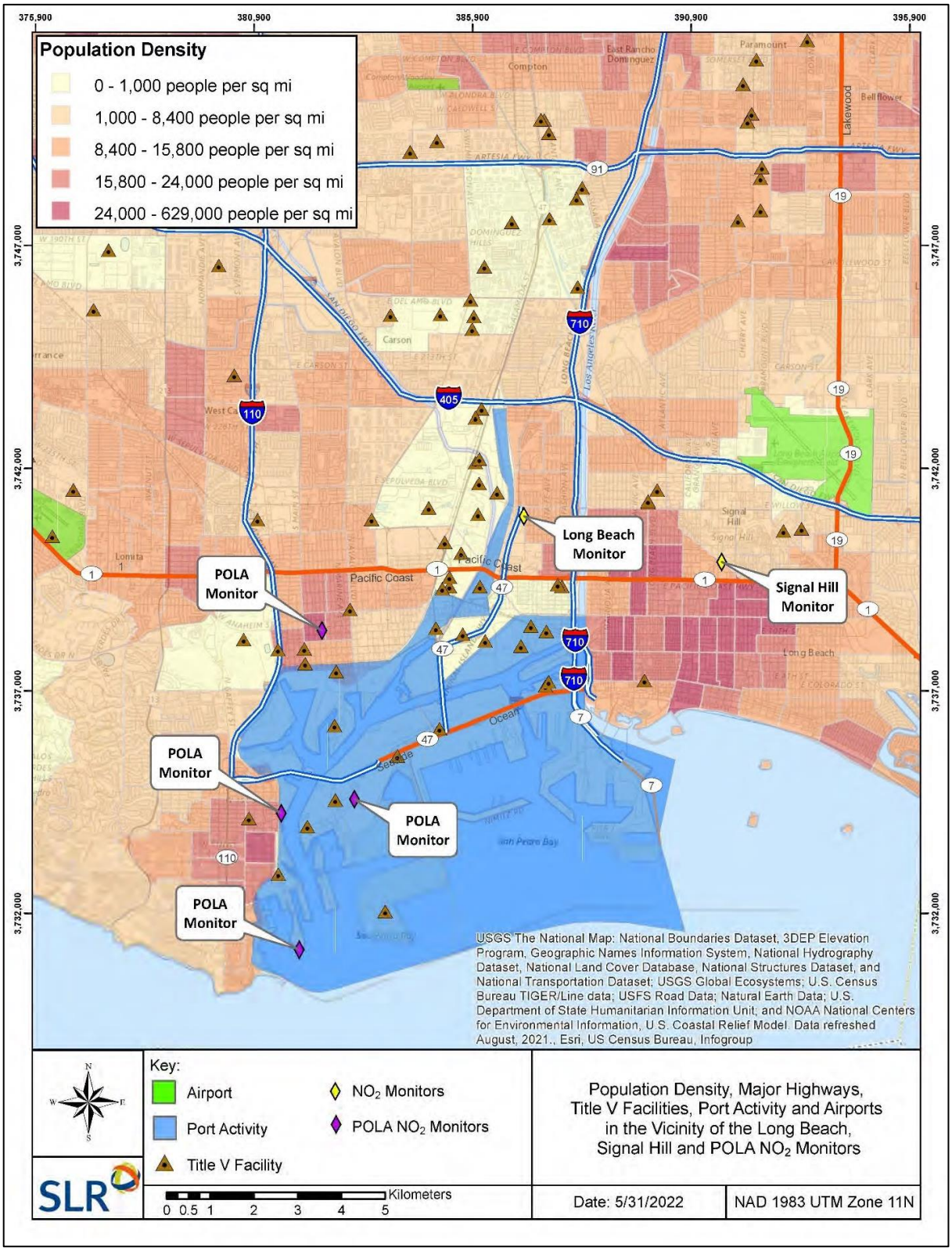


Figure D-10
West Los Angeles Area Source Environment

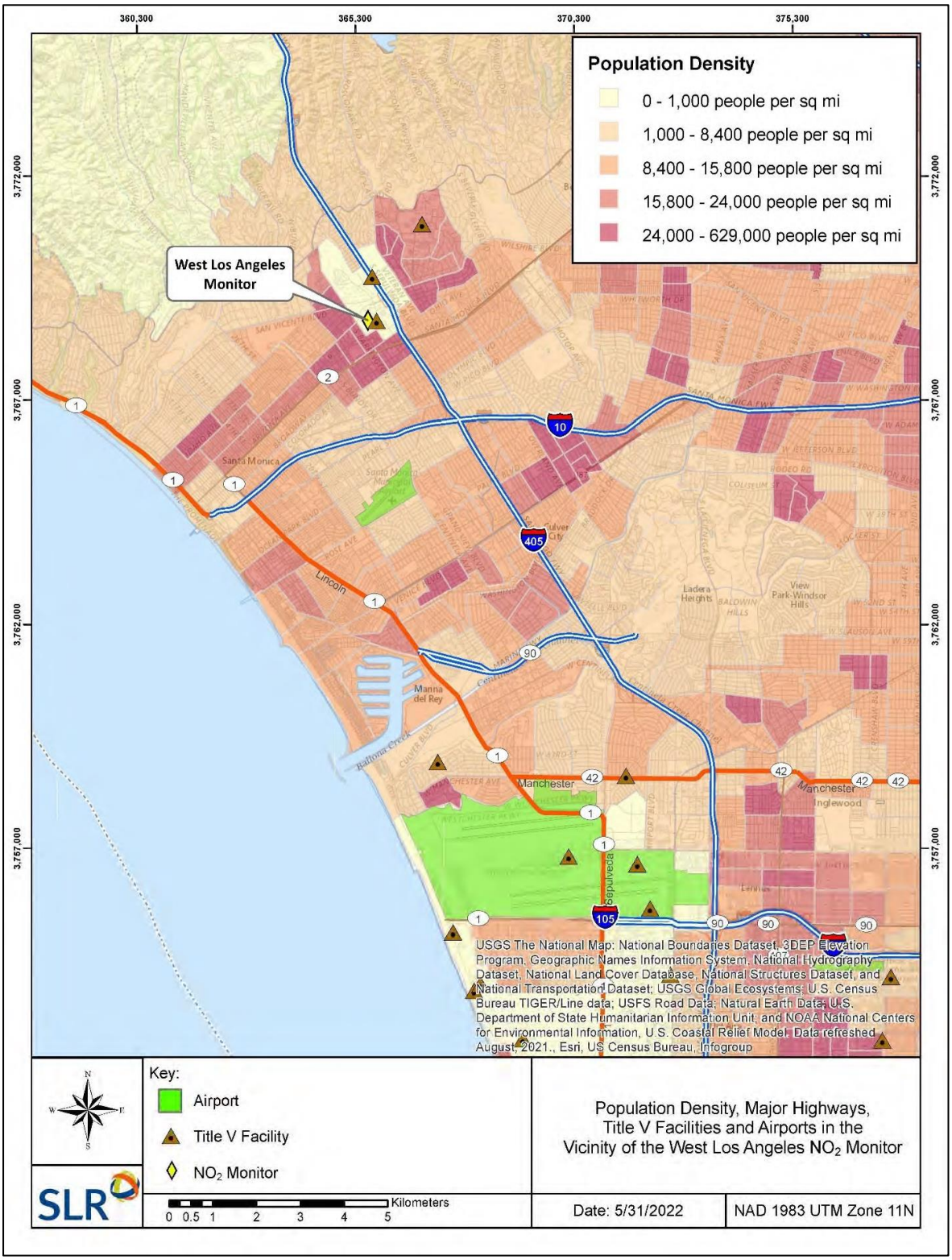


Figure D-11
Camp Pendleton Area Source Environment

Review of the area surrounding the El Rio monitor in Figure D-12 shows that this location is in an area that is less populated, has fewer surface roads and highways, and has less major industrial sources than the monitors in the Los Angeles area described above. The monitor is predominantly downwind of the Oxnard, El Rio, and Ventura urban areas that consist of mainly light to moderately dense residential areas, light industry, State Highway 101, pleasure and commercial harbor operations, and two naval air stations' (NAS) emission sources.

The combined communities of Oxnard, El Rio and Ventura have a population of 322,695 people, are traversed by a major highway and a moderate amount of surface streets and contain eight Title V facilities. By comparison, the population of Avalon is 3,738 people, there are no major highways, and no major industrial sources other than the PBGS on Catalina Island.

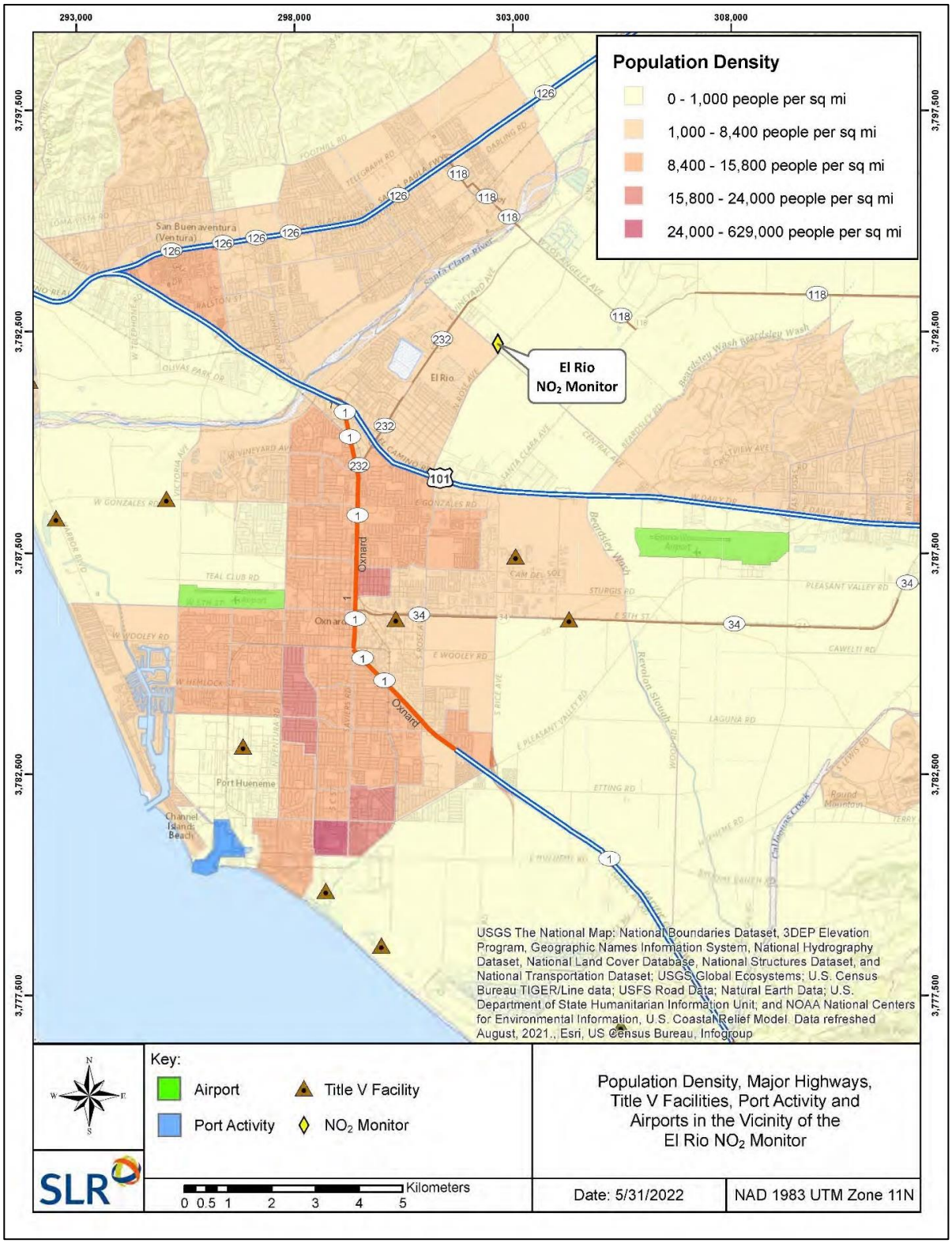
Channel Islands and Ventura Harbors, which each contain much higher densities of private and commercial ocean-going vessels than Avalon Harbor, are located approximately 11 km upwind of the El Rio monitor. In addition, the Port of Hueneme[5] (a deep-water commercial port) and Port Hueneme NAS are approximately 13 km upwind of the monitor and Point Mugu NAS is 15 km south of the monitor. While these harbors, and significant commercial and military operations are further away from the El Rio monitor than Avalon Harbor is from the PBGS, the emissions from the Ventura County harbors combined with the previously mentioned urban emission sources, are expected to be much higher than Avalon especially given the presence of a deep-water port and associated infrastructure and the NAS operations.

