South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SUBJECT: **NOTICE OF COMPLETION OF A DRAFT SUBSEQUENT ENVIRONMENTAL ASSESSMENT AND OPPORTUNITY FOR PUBLIC COMMENT**

PROJECT TITLE: **PROPOSED AMENDED RULE 1111 – REDUCTION OF NOX EMISSIONS FROM NATURAL GAS-FIRED FURNACES, AND PROPOSED AMENDED RULE 1121 – REDUCTION OF NOX EMISSIONS FROM SMALL NATURAL GAS-FIRED WATER HEATERS**

In accordance with the California Environmental Quality Act (CEQA), the South Coast Air Quality Management District (South Coast AQMD) is the Lead Agency and has prepared a Draft Subsequent Environmental Assessment (SEA) to analyze environmental impacts for the project identified above pursuant to its certified regulatory program (Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l), and codified in South Coast AQMD Rule 110). Pursuant to CEQA Guidelines Sections 15152, 15162, and 15385, the Draft SEA tiers off of the previously certified Final Program Environmental Impact Report (Final Program EIR) prepared for the 2022 Air Quality Management Plan (2022 AQMP) that was adopted on December 2, 2022.

This letter, the Notice of Completion (NOC), and the Draft SEA are not South Coast AQMD applications or forms requiring a response from you. Their purpose is simply to provide information to you on the proposed project. **No action on your part is necessary if the proposed project has no bearing on you or your organization.** The proposed project's description, location and potential adverse environmental impacts are summarized in the NOC. Information on how to obtain the Draft SEA and other relevant documents is also provided in the attached NOC.

The NOC has been filed for posting with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino Counties. The NOC and Draft SEA has also been electronically filed with the State Clearinghouse of the Governor's Office of Planning and Research to be posted on their CEQAnet Web Portal which, upon posting, may be accessed via the following weblink: https://ceqanet.opr.ca.gov/search/recent. In addition, the NOC, Draft SEA and other relevant documents have been electronically posted on the South Coast AQMD's webpage which can be accessed via the following weblink: http://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects.

Comments focusing on your area of expertise, your agency's area of jurisdiction, if applicable, or issues relative to the environmental analysis for the proposed project will be accepted during a 46-day public review and comment period beginning September 27, 2024 and ending at 5:00 p.m. on November 12, 2024. Please send any comments relative to the CEQA analysis in the Draft SEA to Jivar Afshar via email to jafshar@aqmd.gov, or by mail (c/o PRDI/CEQA) to 21865 Copley Dr, Diamond Bar, CA 91768-4178. Please include the name, phone number and email address of the contact person, and the organization name, if applicable. Questions regarding the proposed amended rule language should be directed to Peter Campbell at (909) 396-3185 or by email to pcampbell@aqmd.gov, or Jennifer Vinh at (909) 396-2148 or by email to jvinh@aqmd.gov.

The proposed project will be considered at the Governing Board Meeting (Public Hearing) on December 6, 2024 at 9:00 a.m. (subject to change). The Public Hearing agenda with details on how the public can participate will be posted at least 72 hours prior to the meeting on South Coast AQMD's website at: http://www.aqmd.gov/home/news-events/meeting-agendas-minutes.

Reference: California Code of Regulations, Title 14, Sections 15085, 15087, 15105, 15162, 15251, 15252, and 15372

NOTICE OF COMPLETION (NOC) OF A DRAFT SUBSEQUENT ENVIRONMENTAL ASSESSMENT (SEA) AND OPPORTUNITY FOR PUBLIC COMMENT

To: County Clerks for the Counties of Los Angeles, Orange, Riverside and San Bernardino; and Governor's Office of Planning and Research – State Clearinghouse	**From:** South Coast Air Quality Management District (South Coast AQMD) 21865 Copley Drive Diamond Bar, CA 91765

Project Title: Proposed Amended Rule (PAR) 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces, and PAR 1121 – Reduction of NOx Emissions from Small Natural Gas-Fired Water Heaters

Project Location: The proposed project is located in the South Coast Air Quality Management District (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.

Description of Nature, Purpose, and Beneficiaries of Project: PAR 1111 proposes to: 1) expand rule applicability to include previously unregulated wall furnaces, floor furnaces, and commercial furnaces with a rated heat input capacity up to 2,000,000 British Thermal Units per hour (Btu/hr); and 2) establish four categories for the applicable units, each with zero-emission limits for new installations based on future effective dates. PAR 1121 proposes to include zero-emission limits for new installations based on future effective dates. PAR 1111 and PAR 1121 also propose to: 1) differentiate the zero-emission compliance dates for units installed in new or existing buildings; 2) provide alternative compliance options for emergency replacement and installations requiring specific type of construction; 3) introduce labeling and reporting requirements; 4) provide an exemption from zero-emission requirements for mobile homes in a master-metered mobile home park; and 5) update and clarify rule language. Replacement of furnaces and water heaters are expected to occur at the end of the existing equipment's useful life although some replacements could occur prior to the end of useful life with the availability of incentive funding. Upon full implementation, emission reductions of oxides of nitrogen (NOx) up to 7.7 tons per day by 2055 for PAR 1111, and 2.3 tons per day by 2045 for PAR 1121, are expected. The Draft SEA concluded that significant and unavoidable adverse environmental impacts may occur for the topics of air quality due to construction activities, and energy due to increase in electricity and natural gas demand (natural gas used in the short term to produce electricity until renewable energy resources can supply the electricity demand). No other significant adverse impacts were identified. Facilities and residences with equipment subject to the proposed project may be identified on lists compiled by the California Department of Toxic Substances Control per Government Code Section 65962.5. However, implementation of PAR 1111 and PAR 1121 is not expected to alter the status of the facilities and other locations on the lists.

Lead Agency: South Coast AQMD **Division:** Planning, Rule Development, and Implementation

The NOC, Draft SEA and all supporting documentation are available for public review from: 1) South Coast AQMD website at http://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects; 2) South Coast AQMD Public Information Center by email at PICrequests@aqmd.gov and by phone at (909) 396-2039; and 3) State Clearinghouse of the Governor's Office of Planning and Research website at https://ceqanet.opr.ca.gov/search/recent.

The Draft SEA tiers off of the Final Program EIR for the 2022 AQMP which is available on South Coast AQMD's website at: https://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects/south-coast-aqmd-projects---year-2022.

PARs 1111 and 1121 and all supporting documentation are available from South Coast AQMD's Website at: https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1111-and-rule-1121

The NOC is provided to the public through the following:

☑ Los Angeles Times (September 27, 2024)
☑ South Coast AQMD Mailing List & Interested Parties
☑ South Coast AQMD Website
☑ South Coast AQMD Public Information Center
☑ State Clearinghouse of the Governor's Office of Planning and Research Website

Draft SEA Review Period (46 days): September 27, 2024 to November 12, 2024

Scheduled Public Meeting Date(s) (subject to change): The proposed project will be considered at the Governing Board Meeting (Public Hearing) on December 6, 2024 at 9:00 a.m. (subject to change). The Governing Board Meeting agenda with details on how the public can participate will be posted at least 72 hours prior to the meeting on South Coast AQMD's website at: http://www.aqmd.gov/home/news-events/meeting-agendas-minutes.

Send CEQA Comments to:	**Phone:**	**Email:**
Jivar Afshar	(909) 396-2040	jafshar@aqmd.gov
Direct Questions on PAR 1111 to:	**Phone:**	**Email:**
Peter Campbell	(909) 396-3185	pcampbell@aqmd.gov
Direct Questions on PAR 1121 to:	**Phone**:	**Email:**
Jennifer Vinh	(909) 369-2148	jvinh@aqmd.gov

Date: September 26, 2024 **Signature:**

Kevin Ni
Program Supervisor
Planning, Rule Development, and Implementation

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Subsequent Environmental Assessment for:

Proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces, and Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural Gas-Fired Water Heaters

September 2024

State Clearinghouse No. 2022050287
South Coast AQMD No. 20240924JA/05122022KN

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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 (NO_2), 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 NO_2 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 the 2022 AQMP[5] contains multiple goals promoting reductions of criteria air pollutants, greenhouse gases (GHGs), and toxic air contaminants (TACs). The 2022 AQMP states that both oxides of nitrogen (NOx) and volatile organic compound (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. In particular, the 2022 AQMP includes Control Measures R-CMB-02 – Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Space Heating, and C-CMB-02 – Emission

[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 2022 Air Quality Management Plan, December 2022. https://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.

Reductions from Replacement with Zero Emission or Low NOx Appliances – Commercial Space Heating, which identify Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces, as having the potential to achieve additional NOx emission reductions from this equipment category. The 2022 AQMP also includes Control Measure R-CMB-01 – Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Water Heating, which identifies Rule 1121 – Control of Nitrogen Oxides from Residential Type, Natural-Gas-Fired Water Heaters, as having the potential to achieve additional NOx emission reductions from this equipment category.

Rule 1111 regulates NOx emissions from natural gas-fired fan-type central furnaces with rated heat input capacity of less than 175,000 British thermal units per hour (Btu/hr), or for units with combined heating and cooling (package units), a cooling rate of less than 65,000 Btu/hr. The rule was first adopted in December 1978, and amended in November 2009 to lower the NOx emission limit from 40 to 14 nanograms per Joule (ng/J). The rule was later amended several times to provide an alternative compliance option and extend the option that allows the manufacturer to pay a per-unit mitigation fee, in lieu of meeting the lower NOx emission limit. All furnace types have transitioned to 14 ng/J, except for mobile home furnaces for which the mitigation fee alternative compliance option will end by September 30, 2025.

Rule 1121 regulates NOx emissions from natural gas-fired water heaters with a rated heat input capacity of less than 75,000 Btu/hr. The rule was also first adopted in December 1978. It was amended in 1999 to reduce the NOx emission limit from 40 ng/J stepwise to 10 ng/J, and amended again in 2004 to extend the compliance dates of 10 ng/J limit for some categories. Currently, all Rule 1121 water heaters are meeting the NOx emission limit of 10 ng/J, except for mobile home water heaters that are subject to a NOx emission limit of 40 ng/J.

Proposed Amended Rule 1111– Reduction of NOx Emissions From Natural Gas-Fired Furnaces (PAR 1111), implements 2022 AQMP Control Measures R-CMB-02 and C-CMB-02, and proposes to expand the applicability to all furnaces with a rated heat input capacity of less than or equal to 2,000,000 Btu/hr. PAR 1111 categorizes these units into four groups: 1) residential fan-type central furnaces, 2) commercial fan-type central furnaces, 3) mobile home furnaces, and 4) wall furnaces and floor furnaces. Each category has zero-emission limits based on future effective dates for new installations at natural turnover. The zero-emission compliance dates are further differentiated for units installed in new or existing buildings. Mobile home furnaces will have a delayed compliance date for installations in existing buildings. Until the applicable zero-emission compliance date, mobile home furnace manufacturer may still use the mitigation fee alternative compliance option. PAR 1111 proposes additional alternative compliance options for emergency replacement and installations requiring construction to expand the space to house or relocate a furnace and associated equipment, perform a utility service upgrade for necessary power, or replace a furnace that does not require the simultaneous replacement of space cooling equipment.

Proposed Amended Rule 1121– Reduction of NOx Emissions From Small Natural Gas-Fired Water Heaters (PAR 1121), implements 2022 AQMP Control Measure R-CMB-01 and proposes zero-emission limits with future effective dates for new water heater installations at natural turnover, with compliance dates differentiated for installations in new or existing buildings. Mobile home water heaters will have a later implementation date for installations in existing buildings. PAR 1121 also includes alternative compliance options for emergency replacements and for installations requiring additional construction to expand the space to house or relocate a

water heater and associated equipment, or construction to perform a utility service upgrade for necessary power.

PAR 1111 and PAR 1121 will each affect the manufacturers, distributors, retailers, resellers, and installers of space and water heating systems used in over five million buildings, mostly residential homes. Upon full implementation, PAR 1111 will reduce NOx emissions by 7.7 tons per day (tpd), and PAR 1121 will reduce NOx emissions by 2.3 tpd.

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 Environmental Impact Report (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 1111 proposes to: 1) expand rule applicability to include previously unregulated wall furnaces, floor furnaces, and commercial furnaces with a rated heat input capacity up to 2,000,000 British Thermal Units per hour (Btu/hr); and 2) establish four categories for the applicable units, each with zero-emission limits for new installations based on future effective dates. PAR 1121 proposes to include zero-emission limits for new installations based on future effective dates. PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-emission compliance dates for units installed in new or existing buildings; 2) provide alternative compliance options for emergency replacement and installations requiring specific type of construction; 3) introduce labeling and reporting requirements; 4) provide an exemption from zero-emission requirements for mobile homes in a master-metered mobile home park; and 5) update and clarify rule language. Replacement of furnaces and water heaters are expected to occur at the end of the existing equipment’s useful life although some replacements could occur prior to the end of useful life with the availability of incentive funding. Upon full implementation, emission reductions of NOx up to 7.7 tons per day by 2055 for PAR 1111, and 2.3 tons per day by 2045 for PAR 1121, are expected. The Draft SEA concluded that significant and unavoidable adverse environmental impacts may occur for the topics of air quality due to construction activities, and energy due to the change in operational electricity and interim natural gas demand needed to produce electricity until renewable energy resources are available to satisfy the electricity demand. No other significant adverse impacts were identified.

The goal of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 in the 2022 AQMP is to reduce NOx emissions from residential and commercial heating sources. These control measures committed to: 1) developing rules to require zero-emission heating units for installations in both new and existing residences and commercial buildings; 2) allowing low NOx technologies as a transitional alternative when installing a zero-emission unit is determined to be infeasible; and 3) providing incentive funds to facilitate the transition to zero-emission technologies and promotion of further emission reductions earlier than required. The Final Program EIR for the 2022 AQMP[6], which was certified by the South Coast AQMD Governing Board on December 2, 2022, determined that implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 has the potential to generate adverse environmental impacts to four topic areas: air quality and GHG emissions, energy, noise, and solid and hazardous waste. More specifically, the Final Program EIR for the 2022 AQMP evaluated the impacts from installation and operation of replacement zero-emission and low NOx technologies potentially resulting in construction air quality and GHG emissions, operational air quality and GHG emissions from production of electricity, increased electricity and natural gas demand, construction noise, and generation of solid waste from construction and disposal of old equipment. The Final Program EIR for the 2022 AQMP also determined that implementation of the other control measures in the 2022 AQMP had the potential to generate adverse environmental impacts to the topic areas of hazards and hazardous materials, and hydrology and water, in addition to the four topic areas previously stated. For the entirety of all of the control measures which comprise the 2022 AQMP, the analysis in the Final Program EIR for the 2022 AQMP concluded that significant and unavoidable adverse environmental impacts were expected to occur after implementing mitigation measures for the following environmental topic areas: 1) air quality during construction; 2) energy due to increased electricity, natural gas, and hydrogen demand; 3) hazards and hazardous materials due to accidental release of ammonia, natural gas via pipeline, and liquified natural gas via on-road trucks; 4) hydrology (water demand and water supply) and water quality; 5) construction noise and vibration at roadways; and 6) solid and hazardous waste from construction and early retirement of equipment. Since significant adverse environmental impacts were identified, mitigation measures were identified and applied. However, the Final Program EIR for the 2022 AQMP concluded that the 2022 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 prepared and adopted.

When comparing the types of activities and associated environmental impacts with implementing Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 that were previously analyzed in the Final Program EIR for the 2022 AQMP, to the currently proposed changes associated with the NOx limits and compliance dates presented in PAR 1111 and PAR 1121, the types of 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 Final Program EIR for the 2022 AQMP. However, regarding the scope of the affected equipment universe, Control Measures R-CMB-02 and C-CMB-02 were estimated to affect two million residential space heaters and 200,000 commercial space heaters, whereas PAR 1111 is estimated to affect over five million space heaters. Similarly, Control Measure R-CMB-01 was estimated to affect two million residential water heaters, whereas PAR 1121 is estimated to affect over five million water heaters. Thus, while the proposed project, PAR 1111 and PAR 1121, is expected to have similar secondary adverse environmental impacts for the environmental topic areas of construction air quality and

[6] South Coast AQMD, Final Program Environmental Impact Report for the 2022 Air Quality Management Plan, December 2022. https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.pdf

GHG emissions, operational air quality and GHG emissions from the production of electricity, increased electricity and natural gas demand, construction noise, and generation of solid waste from construction and disposal of old equipment that were previously analyzed in the Final Program EIR for the 2022 AQMP, the impacts will be increased. The Final Program EIR for the 2022 AQMP relative to the implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 concluded less than significant impacts to operational air quality, greenhouse gas emissions, noise, and solid and hazardous waste and the analysis in this SEA confirms that these impacts will remain the same if PAR 1111 and PAR 1121 are implemented. In addition, the Final Program EIR for the 2022 AQMP concluded that the implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 will have potentially significant adverse air quality impacts from construction and energy impacts from electricity and natural gas demand and the analysis in this SEA determined that these impacts will be substantially made more severe if PAR 1111 and PAR 1121 are implemented.

Therefore, the proposed project contains new information of substantial importance which was not known and could not have been known at the time the Final Program EIR for the 2022 AQMP 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 Subsequent Environmental Assessment (SEA), which contains the environmental analysis required by CEQA Guidelines Section 15187 and tiers off of the Final Program EIR for the 2022 AQMP. Thus, this SEA is a subsequent document to the Final Program EIR for the 2022 AQMP.

Because this is a subsequent document, the baseline is the project analyzed in the Final Program EIR for the 2022 AQMP. The SEA is a substitute CEQA document prepared in lieu of a Subsequent EIR with significant impacts [CEQA Guidelines Section 15162], pursuant to the South Coast AQMD's Certified Regulatory Program [CEQA Guidelines Section 15251(1)]; 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 released and circulated for a 46-day public review and comment period from September 27, 2024 to November 12, 2024. 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 Final Program EIR for the 2022 AQMP (State Clearinghouse (SCH) No. 2022050287) 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:

Final Program EIR for the 2022 AQMP:
https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.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.

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 1111 and PAR 1121.

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.). Further, the development of new and amended rules occurs in response to control measures in adopted AQMPs.

Rule 1111 was adopted by the South Coast AQMD Governing Board in December 1978 to reduce NOx emissions from fan-type central furnaces. Rule 1111 has been amended nine times with the most recent amendment in September 2023. Rule 1121 was also adopted by the South Coast AQMD Governing Board in December 1978, to reduce NOx emissions from natural gas-fired residential water heaters. Rule 1121 has been amended three times with the most recent amendment in September 2004.