It is notable that The City of Avalon 2030 General Plan[6], states that the city regulates vehicles, construction, and industrial operations and such operations are limited within the City and island as a whole. The El Rio monitor is therefore expected to experience much more NO_X pollution than what is expected in the PBGS modeling domain, including Avalon Harbor, making the El Rio monitor a conservative choice to represent background NO_2 concentrations. The average data completeness for this monitor over the 2018-2020 three-year period is excellent at 95 percent. For these reasons, the El Rio NO_2 data was used as background for this project.

For use with the 1-hour NO_2 modeling, variable background concentrations were developed based on guidance provided in the U.S. EPA memorandum *Additional Clarification Regarding the Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard* (U.S. EPA 2011). The guidance states that it is appropriate to use the multiyear averages of the 98th-percentile of the available background concentrations varied by season and hour-of-day when incorporating ambient background concentrations in a modeling assessment of the 1-hour NO_2 NAAQS. The guidance recommends that the 98th-percentile background concentrations should be based on the 3rd highest value for each season and hour-of-day combination.

[5] The Port of Hueneme. https://www.portofhueneme.org
[6] The City of Avalon General Plan. https://www.hcd.ca.gov/housing-elements/docs/avalon_5th_draft111413.pdf

Figure D-12
El Rio Area Source Environment



Hourly monitor concentrations were downloaded from the U.S. EPA Air Data website6F6F[7] for the El Rio monitor. The third highest concentration for each season and hour-of-day combination for each year was calculated and then averaged over the three-year monitoring period for use in the 1-hour NO_2 NAAQS compliance demonstration. The resulting 96 seasonal-diurnal monitor concentrations were input to the AERMOD model using the BACKGRND and SEASHR keywords in the source pathway. The average high-third-high seasonal-diurnal concentrations are provided in Table D-6.

For the CAAQS compliance demonstration, the 1-hour NO_2 standard is not to be exceeded, that is, compliance is demonstrated using the maximum 1-hour concentration rather than the 98th-percentile of the 1-hour daily maximum concentrations used for the NAAQS. Therefore, a second set of seasonal- diurnal background concentrations was developed using the maximum concentration for each season and hour-of-day combination for use with the 1-hour NO_2 CAAQS analysis. Table D-7 presents the maximum seasonal-diurnal concentrations.

2.7. OZONE LIMITING METHOD FOR MODELING NO_2 IMPACTS

Some forms of emitted NO_X [i.e., nitrogen oxide (NO)] will react with other atmospheric constituents (ozone) to form NO_2. These reactions are complex and depend on factors such as mixing of ambient air into the plume, individual reaction rates, and the concentration of specific reactants in the atmosphere. Regulatory dispersion models such as AERMOD are designed to model impacts of non-reactive pollutants, but there are various modeling techniques that can be used to estimate ambient NO_2 impacts using these models.

U.S. EPA (2017) presents a three-tiered approach that may be applied to modeling NO_2 impacts. The three tiers are:

- Tier 1: assume full conversion of NO to NO_2. In other words, assume that all NO_X is emitted as NO_2.
- Tier 2: multiply the Tier 1 result by the Ambient Ratio Method 2 (ARM2), which provides estimates of representative equilibrium ratios of NO_2/NO_X value based ambient levels of NO_2 and NO_X derived from national data from U.S. EPA's Air Quality System (AQS).
- Tier 3: the ozone limiting method (OLM) or plume volume molar ratio method (PVMRM) as a detailed screening technique.

The Tier 1 and Tier 2 approaches are often too conservative for all but the smallest NO_X sources when comparing impacts to the ambient NO_2 standards. SLR therefore used the Tier 3 OLM method for this analysis in accordance with U.S. EPA guidance (2017, 2022) and associated guidance related to modeling NO_2 concentrations, including the use of the OLMGROUP ALL keyword.

Application of OLM requires the in-stack NO_2/NO_X ratio (ISR) for the modeled permit units as well as hourly ozone data. Discussion of these inputs is provided in the following section.

[7] https://aqs.epa.gov/aqsweb/airdata/download_files.html#Raw.

Table D-6
High-3rd-High Seasonal-Diurnal NO_2 Ambient Background Concentrations

Hour of Day	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Winter	25.08	31.35	29.47	30.72	33.23	36.99	43.89	41.38	33.86	27.59	25.71	23.83
Spring	16.93	16.93	13.17	15.05	20.06	32.60	33.23	25.71	21.32	16.93	15.05	13.79
Summer	20.69	21.95	16.93	17.56	20.69	25.08	25.71	20.69	21.32	17.56	15.05	11.29
Autumn	25.08	26.33	20.69	24.45	26.33	35.74	39.50	38.87	31.98	26.96	24.45	23.20
Hour of Day	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Winter	23.20	22.57	28.84	25.71	30.72	43.26	42.01	38.25	34.49	33.86	28.84	25.08
Spring	13.17	11.29	10.03	10.03	9.41	11.29	16.30	18.18	18.81	17.56	19.44	15.68
Summer	8.78	7.52	7.52	7.52	8.78	10.03	11.91	14.42	16.93	21.32	20.69	20.69
Autumn	20.06	14.42	15.05	15.68	21.32	34.49	37.62	31.35	29.47	28.84	27.59	25.08

Table D-7
Maximum Seasonal-Diurnal NO_2 Ambient Background Concentrations

Hour of Day	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Winter	33.23	40.76	40.76	45.77	50.16	47.65	51.41	44.52	36.99	32.60	32.60	38.25
Spring	21.32	21.32	16.93	17.56	25.08	42.01	41.38	33.86	30.72	27.59	20.06	19.44
Summer	34.49	47.65	40.13	25.71	26.96	51.41	30.10	25.08	25.71	20.69	16.30	13.79
Autumn	34.49	34.49	24.45	26.96	28.22	42.64	47.65	47.65	42.01	40.13	28.84	31.35
Hour of Day	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Winter	34.49	33.86	36.99	36.37	42.01	54.55	57.06	46.40	38.87	42.64	35.11	33.23
Spring	18.18	17.56	16.30	15.05	13.17	15.68	28.22	23.83	21.95	21.95	24.45	20.06
Summer	10.66	8.78	8.78	9.41	11.91	13.17	15.05	17.56	20.06	25.71	46.40	33.23
Autumn	30.72	35.74	30.10	22.57	28.84	46.40	47.65	49.53	38.87	31.98	32.60	35.74

2.7.1. OZONE LIMITING METHOD FOR MODELING NO_2 IMPACTS

U.S. EPA guidance (2011, 2014) provides for a default ISR of 0.5 when no source-specific data or data for similar sources are available. South Coast AQMD AERMOD modeling guidance7F7F[8] allows for non-default ISR values if manufacturer data is available. Cummins provided SCE with ISR data for the proposed engines based on load; this data is shown in Table D-8.

The engines will operate most frequently between the highest two loads**.** including during periods of startup and shutdown. An average ISR of 0.08 between these two loads was used in the 1-hour and annual NO_2 modeling analyses. Supporting documentation from Cummins is provided in Appendix A.

Table D-8
Engine In-Stack NO_2/NO_X Ratios

Kilowatt (kW)	ISR
1,726	0.05
1,298	0.11
870	0.10
433	0.07
176	0.06

2.7.2. HOURLY OZONE DATA

Consistent with the rationale for selection of the background NO_2 monitor discussed in Section 2.8.3, ozone data from the El Rio monitor was used in the OLM processing. Three years (2018-2020) of hourly ozone concentrations were downloaded from the U.S. EPA Air Data website8F8F.[9] From these data, the average ozone concentration for each hour of each year was calculated. If an hour did not have any valid observations over the three-year monitoring period, the concentration for the missing hour were interpolated using the average of the previous and following hours. Hours with concentrations of zero parts per billion were not used in the development of the hourly profiles. This was done to avoid underestimating ozone concentrations that may be the result of titration in the presence of elevated NO_X concentrations in the relatively urban area around the El Rio monitor. Such titration is not expected to occur within the PBGS modeling domain.

Once all hours of the year are assigned a concentration, the data was tabulated in a text file by month, day, and hour, and assigned the year 2018 to match the prognostic meteorological data timestamps. The data was input to AERMOD as an include file using the OZONEFIL keyword in the control pathway. To address South Coast AQMD's concern that nocturnal ozone concentrations collected at the El Rio monitor may be artificially low due to NO_X titration, the

[8] http://www.aqmd.gov/home/air-quality/meteorological-data/modeling-guidance
[9] https://aqs.epa.gov/aqsweb/airdata/download_files.html

NOMINO3 keyword in AERMOD will not be invoked, effectively providing a minimum ozone concentration of 40 parts per billion (ppb) during nighttime stable conditions.

The data file containing the hourly ozone concentrations was previously provided to South Coast AQMD via e-mail for review and is provided with this modeling report.

3. HEALTH RISK ASSESSMENT METHODS

Risks were assessed using the dispersion modeling and DPM emissions described in Section 2, and the California Air Resources Board (CARB) Hot Spots Analysis and Reporting Program (HARP) Air Dispersion Modeling and Risk Assessment Tool (ADMRT, Version 22118). The ADMRT incorporates the current OEHHA risk assessment guidelines (OEHHA 2015), as supplemented by the CARB and CAPCOA Risk Management Guidance for Stationary Sources of Air Toxics (RMP, Risk Management Policy). The methods used to estimate cancer and non-cancer risks are described in the following subsections.

3.1. CANCER RISK AND CANCER BURDEN METHODS

3.1.1. RESIDENTIAL CANCER RISKS

Residential cancer risks were calculated in the ADMRT using the RMP (Derived) Method[10] risk analysis option over a 30-year exposure duration. The fraction of time at home for age bins less than 16 years was not invoked for the inhalation pathway because there are schools in the greater Avalon area that could experience a cancer risk of 1 per million or greater due to PBGS emissions.

3.1.2. COMMERCIAL CANCER RISKS

Commercial cancer risks were calculated in the ADMRT using the OEHHA Derived Method risk analysis option over a 25-year exposure duration. The PBGS operates 24 hours per day and 7 days per week; therefore, the Worker Adjustment Factor was not used for commercial cancer risk calculations.

3.1.3. CANCER BURDEN

Population cancer burden is the population weighted number of excess cancer cases based on the population of residential and off-site worker individuals within the zone of impact (ZOI). The cancer risk ZOI is assumed to encompass the most densely populated portions of Catalina Island, which are concentrated in the City of Avalon. As such, the population of the City of Avalon was used to calculate the cancer burden. The calculation is consistent with the approved 2019 HRA (SLR 2019).

3.1.4. NON-CANCER RISK METHODS

Residential and commercial chronic non-cancer risks were calculated in the ADMRT using the OEHHA Derived Method risk analysis option9F9F[10]. Evaluation of acute risks are not required for DPM (OEHHA 2015).

4. MODELING ANALYSES AND RESULTS

Table D-9 shows the AQIA results from the full-time (i.e., 24 hours and 365 days per year) operation of all three new Tier 4 Final diesel engines together. According to this table, the 24-hr average ambient PM10 and PM2.5 concentrations due to operation of the three Tier 4 Final diesel engines would exceed the ambient air quality standards.

[10] While DPM is not a multi-pathway carcinogen, SLR will use the South Coast AQMD mandatory pathways described in Appendix II of South Coast AQMD (2017) and the required settings for the non-inhalation pathways. There were no cancer risks associated with the non-inhalation pathways.

Table D-9
Facility Impacts for NAAQS and CAAQS Compliance
(Existing engine contributions are not subtracted)[a]

Standard	Allowed limit, µg/m³	Background, µg/m³	Modeled level, µg/m³	Total level (AQMD), µg/m³	Exceeds threshold?
NO2 CAAQS[b], 1 hr (max)	339	57.1[c]	193.5	250.6	No
NO2 CAAQS[b] (NAAQS), annual	57 (100)	9.4	16.0	25.4	No
PM2.5 24hr NAAQS, PM10 24 hr CAAQS[d]	2.5		3.3	3.4[e]	**Yes**
PM10 24hr NAAQS	150	58[f]	3.3	61.4[e]	No
PM10 annual CAAQS[d]	1		0.36	0.36[e]	No
CO CAAQS (NAAQS), 1 hr	23,000 (40,000)	1,145	862	2,007	No
CO CAAQS (NAAQS), 8 hr	10,000 (10,000)	916	436	1,352	No
SO2 CAAQS, 1 hr (max)	655	7.9	4.0	11.9	No
SO2 NAAQS, 1 hr (99th percentile)	196	7.9	3.0	10.9	No
SO2 CAAQS, 24 hr	105	2.5	1.5	4.0	No

[a] CEQA modeling considers cumulative impacts of all new engines and background.

[b] Impacts from new engines were scaled up by 3% to account for a more conservative in-stack ratio of 11%.

[c] Even though time- varying NO2 backgrounds are included in the model results, the maximum background was added to the scaled up NO2 concentrations.