PAR 1111 and PAR 1121 have been developed to implement Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 from the 2022 AQMP. PAR 1111 proposes to: 1) expand rule applicability to include previously unregulated wall furnaces, floor furnaces, and commercial furnaces with a rated heat input capacity up to 2,000,000 British Thermal Units per hour (Btu/hr); and 2) establish four categories for the applicable units, each with zero-emission limits for new installations based on future effective dates. PAR 1121 proposes to include zero-emission limits for new installations based on future effective dates. PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-emission compliance dates for units installed in new or existing buildings; 2) provide alternative compliance options for emergency replacement and installations requiring specific type of construction; 3) introduce labeling and reporting requirements; 4) provide an exemption from zero-emission requirements for mobile homes in a master-metered mobile home park; and 5) update and clarify rule language. Replacement of furnaces and water heaters are expected to occur at the natural turnover that often means the end of the existing equipment's useful life although some replacements could occur prior to the end of useful life with the availability of incentive funding. Upon full implementation, emission reductions of oxides of nitrogen (NOx) up to 7.7 tons per day by 2055 for PAR 1111, and 2.3 tons per day by 2045 for PAR 1121, are expected. The environmental impacts of the control measures in the 2022 AQMP, including Control Measures R-CMB-01, R-CMB-02, and C-CMB-02, were evaluated in the Final Program EIR for the 2022 AQMP. This SEA relies on the environmental analysis conducted in the December 2022 Final Program EIR for Control Measures R-CMB-01, R-CMB-02, and C-CMB-02, which are the basis for the currently proposed amendments to Rule 1111 and Rule 1121. As allowed by CEQA Guidelines Sections 15152, 15162, and 15385, this SEA tiers off of the Final Program EIR for the 2022 AQMP, which is summarized below:

Final Program Environmental Impact Report for the 2022 Air Quality Management Plan (SCH No. 2022050287); December 2022: The 2022 AQMP set forth policies and measures to achieve federal and state ambient air quality standards in the region. In accordance with the U.S EPA strengthening the NAAQS for ground-level 8-hour ozone in 2015, by lowering the primary and secondary 8-hour ozone standard to 70 parts per billion, the 2022 AQMP identified control measures and strategies to bring the South Coast Air Basin and the Coachella Valley into attainment with this standard by 2037. The 2022 AQMP control measures and strategies were developed to achieve this NAAQS by focusing on reducing NOx which are precursors to the formation of ozone and other air pollutants. The 2022 AQMP was comprised of the following control measures which address stationary point and area and mobile sources: 1) the South Coast AQMD's Stationary and Mobile Source Control Measures; 2) control measures identified in the 2022 State Strategy for the State Implementation Plan by the California Air Resources Board; and 3) approved Regional Transportation Plan/Sustainable Communities Strategy and Transportation Control Measures provided by the Southern California Association of Governments. The 2022 AQMP also included emission inventories, the most current air quality data, updated growth projections, new modeling techniques, demonstrations of compliance with state and federal Clean Air Act requirements, and an adoption and implementation schedule for the control strategies. The 2022 AQMP is designed to protect and improve public health for those living, working, and visiting the region within South Coast AQMD's jurisdiction. The 2022 AQMP was estimated to reduce NOx emissions by approximately 124 tons per day beyond implementation of existing regulations. The Final Program EIR for the 2022 AQMP identified the following environmental topic areas would have significant and unavoidable adverse impacts: 1) air quality during construction; 2) energy due to increased electricity, natural gas, and hydrogen demand; 3) hazards and hazardous materials due to accidental release of ammonia, natural gas via pipeline, and liquified natural gas via on-road trucks; 4) hydrology (water demand and water supply) and water quality; 5) construction noise and vibration at roadways; and 6) solid and hazardous waste from construction and early retirement of equipment.

The Final Program EIR for the 2022 AQMP was certified by the South Coast AQMD Governing Board in December 2022 and identified potentially significant impacts, mitigation measures were made a condition of approval of the 2022 AQMP and were adopted. Since mitigation measures were adopted for the 2022 AQMP, a Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP, pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097 was also required and adopted. Further, because the Final Program EIR concluded that the 2022 AQMP will have potentially significant and unavoidable adverse impacts on the environment, Findings were made pursuant to CEQA Guidelines Section 15091, and a Statement of Overriding Considerations pursuant to CEQA Guidelines Section 15093 was adopted.

The 2022 AQMP, along with the December 2022 Final Program EIR for the 2022 AQMP and its corresponding Findings, Statement of Overriding Considerations, and Mitigation, Monitoring, and Reporting Plan, upon which the analysis of this SEA for PAR 1111 and PAR 1121 relies, are incorporated by reference pursuant to CEQA Guidelines Section 15150 and are available from the South Coast AQMD's website at:

December 2022 Final Program EIR for the 2022 AQMP:
Master webpage: https://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects/south-coast-aqmd-projects---year-2022

December 2022 Final Program EIR for the 2022 AQMP (including Appendices): https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.pdf

Findings, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Plan: https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-attachment1toresolution.pdf

2022 AQMP: https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan

Copies of these documents may also be obtained from:

Derrick Alatorre, Deputy Executive Officer/Public Advisor
South Coast AQMD 21865 Copley Drive, Diamond Bar, CA 91765
Phone: (909) 396-2432
Email: publicadvisor@aqmd.gov

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 PAR 1111 and PAR 1121 and all supporting documents, including the SEA, as part of the process for considering the inclusion of PAR 1111 and PAR 1121 into the SIP. Moreover, PAR 1111 and PAR 1121 are 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.

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 1111 and PAR 1121, 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 1-1.

Table 1-1
Areas of Controversy

	Area of Controversy	Topics Raised by the Public	South Coast AQMD Evaluation
1.	Grid	Electrical generation may not be able to meet the demands of the millions of electrical appliances required by these proposed amended rules.	• While peak load causes more concern for the grid, implementing PAR 1111 and PAR 1121 would not have as much impact on the peak load during summer as on the annual total load. PAR 1111 units will be expected to operate during winter, while peak electricity demand for California occurs during summer. PAR 1121 units will be expected to operate year-round but will consume less electricity than PAR 1111 units. In the Pathway to 2045 document[7], SCE expected a 60 percent increase in electricity load and 40 percent increase in peak load by 2045, with building electrification responsible for 15 percent of load by 2045. • California is expected to add 18,000 MW of electricity generation capacity by 2028, which is the estimated peak demand increase from all electrical appliances, including PAR 1111 and PAR 1121 units, and the transportation sector by 2040. • The local and state utility agencies are developing programs and policies to address grid reliability. For example, in 2021, the CPUC created new programs and modified existing programs to reduce energy demand and increase energy supply during critical hours of the day.[8] Per Senate Bill 350 (De León, 2015), the CPUC developed an integrated resource planning process to ensure that California's electric sector meets its greenhouse gas reduction goals while maintaining reliability at the lowest possible costs.[9] • Staff will continue to monitor any issue related to grid reliability during the rule implementation and technology check-in by June 2027 and report the progress to the Stationary Source Committee.

[7] SCE, Pathway 2045, https://www.edison.com/our-perspective/pathway-2045
[8] California Public Utilities Commission, CPUC Ensures Electricity Reliability During Extreme Weather for Summers 2022 and 2023, https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-ensures-electricity-reliability-during-extreme-weather-for-summers-2022-and-2023
[9] California Public Utilities Commission, CPUC Approves Long Term Plans To Meet Electricity Reliability and Climate Goals, https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-approves-long-term-plans-to-meet-electricity-reliability-and-climate-goals

Table 1-1 (continued)
Areas of Controversy

	Area of Controversy	Topics Raised by the Public	South Coast AQMD Evaluation
2.	Electrical panel upgrade	Many homes will need to do expensive electrical panel upgrades to use zero-emission units.	• For PAR 1111, most homes (86%) in the South Coast AQMD currently have existing air conditioning units, so converting to a Heating, Ventilation, and Air Conditioning (HVAC) heat pump would have similar electrical requirements. Thus, for the majority of homes equipped with existing air conditioning units, an electrical panel upgrade will not be needed. • Further, for the homes that do not have existing air conditioning units, depending on the year when the structure was built, the building code typically requires some redundancy (e.g., extra capacity in amperage) in the electrical panel. For these reasons, across-the-board electrical panel upgrades may be uncommon. • For PAR 1121, some zero-emission compliant units, such as 120V heat pump water heaters, do not require a dedicated circuit on the electrical panel, so the unit can be installed on an existing circuit without requiring any upgrades. • For homes that do require an electrical panel upgrade in order to install equipment in response to PAR 1111 and PAR 1121, the cost would be spread across multiple projects: water heater, space heater, and transportation.
3.	Increased size of zero-emission units	Heat pumps, especially heat pump water heaters, require larger footprint than their natural gas-fired equivalents and need more space for air flow	• While heat pump water heaters may be slightly larger than natural gas tank-type water heaters, most closets sized for a natural gas tank-type water heater will fit a heat pump water heater with little to no modification. • In the cases when a construction is required to expand the space or relocate the equipment, PAR 1111 and PAR 1121 contain provisions which will allow for the use of a temporary rental of a natural gas tank- type unit for up to 24 months so that hot water will be available while construction is occurring

Table 1-1 (continued)
Areas of Controversy

	Area of Controversy	Topics Raised by the Public	South Coast AQMD Evaluation
4.	Mobile Homes: Electrical Capacity	Mobile homes do not have the electrical capacity to support zero-emission appliances for space and water heating.	• The utilities supplied to a master-metered mobile home are restricted to a single meter. Some mobile home parks have a direct utility service, where a resident can potentially upgrade their electrical panel to support zero-emission appliances. • An increase in electrical demand for a master-metered mobile home may require extensive construction and can be cost-prohibitive for the property owner and residents. • Compliance dates for PAR 1111 mobile home furnaces in existing buildings and PAR 1121 mobile home water heaters in existing buildings are later than all other furnaces and water heaters. • PAR 1111 and PAR 1121 include a provision that exempts master-metered mobile homes. The California Public Utilities Commission is working on converting 50% of master-metered homes to direct utility service by 2030. When the master-metered homes are converted to a direct utility service, they are no longer exempt from the rules.

Table 1-1 (concluded)
Areas of Controversy

	Area of Controversy	Topics Raised by the Public	South Coast AQMD Evaluation
5.	Cost of Adoption	1) Operating costs of zero-emission appliances is more costly than their natural gas counterpart 2) Capital costs of zero-emission appliances are higher than their natural gas counterpart	• PAR 1111 and PAR 1121 use the California Energy Commission's (CEC) Integrated Energy Policy Report (IEPR) released in January 2024. The report projects a natural gas rate increase of 50% and an electricity increase of 21%. These rates are used to calculate the fuel switching costs for both rules, which results in cost savings over their respective equipment lifetimes. • The replacement costs for all equipment categories are less than the cost-effectiveness threshold of $349,000 per ton of NOx reduced. Furthermore, capital costs are expected to drop as deployment of the zero-emission technology increases. • In addition, there are federal, state, and local incentive funding specifically to incentivize the switch from combustion to heat pump technologies. South Coast AQMD is also developing the Go Zero Incentive Program to help lower the cost and to provide centralized information for the availability of incentive and financing opportunities offered by other agencies and organizations.

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 1111 and PAR 1121.

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
In the 2022 AQMP, Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 committed to achieving NOx emission reductions of 1.25 tpd, 1.17 tpd, and 0.21 tpd by 2037 as part of a Basin-wide effort to meet the NAAQS for ozone, and proposed to 1) develop rules to require zero-emission heating units for installations in both new and existing residences and commercial buildings; 2) allow low NOx technologies as a transitional alternative when installing a zero-emission unit is determined to be infeasible; and 3) provide incentive funds to facilitate the transition to zero-emission technologies and promote further emission reductions earlier than required. As a result of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02, South Coast AQMD staff has proposed amendments to Rules 1111 and 1121 to introduce zero-emission limits for new installations of residential water heaters and residential and commercial space heaters, implementing Best Available Retrofit Control Technology (BARCT), and to address challenges with installation of zero-emission technology through differentiated compliance dates for new versus existing buildings, alternative compliance options, and exemptions.

PAR 1111 proposes to: 1) expand rule applicability to include previously unregulated wall furnaces, floor furnaces, and commercial furnaces with a rated heat input capacity up to 2,000,000 Btu/hr; and 2) establish four categories for the applicable units, each with zero-emission limits for new installations based on future effective dates. PAR 1121 proposes to include zero-emission limits for new installations based on future effective dates. PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-emission compliance dates for units installed in new or existing buildings; 2) provide alternative compliance options for emergency replacement and installations requiring specific type of construction; 3) introduce labeling and reporting requirements; 4) provide an exemption from zero-emission requirements for mobile homes in a master-metered mobile home park; and 5) update and clarify rule language. Replacement of furnaces and water heaters are

expected to occur at the end of the existing equipment's useful life although some replacements could occur prior to the end of useful life with the availability of incentive funding. Upon full implementation, emission reductions of NOx up to 7.7 tpd by 2055 for PAR 1111, and 2.3 tpd by 2045 for PAR 1121, are expected.

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 adverse impacts if the proposed project is implemented.

The proposed project is comprised of PAR 1111 and PAR 1121. PAR 1111 is estimated to affect over five million space heaters, whereas PAR 1121 is estimated to affect over five million water heaters. As allowed by CEQA Guidelines Sections 15152, 15162, and 15385, this SEA tiers off of the Final Program EIR for 2022 AQMP.

The 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]. The NOP/IS for 2022 AQMP was released for public review and comment on May 12, 2022. The Final Program EIR for 2022 AQMP 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 2022 AQMP. When comparing the types of activities and associated environmental impacts with implementing Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 that were previously analyzed in the Final Program EIR for the 2022 AQMP, to the currently proposed changes associated with the NOx limits and compliance dates presented in PAR 1111 and PAR 1121, the types of 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 Final Program EIR for the 2022 AQMP. However, regarding the scope of the affected equipment universe, Control Measures R-CMB-02 and C-CMB-02 were estimated to affect two million residential space heaters and 200,000 commercial space heaters, whereas PAR 1111 is estimated to affect over five million space heaters. Similarly, Control Measure R-CMB-01 was estimated to affect two million residential water heaters, whereas PAR 1121 is estimated to affect over five million water heaters. Thus, while the proposed project, PAR 1111 and PAR 1121, is expected to have similar secondary adverse environmental impacts for the environmental topic areas of construction air quality and GHG emissions, operational air quality and GHG emissions from production of electricity, increased electricity and natural gas demand, construction noise, and generation of solid waste from construction and disposal of old equipment that were previously analyzed in the Final Program EIR for the 2022 AQMP, the impacts will be increased.

This SEA analyzes the incremental changes that may occur subsequent to the Final Program EIR for 2022 AQMP if PAR 1111 and PAR 1121 are implemented. In addition, the analysis in this SEA independently considers whether the proposed project would result in new significant impacts for any of the environmental topic areas previously concluded in the Final Program EIR for 2022 AQMP to have either no significant or less than significant impacts (with or without mitigation) and no environmental topic areas as 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 and greenhouse gases, and energy which were the environmental topic areas identified as having potentially significant adverse environmental impacts if PAR 1111 and PAR 1121 are 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 1111 and PAR 1121 have been developed to reduce NOx emissions by introducing zero-emission limits for new installations of residential water heaters and residential and commercial space heaters and implementing BARCT. Specifically, PAR 1111 proposes to: 1) expand rule applicability to include previously unregulated wall furnaces, floor furnaces, and commercial furnaces with a rated heat input capacity up to 2,000,000 British Thermal Units per hour (Btu/hr); and 2) establish four categories for the applicable units, each with zero-emission limits for new installations based on future effective dates. PAR 1121 proposes to include zero-emission limits for new installations based on future effective dates. PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-emission compliance dates for units installed in new or existing buildings; 2) provide alternative compliance options for emergency replacement and installations requiring specific type of construction; 3) introduce labeling and reporting requirements; 4) provide an exemption from zero-emission requirements for mobile homes in a master-metered mobile home park; and 5) update and clarify rule language. Replacement of furnaces and water heaters are expected to occur at the end of the existing equipment's useful life although some replacements could occur prior to the end of useful life with the availability of incentive funding. Upon full implementation, emission reductions of oxides of nitrogen (NOx) up to 7.7 tons per day by 2055 for PAR 1111, and 2.3 tons per day by 2045 for PAR 1121, are expected. The Draft SEA concluded that significant and unavoidable adverse environmental impacts may occur for the topics of air quality due to construction activities, and energy due to change in operational electricity and interim natural gas demand needed to produce electricity until renewable energy resources are available to satisfy the electricity demand. No other significant adverse impacts were identified.

As allowed by CEQA Guidelines Sections 15152, 15162, and 15385, this SEA tiers off of the Final program EIR for 2022 AQMP. As explained in the Summary of Chapter 3, the baseline for the analysis in this SEA is the project analyzed in the Final program EIR for 2022 AQMP.

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 Final program EIR for 2022 AQMP. The analysis examines the activities that affected facilities would be expected to undertake to comply with PAR 1111 and PAR 1121.

Potential Environmental Impacts Found to Be Significant

This SEA tiers off of the Final Program EIR for 2022 AQMP which concluded that implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 would result in significant and unavoidable impacts in the environmental topic areas of air quality and energy. Given that the types of physical changes resulting from the proposed project are the same as those analyzed in the Final Program EIR for 2022 AQMP, and that only the number of affected units to be replaced has changed (from 2,200,000 to 5,350,00 units for PAR 1111 and from 2,000,000 to 5,128,000 units for PAR 1121), the types of impacts to the environmental topic areas will also be the same, only more severe in effect. Therefore, the analysis in this SEA independently considers whether the PAR 1111 and PAR 1121 would result in new significant impacts for any environmental topic areas previously concluded in the Final Program EIR for 2022 AQMP to have significant impacts.