[d] Due to nonattainment designations for PM2.5 and PM10, only the Significant Change in Concentration (no background) is used to compare against.

[e] Added the MERPs-estimated daily and annual average secondary PM2.5 of 0.1 and 0.003 µg/m³, respectively

[f] Staff used the 4th highest PM10 daily average from the South Long Beach monitor, measured between 2019-2021. This was used instead of the El-Rio monitor in Ventura County, since LA County now attains the PM10 NAAQS.

Table D-10 summarizes the results of the health risk evaluation of the full-time (i.e., 24 hours and 365 days per year) operational emissions from each three new Tier 4 Final diesel engines for all receptor types, i.e., the point of maximum impact (PMI), the maximally exposed individual workplace (MEIW), and the maximum sensitive receptors.

Table D-10
Operational Health Risk Assessment from Three New Tier 4 Final Diesel Engines

Unit	Receptor Type	Cancer Risk (one in a million)	Chronic Hazard Index (HI)
New Tier 4 Final Diesel Engine (1)	PMI	6.89	0.002
	MEIW	2.27	0.007
	Maximum Sensitive Receptor	0.27	0.009
New Tier 4 Tier 4 Final Diesel Engine (2)	PMI	7.88	0.002
	MEIW	2.42	0.007
	Maximum Sensitive Receptor	0.27	0.009
New Tier 4 Final Diesel Engine (3)	PMI	7.26	0.002
	MEIW	2.53	0.006
	Maximum Sensitive Receptor	0.28	0.009

5. REFERENCES

- California Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February 2015.

- SLR International Corporation (SLR). 2019. AB2588 Revised Health Risk Assessment for the Pebbly Beach Generating Station (South Coast AQMD ID: 4477). November 2019.

- South Coast AQMD. 2022a. South Coast AQMD Modeling Guidance for AERMOD. Available at http://www.aqmd.gov/home/air-quality/meteorological-data/modeling-guidance.

- South Coast AQMD. 2017. Risk Assessment Procedures for Rules 1401, 1401.1 and 212, Version 8.1. September 1, 2017.

- U.S. EPA. 2022. User's Guide for the AMS/EPA Regulatory Model - AERMOD (EPA-454/B-22-007). Office of Air Quality Planning and Standards. June 2022.

- U.S. EPA. 2019. Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program. Memorandum from Richard A. Weyland (Air Quality Assessment Division). April 30, 2019.

- U.S. EPA. 2017. Guideline on Air Quality Models. Published as 40 CFR Part 58 Appendix W. January 17, 2017.

- U.S. EPA. 2014. Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard. Memorandum from R. Chris Owen and Roger Brode. September 30, 2014.

- U.S. EPA. 2011. Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2, National Ambient Air Quality Standard. Memorandum from Tyler Fox (Leader, Air Quality Modeling Group). March 1, 2011.

APPENDIX E

Comment Letters Received on the Draft SEA and Responses to Comments

APPENDIX E: COMMENT LETTERS RECEIVED ON THE DRAFT SEA AND RESPONSES TO COMMENTS

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OVERVIEW

This appendix to the Final SEA has been prepared in accordance with the California Environmental Quality Act (CEQA) and the South Coast Air Quality Management District's (South Coast AQMD) Certified Regulatory Program Guidelines. Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l), and South Coast AQMD's Certified Regulatory Program (codified under Rule 110) require that the final action on PAR 1135 include written responses to issues raised during the public process. South Coast AQMD Rule 110 (the rule which codifies and implements the South Coast AQMD's certified regulatory program) does not impose any greater requirements for summarizing and responding to comments than is required for an environmental impact report under CEQA.

CEQA PROCESS OF THE DRAFT EA

The Draft SEA was released for a 46-day public review and comment period that started on August 2, 2024 and ended on September 17, 2024 at 5:00 p.m. A Notice of Completion (NOC) and the Draft SEA were filed with the Governor's Office of Planning and Research (OPR) (State Clearinghouse (SCH) # 2016071006) and posted on the State Clearinghouse's CEQAnet Web Portal at: https://ceqanet.opr.ca.gov/2016071006/10. In addition, the NOC was filed and posted with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties. The NOC was distributed using electronic mail to various government agencies and other interested agencies, organizations, and individuals (collectively referred to as the public). The NOC was also provided to all California Native American Tribes (Tribes) that requested to be on the Native American Heritage Commission's (NAHC) notification list per Public Resources Code Section 21080.3.1(b)(1). The NAHC notification list provides a 30-day period during which a Tribe may respond to the formal notice, in writing, requesting consultation on the Draft SEA. Additionally, the NOC was published in the Los Angeles Times on August 2, 2024. The NOC and the Draft SEA were posted on South Coast AQMD's website at: http://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects. An email announcing the availability of the NOC and the Draft EA was also sent to interested parties on August 2, 2024.

LIST OF COMMENTERS

Two comment letters were received by South Coast AQMD during the Draft SEA public review and comment period. This appendix contains responses to comments received in relation to the analysis in the Draft SEA. Responses to comments received in relation to the proposed amended rule language (PAR 1135) can be found in Appendix A of the Final Staff Report.

For the purposes of identifying and responding to comments on the Draft SEA, the comment letters have been organized according to the date received and assigned a number; individual comments within each letter have been bracketed and assigned a comment number. The following is a list of comment letters received in relation to the Draft SEA along with the date each letter was received.

Comment Letter Number	Commenter	Comment Letter Received Date	Page No.
Comment Letters Received During the Public Review Period			
1	Agua Caliente Band of Cahuilla Indians	September 17, 2024	E-4
2	Department of Transportation, District 7 – Office of Regional Planning	September 17, 2024	E-6

For any response in this appendix that requires an update elsewhere in this SEA, the response will indicate that a change has been made and where the change is located in the Final SEA. Additions to text are reflected in underlined text and deletions are reflected in ~~strikethrough~~ text.

Pursuant to CEQA Guidelines Section 15088(a) and South Coast AQMD Rule 110(d), South Coast AQMD is required to evaluate and provide written responses to only the comments received during the public comment period of the SEA which raise significant environmental issues. South Coast AQMD staff has reviewed the comments submitted, updated the SEA to reflect the responses to the comments, and determined that none of the comments raise significant environmental issues and none of the revisions to the SEA contain the type of significant new information that requires recirculation of the Draft SEA for further public comment under CEQA Guidelines Sections 15073.5 and 15088.5. Further, none of the comments indicate that the proposed project will result in a significant new environmental impact not previously disclosed in the Draft SEA. Additionally, none of comments indicate that there would be a substantial increase in the severity of a previously identified environmental impact that will not be mitigated, or that there would be any of the other circumstances requiring recirculation as described in CEQA Guidelines Sections 15073.5 and 15088.5.

CEQA REQUIREMENTS REGARDING COMMENTS AND RESPONSES

CEQA Guidelines Section 15204(b) outlines parameters for submitting comments and reminds persons and public agencies that the focus of review and comment of the Draft SEA should be "on the proposed finding that the project will not have a significant effect on the environment." If persons and public agencies believe that the proposed project may have a significant effect, the commenter should: 1) identify the specific effect; 2) explain why they believe the effect would occur; and 3) explain why they believe the effect would be significant. Comments are most helpful when they are as specific as possible. At the same time, reviewers of the Draft SEA should be aware that CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commenters. CEQA Guidelines Section 15204(c) further advises, "Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to CEQA Guidelines Section 15064, an effect shall not be considered significant in the absence of substantial evidence." CEQA Guidelines Section 15204(e) also states, "This section shall not be used to restrict the ability of reviewers to comment on the general adequacy of a document or of the lead agency to reject comments not focused as recommended by this section."

Pursuant to CEQA Guidelines Section 15088(a) and South Coast AQMD Rule 110(d), South Coast AQMD has evaluated and provided written responses to comments received during the Draft SEA public comment period. The level of detail contained in each response corresponds to the level of

detail provided in the comment (i.e., responses to general comments may be general). In addition, updates to the CEQA analysis have been made due to public comments as well as minor modifications for consistency.

COMMENT LETTER #1 – Tribal Historic Preservation Office, AGUA CALIENTE BAND OF CAHUILLA INDIANS, September 17, 2024

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

03-010-2024-002

September 17, 2024

[VIA EMAIL TO:staghvaee@aqmd.gov]
South Coast Air Quality Management District
Sina Taghvaee
21865 Copley Drive
Diamond Bar, CA Y91765

Re: Notice of Completion of a Draft Subsequent Environmental Assessment and Opportunity for Public Comment

Dear Sina Taghvaee,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the Amended Rule 1135 project. A records check of the ACBCI cultural registry revealed that the project area is not located within the Tribe's Traditional Use Area. Therefore we defer to other tribes in the area. This letter shall conclude our consultation efforts.

> * Santa Catalina Island is not part of Cahuilla traditional use area. If the project consists of facilities in Coachella Valley or Riverside County in general, San Bernardino County, Imperial County, please inform us.

1-1

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760) 883-1137. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

Luz Salazar
Cultural Resources Analyst
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

5401 DINAH SHORE DRIVE, PALM SPRINGS, CA 92264
T 760/699/6800 F 760/699/6924 WWW.AGUACALIENTE-NSN.GOV

RESPONSE TO COMMENT LETTER #1 – Tribal Historic Preservation Office, AGUA CALIENTE BAND OF CAHUILLA INDIANS, September 17, 2024

Response 1-1
Comment 1-1 includes Agua Caliente Band of Cahuilla Indians (ACBCI) appreciation of South Coast AQMD's effort to include the Tribal Historic Preservation Office (THPO) in the proposed amendments to Rule 1135, and concluded that the project area is not located within the Tribes traditional use area, according to a record check of the ACBCI cultural registry.

The South Coast AQMD provided a formal notice of the proposed project to all California Native American Tribes that either requested to be on the Native American Heritage Commission's (NAHC) notification list or South Coast AQMD's mailing list per Public Resources Code Section 21080.3.1(b)(1) and a notice of the proposed project was provided to the commenter. These notices provide an opportunity for California Native American Tribes to request a consultation with the South Coast AQMD if potentially significant adverse impacts to Tribal cultural resources are identified. The Final SEA for the proposed project did not identify any potentially significant adverse impacts to Tribal cultural resources and the commenter's consultation efforts also confirmed that that the project area is not part of Cahuilla traditional use area. Since this comment does not raise any issues relative to Tribal cultural resources during the comment period for the Draft SEA, no further response is necessary under CEQA.

COMMENT LETTER #2 – Department of Transportation, District 7 – Office of Regional Planning, September 17, 2024 (p. 1 of 2)

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY GAVIN NEWSOM, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7
100 S. MAIN STREET, MS 16
LOS ANGELES, CA 90012
PHONE (213) 897- 0673
FAX (213) 897-1337
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life

September 17, 2024

Sina Taghvaee, Air Quality Specialist
South Coast AQMD
21865 Copley Dr
Diamond Bar, CA 91765

RE: Proposed Amended Rule (PAR) 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities – Subsequent EIR (SBE)
SCH #2016071006
GTS #07-MULTIPLE-2018-00407
LA Vic. Multiple

Dear Sina Taghvaee,

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. By statute, the South Coast Air Quality Management District (AQMD) is required to adopt an air quality management plan (AQMP) demonstrating compliance with all federal and state ambient air quality standards for the areas under the jurisdiction of the South Coast AQMD. The AQMP is a regional blueprint for how the South Coast AQMD will achieve air quality standards and healthful air, and it contains multiple goals promoting reductions of criteria air pollutants, greenhouse gases (GHGs), and toxic air contaminants (TACs). Proposed Amended Rule (PAR) 1135 applies to electric generating units at electricity generating facilities that are investor-owned electric utilities, publicly owned electric utilities, or have a generation capacity of at least 50 MW of electrical power for distribution in the state or local electrical grid system. 2-1

The November 2018 Final Mitigated SEA for Rule 1135 previously analyzed the construction and operational transportation and traffic impacts at six affected facilities to comply with the proposed emission limits. The assessment concluded less than significant transportation and traffic impacts relative to: 1) the peak daily work force that would be needed during construction and their associated trips; 2) peak daily number of heavyduty truck trips during construction; and 3) peak daily number of heavy-duty truck

COMMENT LETTER #2 – Department of Transportation, District 7 – Office of Regional Planning, September 17, 2024 (p. 2 of 2)

trips during operation. While implementing the proposed project might result in incremental increases in the number of trips that may occur during construction and operation, the increases do not exceed the significance criteria of 350 round trips per day for transportation and traffic.