PAR 1111 has been developed to: 1) expand the applicability to include previously unregulated wall furnaces, floor furnaces, and commercial furnaces with a rated heat input capacity up to 2,000,000 Btu/hr that are currently unregulated; and 2) divide the applicable units into four categories for zero-emission limits for new installations based on future effective dates, with a later implementation date for mobile home furnaces. PAR 1121 proposes to include zero-emission limits for new installations based on future effective dates with a later implementation date for mobile home water heaters. Both PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-emission compliance dates for units installed in new or existing buildings; 2) provide alternative compliance options for emergency replacement and installations requiring construction to expand the space to house or relocate a complaint unit and associated equipment, perform service upgrade for necessary power, or for PAR 1111, replace a furnace that does not require he simultaneous replacement of space cooling equipment; 3) introduce labeling and reporting requirements; 4) provide an exemption from zero-emission requirements for mobile homes in a master-metered mobile home park; and 5) update and clarify rule language. Replacement of furnaces and water heaters will occur at the end of the current equipment's useful life although a number of replacements could occur prior to the end of useful life with the availability of incentive funding. Implementation of PAR 1111 and PAR 1121 is estimated to reduce NOx emissions by up to 7.7 tpd after full implementation by 2055, and 2.3 tpd after full implementation by 2045, respectively.

If PAR 1111 and PAR 1121 are implemented, significant and unavoidable adverse environmental impacts to air quality due to construction activities, and energy due to change in operational electricity and interim natural gas demand needed to produce electricity until renewable energy resources are available to satisfy the electricity demand are expected to occur.

Potential 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 environmental topic areas identified as having no impacts, 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.

The Final Program EIR for 2022 AQMP concluded that the following environmental topic areas would either have no impacts or less than significant impacts: aesthetics, agriculture and forestry resources, air quality from operation, biological resources, cultural and tribal cultural resources, geology and soils, greenhouse gas emissions, 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, transportation, and wildfire. 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 1111 and PAR 1121 are implemented.

As such, if PAR 1111 and PAR 1121 are implemented, the conclusions of no impact or less than significant impact for all of the environmental topic areas, except for air quality from construction and energy analyzed in the previous section of this chapter, 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 1111 and PAR 1121 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 1111 and PAR 1121 are not expected to achieve short-term goals to the disadvantage of long-term environmental goals.

Summary Chapter 5 - Alternatives

Since significant impacts to air quality due to construction and energy due to increased electricity and natural gas demand are associated with PAR 1111 and PAR 1121, 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 were identified and are summarized in Table 1-2: 1) Alternative A – No Project; 2) Alternative B – More Stringent Proposed Project; 3) Alternative C – Less Stringent Proposed Project; and 4) Alternative D – Additional Incentive Funding.

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, a comparison of the potentially significant adverse air quality and energy impacts from each of the project alternatives for the individual rule components that comprise PAR 1111 and PAR 1121 is provided in Table 1-3. Aside from air quality impacts due to construction activities and energy impacts due to electricity and natural gas demand, 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 air quality and energy. Therefore, the proposed project is preferred over the project alternatives.

Table 1-2
Summary of the Proposed Project (PAR 1111 and PAR 1121) and Alternatives

Categories with Proposed Changes	Building Type	Proposed Project: PAR 1111 and PAR 1121	Alternative A: No Project	Alternative B: More Stringent Than The Proposed Project	Alternative C: Less Stringent Than The Proposed Project	Alternative D: Additional Incentive Funding
Residential Fan-Type Central Furnace	New	*Zero-Emission at End of Life by 1/1/2026*	NOx emission limits would not be implemented. This means the projected reductions in NOx emissions would not be achieved, failing to meet the objectives of PAR 1111 and PAR 1121, which aim to reduce NOx emissions from natural gas-fired residential and commercial water and space heaters. Additionally, this alternative would not align with the 2022 AQMP's goal to reduce NOx emissions and transition to zero-emission technologies wherever possible.	*Zero-Emission at End of Life by 1/1/2025*	*Zero-Emission at End of Life by 1/1/2026*	*Zero-Emission at End of Life by 1/1/2026*
	Existing	*Zero-Emission at End of Life by 1/1/2028*		*Zero-Emission Required by 1/1/2028*	*Zero-Emission at End of Life by 1/1/2028*	*Zero-Emission at End of Life by 1/1/2028*
		0.5% of equipment estimated to be replaced before end of useful lifetime			*50% of residences will be zero-emission and 50% will be low NOx equipment*	*1% of equipment estimated to be replaced before end of useful lifetime*
Commercial Fan-Type Central Furnace	New	*Zero-Emission at End of Life by 1/1/2026*		*Zero-Emission at End of Life by 1/1/2025*	*Zero-Emission at End of Life by 1/1/2026*	*Zero-Emission at End of Life by 1/1/2026*
	Existing	*Zero-Emission at End of Life by 1/1/2028*		*Zero-Emission Required by 1/1/2028*	*Zero-Emission at End of Life by 1/1/2028*	*Zero-Emission at End of Life by 1/1/2028*
		0.5% of equipment estimated to be replaced before end of useful lifetime			*50% of buildings will be zero-emission and 50% will be low NOx equipment*	*1% of equipment estimated to be replaced before end of useful lifetime*
Mobile Home Furnace	New	*Zero-Emission at End of Life by 1/1/2026*		*Zero-Emission at End of Life by 1/1/2025*	*Zero-Emission at End of Life by 1/1/2026*	*Zero-Emission at End of Life by 1/1/2026*
	Existing	*Zero-Emission at End of Life by 1/1/2030*		*Zero-Emission Required by 1/1/2030*	*Zero-Emission at End of Life by 1/1/2030*	*Zero-Emission at End of Life by 1/1/2030*
		0.5% of equipment estimated to be replaced before end of useful lifetime			*50% of buildings will be zero-emission and 50% will be low NOx equipment*	*1% of equipment estimated to be replaced before end of useful lifetime*

Table 1-2 (concluded)
Summary of the Proposed Project (PAR 1111 and PAR 1121) and Alternatives

Categories with Proposed Changes	Building Type	Proposed Project: PAR 1111 and PAR 1121	Alternative A: No Project	Alternative B: More Stringent Than The Proposed Project	Alternative C: Less Stringent Than The Proposed Project	Alternative D: Additional Incentive Funding
Wall Furnaces, Floor Furnaces, and Others	New	*Zero-Emission at End of Life by 1/1/2026*	NOx emission limits would not be implemented. This means the projected reductions in NOx emissions would not be achieved, failing to meet the objectives of PAR 1111 and PAR 1121, which aim to reduce NOx emissions from natural gas-fired residential and commercial water and space heaters. Additionally, this alternative would not align with the 2022 AQMP's goal to reduce NOx emissions and transition zero-emission technologies wherever possible.	*Zero-Emission at End of Life by 1/1/2025*	*Zero-Emission at End of Life by 1/1/2026*	*Zero-Emission at End of Life by 1/1/2026*
	Existing	*Zero-Emission at End of Life by 1/1/2028*		*Zero-Emission Required by 1/1/2028*	*Zero-Emission at End of Life by 1/1/2028*	*Zero-Emission at End of Life by 1/1/2028*
		0.5% of equipment estimated to be replaced before end of useful lifetime			*50% of buildings will be zero-emission and 50% will be low NOx equipment*	*1% of equipment estimated to be replaced before end of useful lifetime*
Residential Water Heater	New	*Zero-Emission at End of Life by 1/1/2026*		*Zero-Emission at End of Life by 1/1/2025*	*Zero-Emission at End of Life by 1/1/2026*	*Zero-Emission at End of Life by 1/1/2026*
	Existing	*Zero-Emission at End of Life by 1/1/2027*		*Zero-Emission Required by 1/1/2027*	*Zero-Emission at End of Life by 1/1/2027*	*Zero-Emission at End of Life by 1/1/2027*
		0.5% of equipment estimated to be replaced before end of useful lifetime			*50% of buildings will be zero-emission and 50% will be low NOx equipment*	*1% of equipment estimated to be replaced before end of useful lifetime*
Mobile Home Water Heater	New	*Zero-Emission at End of Life by 1/1/2026*		*Zero-Emission at End of Life by 1/1/2025*	*Zero-Emission at End of Life by 1/1/2026*	*Zero-Emission at End of Life by 1/1/2026*
	Existing	*Zero-Emission at End of Life by 1/1/2030*		*Zero-Emission Required by 1/1/2030*	*Zero-Emission at End of Life by 1/1/2030*	*Zero-Emission at End of Life by 1/1/2030*
		0.5% of equipment estimated to be replaced before end of useful lifetime			*50% of buildings will be zero-emission and 50% will be low NOx equipment*	*1% of equipment estimated to be replaced before end of useful lifetime*

Table 1-3
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1111 and PAR 1121) and Alternatives

Air Quality & GHGs Impact Areas	Proposed Project: PAR 1111 and PAR 1121	Alternative A: No Project	Alternative B: More Stringent Than The Proposed Project	Alternative C: Less Stringent Than The Proposed Project	Alternative D: Additional Incentive Funding
Construction	**Potentially Significant Air Quality Impacts During Construction** due to: • increase in number of affected units by approximately 2.5 times (From 4.2 million to 10.5 million) • demolition and replacement activities associated with equipment in commercial buildings	**No Impacts** Since Alternative A involves no construction activities to transition from existing natural gas-fired equipment to zero-emission units, no impacts to air quality during construction are expected.	**Potentially Significant Air Quality Impacts During Construction** Alternative B will affect the same number of equipment for both existing and new buildings as the proposed project. However, the compliance date for new buildings will occur 12 months earlier than the proposed project, and the compliance dates for existing buildings will require replacement by these dates as opposed to end of useful life after these compliance dates. Alternative B will cause construction to occur in a more condensed timeline, so peak day construction air quality impacts will be increased compared to the proposed project.	**Potentially Significant Air Quality Impacts During Construction** Construction impacts from the installation of low NOx heaters are expected to be similar to zero-emission technology. Alternative C will affect the same number of equipment for both existing and new buildings as the proposed project. Therefore, the construction air quality impacts for Alternative C will be the same as for the proposed project.	**Potentially Significant Air Quality Impacts During Construction** Alternative D introduces funding incentives without altering compliance deadlines or introducing new construction activities. Since the number of affected units remains unchanged, but more units could be replaced sooner than the end of useful life, the construction-related air quality impacts are expected to be greater than those of the proposed project since more replacements could occur on a peak day.

Table 1-3 (concluded)
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1111 and PAR 1121) and Alternatives

Energy	Proposed Project: PAR 1111 and PAR 1121	Alternative A: No Project	Alternative B: More Stringent Than The Proposed Project	Alternative C: Less Stringent Than The Proposed Project	Alternative D: Additional Incentive Funding
Electricity Demand	**Potentially Significant Energy Impacts** due to: • 34.6% increase in operational electricity demand compared to the 2018 baseline; and • 32.2% increase in operational electricity compared to 2022 baseline.	**No Impacts** Since PAR 1111 and PAR 1121 would not be implemented under Alternative A, no impacts related to increased electricity demand will occur.	**Potentially Significant Energy Impacts** Compared to proposed project, Alternative B will result in an earlier increase in operational electricity due to earlier installation of zero-emission technologies. It is anticipated that Alternative B would result in the same significant impacts for operational electricity demand.	**Potentially Significant Energy Impacts** Alternative C will result in a potentially significant increase in electricity demand, but to a lesser extent than the proposed project, primarily due to the continued use of gas-fired heaters alongside a portion of new installations of zero-emission technologies.	**Potentially Significant Energy Impacts** Alternative D will result in potentially significant impacts for electricity demand, earlier than the proposed project due to the accelerated deployment of zero-emission technologies due to incentive funding.
Natural Gas Demand	**Potentially Significant Natural Gas Demand Impacts** due to: increased use of natural gas to produce electricity as a result of replacing old equipment with zero-emission technologies.	**No Impacts** Since PAR 1111 and PAR 1121 would not be implemented under Alternative A, no impacts to increased demand for natural gas will occur.	**Potentially Significant Energy Impacts** Compared to proposed project, Alternative B will result in an earlier increase in natural gas use for the production of electricity due to earlier installation of zero-emission technologies. It is anticipated that Alternative B would result in the same significant impacts for operational natural gas demand until electricity is supplied by renewable resources.	**Potentially Significant Energy Impacts** Because the same number of units are being replaced in Alternative C compared to proposed project, and all would require natural gas usage in the short-term, it is anticipated that Alternative C would also experience potentially significant impacts related to natural gas demand.	**Potentially Significant Energy Impacts** Alternative D will result in potentially significant impacts for natural gas demand needed for electricity production, earlier than the proposed project due to the accelerated deployment of zero-emission technologies due to incentive funding.

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 A1
This appendix contains the latest version of PAR 1111.

Appendix A2
This appendix contains the latest version of PAR 1121.

CHAPTER 2

PROJECT DESCRIPTION

Project Location

Project Background

Project Objectives

Project Description

Summary of Affected Adhesive and Sealant Categories

Technology Overview

2.1 PROJECT LOCATION

The South Coast AQMD has jurisdiction over an area of approximately 10,743 square miles, consisting of the four-county South Coast Air Basin (Basin), the Riverside County portion of the Salton Sea Air Basin (SSAB) and the non-Palo Verde, Riverside County portion of the Mojave Desert Air Basin (MDAB). The 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 SSAB 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 SSAB 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).

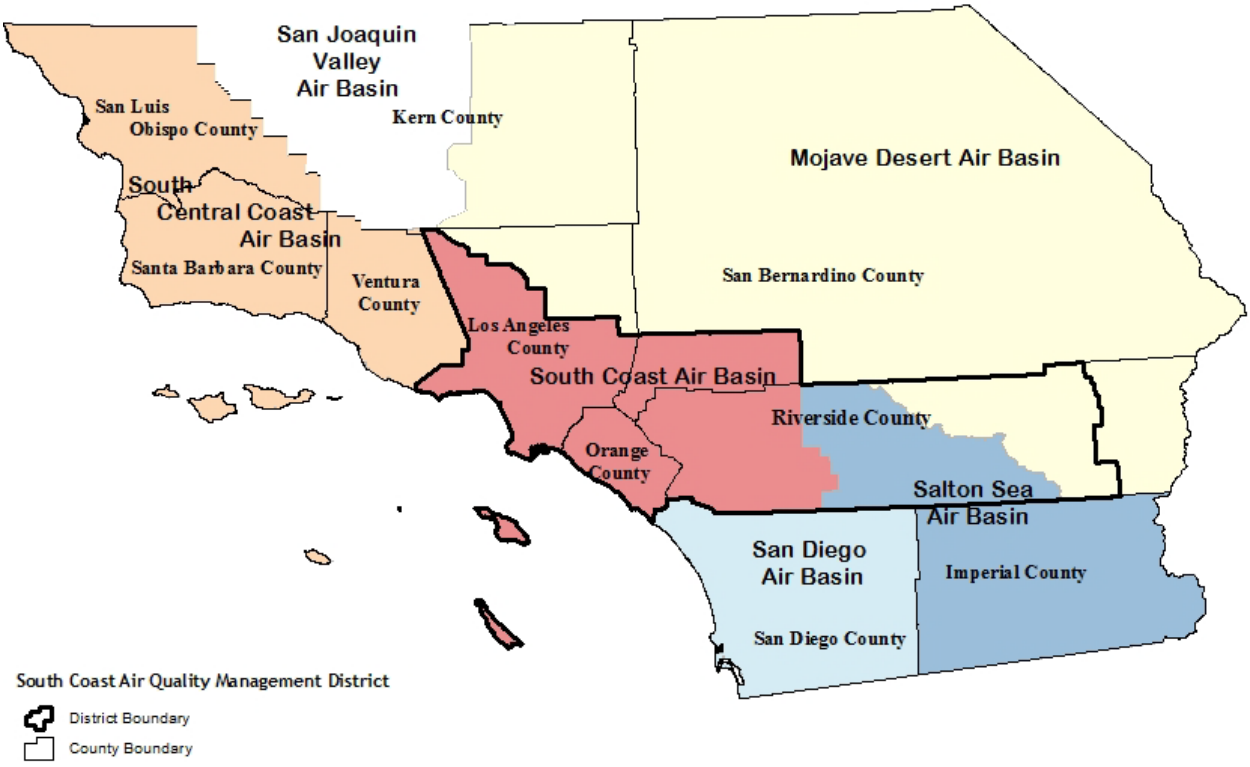

Figure 2-1
Southern California Air Basins and South Coast AQMD's Jurisdiction

2.2 PROJECT BACKGROUND

Rule 1111 regulates NOx emissions from natural gas-fired fan-type central furnaces with rated heat input capacity of less than 175,000 British thermal units per hour (Btu/hr), or for units with combined heating and cooling (package units), a cooling rate of less than 65,000 Btu/hr. The rule was first adopted in December 1978, and amended in November 2009 to lower the NOx emission

limit from 40 to 14 nanograms per Joule (ng/J). The rule was later amended several times to provide an alternative compliance option and extend the option that allows the manufacturer to pay a per-unit mitigation fee, in lieu of meeting the lower NOx emission limit. All furnace types have transitioned to 14 ng/J, except for mobile home furnaces for which the mitigation fee alternative compliance option will end by September 30, 2025.

Rule 1121 regulates NOx emissions from natural gas-fired water heaters with a rated heat input capacity of less than 75,000 Btu/hr. The rule was also first adopted in December 1978. It was amended in 1999 to reduce the NOx emission limit from 40 ng/J stepwise to 10 ng/J, and amended again in 2004 to extend the compliance dates of 10 ng/J limit for some categories. Currently, all Rule 1121 water heaters are meeting the NOx emission limit of 10 ng/J, except for mobile home water heaters that are subject to a NOx emission limit of 40 ng/J.

In the 2022 AQMP, Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 committed to achieving NOx emission reductions of 1.25 tpd, 1.17 tpd, and 0.21 tpd by 2037 as part of a Basin-wide effort to meet the NAAQS for ozone, and proposed to 1) develop rules to require zero-emission heating units for installations in both new and existing residences and commercial buildings; 2) allow low NOx technologies as a transitional alternative when installing a zero-emission unit is determined to be infeasible; and 3) provide incentive funds to facilitate the transition to zero-emission technologies and promote further emission reductions earlier than required. As a result of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02, South Coast AQMD staff has proposed amendments to Rules 1111 and 1121 to introduce zero-emission limits for new installations of residential water heaters and residential and commercial space heaters, implementing BARCT, and to address challenges with installation of zero-emission technology through differentiated compliance dates for new versus existing buildings, alternative compliance options, and exemptions. PAR 1111 and PAR 1121 will each affect the manufacturers, distributors, retailers, resellers, and installers of space and water heating systems used in over five million buildings, mostly residential homes. Upon full implementation, PAR 1111 will reduce NOx emissions by 7.7 tpd, and PAR 1121 will reduce NOx emissions by 2.3 tpd.

2.3 PROJECT OBJECTIVES

The main objectives of the proposed project are to: 1) reduce NOx emissions from residential water heaters and residential and commercial space heaters, by proposing NOx limits that represent BARCT for the applicable equipment; 2) address challenges with installation of zero-emission technology through differentiated compliance dates for new versus existing buildings, alternative compliance options, exemptions, and other means; and 3) provide incentive funds to facilitate the transition to zero-emission technologies and promote further emission reductions earlier than required.

2.4 PROJECT DESCRIPTION

PAR 1111 proposes to: 1) expand rule applicability to include previously unregulated wall furnaces, floor furnaces, and commercial furnaces with a rated heat input capacity up to 2,000,000 Btu/hr; and 2) establish four categories for the applicable units, each with zero-emission limits for new installations based on future effective dates. PAR 1121 proposes to include zero-emission limits for new installations based on future effective dates. PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-emission compliance dates for units installed in new or existing buildings; 2) provide alternative compliance options for emergency replacement and installations requiring

specific type of construction; 3) introduce labeling and reporting requirements; 4) provide an exemption from zero-emission requirements for mobile homes in a master-metered mobile home park; and 5) update and clarify rule language. Replacement of furnaces and water heaters are expected to occur at the end of the existing equipment's useful life although some replacements could occur prior to the end of useful life with the availability of incentive funding. Upon full implementation, emission reductions of NOx up to 7.7 tpd by 2055 for PAR 1111, and 2.3 tpd by 2045 for PAR 1121, are expected. The Draft SEA concluded that significant and unavoidable adverse environmental impacts may occur for the topics of air quality due to construction activities, and energy due to increase in operational electricity and interim natural gas demand needed to produce electricity until renewable energy resources are available to satisfy the electricity demand. No other significant adverse impacts were identified.

The following is a detailed summary of key elements contained in PAR 1111 and PAR 1121. Copies of PAR 1111 and PAR 1121 can be found in Appendix A.

PAR 1111

PAR 1111 reorganizes the rule structure to reflect recently amended and adopted rules and includes new subdivisions. Table 2-1 summarizes the changes to the subdivisions to PAR 1111 from Rule 1111.

Table 2-1: Rule 1111 and PAR 1111 Rule Structure

Subdivision	Rule 1111	PAR 1111
(a)	Purpose and Applicability	Purpose
(b)	Definitions	Applicability
(c)	Requirements	Definitions
(d)	Certification	Requirements
(e)	Identification of Compliant Units	Certification
(f)	Enforcement	Identification of Compliant Units
(g)	Exemptions	Alternative Compliance Options
(h)	(N/A)	Labeling, Recordkeeping, and Reporting
(i)	(N/A)	Exemptions

PAR 1111 (a) - Purpose

The purpose of PAR 1111 is to reduce NOx emission from natural gas-fired furnaces used for interior space heating.

PAR 1111 (b) – Applicability

Subdivision (b) is separated into its own subdivision to align with recently amended and adopted rules. PAR 1111 applies to manufacturers, distributors, retailers, resellers, and installers of natural gas-fired furnaces with a rated heat input capacity up to 2,000,000 Btu/hr.

The applicability is expanded from fan-type central furnaces with rated heat input capacity up to 175,000 Btu/hr used for comfort heating or 65,000 Btu/hr for combination heating and cooling units to all natural gas-fired furnaces with a rated heat input capacity of less than or equal to 2,000,000 Btu/hr.

The provisions of the rule are primarily enforced through the supply chain (i.e. manufacturers, distributors, retailers, etc.). Resellers and retailers are also added to applicability. Sellers were subject to Rule 1111 but have been removed to avoid redundancy.

PAR 1111 (c) – Definitions

Subdivision (c) was previously subdivision (b) in Rule 1111. Subdivision (c) lists the definitions used in PAR 1111. For all definitions, refer to PAR 1111 released with the staff report.

The following definitions have been added to PAR 1111:

- Commercial Fan-Type Central Furnace
- Compliance Portal
- Existing Building
- Floor Furnace
- Furnace
- Install
- Installer
- New Building
- Non-Condensing Furnace
- Reseller
- Residential Fan-Type Central Furnace
- Wall Furnace

Install, installer, and reseller are defined to clarify who is subject to the rule. Furnace is defined to include commercial fan-type central furnace, floor furnace, non-condensing furnace, residential fan-type central furnace, and wall furnace. Wall and floor furnaces have not been regulated by Rule 1111 or other rules at the South Coast AQMD. Existing building and new building are defined to differentiate between compliance dates.

The following definitions have been revised in PAR 1111:

- Condensing Furnace
- Downflow Furnace
- Mobile Home Furnace
- NOx Emissions
- Rated Heat Input Capacity
- Weatherized

Condensing furnace, downflow furnace, mobile home furnace, and weatherized are revised to align with the newly added definitions and to clarify which furnaces fall under the different equipment categories. NOx emissions and rated heat input capacity are revised to align with amended Rule 1146.2 (Adopted June 7, 2024).

The following definitions have been removed from Rule 1111, as they are obsolete definitions:

- Btu
- Dual Fuel System
- Fan Type Central Furnace
- Heat Pump
- Single Firing Rate
- Variable Firing Rate

PAR 1111 (d) – Requirements

Subdivision (d) was previously subdivision (c) in Rule 1111. Paragraph (c)(5) in Rule 1111 regarding mitigation fees was removed from this section and relevant paragraphs were moved

to subdivision (g) under Alternative Compliance Options for a streamlined rule structure. Subdivision (d) outlines the compliance dates for each equipment category.

Paragraph (d)(1) – Current Rule 1111 Emission Limits
Paragraphs (c)(1) to (c)(3) from Rule 1111 were removed and (c)(4) was revised for PAR 1111 paragraph (d)(1) to consolidate the existing requirements. Paragraph (d)(1) specifies the current NOx emission limits and compliance dates for residential fan-type furnaces for each equipment category in PAR 1111 Table 1 (presented in Table 2-2).

Paragraph (d)(1) states that no person shall manufacture, supply, sell, resell, offer for sale, import, or install for use within the South Coast AQMD, any residential fan-type central furnace unless the furnace is certified pursuant to subdivision (e) not to exceed the applicable NOx emission limits in Table 1 that are expressed as nanograms of NOx per joule of useful heat delivered to the heated space (ng/J). Paragraph (d)(1) includes that no person shall resell or import within the South Coast AQMD in addition to the previous requirements (i.e. manufacture, supply, sell, offer for sale, or install).

Table 2-2: PAR 1111 Table 1 Emission Limits and Compliance Schedule

Equipment Category	NOx Emission Limit (ng/J *)	Compliance Date
Condensing Furnace	14	October 1, 2019
Non-Condensing Furnace	14	October 1, 2019
Weatherized Furnace	14	October 1, 2021
Mobile Home Furnace	14	October 1, 2018

Paragraph (d)(2) – PAR 1111 BARCT Emission Limit for New and Existing Buildings
Paragraph (d)(2) sets the updated BARCT emission limits for the applicable equipment categories in PAR 1111 Table 2 (presented in Table 2-3). This paragraph states that no person shall manufacture, supply, sell, resell, offer for sale, import, or install, for use in the South Coast AQMD, any furnace that exceeds the Table 2 NOx emission limits by the Table 2 compliance dates.

Table 2-3: PAR 1111 Table 2 Zero-Emission Limits and Compliance Schedule

Equipment Category	NOx Emission Limit (ng/J*)	Building Type	Compliance Date
Residential Fan-Type Central Furnace**	0.0	New	January 1, 2026
		Existing	January 1, 2028
Commercial Fan-Type Central Furnace	0.0	New	January 1, 2026
		Existing	January 1, 2028
Mobile Home Furnace	0.0	New	January 1, 2026
		Existing	January 1, 2030
Wall Furnaces, Floor Furnaces, and Others	0.0	New	January 1, 2026
		Existing	January 1, 2028

PAR 1111 (e) – Certification
Subdivision (e) provides guidance to manufacturers to certify furnaces. Certification was originally subdivision (d) in Rule 1111.

Paragraph (e)(1) – Testing Requirements

- Subdivision (e)(1) was edited for clarity, including the addition of the South Coast AQMD Rule 1111 Nitrogen Oxides Emissions Compliance Testing for Natural Gas-Fired, Fan-Type Central Furnaces certification protocol to the valid operation procedures[10].

Paragraph (e)(3) – Applying for Furnace Certification

Reworded source test requirement to better align with the same section in PAR 1121.

Paragraph (e)(4) – Timeline

Added a requirement for the manufacturer to submit the items identified in paragraph (e)(4) no more than 180 days after the date of source test identified in subparagraph (e)(4)(D). This was added to align with the certification requirements of Rule 1121.

PAR 1111 (f) – Identification of Compliant Units

Subdivision (f) outlines the procedure and requirements for identification and verification of compliant units. Subdivision (f) was originally subdivision (e) in Rule 1111. PAR 1111 does not propose any requirement change for this subdivision, except for updating the language and streamlining the structure.

Paragraph (f)(3) – Consumer Notification Requirement

If a manufacturer of any mobile home furnace that is distributed or offered for sale into or within the South Coast AQMD elects to comply using the alternative compliance plan pursuant to paragraph (g)(1) in lieu of meeting the 14 ng/J certification limit, the manufacturer shall only distribute or publish informative materials that clearly display "If installed in the South Coast AQMD, this furnace is only allowed to be installed and used in mobile homes and does not meet the South Coast AQMD Rule 1111 NOx emission limit (14 ng/J), and, thus, is subject to a mitigation fee of up to $150." The aforementioned informative materials in subparagraph (f)(3)(A) mean the following: consumer brochures for the furnace; technical specification sheets for the furnace; and the manufacturer's website that promotes, discusses, or lists the furnace. Alternative language can be used in lieu of subparagraph (f)(3)(A), provided that the language similar to the language in subparagraph (f)(3)(A); submitted to the Executive Officer by August 1, 2018; and approved by the Executive Officer no later than August 31, 2018. If the alternative language is not approved, the manufacturer shall use the language in subparagraph (f)(3)(A).

PAR 1111 (g) – Alternative Compliance Options

Subdivision (g) is a new subdivision for rule structure streamlining purpose that includes existing requirements regarding mitigation fees in Rule 1111 paragraph (c)(5). Subdivision (g) addresses alternative compliance options, including mitigation fees and emergency replacements.

Paragraph (g)(1) – Mitigation Fee Alternative Compliance Option

Prior to the applicable Table 2 compliance date, a manufacturer of mobile home furnaces may elect to pay a per unit mitigation fee for selling or enabling distributors, retailers, resellers, or installers to sell mobile home furnaces certified to meet the 40 ng/J NOx emission limit in lieu of the 14 ng/J NOx emission limit. This mitigation fee option ends on September 30, 2025.

[10] South Coast AQMD, Rule 1111 protocol to the valid operation procedures, https://www.aqmd.gov/docs/default-source/laboratory-procedures/methods-procedures/r1111_protocol.pdf

The manufacturer must comply with the following requirements:

- Pay a per unit mitigation fee of $150 for each mobile home furnace distributed or solid into or within the South Coast AQMD;
- Submit an alternative compliance plan, no later than 60 days prior to the applicable compliance date, for each 12-month time period after the applicable Table 1 compliance date, during which the manufacturer elects to pay the mitigation fee in lieu of meeting the NOX emission limit;
    - Clauses (g)(1)(b)(i) to (g)(1)(b)(iv) detail what should be included with the alternative compliance plan; and
- Submit to the Executive Officer a report signed by the responsible official for the manufacturer, identifying by model number, the quantity of mobile home furnaces distributed or sold into or within the South Coast AQMD and a payment of mitigation fees for the applicable 12-month alternative compliance period for the quantity of applicable mobile home furnaces distributed or sold into or within the South Coast AQMD during the alternative compliance period.

Paragraph (g)(2) – Alternative Compliance Option for Emergency Replacements
Paragraph (g)(2) provides a new alternative compliance option for emergency replacements when zero-emission requirements become effective for residential fan-type central furnaces; and commercial fan-type central furnaces, floor furnaces, and wall furnaces. After the applicable Table 2 compliance date, if a furnace requires a short-term replacement due to a sudden unit failure and an electrical upgrade is required to increase the power supply capacity to operate a furnace that complies with Table 2 emission limits, a manufacturer, distributor, retailer, reseller, or installer may do one of the options stated in subparagraph (g)(2)(A) and (g)(2)(B).

For residential fan-type central furnaces, a manufacturer, distributor, retailer, reseller, or installer may elect to offer a furnace for rent that complies with Table 1 emission limits for up to six months prior to installing a furnace that complies with Table 2 emission limits provided the manufacturer, distributor, retailer, reseller, or installer report the date the temporary furnace was rented through the compliance portal no later than 72 hours after the date the temporary unit was rented.

For commercial fan-type central furnaces, floor furnaces, and wall furnaces, a manufacturer, distributor, retailer, reseller, or installer may elect to offer a furnace for rent for up to six months prior to installing a furnace that complies with Table 2 emission limits provided the manufacturer, distributor, retailer, reseller, or installer report the date the temporary furnace was rented through the compliance portal no later than 72 hours after the date the temporary unit was rented. Different from residential fan-type central furnaces, commercial fan-type central furnaces, floor furnaces, and wall furnaces for rent would not be subject to Table 1 emission limits, as they were not previously regulated to meet those limits.

Paragraph (g)(3) – Alternative Compliance Option for Construction
Paragraph (g)(3) provides a new alternative compliance option for construction in existing buildings. After the applicable Table 2 compliance date, if an existing building requires construction to expand the space designed to house or relocate the compliance equipment, perform a utility upgrade, or replace a furnace that does not require the simultaneous

replacement of space cooling equipment as specified in clause (g)(3)(A), a manufacturer, distributor, retailer, reseller or installer may elect to offer a natural gas-fired furnace for rent for up to 24 months prior to complying with Table 2 emission limits, provided all the conditions in clause (g)(3)(B) are met. Clause (g)(3)(B) specifies that the manufacturer, distributor, retailer, reseller or installer who elects to use this alternative compliance option shall report the date the temporary furnace was rented through the compliance portal no later than 72 hours after the date the temporary unit was rented, comply with the labeling specified requirements, and comply with Table 1 emission limits if the furnace for rent is a residential fan-type central furnace.

PAR 1111 (h) – Labeling, Recordkeeping, and Reporting

Subdivision (h) is a new subdivision that details the labeling, recordkeeping, and annual reporting requirements. Labeling requirements are important tools for enforcement, especially when some units distributed to the market can only be installed under certain conditions. While manufacturers ship units into many markets, to ensure the labels are only included on units sold into or within the South Coast AQMD, they may elect to send a sticker or label to their distributors so they can be applied at the point of sale.

Paragraph (h)(1) – Propane Conversion Kit Furnace Labeling and Reporting

The manufacturer, distributor, or installer of any furnace that elects to use the exemption in paragraph (i)(1) must clearly display on the shipping carton or the name plate of the furnace "This furnace is to be installed for propane firing only. Operating in natural gas mode is in violation of the South Coast AQMD Rule 1111.". They must also submit a report by March 1st of the following calendar year to the Executive Officer, which consists of, but is not limited to, the quantity of propane conversion kits for furnaces distributed or sold for use into the South Coast AQMD for the applicable compliance plan period, and the quantity of propane conversion kits for furnaces distributed or sold for use into the South Coast AQMD during the 12-month period of July 1 to June 30, prior to the applicable compliance date.

Paragraph (h)(2) – Recordkeeping and Labeling for Limited High-Altitude Furnace Exemption

The manufacturer, distributor, or installer of any furnace that elects to use the exemption in paragraph (i)(2), which exempts downflow furnaces with a rated heat input capacity of less than 175,000 Btu/hr or condensing or non-condensing furnaces with a rated heat input capacity greater than or equal to 100,000 Btu/hr that are installed in elevations at or above 4,200 feet above sea level, must record the information stated in subparagraphs (h)(2)(A). Labeling requirements are also specified in subparagraph (h)(2)(B) for those units.

Paragraph (h)(3) – Labeling Requirements

PAR 1111 is proposing a labeling requirement for the period between the new building compliance date and existing building compliance date for each equipment category.

Any furnace that complies with the Table 1 emission limits, but does not comply with the Table 2 emission limits, pursuant to the Table 3 (presented in Table 2-4) labeling schedule and is supplied or offered for sale for use within the South Coast AQMD, shall prominently displace the statement "If Installed in South Coast AQMD: 1) After January 1, 2026, shall not be sold for installation in new buildings 2) After January 1, 2028, only for installation in mobile homes; and 3) After January 1, 2030, not compliant for use and installation in South Coast AQMD." The dates for the labeling requirement start date and end date align with the compliance dates in Table 2 for new and existing buildings respectively.

Table 2-4: PAR 1111 Table 3 Labeling Schedule

Furnace's Compliance Schedule	Labeling Requirements	
	Start Date	End Date
Mobile Home Furnaces	January 1, 2026	January 1, 2030
All Other Furnaces	January 1, 2026	January 1, 2028

Paragraph (h)(4) – Furnaces for Rent Only
Furnaces available for rent according to the alternative compliance options (g)(2) and (g)(3) must display the statement "If Installed or used in South Coast AQMD: This unit is for rent only." This paragraph provides a means of enforcing the temporary use of natural gas furnaces.

Paragraph (h)(5) – Annual Reporting Requirement
On or after the Table 2 compliance dates for existing buildings, manufacturers of natural gas-fired furnaces distributed or solid for use into the South Coast AQMD shall submit a report by March 1st of the following calendar year to the Executive Officer, which includes: name of the product manufacturer, list of the product models, the applicable equipment category in Table 2, the provisions of this rule that each model complies, and number of units and rated heat input capacity of each model that was sold into or within the South Coast AQMD.

PAR 1111 (i) – Exemptions
Subdivision (i) was previously subdivision (g) in Rule 1111. Subdivision (i) specifies the exemptions to PAR 1111. Exemptions (g)(1), (g)(2), (g)(3), and (g)(5) were removed, while portions of (g)(4) and sections (g)(7) through (g)(10) were moved to alternative compliance options.

Paragraph (i)(1) – Propane-Fired Furnaces
the manufacturer of any natural gas-fired furnace that is not certified to meet the 14 ng/J of NOx emission limit and is to be installed with a propane conversion kit for propane firing only in the South Coast AQMD, is exempt from subdivisions (d) and (e), provided that the labeling and recordkeeping requirements in (h)(1) are met. This is an existing exemption in Rule 1111 paragraph (g)(4). Its labeling and reporting requirements under the same paragraph have been moved to PAR 1111 paragraph (h)(1) for a streamlined rule structure.