2-1 concluded

After reviewing the SBE, Caltrans has the following comments:

Construction of the proposed project would temporarily increase the transport of hazardous materials in the project area due to the storage and use of aqueous ammonia. Before construction begins, Caltrans recommends that the construction contractor develop a project-specific contingency plan to reduce the potential for spills during transportation of hazardous materials. The following measures are recommended for implementation:

- All project equipment will be subject to leak inspections before being brought on-site and regularly during construction.
- All vehicles will be inspected for leaks and other potential safety hazards before transporting hazardous materials.
- All hazardous materials will be clearly marked with the appropriate signage or labels, securely contained, and properly identified, including the duration of transportation.

2-2

Any transportation of heavy construction equipment and/or materials that requires the use of oversized transport vehicles on State Highways will require a Caltrans transportation permit. Caltrans recommends limiting construction traffic to off-peak periods to minimize the potential impact on State facilities. If construction traffic is expected to cause issues on any State facilities, please submit a construction traffic control plan detailing these issues for Caltrans' review. We look forward to the coordination of our efforts to ensure potential impacts to the highway facilities and traveling public are discussed and addressed before work begins.

2-3

If you have any questions, please contact project coordinator Frances Duong, at frances.duong@dot.ca.gov and refer to GTS #07-MULTIPLE-2018-00407.

Sincerely,

Anthony Higgins

Anthony Higgins
Acting LDR/CEQA Branch Chief

Cc: State Clearinghouse

"Provide a safe and reliable transportation network that serves all people and respects the environment"

RESPONSE TO COMMENT LETTER #2 – Department of Transportation, District 7 – Office of Regional Planning, September 17, 2024

Response 2-1
Comment 2-1 contains introductory remarks and a brief summary of the proposed project without raising any issues relative to the environmental analysis in the Draft SEA. Therefore, no response is required by CEQA. [CEQA Guidelines Section 15088(a)].

Response 2-2
Comment 2-2 claims that there will be an increase in the use of ammonia and provides recommended implementation measures to minimize the spills of hazardous materials during transportation. However, the analysis in the Draft SEA as shown in the following screenshot (from p. 4-46 of the Draft SEA) indicates that there will be no increase in ammonia use:

> Facility 2 currently receives deliveries of urea, and stores and converts it to aqueous ammonia on-site as part of existing operations for their SCR system. The amount of urea that may be needed by Facility 2 as a result of PAR 1135 is not expected to increase, and the current quantity of urea and frequency of deliveries to Facility 2 should be sufficient. Thus, there will be no increase in the number of peak daily truck trips and no new significant transportation impacts associated with deliveries of urea to Facility 2 will be expected to occur. In addition, when compared to what was previously analyzed in the November 2018 Final Mitigated SEA for Facility 2, the amount of urea delivery, storage, and use would remain the same or decrease as a result of the proposed changes by PAR 1135 since three new Tier 4 Final diesel combustion engines along with NZE and ZE technologies would operate to achieve 6 tpy NOx emission limit instead of the previously analyzed five new Tier 4 Final diesel engines in the November 2018 Final Mitigated SEA for Rule 1135.

Therefore, the recommended implementation measures are not applicable to the proposed project and will not be included in the Final SEA.

Response 2-3
Comment 2-3 notes that a Caltrans transportation permit is required in the event that oversized transport vehicles traveling on state highways are needed to deliver construction equipment and materials to the affected facilities. It is important to note that the anticipated construction as part of implementation of PAR 1135 will occur on Santa Catalina Island, where there are no state highways. In addition, the construction equipment needed to implement PAR 1135 will be transported from the mainland to Santa Catalina Island by barge. However, the method of transporting the construction equipment on the mainland on the way to/from the port where the barge is loaded/off-loaded could occur via state highways. Thus, while PAR 1135 does not contain any requirements that would interfere with traffic patterns and Caltrans permit requirements, the transportation analysis in the Final SEA has been updated to mention this requirement (p. 4-52 of the Final SEA), as follows:

Thus, while implementing the proposed project might result in incremental increases in the number of trips that may occur during construction and operation, the increases do not exceed the significance criteria of 350 round trips per day for transportation and traffic. In addition, the California Department of Transportation (Caltrans) recommends the implementation of a traffic control plan to minimize disruptions to traffic and ensure adequate emergency access in the event of traffic lane closure during construction (i.e., incorporating channelizing devices preceded by approved warning signs). Moreover, a Caltrans transportation permit is required in the event that oversized transport vehicles traveling on state highways are needed to deliver construction equipment and materials. Regardless of whether a Caltrans transportation permit is required, Caltrans recommends that large size truck trips be limited to off-peak commute periods.

While PAR 1135 does not contain any requirements that would interfere with traffic patterns and Caltrans permit requirements, it is important to note that construction activities are anticipated as part of implementation of PAR 1135 except that the construction will occur on Santa Catalina Island, where there are no state highways. In addition, the construction equipment needed to implement PAR 1135 will be transported from the mainland to Santa Catalina Island by barge. However, because the method of transporting the construction equipment on the mainland on the way to/from the port where the barge is loaded/off-loaded could occur via state highways, the aforementioned Caltrans requirements would apply. Therefore, the previous conclusion of less than significant impacts to transportation and traffic impacts during construction and operation in the November 2018 Final Mitigated SEA for Rule 1135 will continue to apply to the proposed project.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Socioeconomic Impact Assessment For Proposed Amended Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities

October 2024

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Planning, Rule Development, and Implementation
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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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EXECUTIVE OFFICER:

WAYNE NASTRI

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EXECUTIVE SUMMARY

On March 17, 1989, the South Coast Air Quality Management District (South Coast AQMD) Governing Board adopted a resolution which requires an analysis of the economic impacts associated with adopting and amending rules and regulations. In addition, Health and Safety Code Section 40440.8 requires a socioeconomic impact assessment for any proposed rule, rule amendment, or rule repeal which "will significantly affect air quality or emissions limitations." Lastly, Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis for a proposed rule or amendment which imposes Best Available Retrofit Control Technology (BARCT) or "all feasible measures" requirements relating to emissions of ozone, carbon monoxide (CO), sulfur oxides (SOx), nitrogen oxides (NOx), volatile organic compounds (VOC), and their precursors.

Proposed Amended Rule (PAR) 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities, establishes oxides of nitrogen (NOx) mass emission limits to reflect the Best Available Retrofit Control Technology (BARCT), requirements to install zero-emission (ZE) or near zero-emission (NZE) electricity generating equipment, and requirements to remove from service existing prime power diesel-internal-combustion engines for electricity generating units located on Santa Catalina Island. In addition, PAR 1135 establishes provisions for monitoring, reporting and recordkeeping for NZE electricity generating units and units not required to install continuous emissions monitoring systems (CEMS) located on Santa Catalina Island. PAR 1135 also includes updates to remove outdated rule provisions and correct rule references, and other editorial changes. Upon full implementation, PAR 1135 is expected to reduce NOx emissions by 65.3 tons per year (tpy).

A socioeconomic impact assessment has been conducted to assess the socioeconomic impacts from implementing PAR 1135 and the following presents a summary of the analysis and findings.

Key Elements of PAR 1135

PAR 1135 establishes NOx emission limits to reflect the BARCT, requirements to install ZE/NZE equipment, and requirements to remove from service existing prime diesel internal-combustion engines for electricity generating units located on Santa Catalina Island.

Affected Facilities and Industries

The implementation of PAR 1135 will affect only one electricity generating facility located on Santa Catalina Island, which currently operates six diesel internal combustion engines and 23 microturbines to generate power. The facility is classified under the industry of Fossil Fuel Electric Power Generation per North American Industry Classification System (NAICS) with a NAICS code 221112. The affected facility does not qualify as a small business, based on various definitions of small businesses.

Assumptions for the Analysis

PAR 1135 contains a final NOx emission limit (annual cap) of six tpy for the affected facility located on Santa Catalina Island. To achieve the final NOx emission limit, the affected facility may purchase and install solar photovoltaic cells (ZE equipment), propane-fueled linear generators and fuel cells (NZE equipment), and replace three existing diesel internal combustion engines (identified in Table 1 as Diesel Engine Units 8, 10 and

15) and all 23 microturbines with three Tier 4 Final diesel engines.

Because the age of the equipment to be replaced ranges from 29 to 60 years old, the analysis assumed that the three replaced diesel internal combustion engines and 23 microturbines would have no resale value and thus, their replacement would not result in stranded assets.

PAR 1135 would result in the replacement of the existing diesel internal combustion engines and microturbines with Tier 4 Final diesel engines no earlier than the year 2027, but no later than 2035. In addition, in order to achieve the final NOx limit, a combination of ZE technology such as solar technology and NZE equipment such as propane-fueled linear generators and fuel cells would need to be deployed between 2029 and 2035. All equipment is assumed in this analysis to have a useful life of 25 years.

Compliance Costs

The analysis of compliance costs covers the period from 2027 to2059. The implementation of PAR 1135 is projected to result in an overall cost savings attributable to the recurring costs from maintenance and parts, employee and service costs, and fuel costs. The average annual cost savings due to the implementation of PAR 1135 are estimated to range from $14.99 million to $14.16 million from 2027 to 2059, depending on real interest rates assumed (1% to 4%).

The following table presents a summary of the average annual costs or savings of PAR 1135 implementation by cost categories. While the implementation of PAR 1135 will result in annual compliance costs for all capital cost items, a substantial cost savings for most recurring cost items will also be expected overall.

Average Annual Compliance Costs/Savings (2027-2059)

Cost Categories	1% Real Interest Rate	4% Real Interest Rate
One-Time Cost		
Primary Equipment, Ancillary, Shipping and Delivery	$717,882	$982,838
Installation Costs, Direct	$1,125,759	$1,541,254
Installation Costs, Indirect	$425,426	$582,442
Recurring Costs/Savings		
Maintenance and Parts	($1,205,283)	($1,205,283)
Employee and Service Costs	($2,415,588)	($2,415,588)
Fuel Costs (including shipping)	($15,458,955)	($15,458,955)
Land Lease Cost	$1,817,580	$1,817,580
Total	**($14,993,179)**	**($14,155,712)**

Job Impacts

The direct effects of PAR 1135 were used as inputs to the REMI model in order to assess secondary/induced impacts for all the industries in the four-county economy on an annual basis and across a user-defined horizon.

When the compliance cost is annualized using a 4% real interest rate, a close-to-zero job impact is projected for the four-county economy over the period from 2027 to 2059 because the positive job impact and negative job impact cancel each other out over the forecast period.

In 2027, about 51 jobs are expected to be added to the economy due to compliance expenditures and additional spending associated with the installation of ZE and NZE electricity generating equipment. These additional jobs are expected to come from sectors such as Construction (NAICS 23), Professional, Scientific and Technical Services (NAICS 54), and Real Estate (531).

The cost savings in fuel costs and maintenance and parts, which are both part of the recurring operation & maintenance (O&M) costs, is expected to shrink the markets for wholesale diesel and professional contractors, which will lead to jobs foregone in sectors of Wholesale Trade (NAICS 42) and Professional, Scientific and Technical Services (NAICS 54). In 2036, about 95 jobs are expected to be foregone in the four-county economy where 41 and six jobs foregone are projected to occur in the sectors of Wholesale Trade, and Professional, Scientific and Technical Services, respectively, due to the cost savings resulting from implementing PAR 1135.

Competitiveness

The overall impacts of PAR 1135 on production costs and delivered prices in the South Coast AQMD region is not expected to be significant. According to the REMI Model, PAR 1135 is projected to decrease the relative delivered price and the cost of production in the sector of Utilities (NAICS 22) in the region by 0.034% and 0.056% over the period from 2027 to 2059, respectively, which would result in relatively cheaper utility rates for consumers in the region.

Impact of CEQA Alternatives

Four alternatives to the proposed project were developed for the CEQA analysis conducted in the ~~Draft~~ Final Subsequent Environmental Assessment (SEA): Alternative A – No Project, Alternative B – More Stringent, Alternative C – Less Stringent, and Alternative D – No ZE Equipment. Under Alternative A, the facility on Santa Catalina Island would still be subject to the 2018 amendment to Rule 1135, and thus, incur a positive compliance cost, while the facility would have a cost saving under the other alternatives analyzed. It is worth mentioning that Alternative B, the more stringent scenario, may lead to more NOx emission reductions and greater cost savings compared to the proposed project (PAR 1135). However, Alternative B may pose many logistical

and reliability challenges to the affected facility which could affect grid stability (e.g., reliability of providing uninterrupted supplies of electricity). Alternatives C and D would both be a cheaper alternative with greater cost savings than the proposed project but would result in fewer NOx emission reductions overall.

INTRODUCTION

South Coast Air Quality Management District (South Coast AQMD) Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities, is an industry-specific rule which applies to electricity generating units (i.e., boilers, turbines, engines, etc.) at investor-owned electric utilities, publicly owned electric utilities, or units having a generation capacity of at least 50 Megawatts (MW) of electrical power for distribution via the state or local electrical grid system. Rule 1135 was adopted in 1989 and amended in 1990, 1991, 2018 and 2022. In 2022, staff was directed to amend Rule 1135 again to include a revised Best Available Retrofit Control Technology (BARCT) assessment for the electricity generating units located on Santa Catalina Island with a specific focus on non-diesel alternatives and ZE/NZE technologies.