Paragraph (i)(2) – Downflow and Large Residential Furnaces
Until January 1, 2028, downflow furnaces with a rated heat input capacity less than 175,000 Btu/hr, and condensing and non-condensing furnaces with a rated heat input capacity of greater than or equal to 100,000 Btu/hr, either of which are installed at elevations at or above 4,200 feet above sea level as a replacement for an existing furnace are exempt from paragraph (d)(1), given that the recordkeeping and labeling requirements in (h)(2) are followed. After January 1, 2028, this exemption will be phased out, those furnaces for installation at high-altitude shall also meet the zero-emission standard pursuant to (d)(2).

Paragraph (i)(3) – Master-Metered Mobile Home Exemption
With the consideration that master-metered mobile homes may currently not have sufficient electrical service to install-emission appliances, this provision provides them an exemption from zero-emission requirements. The CPUC Mobile Home Park Utility Conversion Program plans to convert 50 percent of mobile home park spaces to a direct utility service by 2030. When mobile homes are converted, they are no longer be exempt by this provision.

PAR 1121

PAR 1121 reorganizes the rule structure to reflect recently amended and adopted rules and includes new subdivisions. Table 2-5 summarizes the changes to the subdivisions in PAR 1121 from Rule 1121.

Table 2-5: Rule 1121 and PAR 1121 Rule Structure

Subdivision	Rule 1121	PAR 1121
(a)	Applicability	Purpose
(b)	Definitions	Applicability
(c)	Requirements	Definitions
(d)	Certification	Requirements
(e)	Mitigation Fee	Certification
(f)	Enforcement	Alternative Compliance Options
(g)	Exemptions	Labeling and Reporting
(h)	Final Progress Report	Exemptions
(i)	Program Administration	(N/A)

PAR 1121 (a) – Purpose

The purpose of PAR 1121 is to reduce NOx emission from natural gas-fired water heaters. Subdivision (a) is a new subdivision added to align with recently amended and adopted rules to standardize the rule structure.

PAR 1121 (b) – Applicability

Subdivision (b) was previously subdivision (a) in Rule 1121. PAR 1121 applies to manufacturers, distributors, retailers, resellers, and installers of natural gas-fired water heaters with a rated heat input capacity less than 75,000 Btu/hr.

The provisions of the rule are primarily enforced through the supply chain (i.e. manufacturers, distributors, retailers, installers, etc.). Resellers are also added to applicability since they are part of the supply chain.

PAR 1121 (c) – Definitions

Subdivision (c) was previously subdivision (b) in Rule 1121. Subdivision (c) lists the definitions used in PAR 1121. For all definitions, refer to PAR 1121 released with the staff report.

The following definitions have been added to PAR 1121:

- Compliance Portal
- Existing Building
- Install
- Installer
- Mobile Home
- New Building
- Parts Per Million by Volume
- Reseller
- Standard Conditions

Install, installer, and reseller are defined to clarify who is subject to the rule. Existing building, mobile home, and new building are defined to differentiate between compliance dates.

The following definitions have been revised in PAR 1121:

- Heat Input
- Heat Output
- Independent Testing Laboratory
- Mobile Home Water Heater
- NOx Emissions
- Protocol
- Rated Heat Input Capacity
- Recreational Vehicle
- Water Heater

Heat input, heat output, rated heat input capacity, and recreational vehicle are revised to align with their definitions in Rule 1146.2, which was amended on June 7, 2024. Independent testing laboratory, NOx emissions, protocol, and rated heat input capacity are revised for clarity. Water heater is revised to ensure this term includes mobile home water heaters.

The following definitions are considered obsolete and have been removed from Rule 1121:

- Btu
- Direct Vent Water Heater
- Mitigation Fee
- Power Vent Water Heater
- Power Direct Vent Water Heater

PAR 1121 (d) – Requirements

Subdivision (d) was previously subdivision (c) in Rule 1121. Paragraphs (c)(1) to (c)(8) in Rule 1121 were removed and the relevant equipment and NOx emission limits are summarized in paragraph (d)(1).

Paragraph (d)(1) – Current Rule 1121 Emission Limits

Paragraph (d)(1) specifies the current NOx emission limits for water heaters and mobile home water heaters in PAR 1121 Table 1 (presented in Table 2-6).

Paragraph (d)(1) states that no person shall manufacture, supply, sell, resell, offer for sale, import, or install, for use in the South Coast AQMD, any water heater unless the water heater is certified pursuant to subdivision (e) and does not exceed the Table 1 NOx limit, expressed by ng/J or ppmv. Paragraph (d)(1) includes that no person shall supply, resell, or import within the South Coast AQMD in addition to the previous requirements (i.e. manufacture, sell, offer for sale, or install).

Table 2-6: Rule 1121 Table 1 Emission Limits

Equipment	NOx Emission Limits	
	ng/J	ppmv
Water Heater*	10	15
Mobile Home Water Heater	40	55

* Excluding Mobile Home Water Heater

Paragraph (d)(2) – PAR 1121 BARCT Emission Limit for New and Existing Buildings

Paragraph (d)(2) sets the updated BARCT emission limits for water heaters and mobile home water heaters as shown in PAR 1121 Table 2 (presented in table 2-7). This paragraph specifies that no person shall manufacture, supply, sell, resell, offer for sale, import, or install a water

heater for use in the South Coast AQMD that exceeds the Table 2 NOx emission limits. The applicable PAR 1121 Table 2 compliance dates for New Building types shall be determined based on the construction or alteration completion date.

Table 2-7: PAR 1121 Zero-Emission Limits and Compliance Schedule

Equipment Category	NOx limit (ng/J)	Building Type	Compliance Date
Water Heater*	0.0	New	January 1, 2026
	0.0	Existing	January 1, 2027
Mobile Home Water Heater	0.0	New	January 1, 2026
	0.0	Existing	January 1, 2030

* Excluding Mobile Home Water Heater

PAR 1121 (e) – Certification

Subdivision (e) provides guidance to manufacturers to certify water heaters. Subdivision (e) was originally subdivision (d) in Rule 1121. Obsolete language, which are paragraphs (d)(4), (d)(5), and (d)(6) in Rule 1121, were removed from this subdivision.

Paragraph (e)(1) – Tests by Independent Testing Laboratory

Contains revisions to defined terms and clarification that natural gas-fired water heaters and water heaters designed to be fired with natural gas are subject to certification. Certification is based on emissions tests conducted by independent testing laboratories in accordance with the protocol.

The manufacturer shall obtain confirmation that each model of water heater complies with the applicable requirements of paragraph (d)(1) from an independent testing laboratory, prior to applying for certification for a natural gas-fired water heater or a water heater designed to be fired with natural gas. This confirmation shall be based on emission tests conducted pursuant to the protocol of a randomly selected unit of each model.

Paragraph (e)(2) – Applying for Water Heater Certification

Paragraph (e)(2) remains mostly unchanged with an update to the reference in subparagraph (e)(2)(A).

When applying for certification of water heaters, the manufacturer shall submit to the Executive Officer the following: a statement that the model is in compliance with paragraph (d)(1) signed and dated by the manufacturer, attesting to the accuracy of all statements; general information, including name and address of manufacturer, brand name, trade name, and model number as it appears on the water heater rating plate; a description of each model being certified,; and a source test report verifying compliance with paragraph (d)(1) for each model to be certified. The source test report shall be prepared by the confirming independent testing laboratory and contain all elements identified in the protocol for each unit tested.

Paragraph (e)(3) – Timeline

When applying for certification of water heaters, the manufacturer shall submit the items identified in paragraph (e)(2) no more than 180 days after the date of the source test identified in subparagraph (e)(2)(D).

PAR 1121 (f) – Alternative Compliance Options

Subdivision (f) is a new subdivision that details the alternative compliance options.

Paragraph (f)(1) –Alternative Compliance Option for Emergency Replacements

If a water heater requires a short-term replacement due to a sudden water heater failure after the applicable Table 2 compliance dates for zero-emission limits and an electrical upgrade is required to increase the power supply capacity to operate a water heater that complies with the zero-emission limits, a manufacturer, distributor, retailer, or installer may elect to offer a water heater for rent that complies with the PAR 1121 Table 1 emission limits for up to six months prior to installing a water heater that complies with the zero-emission limits. The manufacturer, distributor, retailer, reseller, or installer must report the date the temporary water heater was rented through the compliance portal no later than 72 hours after the date the temporary mobile home water heater was rented and comply with the labeling requirement in paragraph (g)(2).

Paragraph (f)(2) – Alternative Compliance Option for Construction

This provision is to address the space constraints and other limitations for replacing a gas water heater with a zero-emission unit when construction is required in an existing building. This may include expanding the space to accommodate a zero-emission unit with a larger footprint, relocating the zero-emission replacement and associated equipment necessary for operation, or performing a utility upgrade necessary to operate the zero-emission unit. The manufacturer, distributor, retailer, reseller, or installer may elect to offer a gas water heater for rent that complies with Table 1 emission limits for up to 24 months during the construction, provided the specified reporting and labeling requirements are met. The manufacturer, distributor, retailer, reseller, or installer is required to report the date the temporary water heater was rented through the compliance portal no later than 72 hours after the date the water heater was rented and comply with the labeling requirements in paragraph (g)(2).

PAR 1121 (g) – Labeling and Reporting

Subdivision (g) is a new subdivision that takes some requirements regarding labeling from subdivision (c) of Rule 1121. Labeling requirements are important tools for enforcement, especially when some units distributed to the market can only be installed under certain conditions. While manufacturers ship units into many markets, to ensure the labels are only included on units sold into or within the South Coast AQMD, they may elect to send a sticker or label to their distributors so they can be applied at the point of sale.

Paragraph (g)(1) – Labeling Water Heaters for Installation and Use in Existing Buildings

PAR 1121 is proposing a labeling requirement for the period between the new building compliance date and existing building compliance date for each equipment category. Pursuant to the labeling schedule in PAR 1121 Table 3 (presented in Table 2-8), any water heater that is supplied or offered for sale for use in the South Coast AQMD prior to the applicable zero-emission compliances dates that complies with the PAR 1121 Table 1 NOx emission limits, but not the zero-emission limits, shall prominently display the statement:

> "If Installed in South Coast AQMD: 1) After January 1, 2026, shall not be sold for installation in new buildings 2) After January 1, 2027, only for installation in mobile homes; and 3) After January 1, 2030, not compliant for use and installation in South Coast AQMD."

Table 2-8: PAR 1121 Table 3 Labeling Schedule

Equipment	Labeling Requirement	
	Start Date	End Date
Water Heater*	January 1, 2026	January 1, 2027
Mobile Home Water Heater	January 1, 2026	January 1, 2030

* Excluding Mobile Home Water Heater

Paragraph (g)(2) – Labeling Rental Units for Alternative Compliance
This paragraph specifies the labeling requirement for any water heater supplied or offered for rent for use in accordance with an alternative compliance option in subdivision (f). Those water heaters shall prominently display the statement "If Installed or used in South Coast AQMD: This unit is for rent only."

Paragraph (g)(3) – Shipping Carton and Name Plate Labeling
The manufacturer of any water heater manufactured for sale in the South Coast AQMD shall clearly display the following on the shipping carton and name plate of the water heater: model number, date of manufacture, and certification status.

Paragraph (g)(4) – Annual Reporting Requirement
On and after the Table 2 compliance dates for existing buildings, manufacturers of natural gas-fired water heaters or water heaters designed to be fired with natural gas shall submit a report by March 1st of the following calendar year to the Executive Officer. The report shall include the following: name of the product manufacturer; list of the product model(s); the applicable equipment category in Table 2; the provision of this rule that each model complies; and number of units and rated heat input capacity of each model that was sold for use in the South Coast AQMD.

PAR 1121 (h) – Exemptions
Subdivision (h) details the exemptions to the rule. This subdivision was previously subdivision (g) in Rule 1121. While paragraphs (h)(1) and (h)(2) are existing provisions, PAR 1121 proposes new exemptions in paragraphs (h)(3) and (h)(3).

Paragraph (h)(1) – Recreational Vehicle Exemption
PAR 1121 shall not apply to water heaters used in recreational vehicles.

Paragraph (h)(2) – Rule 1146.2 Exemption
PAR 1121 shall not apply to water heaters subject to Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters.

Paragraph (h)(3) – Master-Metered Mobile Home Park Exemption
The requirements specified in paragraph (d)(2) shall not apply to mobile home water heaters for installation in a master-metered mobile home park. Master-metered mobile home parks may not have sufficient power delivered to the entire mobile home park; therefore, the mobile homes located on that property may not have sufficient power to install equipment that complies with the zero-emission limits. The CPUC plans to convert 50 percent of master-metered mobile home parks to a direct utility service[11] by 2030, wherein the mobile home

[11] Mobilehome Park Utility Conversion Program. https://www.cpuc.ca.gov/regulatory-services/safety/mhp/mobilehome-park-utility-upgrade-program

would no longer be subject to the exemption in paragraph (h)(3). Over time, staff anticipates all master-metered mobile home parks will be converted to direct utility service, at which time, they will be able to install zero-emission water heaters.

2.5 SUMMARY OF AFFECTED INDUSTRIES

PAR 1111 affects manufacturers, distributors, retailers, resellers, and installers of natural gas-fired furnaces with a rated heat input capacity less than or equal to 2,000,000 Btu/hr used for interior space heating. There are no OEMs of gas-fired furnaces located in the South Coast AQMD; however, these companies maintain regional sales offices and distribution centers in the South Coast AQMD with supply chains to support their products. The units affected by the proposed rule are mostly used in residential and commercial buildings for space heating.

The following table shows the North American Industry Classification System (NAICS) for the industries affected by PAR 1111. Staff estimated a total of 5,300,000 units in the South Coast AQMD are regulated by PAR 1111.

Table 2-9: PAR 1111 Affected Industries

Affected Industry	NAICS Code
Heating Equipment (except Warm Air Furnaces) Manufacturing	333414
Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing	333415
Motor and Generator Manufacturing	335312
Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	423610
Heating, Ventilation, and Air Conditioning (HVAC) Equipment Merchant Wholesalers	423730
Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers	423620
Installers	238

PAR 1121 affects manufacturers, distributors, retailers, resellers, and installers of natural gas-fired water heaters with a rated heat input capacity less than 75,000 Btu/hr. There are no OEMs of gas-fired water heaters located in the South Coast AQMD; however, these companies do maintain regional sales offices and distribution centers in the region, and the supply chains to support their products. The units affected by the proposed rule are mostly used in residential buildings for domestic hot water needs.

The following table shows the NAICS for the industries affected by PAR 1121. Staff estimated a total of 5,100,000 units in the South Coast AQMD are regulated by PAR 1121

Table 2-10: PAR 1121 Affected Industries

Affected Industry	NAICS Code
Hot Water Heating System Installation	238220
Water Heater Controls Manufacturing	334512
Water Heaters, Gas and Electric, Merchant Wholesaler	423720
Major Household Appliance Manufacturing	335220
Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	423610
Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers	423620
Installers	238

2.6 TECHNOLOGY OVERVIEW

Space Heating

Heat Pump Technology for Heating, Ventilation, and Air Conditioning

Common zero-emission heating technology includes heat pumps. This technology can be over three times more efficient than conventional appliances and can be used for water heating, space heating, and cooling.

Unlike natural gas fired furnaces that generate heat directly, heat pumps use the principle of energy transfer to transport energy from an outside medium (such as the ground or outside air) to the interior, using a refrigerant cycle. Heat pumps typically consist of an indoor unit and an outdoor unit. Compared to traditional furnaces, heat pumps have the additional benefit of cooling. Different types of heat pumps cater to various HVAC needs, each offering unique advantages. The indoor unit of ducted heat pumps are integrated into a ductwork system, distributing heated or cooled air throughout a building. They are ideal for houses with pre-existing central heating and cooling but require installation of a ducting system for houses that do not. On the other hand, ductless mini-split heat pumps operate without ducts, using individual air handing units mounted inside individual rooms for zonal heating and cooling. These units offer more flexibility in temperature control and installation, making them suitable for spaces lacking ductwork or requiring independent temperature control. Window heat pumps are compact units designed to fit into windows, offering localized heating and cooling for single rooms or small areas. They are easy to install and provide immediate temperature control but are less efficient compared to their ducted or ductless system counterparts.

All air-source heat pumps draw heat from the outside air, which means they will gradually lose performance as the outside temperature drops. Ground-source heat pumps, on the other hand, have refrigerant lines underground to take advantage of the ground's relatively constant temperature. This provides consistent high performance but requires significantly higher installation costs.

Electric Resistance Technology for Space Heating

Electric resistance furnaces use resistance elements, such as heating coils or strips to warm the air, which can then be used in conjunction with air handlers, ductworks, and thermostats to deliver controlled heat through a residential or commercial space. This technology converts nearly all incoming electricity and converts it to heat directly. Some heat pumps have an electric resistance element used for backup heating since a heat pump's efficiency may decrease due to extreme cold conditions or inadequate spacing.

Electric resistance heaters have fewer requirements for installations compared to natural gas fired heaters, as they do not require a flue or venting system. This allows electric resistance to be installed in a wide range of indoor spaces and is suitable for spaces where natural gas availability is limited or undesirable.

Electric resistance wall heaters are mounted directly onto walls and use electric resistance coils to warm the surrounding air. This warm air then rises naturally, creating convection currents that circulate through the room, gradually raising the ambient temperature. Similarly, electric resistance floor heaters use the same principle, but are generally installed along the baseboards of walls. Both wall and floor heaters are often used in residential and commercial spaces where localized space heating is needed and oftentimes, where a central heating system is not sufficient or not practical.

However, electric resistance furnaces are not as efficient as heat pumps since they convert electricity to heat in a nearly one-to-one ratio.

Solar Technology for Heating, Ventilation, and Air Conditioning
Solar heating technology collects thermal energy from the sun to heat space or water. Active and passive solar heating are the two most common types of solar heating. Active solar air heating systems use solar collectors to heat air, which is then circulated through the home using fans or ducts. This method is often used in conjunction with a traditional heating system to provide supplemental heat. Solar technology is commonly used to generate electricity for storage or to power an existing HVAC system. Due to the reliance on available sunlight, solar HVAC systems may need to have a back-up system when sunlight is not available. Solar HVAC systems are commonly coupled with mini split heat pumps, leveraging the use of a renewable energy source to power the HVAC system. Passive solar heating systems rely on building design elements, such as windows, walls, and floors, to collect, store, and distribute the solar energy naturally.