Accordingly, Proposed Amended Rule (PAR) 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities, establishes NOx mass emission limits to reflect the BARCT requirements to install ZE/NZE electricity generating equipment, and requirements to remove from service existing prime power diesel-internal-combustion engines for electricity generating units located on Santa Catalina Island. In addition, PAR 1135 establishes provisions for monitoring, reporting and recordkeeping for NZE electricity generating units and the units not required to install CEMS located on Santa Catalina Island. PAR 1135 also includes updates to remove outdated rule provisions and correct rule references, and other editorial changes. Note that PAR 1135 is partly related to the implementation of the 2022 AQMP Control Measure L-CMB-06: NOx Emission Reductions from Electricity Generating Facilities, which involves assessing low NOx and ZE technologies for power generation and replacing existing diesel internal combustion engines with lower-emitting technologies.

The implementation of PAR 1135 will potentially affect one existing electricity generating facility located on Santa Catalina Island, which currently operates six diesel internal combustion engines and 23 microturbines to generate power. The diesel internal combustion engines at this facility produce approximately 10 to 70 times more NOx per unit than any other electricity generating units subject to Rule 1135. As a result, the electricity generating facility located on Santa Catalina Island produces more than 10 percent of NOx emissions from all electricity generating facilities in South Coast AQMD region, while it provides less than 0.06% of the power generated by all the facilities.

PAR 1135 establishes a final NOx mass emission limit of six tpy for the electricity generating facility located on Santa Catalina Island which is based on a BARCT assessment that considered many repower parameters, including electricity demand, power reliability, transmission, grid stability, space limitations, fuel delivery and storage, and challenges for the deployment of new ZE/NZE technologies. The requirements of PAR 1135 that will incur incremental compliance costs include purchasing and installing ZE (e.g., solar photovoltaic cells) and NZE equipment (e.g., propane-fueled linear generators and fuel cells), as well as replacing three existing diesel internal combustion engines and 23 microturbines with three Tier 4 Final diesel engines. To achieve the final six tpy NOx emission limit, a deployment of 30% ZE and 50% NZE equipment with 20% Tier 4 Final diesel engines may be needed in order to meet the electricity demands on Santa Catalina Island. This mix of equipment is estimated to reduce NOx emissions at the facility by 65.3 tpy, or 0.18 ton per day.

LEGISLATIVE MANDATES

The legal mandates directly related to the assessment of PAR 1135 include South Coast AQMD Governing Board resolutions and various sections of the Health and Safety Code.

South Coast AQMD Governing Board Resolution

On March 17, 1989, the South Coast AQMD Governing Board adopted a resolution that calls for an economic analysis associated with adopting and amending rules and regulations that considers all of the following elements:

- Affected industries
- Range of probable costs
- Cost-effectiveness of control alternatives
- Public health benefits

Health and Safety Code Requirements

The state legislature adopted legislation which reinforces and expands the South Coast AQMD Governing Board resolution requiring socioeconomic impact assessments for rule development projects. Health and Safety Code Section 40440.8, which went into effect on January 1, 1991, requires a socioeconomic impact assessment for any proposed rule, rule amendment, or rule repeal which "will significantly affect air quality or emissions limitations."

To satisfy the requirements in Health and Safety Code Section 40440.8, the scope of the socioeconomic impact assessment should include all of the following information:

- Type of affected industries;
- Impact on employment and the regional economy;
- Range of probable costs, including those to industry;
- Availability and cost-effectiveness of alternatives to the rule;
- Emission reduction potential; and
- Necessity of adopting, amending, or repealing the rule in order to attain state and federal ambient air quality standards.

Health and Safety Code Section 40728.5, which went into effect on January 1, 1992, requires the South Coast AQMD Governing Board to: 1) actively consider the socioeconomic impacts of regulations; 2) make a good faith effort to minimize adverse socioeconomic impacts; and 3) include small business impacts. To satisfy the requirements in Health and Safety Code Section 40728.5, the socioeconomic impact assessment should include the following information:

- Type of industries or business affected, including small businesses; and
- Range of probable costs, including costs to industry or business, including small business.

Finally, Health and Safety Code Section 40920.6, which went into effect on January 1, 1996, requires an incremental cost-effectiveness analysis for a proposed rule or amendment which imposes BARCT or “all feasible measures” requirements relating to emissions of ozone, Carbon monoxide (CO), Sulphur oxides (SOx), Nitrogen oxides (NOx), Volatile organic compounds

(VOC) and their precursors. The BARCT and cost-effectiveness analyses for PAR 1135 were conducted and are included in Chapters 2 and 4 of the ~~Draft~~ Final Staff Report, respectively.

AFFECTED FACILITIES AND EQUIPMENT

The implementation of PAR 1135 will affect one electricity generating facility located on Santa Catalina Island, which currently operates six diesel internal combustion engines and 23 microturbines to generate power. More than 90% of the power generated by the facility is from the six diesel internal combustion engines. However, most of the diesel internal combustion engines are over 29 years old and emit approximately 10 to 70 times more NOx per unit than other electricity generating units subject to Rule 1135. As a result, the electricity generating facility on the island emits more than 10% of total NOx emissions of all electricity generating facilities in the South Coast AQMD region, while producing less than 0.06% of total power generated. Table 1 lists detailed information of the equipment that will potentially be affected by the implementation of PAR 1135:

Table 1
PAR 1135 Affected Equipment

Equipment Type	Rating (MW)	Installation Year	NOx Emissions*
Diesel Engine Unit 7	1	1958	97 ppmv
Diesel Engine Unit 8	1.5	1964	97 ppmv
Diesel Engine Unit 10	1.125	1968	140 ppmv
Diesel Engine Unit 12	1.5	1976	82 ppmv
Diesel Engine Unit 14	1.4	1985	103 ppmv
Diesel Engine Unit 15	2.8	1995	51 ppmv
Microturbines (23 units)	1.49	2011	0.07 lb/MW-hr

Key: ppmv = parts per million by volume, lb/MW-hr = pounds per Megawatt-hour
*Represents estimated emission concentrations for the diesel engines and emission intensity for the microturbines.

Small Business Analysis

South Coast AQMD defines a "small business" in Rule 102 for purposes of fees as one which employs 10 or fewer persons and which earns less than $500,000 in gross annual receipts. South Coast AQMD also defines “small business” for the purpose of qualifying for access to services from the South Coast AQMD’s Small Business Assistance Office (SBAO) as a business with an annual receipt of $5 million or less, or with 100 or fewer employees. In addition to the South Coast AQMD's definitions of a small business, the federal Small Business Administration (SBA) and the federal 1990 Clean Air Act Amendments (1990 CAAA) also provide definitions of a small business.

The 1990 CAAA classifies a business as a "small business stationary source" if it: 1) employs 100 or fewer employees; 2) does not emit more than 10 tons per year of either VOC or NOx; and 3) is a small business as defined by SBA. The SBA definitions of small businesses vary by six-digit

NAICS codes. More specifically, the industry of Fossil Fuel Electric Power Generation (NAICS 221112) has 750 employees as the threshold below which a business is considered as small. Since subsidiaries under the same parent company are interest-dependent, the revenue and employee data of a facility's parent company will be used for the determination of its small business status. The affected electricity generating facility on Santa Catalina Island belongs to Southern California Edison (SCE), whose parent company is Edison International. Using data from Google Finance, Edison International had 13,003 employees and earned revenue of $16.34 billion in 2023.[1] Thus, the affected facility will not be classified as a small business, based on all definitions of small business.

COMPLIANCE COSTS

PAR 1135 establishes a final NOx mass emission limit of six tpy for the electricity generating facility located on Santa Catalina Island which is based on a BARCT assessment that considered many repower parameters, including electricity demand, power reliability, transmission, grid stability, space limitations, fuel delivery and storage, and challenges for the deployment of new ZE/NZE technologies. The requirements of PAR 1135 that will incur incremental compliance costs include purchasing and installing ZE (e.g., solar photovoltaic cells) and NZE equipment (e.g., propane-fueled linear generators and fuel cells), as well as replacing three existing diesel internal combustion engines (identified in Table 1 as Diesel Engine Units 8, 10 and 15) and 23 microturbines with three Tier 4 Final diesel engines. To achieve the final NOx emission limit of six tpy, a deployment of 30% ZE and 50% NZE equipment with 20% Tier 4 Final diesel engines may be needed in order to meet the electricity demands on Santa Catalina Island.

This section estimates the compliance costs of the proposed project (PAR 1135), including both one-time incremental equipment-purchase/installation costs and recurring operation and maintenance (O&M) costs/savings. Because the age of the equipment to be replaced ranges from 29 to 60 years old, the analysis assumed that the three replaced diesel internal combustion engines and 23 microturbines would have no resale value and thus, their replacement would not result in stranded assets. The replacement of the existing diesel internal combustion engines with Tier 4 Final diesel engines is expected between 2027 and 2035. In addition, the deployment of ZE (solar) equipment is anticipated to occur between 2030 and 2035, while the installation of propane-fueled linear generators and fuel cells (NZE equipment) is expected to occur between 2029 and 2035. All equipment is assumed in this analysis to have a useful life of 25 years. To ensure the confidentiality of cost data provided by SCE, the following subsections describe the cost assumptions for the proposed project as a whole, rather than for specific equipment categories, and this information was relied upon to estimate the overall compliance costs of PAR 1135. The costs are presented in 2023 dollars.

Capital/One-Time Costs

Primary Equipment, Ancillary, Shipping and Delivery

SCE estimates indicate that the total one-time purchase costs for all of the equipment needed to achieve the NOx emission limits in PAR 1135 would be $18,170,638, which includes the purchase of primary and ancillary equipment, shipping and delivery.[2] As mentioned earlier in this chapter,

[1] Google Finance, https://www.google.com/finance/quote/EIX:NYSE, accessed on August 6, 2024.
[2] Note that all dollar amounts in this socioeconomic impact assessment are presented in 2023 dollars.

the analysis assumes that the existing diesel engines and microturbines will have no resale value; as such, all of the estimated purchase cost will be incremental for the affected facility.

Equipment Installation

SCE also provided cost data on direct and indirect installation costs. The total direct installation costs are $28,494,579 with the three most expensive items attributed to installation/concrete work, demolition, and load bank for testing, which constitute 67.8%, 7.5% and 4.3% of the total direct installation costs, respectively. The other items included in the total direct installation costs include plant renovation, contract startup and commissioning, contract construction site manager, controller support, construction trailer, contract test technician, and support commissioning. The total indirect installation costs are $10,768,145, and include contract engineering, a repower feasibility study and SCE labor.

Operation & Maintenance (O&M) Costs

Fuel Costs (Including Shipping)

Due to the increased fuel efficiency of the new equipment, fuel costs are anticipated to be substantially lower under the proposed project. The incremental fuel costs/savings are estimated by taking the difference between the fuel costs during baseline conditions/existing setting (e.g., before the implementation of PAR 1135) and the fuel costs associated with implementing PAR 1135 (e.g., replacing aging, more polluting equipment with newer, less polluting technology). According to data provided by SCE, their existing equipment utilizes approximately 1,941,724 gallons per year of diesel and 164,597 gallons per year of propane. To calculate the total fuel costs associated with implementing PAR 1135, this analysis relied upon the California Energy Commission's mid-demand diesel price forecast over the 2025-2050 period, which is $4.92 per gallon in 2023 dollars.[3] However, a long-term price forecast for propane was not available at the time of conducting this analysis, so the current propane price of $1.97 per gallon was relied upon instead.[4] In addition, since both diesel and propane is delivered to the affected facility via barge, the fuel cost estimate includes an annual shipping expense of $16,353,130. In total, the fuel costs for baseline conditions are estimated to be $26,230,668. For implementing PAR 1135, the demand for propane is expected to increase to 900,000 gallons per year due to the eventual deployment of more propane-fueled equipment, while the demand and usage of diesel is expected to reduce to 388,355 gallons per year. Taking into account an increased shipping cost, if PAR 1135 is implemented, the total annual fuel costs are estimated at $5,897,616, which represents an estimated annual fuel-cost saving of $20,333,052.

Maintenance & Parts, Employee & Service Costs

In addition to realizing savings in fuel costs, the new equipment anticipated to be installed as a result of PAR 1135 has the potential of realizing a cost savings on parts and employee costs for maintenance. Specifically, according to the baseline data provided by SCE, the annual maintenance and parts cost are $3,977,434, while the costs associated with implementing PAR 1135 would be $2,386,461, resulting in a net cost savings of $1,590,974. Similarly, SCE's baseline

[3] California Energy Commission, 2021. Presentation - Transportation Energy Demand Forecast, Docket 21-IEPR-03, https://efiling.energy.ca.gov/GetDocument.aspx?tn=240934&DocumentContentId=74780, accessed August 7, 2024.