Mobile Homes
Mobile home furnaces have specific design and size requirements that are different from those of a traditional home furnace. There are various zero-emission technologies for mobile home space heating, including solar, electric resistance, and heat pumps. Heat pump technologies include ductless mini-split, package, central air, and geothermal systems that have high energy efficiency and are gaining more popularity. Package heat pump systems do not have the concern of physical design for space and air flow as they do not require a separate indoor unit. Packaged heat pump systems combine the heating and cooling components into one outdoor unit and connect to the home's ductwork to distribute warm or cool air throughout the living space.

Water Heating
Heat Pump Technology for Water Heating
Common zero-emission heating technology includes heat pumps. This technology can be over three times more efficient than conventional appliances and can be used for water heating, space heating, and cooling.

Unlike natural gas-fired water heaters that generate heat directly, heat pump water heaters use the principle of energy transfer to transport energy from the surrounding air to the water, using a refrigerant cycle. The most common type of heat pump water heaters (HPWH) are integrated HPWHs, where the heat pump and storage tank are in a single unit. These are ideal for smaller spaces where installation flexibility is limited, as these offer the convenience of a "drop-in"

replacement. Additionally, there are split system HPWHs, where the heat pump unit is separated from the water storage tank. This allows the heat pump unit to be installed in a less-obtrusive area, such as outdoors or a basement, whereas the storage tank can be installed in a different location indoors. In split systems, the heat pump takes heat from where the heat pump unit is installed. The split system, however, is not a "drop-in" replacement for a conventional tank-type water heater and may necessitate higher upfront costs for installation.

Two of the most common types of integrated HPWHs, 240-volt (240V) and 120-volt (120V), are differentiated by the power supply required to operate. 240V HPWHs generally are hybrid electric water heaters, where the heat pump water heater can use a back-up heating element to accommodate for high water usage to increase the recovery rate. Compared to 120V HPWHs, 240V HPWHs have a higher efficiency, but require a power supply that may not be available for all installations. 120V HPWHs offer a solution for a wider range of installations, but they do not have a back-up heating element which results in a slower recovery rate.

120V HPWHs can reduce costs and installation complexity that customers may face when retrofitting a HPWH, compared to 240V HPWHs. New Buildings Institute (NBI) worked closely with 120V HPWH manufacturers and utilities in California on a statewide 120V HPWH field validation program from 2021 to 2023. NBI installed 120V HPWHs for 32 customers in most climate zones across California.[12] Based on the study findings, they saved between $800 and $15,000 per household compared to 240V HPWH installation, primarily due to the minimal electrical interventions. These are very low amperage draw water heaters, they were pulling 4-6 amps of current during the monitoring period, despite being rated for 15 amps. From the installer feedback, 120V HPWHs were also faster to install, making them ideal for emergency replacements. 120V HPWHs were introduced to the market in 2022. Currently, there are two manufacturers (i.e., Rheem & A. O. Smith) with 120V HPWHs commercially available with sizes ranging from 40 to 80 gallons. More manufacturers are expected to commercialize 120V HPWHs. This type of HPWH can plug into a standard wall outlet (shared circuit ≥ 15 amps) and can be installed like a standard gas water heater. Due to its slower heat recovery rate and lower first hour ratings compared to its gas-fired counterpart, manufacturers recommend upsizing for similar hot water availability, which means a larger footprint is required. For example, for A. O. Smith products, the HPWH replacement typically is 4-6" larger in diameter and 3-8" taller. Another installation consideration is about ventilation. For a small space not meeting the air flow criteria, louvered door and inlet/outlet ducting may be considered.

The split system HPWH offers a solution for small spaces. This technology is widely used in industrial and residential water heating applications in countries like Japan and Australia and are now gaining more adoption in the California market. The SANCO$_2$ Heat Pump Water Heater system has been observed in use for multifacility retrofit projects including the South Coast AQMD Multifamily Affordable Housing Electrification Project.[13, 14] Manufacturers are also developing 120V split system HPWHs that minimize the need for electrical upgrades. EmberH2O Heat Pumps also have a 120V split system heat pump water heater[15]. The Hot Water Innovation

[12] NbI New Buildings Institute Plug-In Heat Pump Water Heater Field Study Findings & Market Commercialization Recommendations. https://newbuildings.org/wp-content/uploads/2023/07/PlugInHeatPumpWaterHeaterFieldStudyFindingsAndMarketCommercializationRecommendations_NBI202308.pdf

[13] ECO2 Systems Product Information. https://eco2waterheater.com/product-info/

[14] South Coast AQMD's Governing Board Agenda. https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-jan4-002.pdf

[15] The next generation of Heat Pump Water Heaters. https://embertec.com/heat-pump(-water-heaters/

Prize intends to reward manufacturers that develop innovative split system HPWHs and bring the technology to market.[16]

Multi-function heap pumps (MFHP) are another emergency technology that uses one efficient compressor and outdoor heat exchanger coil to provide space cooling, space heating, and domestic hot water heating. For retrofits in buildings with existing air conditioning, this means that full size capacity air-to-air MFHP can utilize existing air conditioning electrical circuits without modification. For buildings that do not have air conditioning, the air-to-air MFHP is less likely to trigger the need for a service breaker panel or service wire upgrade compared to the typical separate heat pump HVAC and standalone HPWH products. Harvest Thermal[17] and Villara Aqua ThermAire[18] are market available MFHP products and more developments are underway[19].
Some stakeholders have expressed concerns over how well heat pumps will operate in colder climates, such as the high-altitude locations within the South Coast AQMD. There are heat pump products available in the market that can operate at low temperatures, and the Northwest Energy Efficiency Alliance's Qualified Products List includes HPWH products that are energy efficient in cold climates and products that can produce hot water via heat pump at negative 25 degrees Fahrenheit. Cold climate heat pumps can pull heat from the air even at sub-zero temperatures and are utilized in colder climates in the U.S. and abroad. Maine has one of highest per capita heat-pump adoption rates, outpacing Scandinavian countries, with rebates incentivizing installation of approximately 116,000 heat pumps in a state that has fewer than 600,000 occupied housing units. Heat pump technology is also being adopted in states such as Vermont and Alaska, and according to the International Energy Agency, 60 percent of Norway's buildings are fitted with a heat pump.

Electric Resistance Technology for Water Heating
Electric resistance water heating relies on electric heating elements immersed in a storage water tank to generate heat. These heating elements are submerged in water in the storage water tank and heat the water by converting the incoming electricity to heat. This technology converts nearly all incoming electricity and converts it to heat directly.

Thermostats monitor the water temperature inside the tank and cycle the heating elements on and off, as needed, to maintain a set temperature. Electric resistance water heaters are generally less efficient than heat pump water heaters, as it can only convert electricity to heat at a one-to-one ratio. Some heat pumps have an electric resistance element used for backup heating since a heat pump's efficiency may decrease due to extreme cold conditions or inadequate spacing.

Solar Technology for Water Heating
Solar thermal hot water systems include conventional-sized systems and consist of flat plate collectors, a controller, pump, and storage. The solar thermal collectors absorb sunlight and transfer the heat to the water or heat transfer fluid. Solar water heating can be active, by using pumps to circulate water, or passive, by relying on natural convection. Solar water heating is advantageous in warmer climates, as it depends on the availability of sunlight to function. Because of this, the use of a back-up water heater, be it a gas-fired, electric resistance, or a HPWH, may be required.

[16] Hot Water Innovation prize. https://partners.hotwatersolutionsnw.org/hot-water-innovation-prize
[17] Harvest. https://www.harvest-thermal.com/
[18] AquathermAire-One-Sheet. https://villara.com/wp-content/uploads/2024/03/1.22-AquathermAire-One-Sheet.pdf
[19] Residential-Multi-Function-Heat-Pumps-Product-Search_Final-Report.https://calnext.com/wp-content/uploads/2023/02/ET22SWE0021_Residential-Multi-Function-Heat-Pumps-Product-Search_Final-Report.pdf

Mobile Homes

Mobile home natural gas water heaters generally have lower capacity and are compatible for natural gas and propane use. Similar to mobile home space heating systems, mobile home water heaters need to be approved by HUD for safety standards. Considering the limited space of manufactured homes, HUD requirements limit the options of water heater replacement in a mobile home. Some common zero-emission mobile home water heaters include electric tankless water heaters and electric storage water heaters. Manufactures are also providing HPWHs that are HUD approved for mobile home installation. For example, Clayton Homes eBuilt shows a Rheem ProTerra heat pump water heater[20]. Some manufacturers have stated that they will continue their heat pump development to further address space constraints for some existing mobile homes as the market grows.

Fuel Cell Technology for Water Heating

Residential fuel cells that provide combined heat and power (referred to as micro-CHPs) are commercially available in Japan and Europe. Most available micro-CHPs use natural gas, which is reformed into hydrogen gas and carbon dioxide (CO_2). The hydrogen is then sent to the fuel cell, which produces electricity and heat as a byproduct, producing zero NOx. This heat can be used to fulfill heating needs, including hot water and space heating. The same unit can use piped or bottled hydrogen gas, which also makes it an option to decarbonize home heating. However, most units also have a natural gas-fueled "top-up boiler" which provides additional needed heat at peak load. In Japan, micro-CHPs have been heavily subsidized by the government under the Ene-Farm project, which is part of the larger "Hydrogen Society" policy to move Japan's infrastructure to hydrogen as a renewable fuel source. Japan has by far the largest market penetration of micro-CHPs, with 465,000 systems installed by 2022, though this amount was substantially fewer than the Japanese government's target of 1.4 million systems by 2020.

In Europe, adoption has been much lower. Two pilot projects, Ene-field and its successor PACE, have only installed 3,500 micro-CHPs, with the majority installed in Germany. According to representatives of So Cal Gas, many of the Japanese and European manufacturers of micro-CHPs are reluctant to bring them to the US market since they would need to make modifications to the units to meet UL certification requirements. Staff was unable to locate any micro-CHPs available for sale in the United States.

Fuel cells have a broad range of applications from multi-megawatt systems to small units and continue to expand with emerging technologies[21]. Cost and durability are still critical challenges, and studies have indicated price ranges between $4,000 to $20,000 per kilowatt (kW). Natural gas fuel cells produce some NOx emissions. Fuel cell adoption in California currently is limited; however, fuel cell technology has the potential to replace existing units to meet the zero-emission limits.

[20] Clayton Homes eBuilt. https://www.claytonbuilt.com/ebuilt

[21] U.S. Department of Energy, Multi-Year Research, Development, and Demonstration Plan, https://www.energy.gov/sites/default/files/2017/05/f34/fcto_myrdd_fuel_cells.pdf

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 following sections summarize the existing setting for Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 in the 2022 AQMP and the existing rules that will be affected by the proposed project (e.g., PAR 1111 and PAR 1121) as well as the regional existing setting for air quality and greenhouse gas emissions, and energy which were the only environmental topics identified that may be adversely affected by the proposed project.

3.1 EXISTING SETTING

In general, Rule 1111 was developed to reduce NOx emissions from space heaters in residential and commercial buildings, and Rule 1121 to reduce NOx emissions from water heaters in residential buildings. Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 in the 2022 AQMP were developed to achieve further NOx reductions from residential and commercial space and water heating sources as part of a Basin-wide plan to meet NAAQS for ozone. The following summarizes the existing setting for Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 as well as the current versions of Rules 1111 and 1121.

Control Measures R-CMB-01 – Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Water Heating, R-CMB-02 – Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Space Heating, and C-CMB-02 – Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Commercial Space Heating

The 2022 AQMP is the planning document that sets forth policies and measures to achieve federal and state ambient air quality standards in the region. In accordance with the United States Environmental Protection Agency strengthening the NAAQS for ground-level 8-hour ozone in 2015, by lowering the primary and secondary 8-hour ozone standard to 70 parts per billion, the 2022 AQMP identifies control measures and strategies which have been developed to bring the South Coast Air Basin and the Coachella Valley into attainment with this standard by 2037. The 2022 AQMP control measures and strategies were developed to achieve this NAAQS by focusing on reducing emissions of NOx, which are precursors to the formation of ozone, and other air pollutants. The 2022 AQMP is comprised of the following control measures which address stationary point and area and mobile sources: 1) the South Coast AQMD's Stationary and Mobile Source Control Measures; 2) control measures identified in the 2022 State Strategy for the State Implementation Plan by the California Air Resources Board; and 3) approved Regional

Transportation Plan/Sustainable Communities Strategy and Transportation Control Measures provided by the Southern California Association of Governments. The 2022 AQMP also includes emission inventories, the most current air quality data, updated growth projections, new modeling techniques, demonstrations of compliance with state and federal Clean Air Act requirements, and an adoption and implementation schedule for the control strategies. The 2022 AQMP is designed to protect and improve public health for those living, working, and visiting the region within South Coast AQMD's jurisdiction. Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 were developed to further reduce NOx emissions from residential building water heating sources regulated by Rule 1121, residential space heating sources regulated by Rule 1111, and commercial spacing heating sources regulated by Rule 1121, respectively, and proposed to 1) develop rules to require zero-emission heating units for installations in both new and existing residences and commercial buildings; 2) allow low NOx technologies as a transitional alternative when installing a zero-emission unit is determined to be infeasible; and 3) provide incentive funds to facilitate the transition to zero-emission technologies and promote further emission reductions earlier than required.

Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces

Rule 1111 regulates NOx emissions from natural gas-fired fan-type central furnaces with rated heat input capacity of less than 175,000 British thermal units per hour (Btu/hr), or for units with combined heating and cooling (package units), a cooling rate of less than 65,000 Btu/hr. The rule was first adopted in December 1978, and amended in November 2009 to lower the NOx emission limit from 40 to 14 ng/J. The rule was later amended several times to provide an alternative compliance option and extend the option that allows the manufacturer to pay a per-unit mitigation fee, in lieu of meeting the lower NOx emission limit. All furnace types have transitioned to 14 ng/J, except for mobile home furnaces for which the mitigation fee alternative compliance option will end by September 30, 2025.

Rule 1121 – Control of Nitrogen Oxides from Residential Type, Natural-Gas-Fired Water Heaters

Rule 1121 regulates NOx emissions from natural gas-fired water heaters with a rated heat input capacity of less than 75,000 Btu/hr. The rule was also first adopted in December 1978. It was amended in 1999 to reduce the NOx emission limit from 40 ng/J stepwise to 10 ng/J and amended again in 2004 to extend the compliance dates of 10 ng/J limit for some categories. Currently, all Rule 1121 water heaters are meeting the NOx emission limit of 10 ng/J, except for mobile home water heaters that are subject to a NOx emission limit of 40 ng/J.

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 (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), 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.[22,23,24]

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.

[22] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants, accessed on September 19, 2024.

[23] 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 September 19, 2024.

[24] 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 September 19, 2024.

Table 3-2
South Coast AQMD – 2020 Air Quality Data – CO[25]

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.

[25] 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 September 19, 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.[26,27,28]

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 (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 station (Southwest Coast LA County) exceed the former 2008 federal 8-hour O_3 standard (0.075 ppm).

Maximum 1-hour average and 4th highest 8-hour[29] 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. All areas within South Coast AQMD's jurisdiction are in nonattainment for both the federal and state 1-hour and 8-hour ozone standards.

[26] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants https://www.epa.gov/criteria-air-pollutants, accessed on September 19, 2024.
[27] 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 September 19, 2024.
[28] 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 September 19, 2024.
[29] The 4th highest 8-hour average concentration is the design value form of 8-hour NAAQS for Ozone.

Table 3-3
South Coast AQMD – 2020 Air Quality Data – O_3[30]

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.

[30] 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 September 19, 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.[31,32,33]

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) 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 202; however, the 98th percentile value has not exceeded the standard.[34] 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.

[31] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed on September 19, 2024.

[32] 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 September 19, 2024.

[33] 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

[34] 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[35]

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 [b]**	**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[(c)]			**101.6**	**86.3**	**29.1**
SOUTH COAST AIR BASIN[(d)]			**101.6**	**86.3**	**29.1**

ppb = parts per billion
AAM = Annual Arithmetic Mean
-- Pollutant not monitored

*Incomplete data
**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 NO_2 federal 1-hour standard is 100 ppb and the annual standard is annual arithmetic mean NO_2 > 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 The design value form of the 1-hour NAAQS is the annual 98th percentile of the daily maximum 1-hour average concentrations.

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.

[35] 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 September 19, 2024.

Sulfur Dioxide

SO2 is a colorless gas with a sharp odor. It reacts in the air to form sulfuric acid (H2SO4), which contributes to acid precipitation, and sulfates, which are components of PM10 and PM2.5. Most of the SO2 emitted into the atmosphere is produced by burning sulfur-containing fuels.

Exposure of a few minutes to low levels of SO2 can result in airway constriction in some asthmatics. All asthmatics are sensitive to the effects of SO2. 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 SO2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO2. Animal studies suggest that despite SO2 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 SO2 levels. In these studies, efforts to separate the effects of SO2 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.[36,37,38]

As summarized in Table 3-5, SO2 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 SO2 occurred in 2020 at any of the five locations monitored the Basin. The maximum 1-hour SO2 concentration was 6.0 ppb recorded at the Southwest Coast LA County station. The 99th percentile of 1-hour SO2 concentration was 9.4 ppb recorded at the South Coastal Los Angeles County 3 station. Though SO2 concentrations remain well below the standards, SO2 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 SO2 standards.

[36] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed on September 19, 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 September 19, 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, accessed on September 19, 2024

Table 3-5
South Coast AQMD – 2020 Air Quality Data – SO2[39]

SULFUR DIOXIDE (SO2)[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 SO2 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.

Particulate Matter (PM10 and PM2.5)

Of great concern to public health are 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.[40,41,42]

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,

[39] 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 September 19, 2024
[40] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed on September 19, 2024
[41] 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 September 19, 2024
[42] 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 September 19, 2024

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 or CA-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[43]

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 PM 10 from March 28, 2020 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.

[43] 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 September 19, 2024

Table 3-7
South Coast AQMD – 2020 Air Quality Data – PM2.5[44]

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
**Salton Sea Air Basin
AAM = Annual Arithmetic Mean

[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.