[4] The propane price relied upon in this analysis is based on the current purchase price as provided by SCE.

data for employee and service costs indicate an annual cost of $8,177,445, while the costs associated with implementing PAR 1135 would be approximately $4,988,869, resulting in a net cost savings of $3,188,576.

Land Lease Costs

In order for solar equipment to be deployed, the affected facility does not have sufficient space within its existing footprint and thus will need to find and lease an offsite location with available land. SCE estimated that a land lease would cost $2,399,206 per year. Because the leased land is specific to solar deployment and not applicable to baseline conditions, all land lease costs will be incremental for the affected facility.

Other O&M Costs

In addition, the O&M costs include other cost categories, including insurance and permitting, hazard materials handling/treatment, annual emissions and performance testing, and propane handling, storage, and safety. Note that all these other O&M costs are almost identical for baseline conditions and under PAR 1135; therefore, incremental costs for these other O&M cost categories are not included in this analysis.

Monitoring, Reporting and Recordkeeping Costs

PAR 1135 also establishes provisions for conducting monitoring, reporting and recordkeeping of NZE electricity generating units, but continuous emissions monitoring systems (CEMS) are not required. Staff confirmed that the affected facility already conducts monitoring, reporting and recordkeeping; therefore, any additional costs associated with monitoring, reporting and recordkeeping due to the implementation of PAR 1135 are expected to be minimal, if any. For this reason, the incremental costs related to monitoring, reporting and recordkeeping are not included in this analysis.

Total Compliance Costs of PAR 1135

The compliance cost analysis covers the period of 2027-2059. To estimate the annual compliance cost of PAR 1135, the one-time capital cost over the 25-year useful life of the equipment was amortized and added to the recurring cost for each compliance year. Because of the recurring cost savings anticipated for the cost categories of maintenance and parts, employee and service, and fuel costs, the implementation of PAR 1135 is expected to result in an overall cost savings. As presented in Table 2, the total present value of cost savings over the forecast period is estimated at $370.71 million and $192.67 million, respectively, depending on the discount rate assumed (1% and 4%).[5] The average annual cost savings due to the implementation of PAR 1135 are estimated to range from $14.99 million to $14.16 million from 2027-2059, depending on different real interest rates assumed (1% to 4%). Table 2 presents the present value of the estimated compliance cost/savings and the average annual cost/savings of PAR 1135 by cost categories.

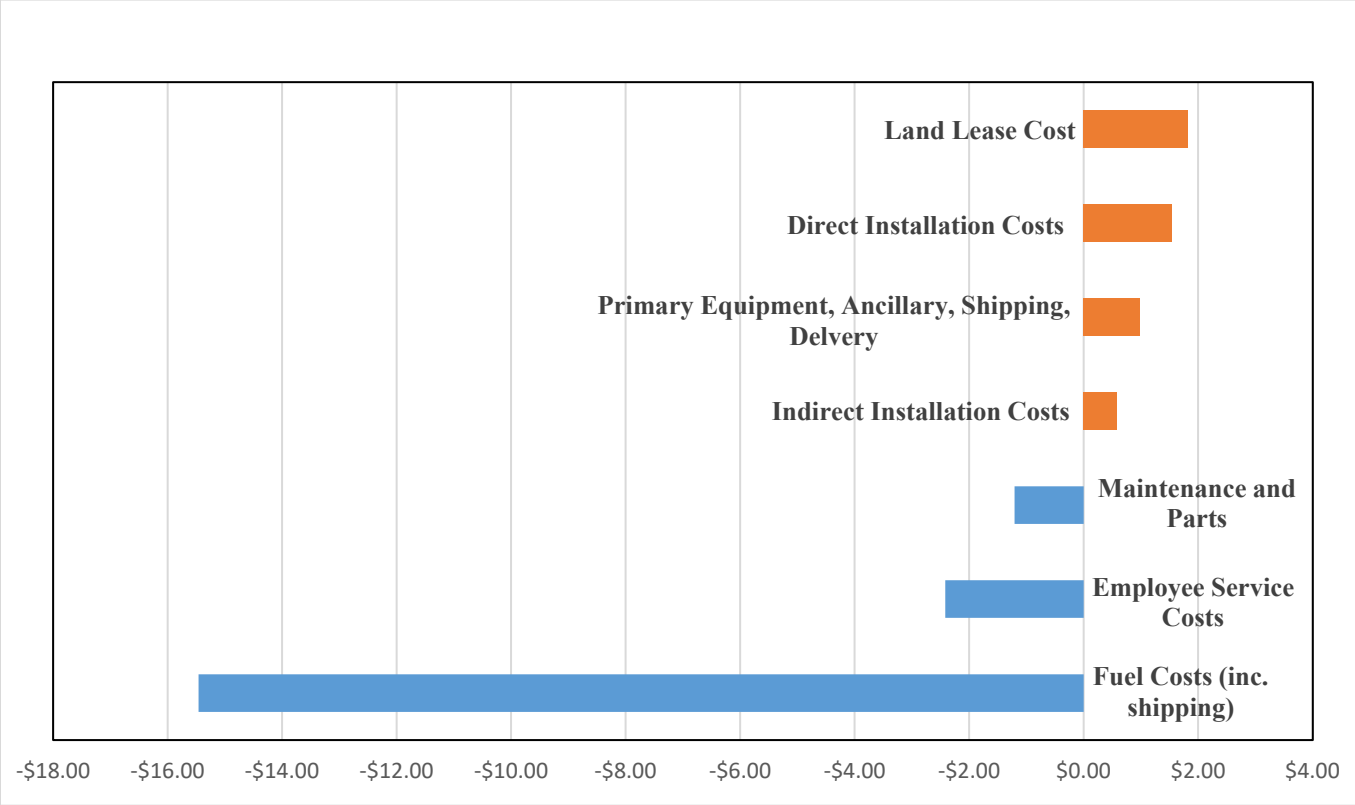
[5] In 1987, South Coast AQMD staff began to calculate cost-effectiveness of control measures and rules using the Discounted Cash Flow method with a discount rate of 4%. Although not formally documented, the discount rate is based on the 1987 real interest rate on 10-year Treasury Notes and Bonds, which was 3.8%. The maturity of 10 years was chosen because a typical control equipment life is 10 years; however, a longer equipment life would not have corresponded to a much higher rate -- the 1987 real interest rate on 30-year Treasury Notes and Bonds was 4.4%. Since 1987, the 4% discount rate has been used by South Coast AQMD staff for all cost-effectiveness calculations, including BACT analysis, for the purpose of consistency.

Table 2
Total Present Worth and Average Annual Estimated Costs of PAR 1135

Cost Categories	Present Value Worth (2024)		Annual Average (2027 – 2059)	
	1% Discount Rate	4% Discount Rate	1% Real Interest Rate	4% Real Interest Rate
Capital Costs				
Primary Equipment, Ancillary, Shipping, Delivery	$26,443,720	$15,125,202	$717,882	$982,838
Direct Installation Costs	$41,468,146	$23,718,830	$1,125,759	$1,541,254
Indirect Installation Costs	$15,670,876	$8,963,382	$425,426	$582,442
Recurring Costs/(Savings)				
Maintenance and Parts	($31,719,683)	($16,790,688)	($1,205,283)	($1,205,283)
Employee Service Cost	($63,571,526)	($33,651,334)	($2,415,588)	($2,415,588)
Fuel Costs (Including Shipping)	($406,836,463)	($215,357,262)	($15,458,955)	($15,458,955)
Land Lease Cost	$47,833,630	$25,320,542	$1,817,580	$1,817,580
Total	**($370,711,300)**	**($192,671,329)**	**($14,993,179)**	**($14,155,712)**

Figure 1 presents the estimated annual compliance costs/savings of implementing PAR 1135 by cost categories. Implementation of PAR 1135 is expected to result in annual incremental compliance costs for land lease, direct and indirect installation costs, and equipment, ancillary, shipping and delivery costs, combined with a massive cost savings for the items such as maintenance and parts, employee and service, and fuel costs. Notably, the deployment of ZE and NZE equipment greatly reduces the demand for diesel and thus will result in an annual fuel-cost savings of $15.46 million.

Figure 1
Annual Estimated Costs/Savings of PAR 1135 by Cost Category (in Millions)



MACROECONOMIC IMPACTS ON THE REGIONAL ECONOMY

The Regional Economic Model (REMI, PI+ v3) was used to assess the total socioeconomic impacts of the anticipated policy change (i.e., PAR 1135 in this case).[6, 7] The model, which is comprised of analytical modules with embedded datasets and econometric features, links the economic activities occurring in the counties of Los Angeles, Orange, Riverside, and San Bernardino, and for each county and considers five interrelated blocks: 1) output and demand; 2) labor and capital; 3) population and labor force; 4) wages, prices and costs; and 5) market shares.[8]

It should be noted that the REMI model is not designed to assess impacts on individual operations. The model was used to assess the impacts of the proposed project on various industries that make up the local economy. Cost impacts on individual operations were assessed outside of the REMI model and used as inputs into the REMI model.

Impacts of PAR 1135

The assessment herein is performed relative to a baseline ("business as usual") forecast where PAR 1135 would not be implemented. This analysis assumes that the affected facility would finance the capital and installation costs of control equipment at a 4% real interest rate and that these one-time costs are amortized and incurred over the life of the equipment. To achieve the final NOx emission limit of six tpy in PAR 1135, the affected facility may purchase and install solar photovoltaic cells (ZE equipment), propane-fueled linear generators and fuel cells (NZE equipment), and replace three existing diesel internal combustion engines and all 23 microturbines with three Tier 4 Final diesel engines. Installing and operating the equipment from the year 2027 onwards would result in an average annual cost savings of approximately $14.99 million when costs/savings are annualized using a 4% real interest rate, or $14.16 million when evaluated using a 1% real interest rate.

Direct effects of PAR 1135 are used as inputs to the REMI model in order for the model to assess secondary and induced impacts for all the industries in the four-county economy on an annual basis and across a user-defined horizon: 2027 (the first year when the affected facility is assumed to incur the compliance cost due to PAR 1135 implementation) to 2059 (when all equipment has been fully amortized). Direct effects of PAR 1135 include: 1) additional costs that the facility would incur by installing control equipment; 2) additional sales by local vendors of equipment, devices, or services which are needed to meet the proposed requirements; and 3) cost savings due to reduced fuel costs, maintenance and parts, employee labor, and service expenses.

In addition to the direct effects, the additional spending on solar equipment, propane-fueled linear generators and fuel cells, Tier 4 Final diesel engines, and land lease would increase the spending

[6] Regional Economic Modeling Inc. (REMI). Policy Insight® for the South Coast Area (70-sector model). Version 3. 2023.

[7] REMI v3 has been updated based on The U.S. Economic Outlook for 2022-2024 from the University of Michigan's Research Seminar in Quantitative Economics (RSQE) release on May 19, 2023, The Long-Term Economic Projections from CBO (supplementing CBO's March 2023 report, The 2023 Long-Term Budget Outlook).

[8] Within each county, the industrial sectors are made up of 156 private non-farm industries and sectors, three government sectors, and a farm sector. Trade flows are captured between sectors as well as across the four counties and the rest of U.S. Market shares of industries are dependent upon their product prices, access to production inputs, and local infrastructure. The demographic/migration component has 160 ages/gender/race/ethnicity cohorts and captures population changes in births, deaths, and migration. For details, please refer to REMI online documentation at http://www.remi.com/products/pi.

and sales of businesses across various sectors, most of which are located in the South Coast AQMD region. Meanwhile, cost savings in fuel costs, maintenance and parts, and employee labor and service expenses would decrease the revenue of other sectors, such as fuel dealers. Table 3 lists the industry sectors modeled in REMI that would either incur cost or benefit from the compliance expenditures.

Table 3
Industries Affected by Compliance Costs/Savings of PAR 1135 in REMI Model

Source of Compliance Cost	REMI Industries Incurring/ Achieving Compliance Costs/Savings (NAICS)	REMI Industries Benefitting/Losing from Compliance Spending/Saving (NAICS)
Subtotal, Purchase Costs	Utilities (22)	*Capital:* Machinery Manufacturing (333)
		Capital: Electrical Equipment, Appliance, and Component Manufacturing (335)
		Capital: Computer and Electric Product Manufacturing (334)
Direct Installation Costs		*Capital:* Construction (23)
Indirect Installation Costs		
Fuel Costs		*Recurring:* Wholesale Trade (42)
Land Lease Cost		*Recurring:* Real Estate (531)
Employee Labor and Service Cost		*N/A**
Maintenance and Parts		

*The wage income earned from employee and service cost, and the category of maintenance and parts is modeled as an increase in compensation for employees in the Fossil Fuel Electric Power Generation industry and thus, does not directly benefit a single industry.

Regional Job Impacts

When the compliance cost is annualized using a 4% real interest rate, the proposed net job impacts per year is close to zero on average from 2027 to 2059. The implementation of PAR 1135 has positive job impacts on the regional economy over time in the sectors of Construction (NAICS 23) and Utilities (NAICS 22) sectors due to compliance expenditures. In 2027, 51 additional jobs are expected to be added to the economy associated with the installation of ZE and NZE electricity generating equipment. These additional jobs are expected to come from sectors such as Construction (NAICS 23), Professional, Scientific and Technical Services (NAICS 54), and Real Estate (531).

However, the implementation of PAR 1135 will also result in jobs foregone in the sectors of Wholesale Trade (NAICS 42) and Professional, Scientific and Technical Services due to the cost savings from fuel and maintenance and parts, which will lead to an anticipated shrink in the markets for diesel wholesale and professional contractors.[9] The biggest negative job impacts are expected to occur in 2036 when approximately 95 jobs forgone are expected in the four-county economy; from the perspective of individual sectors, the sectors of Wholesale Trade, and Professional, Scientific and Technical Services are projected to have 41 and six jobs foregone, respectively.

Overall, the positive job impacts brought about by the installation of ZE/NZE equipment and the jobs foregone resulting from the cost saving will cancel each other out, leading to close-to-zero annual average job impacts over the 2027-2059 period.[10]

It is important to note that these projections of job impacts are based on assumptions and analysis using the REMI model. The actual job impacts may vary depending on various factors and uncertainties in the economy and industry dynamics. As presented in Table 4, many major sectors of the regional economy would experience positive or negative job impacts in later years from the secondary or induced effects of implementing PAR 1135.

[9] Note that the cost savings will benefit Southern California Edison and thus bring about jobs gained in the sector of Utilities (NAICS 22). However, because the sectors of Wholesale Trade and Professional, Scientific and Technical Services are much more labor-intensive than the Utilities sector, the jobs foregone in the former sectors will outweigh the jobs gained in the latter, when the cost savings of PAR 1135 is realized, which results in net jobs foregone.

[10] Specifically, the REMI model predicts a 0.12 job gained over the period, rounded to zero.

Table 4
Projected Job Impacts of PAR 1135 for Selected Industries and Years

Industry (NAICS)	2027	2036	2047	2057	2059	Annual Average (2027-2059)	Baseline Number of Jobs (Average, 2027-2059)	Percent Relative to Baseline
Wholesale Trade (42)	1	-41	-29	-22	-21	-22	412,664	0.0053%
Couriers and Messengers (492)	0	-7	-5	-5	-5	-4	285,800	0.0014%
Ambulatory Health Care Services (621)	2	-7	-3	-2	-2	-2	749,889	0.0003%
Personal and Laundry Services (812)	1	-4	-2	-2	-2	-2	449,350	0.0004%
State and Local Government (NA)	2	-4	1	1	2	0	983,463	0%
Computer and Electronic Product Manufacturing (334)	1	0	1	1	1	1	120,786	0.0008%
Professional, Scientific, and Technical Services (54)	2	-6	5	7	7	3	1,079,713	0.0003%
Real Estate (531)	2	2	5	5	5	4	790,077	0.0005%
Utilities (22)	0	5	11	10	10	7	21,192	0.0330%
Construction (23)	25	3	17	10	10	16	587,476	0.0027%
Other Industries	10	-32	1	5	6	-2	7,506,336	0%
All Industries	**51**	**-95**	**4**	**13**	**15**	**0**	**12,986,747**	**0%**

Note: Totals may not sum due to rounding.

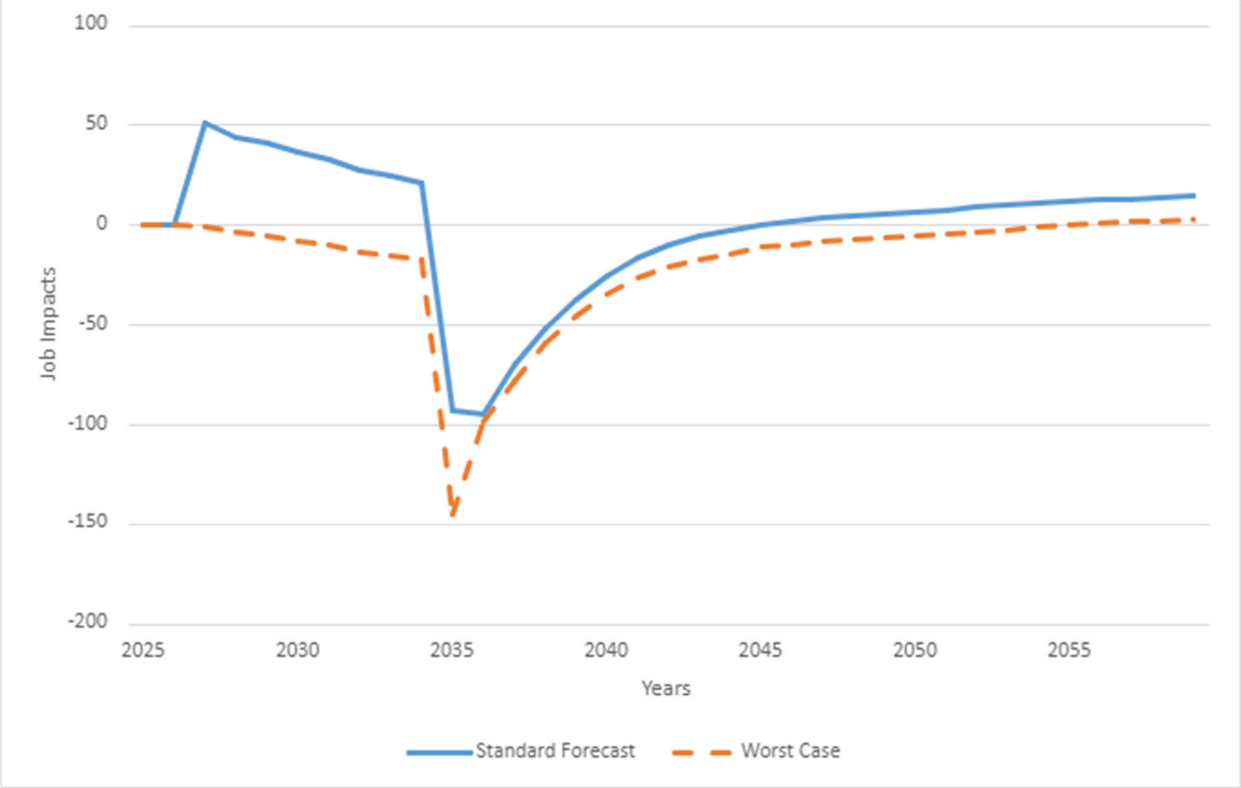
In addition, in 2013, South Coast AQMD contracted with Abt Associates Inc. to review the South Coast AQMD socioeconomic assessments for Air Quality Management Plans and individual rules with the goal of providing recommendations that could enhance South Coast AQMD's socioeconomic analyses. In 2014, Abt Associates Inc. published a report which included a recommendation for South Coast AQMD to enhance socioeconomic analyses by testing major assumptions through conducting a scenario analysis. As such, South Coast AQMD generally includes in Socioeconomic Impact Assessments an alternative worst-case scenario which assumes that the affected facilities would purchase all feasible monitoring equipment and services from providers located outside of the South Coast AQMD's jurisdiction.[11] This hypothetical scenario tests the sensitivity of the previously discussed scenarios where the analyses rely on REMI's embedded assumptions about how the capital and O&M spending would be distributed inside and

[11] Abt Associates Inc., August 2014, Review of the SCAQMD Socioeconomic Assessments, Chapter 6, Section 3, https://www.aqmd.gov/docs/default-source/Agendas/aqmp/scaqmd-report---review-socioeconomic-assessments.pdf, accessed August 16, 2024.

outside the region. As a practical matter, however, increased jobs in the manufacturing and construction sectors related to the purchase and installation of ZE/NZE electricity generating equipment are likely to be offered by local equipment manufacturers and contractors.

This alternative worst-case scenario would result in an annual average of approximately 20 jobs foregone. The 20 jobs foregone represents roughly 0.0002% of total jobs in the South Coast AQMD region. Figure 2 presents a projected time series of job impacts over the 2027 - 2059 period for both the standard and worst-case forecasts.

Figure 2
Projected Regional Job Impacts, 2027-2059



Competitiveness

The overall cost savings brought about by PAR 1335 would decrease the cost of services rendered by the Utilities sector in the region. The magnitude of the impact is dependent upon the size, diversification, and infrastructure in a local economy as well as interactions among industries. However, a large, diversified, and resourceful economy would absorb the aforementioned impacts with relative ease.

Meanwhile, changes in production/service costs in the Utilities sector would also affect the prices of goods produced locally in other sectors. Note that the relative delivered price of goods is based on the costs of production and transportation necessary to deliver the goods to where they will be

consumed or used. In addition, the average price of goods at the place of use reflects prices of local production combined with the cost of and importing them elsewhere.

According to the REMI Model, the implementation of PAR 1135 will have minimal impact on the relative delivered price and the production cost across various sectors. Among all sectors, the Utilities sector will be the most affected in 2035, when the relative delivered price and production cost will decrease in the South Coast AQMD jurisdiction by 0.051% and 0.083%, respectively, due to the cost savings of PAR 1135. On average, the relative delivered price and production cost in the Utilities sector will minimally decrease by 0.034% and 0.056%, respectively, over the period 2027-2059.

CEQA ALTERNATIVES

The California Environmental Quality Act (CEQA) requires an evaluation of alternatives when a proposed project may have significant adverse environmental impacts. Because potentially significant operational air quality impacts may occur if PAR 1135 is implemented, four alternatives were developed for the CEQA analysis conducted in the ~~Draft~~ Final Subsequent Environmental Assessment (SEA): Alternative A – No Project, Alternative B – More Stringent, Alternative C – Less Stringent, and Alternative D – No ZE Equipment. This section provides a description of each alternative as well as an assessment of possible socioeconomic impacts resulting from these alternatives.

Alternative A – No Project

CEQA requires the evaluation of a specific "No Project" alternative which considers what would happen if the proposed project (PAR 1135) were not approved, i.e., no amendments would be made to Rule 1135. Under Alternative A, the "No Project" scenario, the January 2022 amendments to Rule 1135 would remain in effect, which requires the electricity generating facility on Santa Catalina Island to comply with the final annual NOx limit of 13 tpy by January 1, 2026, but with an option to extend the deadline to January 1, 2029. Additionally, under Alternative A, the installation of any new diesel internal-combustion engines would be prohibited on or after January 1, 2024. Note that the continued implementation of the 2022 amendments to Rule 1135 will not impose any additional costs on the affected facilities.

Prior to the 2022 amendments, Rule 1135 was amended in November 2018 which aimed to reduce NOx emissions via a transition from South Coast AQMD Regulation XX – Regional Clean Air Incentives Market (referred to as the NOx RECLAIM program) to a command-and-control rule subject to South Coast AQMD Regulation XI – Source Specific Standards. The greatest compliance cost of the 2018 amendment was associated with installing natural gas turbines and replacing old diesel engines. The 2018 amendments to Rule 1135 had an estimated annual cost of $11.42 million with 32 affected facilities which emitted 662.98 tons of NOx in 2017. The electricity generating facility on Santa Catalina Island emitted 75.43 tons of NOx, or 11.38% of the total 662.98 tons of NOx emissions. At the time for the 2018 amendments to Rule 1135, the compliance costs of Alternative A were estimated based on the compliance costs for the entire universe of affected facilities. For the currently proposed project (PAR 1135) which affects one facility, the cost analysis of Alternative A relies on taking the proportion of NOx emissions only attributed to the facility on Santa Catalina Island, (e.g., the NOx emissions share of 11.38%). As

such, the analysis of Alternative A for PAR 1135 estimated an annual compliance cost of roughly $1.3 million in 2023 dollars using a 4% real interest rate.

Alternative B – More Stringent

For PAR 1135, the facility on Santa Catalina Island will be required to meet the final six tpy NOx emission limit by 2035. Alternative B analyzes a scenario that is more stringent than PAR 1135 where the final NOx emission limit is 1.8 tpy by 2035. In order to reduce NOx emissions to 1.8 tpy, under Alternative B electricity on Santa Catalina Island will need to be generated from a combination of 65% NZE equipment, 30% ZE equipment, and 5% from Tier 4 Final diesel engines. Using a 4% real interest rate, Alternative B is estimated to result in an annual cost savings of $14,608,768 over the 2027-2059 period. Note that compared to the proposed project (PAR 1135) which assumes that electricity will be produced from a combination of 50% NZE equipment, 30% ZE equipment, and 20% Tier 4 Final diesel engines, Alternative B would lead to a greater cost savings than PAR 1135 and could achieve more NOx emission reductions by an additional 4.2 tpy. However, according to SCE's representatives, the implementation of Alternative B would pose many logistical and reliability challenges to the affected facility which could affect grid stability (e.g., reliability of providing uninterrupted supplies of electricity).