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

[44] 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 September 19, 2024

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.[45, 46, 47]

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 $\mu g/m^3$. Further, the state 30-day standard of 1.5 $\mu g/m^3$ 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 SO2. 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 SO2 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.[48,49,50]

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 $\mu g/m^3$ 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.

[45] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed on September 19, 2024

[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 September 19, 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 September 19, 2024

[48] U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants, accessed on September 19, 2024

[49] 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 September 19, 2024.

[50] 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 September 19, 2024

Table 3-8
South Coast AQMD – 2020 Air Quality Data – Lead and Sulfates[51]

		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/m³ = 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/m³ and 0.059 µ/m³.

[a] Federal lead standard is 3-months rolling average > 0.15 µg/m³; state standard is monthly average ≥ 1.5 µg/m³. Lead standards were not exceeded.
[b] State sulfate standard is 24-hour ≥ 25 µg/m³. 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.

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).[52] 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 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.

[51] 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.
[52] International Agency for Research on Cancer. https://monographs.iarc.who.int/monographs-available/, accessed on September 19, 2024.

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 Airborne Toxic Control Measures (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 evaluated control measures in the 2016 AQMP and 2022 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. California Environmental Protection Agency (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[53]) 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 impacts of CO2 'domes' that form over urban areas showed that they cause increases in local temperatures and local criteria pollutants, which have adverse health effects.[54]

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.

[53] 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 September 19, 2024.

[54] 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/es903018m.pdf, accessed on September 19, 2024.

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.
- **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.[55]

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.[56] Effects of climate change include rising sea levels and changes in snowpack.[57] 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.

3.2.2.1.1 Statewide Inventory

GHG emissions in the state have been inventoried by CARB. As shown in Figure 3-1, CO_2 accounts for 83 percent of the total 418.2 million metric tons (MT) of CO_2eq emissions in the state 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 percent 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.

[55] Intergovernmental Panel on Climate Change (IPCC). 2014. *Fifth Assessment Report: Climate Change 2014*. New York: Cambridge University Press, https://issuu.com/unipcc/docs/syr_ar5_final_full_wcover, accessed on September 19, 2024.

[56] Center for Disease Control. 2016. Climate Change Decreases the Quality of the Air We Breathe. https://www.cdc.gov/climate-health/php/effects/air-pollution.html, accessed on September 19, 2024.

[57] 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 September 19, 2024.

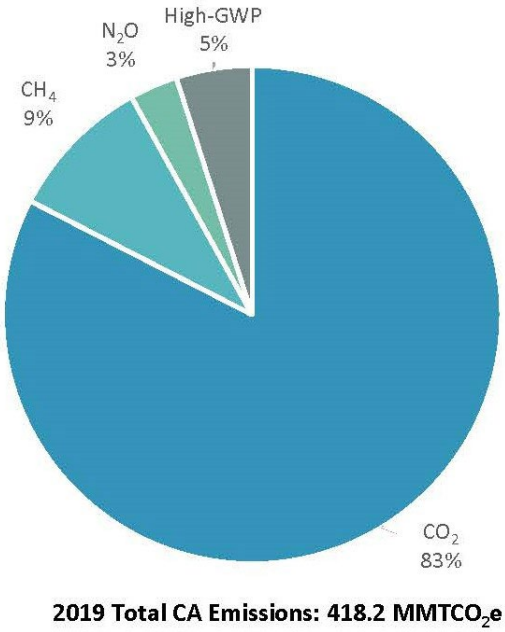

Figure 3-1
2019 Statewide GHG Emission Contributions by GHG[58]

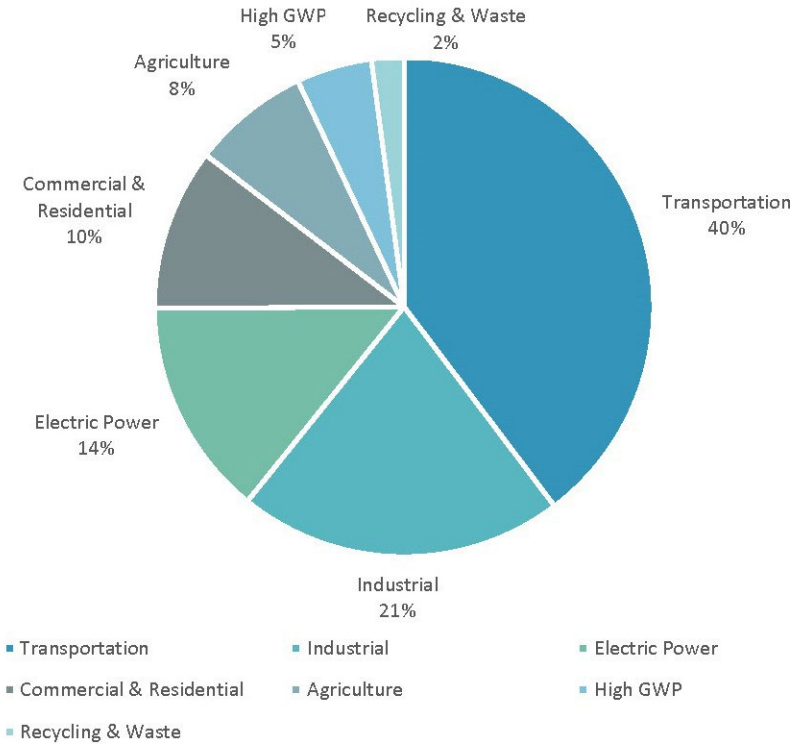

Figure 3-2
2019 Statewide GHG Emission Contributions by Scoping Plan Sector[59]

[58] 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 September 19, 2024.
[59] 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 September 19, 2024.

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 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.[60] 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.[61]

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

[60] 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 September 19, 2024.

[61] 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 September 19, 2024.

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 percent 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 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.[62] 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 percent 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

[62] 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.

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 percent from business-as-usual (BAU) emission levels projected for 2020, or about 15 percent from 2005 to 2008 levels.[63] 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 percent 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 emission limit of 260 million $MTCO_2eq$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030.[64]

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 emission limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- 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 percent by 2030).
- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent 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 percent and anthropogenic black carbon emissions by 50 percent by year 2030.

[63] California Air Resources Board. 2008, December. Climate Change Scoping Plan, A Framework for Change.
[64] 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 September 19, 2024.

- 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.[65]

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 percent and 80 percent, respectively) to the state's 1990 emission 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.[66]

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 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.

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. As mentioned in the Executive Summary, 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

[65] 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 September 19, 2024.
[66] 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 September 19, 2024.

in the trees, plants, soil, and wetlands that cover 90 percent 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 percent 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.[67]

Mobile Sources

AB 1493 Vehicular Emissions: Prior to the U.S. EPA and NHTSA joint rulemaking in 2012, 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."[68] 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, 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.[69]

[67] 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 September 19, 2024.

[68] California Legislative Information, AB-1493 Vehicular Emissions: Greenhouse Gases, https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200120020AB1493, accessed on September 19, 2024..

[69] 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 September 19, 2024.

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 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 amount 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 percent 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 percent 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 percent 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." The 2013 ZEV Action Plan was later updated in 2016 and 2018 to reflect the significant progress in ZEV market and reaffirm California's commitment to ZEVs.

EO N-79-20: On September 23, 2020, Governor Newsom signed Executive Order N-79-20 which included the following goals: 1) 100 percent of in-state sales of new passenger cars and trucks transition to zero-emission vehicles by 2035; 2) 100 percent of drayage trucks transition to zero-emission vehicles by 2035; 3) 100 percent of medium- and heavy-duty vehicles transition to zero-emission vehicles by 2045 for all operations in California, where feasible; and 4) 100 percent 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.[70]

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.[71,72] The updated targets became effective on October 1, 2018. The targets consider the need to further reduce VMT, as identified in the 2017 Scoping

[70] 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.
[71] 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 September 19, 2024.
[72] 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 September 19, 2024.

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 eight percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent).[73] 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.[74] 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 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 percent by 2035. Additionally, Connect SoCal also forecasts that implementation of the plan will reduce VMT per capita in year 2045 by 4.1 percent 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. SCAG recently prepared its 2024-2050 RTP/SCS (Connect SoCal 2024) for the region, which expanded on the policies, strategies and projects established in Connect SoCal 2020; and the plan was adopted in April 2024.

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

[73] 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 June 10, 2022.

[74] Southern California Association of Governments (SCAG). 2020, September. Adopted Final Connect SoCal. https://scag.ca.gov/read-plan-adopted-final-plan, accessed on September 19, 2024.

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 percent 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 percent by 2010 to 33 percent renewable power by 2020.

SB X1-2: 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 percent 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 percent of retails sales from renewables by the end of 2013, 25 percent by the end of 2016, and the 33 percent 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 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 León) was signed into law September 2015 and establishes tiered increases to the RPS with 40 percent by 2024, 45 percent by 2027, and 50 percent 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 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Additionally, SB 100 also established a new RPS requirement of 50 percent by 2026. Furthermore, the bill establishes an overall state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent 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 percent 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 percent 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 was approved in 2018 and requires the California Energy Commission (CEC), working with CARB and the California Public Utilities Commission (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 percent below 1990 levels by 2030. The bill requires the CEC to regularly seek data and input from stakeholders relating to electric vehicle charging infrastructure.[75]

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 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 percent and 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.[76]

In addition, on August 11, 2021, the CEC adopted the 2022 Building Energy Efficiency Standards which went into effect on 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 submitted on or after January 1, 2023, must comply with the 2022 Energy Code.

[75] 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 September 19, 2024.

[76] California Energy Commission (CEC). 2018. News Release: Energy Commission Adopts Standards Requiring Solar Systems for New Homes, First in Nation. https://www.nytimes.com/2018/05/09/business/energy-environment/california-solar-power.html#:~:text=May%209%2C%202018,watching%20to%20see%20what%20happens.%E2%80%9D, accessed on September 19, 2024.

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.[77] 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 also requires that at least 65 percent 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 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent 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 percent lower than in the early 1960s despite the tripling of diesel fuel use. In-use on-road rules are expected to reduce black carbon emissions from on-road sources by 80 percent 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 percent and rose to 95 percent beginning January 1, 2012.

[77] The green building standards became mandatory in the 2010 edition of the code.

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.

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.

3.3 ENERGY

This section had been updated from what was originally provided in the Final Program EIR for the 2022 AQMP to incorporate new data.

The goal of the 2022 AQMP is to address the federal 2015 eight-hour ozone standard, to satisfy the planning requirements of the federal CAA by identifying ways to reduce emissions from existing emission sources and promoting the use of the cleanest available new emission sources and technologies. Several of the control measures focus on maximizing the implementation of existing zero-emission and low NOx technologies, recognizing that new zero emissions and ultra-low NOx technologies may still need to be invented or made commercially available in order to achieve the necessary reductions to attain the 70 ppb ozone standard.

In particular, the 2022 AQMP is comprised of an assortment of control measures that are designed to accelerate the replacement of high-emitting mobile sources with low NOx and zero-emission mobile sources; encourage the use of lower-emitting alternative fuels; affect stationary sources at existing and new commercial/industrial facilities and residential developments; develop incentives to remove/replace higher emitting equipment; establish greater control of industrial stationary sources; control indirect sources of emissions; improve energy efficiency; improve detection and procedures; and establish educational and outreach programs.

While the control measures are intended to improve overall air quality in the region, direct or indirect energy impacts associated with their implementation may occur such as increasing energy demand in the region by encouraging the use of more electricity, natural gas, and cleaner, alternative fuels such as hydrogen.

The Initial Study for the 2022 AQMP control measures identified the following as potentially contributing to significant adverse energy impacts: 1) increase in regional energy demand, even after implementing energy efficiency and energy conservation measures, which may result in the need for new or substantially altered power or natural gas utility systems, create significant effects on peak and base period demands for electricity and other forms of energy; 2) increase the use of natural gas and alternative fuels; and 3) consume energy (e.g., gasoline, diesel, and electricity) during construction activities.

This subchapter describes the existing setting related to energy production and demand within California and South Coast AQMD's jurisdiction.

3.3.1 ENERGY REGULATIONS

3.3.1.1 Federal Regulations

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation (U.S. DOT), United States Department of Energy (U.S. DOE), and United States Environmental Protection Agency (U.S. EPA) are three agencies with substantial influence over energy policies and programs. Generally, federal agencies influence transportation energy consumption through: 1) establishing and enforcing fuel economy standards for automobiles and light trucks; 2) funding energy-related research and development projects; and 3) funding transportation infrastructure projects.

Energy Policy and Conservation Act, and CAFE Standards: The Energy Policy and Conservation Act (EPCA) of 1975 established nationwide fuel economy standards in order to conserve oil. Pursuant to this Act, the National Highway Traffic and Safety Administration, part of the U.S. DOT, is responsible for revising existing fuel economy standards and establishing new vehicle fuel economy standards. The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with CAFE standards are determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the United States. The U.S. EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. The CAFE values are a weighted average of the U.S. EPA's city and highway fuel economy test results. Based on information generated under the CAFE program, the U.S. DOT is authorized to assess penalties for noncompliance. CAFE standards have been established for each model year for passenger cars and light trucks which include fuel economy standards in terms of minimum miles per gallon of gasoline.

Energy Policy Act of 1992 (EPACT92): EPACT92 aims to reduce United States dependence on petroleum and improve air quality by addressing all aspects of energy supply and demand, including alternative fuels, renewable energy, and energy efficiency. EPACT92 established regulations requiring certain federal, state, and alternative fuel provider fleets to build an inventory of alternative fuel vehicles. "Alternative fuels" were defined as: methanol, ethanol, and other alcohols; blends of 85 percent or more of alcohol with gasoline (E85); natural gas and liquid fuels domestically produced from natural gas; propane; hydrogen; electricity; biodiesel (B100); coal-derived liquid fuels; fuels, other than alcohol, derived from biological materials; and P-Series fuels, which were added to the definition in 1999. EPACT92 was amended several times in the Energy Conservation and Reauthorization Act of 1998 and via the Energy Policy Act in 2005, which emphasized alternative fuel use and infrastructure development.

Energy Policy Act of 2005: The Energy Policy Act of 2005 addresses energy efficiency; renewable energy requirements; oil, natural gas, and coal; alternative-fuel use; tribal energy, nuclear security; vehicles and vehicle fuels, hydropower and geothermal energy, and climate change technology. The Act provides revised annual energy reduction goals (two percent per year beginning in 2006), revised renewable energy purchase goals, federal procurement of Energy Star or Federal Energy Management Program-designated products, federal green building standards, and fuel cell vehicle and hydrogen energy system research and demonstration.

Clean Air Act: The federal Clean Air Act (CAA) Section 211(o), as amended by the Energy Policy Act of 2005, requires the Administrator of the U.S. EPA to annually determine a renewable fuel standard (RFS), which is applicable to refiners, importers, and certain blenders of gasoline, and publish the standard in the Federal Register by November 30 of each year. On the basis of this standard, each obligated party determines that the volume of renewable fuel it must ensure is consumed as motor vehicle fuel. This standard is calculated as a percentage, by dividing the amount of renewable fuel that the CAA requires to be blended into gasoline for a given year by the amount of gasoline expected to be used during that year, including certain adjustments specified by the CAA.

Energy Independence and Security Act of 2007 (EISA): The EISA of 2007 was signed into law on December 19, 2007. The objectives of the Act are to move the United States toward greater energy independence and security, increase the production of clean renewable fuels, protect

consumers, increase the efficiency of products, buildings, and vehicles, promote greenhouse gas research, improve the energy efficiency of the Federal government, and improve vehicle fuel economy.

The renewable fuel standard in EISA requires transportation fuel sold in the United States to contain a minimum 36 billion gallons of ethanol per year by 2022, with corn-based ethanol limited to 15 billion gallons. The CAFE standard for light duty vehicles is 35 miles per gallon by 2020. EISA also specifies that vehicle attribute-based standards are to be developed separately for cars and light trucks. EISA creates a CAFE credit and transfer program among manufacturers and across a manufacturer's fleet. It allowed an extension through 2019 of the CAFE credits specified under the Alternative Motor Fuels Act. It established: 1) appliance energy efficiency standards for boilers, dehumidifiers, dishwashers, clothes washers, external power supplies, commercial walk-in coolers and freezers; 2) energy efficiency standards for federal buildings; 3) lighting energy efficiency standards for general service incandescent lighting in 2012; and 4) standards for industrial electric motor efficiency.

Other Federal Energy Acts: The American Recovery and Reinvestment Act of 2009 appropriated nearly $800 billion towards the creation of jobs, economic growth, tax relief, improvements in education and healthcare, infrastructure modernization, and investments in energy independence and renewable energy technologies. The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010, the American Taxpayer Relief Act of 2012, the Tax Increase Prevention Act of 2014, the Consolidated Appropriations Act of 2016, the Further Consolidated Appropriations Act of 2020, and the Consolidated Appropriations Act of 2021 extended and reinstated a number of alternative fuel tax credits.

Moving Ahead for Progress in the 21st Century (MAP-21): MAP-21 replaces the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) as the nation's surface transportation program and extended the provisions for fiscal year (FY) 2012 with new provisions for FY 2013. MAP-21 funds surface transportation programs, and is intended to create a streamlined, performance-based, and multimodal program to address challenges facing the United States transportation system. These challenges include improving safety, maintaining infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery. MAP-21 addresses economic growth, accessibility, social equity, energy security, and public health by setting transparent performance benchmarks.

National Program for Medium- and Heavy-Duty Engines and Vehicles: The U.S. EPA adopted a national program for medium- and heavy-duty engines and vehicles on August 9, 2011 which established the first fuel efficiency requirements for medium- and heavy-duty vehicles beginning with the model year 2014. In addition, the U.S. DOT's National Highway Traffic Safety Administration finalized standards for medium- and heavy-duty vehicles that would improve fuel efficiency and cut carbon pollution to reduce the impacts of climate change, while bolstering energy security and spurring manufacturing innovation.

U.S. EPA's Final Rule for Phase 2 Greenhouse Gas Emission Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles promotes cleaner, more fuel-efficient trucks by encouraging the development and deployment of new and advanced cost-effective technologies. The vehicle and engine performance standards would cover model years 2018-2027 for certain trailers and model years 2021-2027 for semi-trucks, large pickup trucks,

vans, and all types and sizes of buses and work trucks. The final standards are expected to reduce carbon dioxide emissions by approximately 1.1 billion metric tons, save vehicle owners fuel costs of about $170 billion, and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program.