Alternative C – Less Stringent

For PAR 1135, the facility on Santa Catalina Island will be required to meet the final six tpy NOx emission limit by 2035. Alternative C analyzes a scenario that is less stringent than PAR 1135 where the final NOx emission limit is 13 tpy by 2035. By having to reduce fewer NOx emissions under Alternative C by 2035, electricity on Santa Catalina Island could be generated from a combination of 50% NZE equipment, and 50% from Tier 4 Final diesel engines at a lower cost than PAR 1135. Implementing Alternative C would result in seven tpy more NOx emissions than PAR 1135 with an average annual cost savings of $15,590,383 over the period from 2027 to 2059, using a 4% real interest rate.

Alternative D – No ZE Equipment

For PAR 1135, the facility on Santa Catalina Island will be required to meet the final six tpy NOx emission limit by 2035. Alternative D analyzes a scenario that does not rely on the use of ZE equipment and is less stringent than PAR 1135 where the final NOx emission limit is 13 tpy by 2030. By having to reduce fewer NOx emissions under Alternative D but by 2030, which is five years earlier than what is considered under Alternative C, electricity on Santa Catalina Island could also be generated from a combination of 50% NZE equipment, and 50% from Tier 4 Final diesel engines at a lower cost than PAR 1135.

Similar to Alternative C, Alternative D would result in seven tpy more NOx emissions compared to PAR 1135 with an average annual cost savings of $18,592,220 over the 2027-2054 period, using a 4% real interest rate.

Summary of CEQA Alternatives Analysis

Table 5 presents a summary of the CEQA alternatives analyzed in terms of annual average cost/savings, net present value (NPV) of compliance costs/savings, and forecasted job impacts. The job impacts of Alternative A is forecasted for the 2019-2045 period, according to the Socioeconomic Impact Assessment previously conducted for the 2018 amendments to Rule 1135.

The annual job impacts for PAR 1135, Alternative B and Alternative C are forecasted for the 2027-2059 period. The annual job impacts for Alternative D is analyzed over the 2027-2054 period.

Table 5
Average Annual Costs, NPV and Job Impacts by CEQA Alternative

Alternatives	Average Annual Cost/Savings (4%)	NPV (4%)	Average Annual Job Impacts
Proposed Project (PAR 1135)	($14,155,712)	($192,671,329)	0
Alternative A — No Project	$1,300,132	$20,112,958	-15
Alternative B — More Stringent	($14,608,768)	($198,838,688)	0
Alterative C — Less Stringent	($15,590,383)	($214,061,243)	4
Alternative D — No ZE Equipment	($18,592,220)	($266,166,011)	5

Under Alternative A, the facility on Santa Catalina Island would still be subject to the 2018 amendment to Rule 1135, and thus, incur a positive compliance cost, while the facility would have a cost saving under the other alternatives analyzed. It is worth mentioning that Alternative B, the more stringent scenario, may lead to more NOx emission reductions and greater cost savings compared to the proposed project (PAR 1135). However, Alternative B may pose many logistical and reliability challenges to the affected facility which could affect grid stability (e.g., reliability of providing uninterrupted supplies of electricity). Alternatives C and D would both be a cheaper alternative with greater cost savings than the proposed project but would result in fewer NOx emission reductions overall.

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Proposed Amended Rule 1135

Emissions of Oxides of Nitrogen from Electricity Generating Facilities

Board Meeting

October 4, 2024

Rule 1135 Regulatory Background

1989 Rule adopted to address NOx emissions from electricity generating facilities

2018 Best Available Retrofit Control Technology (BARCT) emission limits established for all electricity generating equipment

2022 Most recently, amendments revised requirements for Santa Catalina Island

Limits annual NOx emissions by a certain date from Santa Catalina Island electricity generating facility to:

2024	2025	2026
50 tons per year	45 tons per year	13 tons per year

Adopted resolution directs staff to conduct BARCT assessment for Santa Catalina Island electricity generating facility

Impacted Equipment NOx Concentrations

PAR 1135 affects one electricity generating facility located on Santa Catalina Island

- Over 90% of the power generated at site is from diesel engines
- Diesel engines emit 10 to 70 times higher NOx emission concentrations than other equipment subject to Rule 1135

PAR 1135 Affected Equipment

Equipment Type	Rating (MW)	Construction Year	NOx Emissions*
Diesel Engine Unit 7	1	1958	97 ppmv
Diesel Engine Unit 8	1.5	1964	97 ppmv
Diesel Engine Unit 10	1.125	1968	140 ppmv
Diesel Engine Unit 12	1.5	1976	82 ppmv
Diesel Engine Unit 14	1.4	1985	103 ppmv
Diesel Engine Unit 15	2.8	1995	51 ppmv
Microturbines (23 units)	1.49	2011	0.07 lb/MW-hr

*NOx emissions are corrected to 15% O_2, dry; NOx emissions for diesel engines calculated by using the uncontrolled NOx emissions and control efficiency specified in Southern California Edison's Best Available Control Technology and Alternative Analysis for Pebbly Beach Generating Station (Version 00; Revised April 30, 2021) and NOx emissions for microturbines reflect the emission standard in the California Air Resources Board Distributed Generation Certification Regulation

Technological Feasibility Challenges on Santa Catalina Island

- Challenges for the deployment of Zero- and/or Near Zero-Emission technologies on Santa Catalina Island include:
  - Fuel must be barged
  - Small facility footprint
    - Acquiring additional land is challenging
  - Need 30-day fuel storage as backup when barge is unable to deliver fuel
    - Must provide critical utilities for island

Proposed Emission Limits

Proposed Emission Limits

Compliance Date	NOx (tpy)
January 1, 2027	45
January 1, 2028	30
January 1, 2030	13
January 1, 2035	6

Feasibility Analysis

- Analyses will be conducted by SCE for the 13 tpy NOx limit and the 6 tpy NOx limit
- Feasibility analyses will review grid stability, construction plans, etc. to determine if timeline is achievable
- Time extension can be requested for up to three years
- Feasibility study cannot change NOx emission limits

Time Extension

- Up to three additional years at each compliance date for extenuating circumstances

Power Generation Profile at Final Emission Limit

Zero-Emission Units

- ~ 30% of power generation
- Renewable power source such as solar or hydrogen fuel cell

Near-Zero Emission Units

- ~ 50% of power generation
- Would likely utilize propane as fuel

Three Tier 4 Final diesel engines

- ~ 20% of power generation
- No further diesel engines allowed
- Legacy engines removed

Provisions to Minimize Use of Diesel Engines

Diesel engines installed prior to rule adoption must cease operation by 2030 or six months after any applicable extensions

Prohibition to install: 1) more than three new diesel internal combustion engines; and 2) engines with a maximum cumulative rating greater than 5.5 MW

Any electric generating unit installed after 2028 must meet Zero-Emission or Near Zero-Emission emission standards

Cost-Effectiveness Analysis

Cost-effectiveness is measured in terms of the cost in dollars per ton of air pollutant reduced

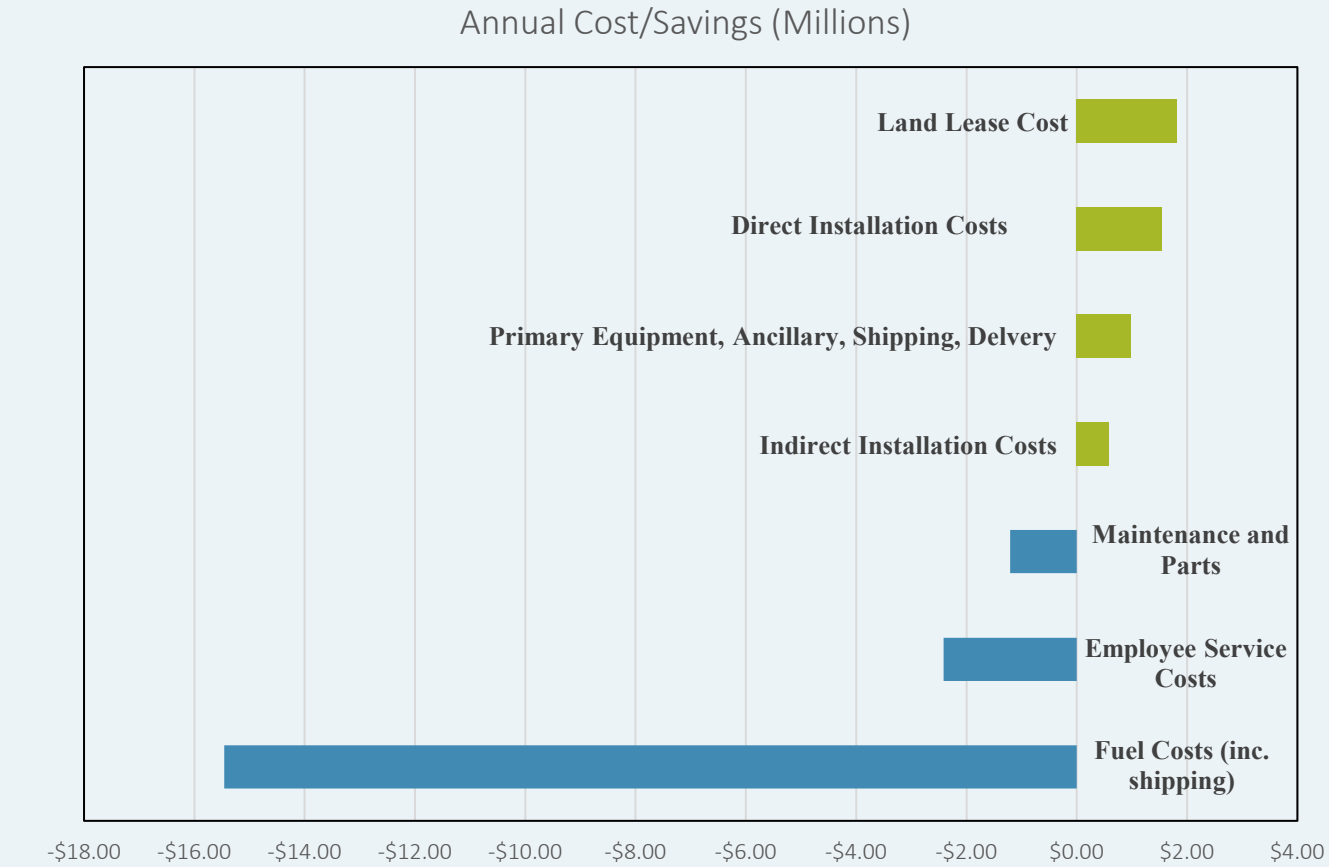
- The final 6 tpy NOx limit results in 65.3 tpy NOx emission reductions
- The 2022 Air Quality Management Plan (AQMP) established a cost-effectiveness threshold of $325,000/ton NOx reduced, adjusted for inflation ($388,500 in 2023 dollars)
- The final 6 tpy final NOx limit has a cost-effectiveness of $32,000/ton NOx reduced

	Final NOx Limit of 6 tpy
Net Annual Costs (includes annualized capital and recurring costs)	$2,076,000
NOx Emission Reductions (Tons/Year)	65.3
Cost-Effectiveness ($/Ton of NOx Reduced)	$32,000

Socioeconomic Impact Assessment

Socioeconomic Impacts:

- Average annual savings ranges from ~$14.99 million to ~$14.16 million using a 1% to 4% real interest rate, respectively, from 2027-2059
  - Cost savings mainly attributable to a reduction in fuel costs
- Negligible job impacts on average from 2027-2059



Key Issue 1: BARCT Assessment Was Not Properly Conducted and NOx Mass Limits Should be Lower

- South Coast AQMD performed BARCT assessment which takes into consideration environmental impacts, energy impacts, and economic impacts
- Facility is a critical utility for Santa Catalina Island
  - Provides electricity, water movement, and waste systems
  - Reliable power is crucial in avoiding blackouts and continued operations for infrastructure
  - BARCT assessment evaluated reliability, grid stability, space limitations, and fuel delivery
- Due to fuel delivery uncertainty, a lesser amount of propane delivery was evaluated which will provide sufficient reliable power that supports compliance with rule emission caps and seeks to avoid rule violations

Key Issue: Implementation Dates for NOx Limits are Too Long

- Proposed implementation dates reflect challenges of installing new ZE/NZE technologies
- Facility must continually provide reliable power during replacement of older diesel engines
- Feasibility analyses and time extensions allowed to address issues arising during design, procurement, permitting, and installation

Recommendation

Certify Final Subsequent Environmental Assessment

Adopt Proposed Amended Rule 1135