3.3.1.2 State Regulations

On the state level, the California Public Utilities Commission (CPUC) and California Energy Commission (CEC) are two agencies with authority over different aspects of energy. The CPUC regulates privately-owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. The CEC collects and analyzes energy-related data; forecasts future energy needs; promotes energy efficient and conservation by setting appliance and building energy efficiency standards; supports energy research; develops renewable energy resources, promotes alternative and renewable transportation fuels and technologies; certifies thermal power plants 50 megawatts and larger; and plans for and directs state response to energy emergencies. Some of the more relevant federal and state transportation-energy-related laws and plans are discussed in the following subsections.

California Building Energy Efficiency Standards (Title 24): As the primary energy policy and planning agency, the CEC adopts standards every three years to cost-effectively increase energy efficiency and lower the carbon footprint of buildings. California established statewide building energy efficiency standards following legislative action. The 2019 Building Efficiency Standards are currently in place and became effective on January 1, 2020 for construction of new residential and non-residential buildings, and improved upon the 2016 Energy Standards.

The 2022 Energy Code was adopted in August 2021 and has become effective on January 1, 2023 for new buildings, additions, and alterations, replacing the 2019 Standards. The 2022 Energy Code focuses on four key areas in newly constructed homes and businesses: 1) encourages electric heat pump technology for space and water heating; 2) establishes electric requirements for single-family homes to position owners to use electric heating, cooking, and electric vehicle charging options; 3) expands solar photovoltaic system and battery storage standards to make clean energy available onsite; and 4) strengthens ventilation standards to improve indoor air quality.

California Green (CALGreen) Building Standards Code: CALGreen is a statewide regulatory code for all residential, commercial, hospital, and school buildings and includes both mandatory and voluntary components that can be adopted by local jurisdictions. The code was first adopted in January 2010 and is updated every three years. CALGreen is intended to encourage more sustainable and environmentally friendly building practices, require low emitting substances that do not cause harm to the environment, conserve natural resources, and promote the use of energy-efficient materials and equipment. The code covers sustainable aspects including site selection, stormwater control, water efficiency of fixtures and appliances, electric vehicle charging stations, VOC limits, moisture control, construction waste recycling, indoor air quality, and environmental comfort as part of the mandatory measures. CALGreen became mandatory on January 1, 2011, for new residential and commercial construction, and the 2019 Green Building Standards Code contain the most recent requirements.

AB 1007 – Alternative Fuels Plan: The Alternative Fuels Plan, adopted in 2007 by the State Energy Resources Conservation and Development Commission and CARB as required under state law AB 1007 (Pavley 2005), recommended that the governor set targets on a gasoline gallon

equivalent basis for use of ten different alternative motor fuels in the on-road and off-road sectors by nine percent by 2012, 11 percent by 2017, and 26 percent by 2022. The final Commission report was adopted on December 5, 2007.

AB 2514 – Energy Storage Systems: AB 2514 (Skinner 2010) was amended by AB 2227 (Bradford 2012) to encourage California to incorporate energy storage into the electricity grid. The law required the CPUC to adopt an energy storage system procurement target, if determined to be appropriate, to be achieved by each load-serving entity by December 31, 2015, and a second target to be achieved by December 31, 2020. The law required the governing board of a local publicly-owned electric utility to adopt an energy storage system procurement target, if determined to be appropriate, to be achieved by the utility by October 1, 2014. The law required each load-serving entity and local publicly-owned electric utility to report certain information to the CPUC, for a load-serving entity, or to the CEC, for a local publicly-owned electric utility.

Executive Order 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 of a reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels. The 2018 Zero Emission Vehicle Action Plan is the most recent plan that outlines the steps that need to be taken to realize these goals.

AB 1493 – Vehicle Climate Change Standards: The Advanced Clean Cars Program under AB 1493 (referred to as Pavley I), requires CARB to develop and adopt standards for vehicle manufacturers to reduce GHG emissions coming from passenger vehicles and light-duty trucks at a "maximum feasible and cost-effective reduction" by January 1, 2005. Pavley I took effect for model years starting in 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" will cover 2017 to 2025. Fleet average emission standards would reach 22 percent reduction by 2012 and 30 percent by 2016.

In January 2012, CARB adopted the Advanced Clean Cars program to extend AB 1493 through model years 2017 to 2025. This program will promote all types of clean fuel technologies such as plug-in hybrids, battery electric vehicles, compressed natural gas (CNG) vehicles, and hydrogen powered vehicles while reducing smog.

Renewables Portfolio Standard: California's renewables portfolio standard (RPS) required retail sellers of electricity to increase their procurement of eligible renewable energy resources by at least one percent per year so that 20 percent of their retail sales are procured from eligible renewable energy resources by 2017. If a seller fell short in a given year, they were required to procure more renewables in succeeding years to make up the shortfall. Once a retail seller reached 20 percent, they need not increase their procurement in succeeding years. RPS was enacted via SB 1078 (Sher 2002), signed in September 2002. The CEC and the CPUC jointly implemented the standard. In 2006, RPS was modified by SB 107 (Simitan 2006), to require retail sellers of electricity to reach the 20 percent renewables goal by 2010. In 2011, RPS was further modified by SB 2 (Atkins 2017) to require retailers to reach 33 percent renewable energy by 2020.

On September 10, 2018, Governor Brown signed SB 100. Under SB 100, the RPS for public-owned facilities and retail sellers consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Additionally, SB 100 also established a new RPS requirement of 50 percent by 2026. Furthermore, the SB 100 established an overall state policy that eligible

renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under SB 100, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

AB 327 revised a number of regulations associated with the California Renewables Portfolio Standard Program and how it is implemented by the Public Utilities Commission. Such modifications included revisions to allow higher rates to be charged for electricity and allowing the Public Utilities Commission to procure additional quantities of eligible renewable energy resources to achieve the targets established by the program. Previous laws prohibited the commission from increasing rates and requiring the procurement of eligible renewable energy resources in excess of specified quantities.

California SB 350: SB 350 (de León 2015) was approved on October 7, 2015. The promulgation of SB 350: 1) increased the standards of the California RPS program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030; 2) required the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers by January 1, 2030; 3) provided for the evolution of the Independent System Operator (ISO) into a regional organization; and 4) required the state to reimburse local agencies and school districts for certain costs mandated by the state through procedures established by statutory provisions. An additional objective of SB 350 was to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

Executive Order B-18-12: Executive Order B-18-12 was signed on April 25, 2012, directing state agencies to reduce their grid-based energy purchases by at least 20 percent by 2018, as compared to a 2003 baseline. Pursuant to Executive Order B-18-12, all new state buildings and major renovations beginning design after 2025 shall be constructed as Zero Net Energy facilities with an interim target for 50 percent of new facilities beginning design after 2020 to be Zero Net Energy. State agencies shall also take measures toward achieving Zero Net Energy for 50 percent of the square footage of existing state-owned building areas by 2025 and reduce water use by 20 percent by 2020. Additionally, the following measures relevant to energy are required:

- Any proposed new or major renovation of state buildings larger than 10,000 square feet shall use clean, on-site power generation, such as solar photovoltaic, solar thermal and wind power generation, and clean back-up power supplies, if economically feasible;
- New or major renovated state buildings and build-to-suit leases larger than 10,000 square feet shall obtain Leadership in Energy and Environmental Design (LEED) "Silver" certification or higher, using the applicable version of LEED;
- New and existing buildings shall incorporate building commissioning to facilitate improved and efficient building operation; and,
- State agencies shall identify and pursue opportunities to provide electric vehicle charging stations, and accommodate future charging infrastructure demand, at employee parking facilities in new and existing buildings.

3.3.1.3 Local Regulations

Clean Cities Programs: The U.S. DOE Clean Cities Program promotes voluntary, locally based government/industry partnerships for the purpose of expanding the use of alternatives to gasoline and diesel fuel by accelerating the deployment of alternative fuel vehicles and building a local alternative fuel vehicle refueling infrastructure. The mission of the Clean Cities Program is to advance the nation's energy security by supporting local decisions to adopt practices that contribute to the reduction of petroleum consumption. Clean Cities carries out this mission through a network of more than 75 volunteer coalitions, which develops public/private partnerships to promote alternative fuels and vehicles, fuel blends, fuel economy, hybrid vehicles, and idle reduction.

Local Sustainability Programs: In addition to the above, a number of cities have development sustainability programs, some of which are aimed at reducing energy use. For example, the City of Los Angeles has developed a Sustainability Plan that requires that 55 percent of its energy requirements be renewable by 2025, 80 percent by 2036, and 100 percent by 2045.[78]

3.3.2 ENERGY TRENDS AND SETTING

In 2022, 69 percent of the electricity used within California came from in-state sources, while 31 percent was imported into the state. In 2022, the electricity generated in-state totaled approximately 290,000 gigawatt hours (GWh) while imported electricity totaled approximately 90,000 GWh, with 40,000 GWh coming from the Pacific Northwest, and 50,000 GWh coming from the Southwest.[79]

3.3.2.1 Electricity

Power plants in California provided approximately 69 percent of the total in-state electricity demand in 2022 and of this amount, 36 percent came from renewable sources such as biomass, geothermal, small hydro, solar, and wind. In 2022, 61 percent of retail electricity was provided by non-fossil fuel sources, distributed as follows:

- 39.4 percent renewables: solar, wind, geothermal, biomass, and small hydroelectric;
- 10.8 percent large hydroelectric; and
- 10.7 percent nuclear.

In addition, the CPUC has ordered 18,000 MW of new clean resources to come online by 2028 as California moves towards its goal of 100 percent clean electricity by 2045.[80]

Local electricity distribution service is provided to customers within South Coast AQMD's jurisdiction by both Investor-Owned Utilities (IOUs) and Publicly-Owned Utilities (POUs). The two IOUs operating in the region are Southern California Edison (SCE) and San Diego Gas and Electric (SDG&E). SCE is the largest electricity utility within South Coast AQMD's jurisdiction with a service area that covers 50,000 square miles and service to more than 15 million people.

[78] City of Los Angeles, L.A.'s Green New Deal, Sustainability Plan 2019, https://plan.mayor.lacity.gov/.
[79] California Energy Commission-2022 Total System Electric Generation, https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2022-total-system-electric-generation
[80] California Energy Commission 2024, https://content.govdelivery.com/accounts/CNRA/bulletins/39b92e0

SCE provides service to all or nearly all of Orange and San Bernardino Counties, and most of Los Angeles and Riverside Counties. The SCE territory also includes areas outside of South Coast AQMD's jurisdiction region including Ventura, Inyo, Tulare, and Mono County as well as portions of Kern, Fresno, and Tuolumne Counties. In addition, portions of San Bernardino and Riverside Counties are outside the jurisdiction of the South Coast AQMD. SDG&E provides local distribution service to the southern portion of Orange County.[81]

Also in the region, the Southern California Public Power Authority (SCPPA) members consist of the municipal utilities of Anaheim, Azusa, Banning, Burbank, Cerritos, Colton, Glendale, Los Angeles, Pasadena, Riverside, and Vernon, and the Imperial Irrigation District. Together, these municipal utilities deliver electricity to over two million customers that spans an area of 7,000 square miles and has a total population that exceeds five million. The Los Angeles Department of Water and Power (LADWP) is the largest of the publicly-owned electric utility within South Coast AQMD's jurisdiction, serving a population of four million residents over a 473 square mile area.[82]

Table 3-9 shows the amount of electricity delivered in 2020 to residential and non-residential entities in the four counties located within the South Coast AQMD's jurisdiction (e.g., Los Angeles, Orange, Riverside and San Bernardino Counties). Table 3-9 was used in the Final program EIR for 2022 AQMP to quantify the electricity use in South Coast AQMD.

Table 3-9
2020 Electricity Use by County within South Coast AQMD's Jurisdiction (GWh)

Sector	Los Angeles	Orange	Riverside	San Bernardino	Total
Residential	22,913	7,765	8,843	6,103	45,624
Non-Residential	42,737	11,968	8,015	9,866	72,586
Total	65,650	19,733	16,858	15,969	**118,210**

Source: CEC, 2022a
Note: The data presented is for all of Riverside and San Bernardino Counties, not just those portions of the counties within South Coast AQMD jurisdiction.

Table 3-10 shows the updated amount of electricity delivered in 2022 to residential and non-residential entities in the four counties located within the South Coast AQMD's jurisdiction (e.g., Los Angeles, Orange, Riverside and San Bernardino Counties).

Table 3-10
2022 Electricity Use by County within South Coast AQMD's Jurisdiction (GWh)

Sector	Los Angeles	Orange	Riverside	San Bernardino	Total
Residential	23,256	7,830	9,061	6,302	46,449
Non-Residential	45,230	12,414	8,720	10,328	76,692
Total	68,486	20,244	17,781	16,630	**123,141**

Source: CEC, 2024 https://ecdms.energy.ca.gov/elecbycounty.aspx
Note: The data presented is for all of Riverside and San Bernardino Counties, not just those portions of the counties within South Coast AQMD jurisdiction.

[81] Southern California Edison, https://www.sce.com/about-us/who-we-are/leadership/our-service-territory
[82] Southern California Public Power Authority, Available at: http://www.scppa.org/page/About-Us

3.3.2.2 Natural Gas

Gas supply to Southern California, which encompasses an area larger than South Coast AQMD's jurisdiction, includes sources from California (onshore and offshore), the Southwestern United States, the Rocky Mountains, and Canada, with a number of interstate pipelines that currently transport natural gas. The Southwestern U.S. sources supply most of natural gas demand to South Coast AQMD's jurisdiction (about 37 percent in 2023), followed by the Rocky Mountains (approximately 24 percent in 2023), with most of the remainder from California sources. There are numerous pipelines that transport natural gas into California from the out-of-state sources of natural gas. In addition to traditional sources of gas supply, multiple renewable gas interconnection projects in California are beginning to come online. [California Gas and Electric Utilities, 2024].

Southern California Gas Company (SoCalGas), a gas-only utility, is the primary distributor of natural gas service in South Coast AQMD's jurisdiction, except for the southern portion of Orange County, and portions of San Bernardino County. The SoCalGas distribution network is composed of approximately 51,070 miles of gas mains across a 20,000 square mile service territory. SDG&E provides natural gas service to the southern portion of Orange County. In San Bernardino County, Southwest Gas Corporation provides natural gas service to Big Bear, Victorville, Barstow, and Needles though the latter three cities are outside of South Coast AQMD's jurisdiction. LADWP utilizes natural gas for electricity generation in the City of Los Angeles (California Gas Report 2024). The Long Beach Energy Resources Department provides natural gas service to approximately 500,000 residents and businesses in the cities of Long Beach and Signal Hill, in addition to portions of Los Alamitos, Bellflower, Compton, and other portions of Los Angeles County through over 1,800 miles of gas pipelines.[83] Finally, the City of Vernon provides municipal gas service to its electric power plant which provides electricity within the City of Vernon.

Table 3-11 provides the estimated use of natural gas in California by residential, commercial, and industrial sectors. In 2024, approximately 41 percent of the natural gas consumed in California was for electricity generation purposes, 22 percent was for residential uses, and 18 percent for residential uses.

Table 3-11
California Natural Gas Demand 2024
(Million Cubic Feet per Day - MMcf/day)

Sector	Utility	Non-Utility	Total
Residential	1,063	--	1,063
Commercial	472	--	472
Natural Gas Vehicles	59	--	59
Industrial	894	--	894
Electricity Generation	1,567	455	2,022
Enhanced Oil Recovery (EOR) Streaming	24	56	80
Wholesale / International + Exchange	269	--	269
Company Use and Unaccounted-for	69	--	69
EOR Cogeneration / Industrial	--	3	3
Total	**4,417**	**514**	**4,931**

[83] Long Beach Energy Resources Department, https://www.longbeach.gov/energyresources/. Accessed September 12, 2024,

Source: 2024 California Gas Report - https://www.socalgas.com/sites/default/files/2024-08/2024-California-Gas-Report-Final.pdf

Table 3-12 provides the estimated use of natural gas by counties. Located in the South Coast Air Basin, Los Angeles County is the largest consumer of natural gas in South Coast AQMD's jurisdiction, accounting for approximately 64 percent of the natural gas used. Residential uses consume approximately 46 percent of natural gas, and non-residential uses (industrial, commercial, etc.) consume approximately 54 percent of natural gas use in South Coast AQMD's jurisdiction.

Table 3-12
2022 Natural Gas Use by County within South Coast AQMD's Jurisdiction
(Millions of Therms)

Sector	Los Angeles	Orange	Riverside	San Bernardino	Total
Residential	1,122	351	284	267	2,024
Non-Residential	1,698	221	147	295	2,361
Total	**2,820**	**572**	**431**	**562**	**4,385**

Source: CEC Gas Consumption by County, Available at: https://ecdms.energy.ca.gov/gasbycounty.aspx; Accessed September 9, 2024.
Note: The data presented is for all of Riverside and San Bernardino Counties, not just those portions of the counties within South Coast AQMD jurisdiction.

SoCalGas estimates that total gas demand will decline at an annual rate of 0.7 percent from 2024 to 2040.[84] By comparison, the total gas demand had been projected to decline at an annual rate of 1.5 percent in the 2022 California Gas Report over the same time period. The forecasted deaccelerated decline in throughput demand is being driven by reduced energy efficiency and updated fuel substitution assumptions. Factors that contribute to the overall downward trend are standards created by Title 20 and 24 Codes and Standards and renewable energy goals that impact gas-fired electricity. [California Gas and Utilities Report, 2024]

After closure of the San Onofre Nuclear Generating Station in 2012, California has one operating nuclear power plant, Diablo Canyon. Diablo Canyon in located near San Luis Obispo and can generate approximately 2,160 megawatts of electricity (SCAG 2020). The plant's two units are operating pursuant to a long-term lease extension which allows continued operations through November 2024 for one of the units and August 2025 for the other. Senate Bill 846 required the state to pursue an evaluation assessing the cost, benefits, and possible role of the Diablo Canyon Power Plant in reliability planning efforts. The CEC determined that based on the State's electricity reliability based on forecasted demand and supply, it is prudent for the state to pursue extension of the Diablo Canyon power plant.[85]

3.3.2.3 Renewable Energy

Renewable energy includes geothermal plants, solar, small hydroelectric (under 30 MW), wind, and biomass. In 2022, California produced 96,991 GWh of renewable electricity, 45 percent of

[84] SoCalGas Utility Report. https://www.pge.com/assets/pipeline/docs/library/regulatory/downloads/cgr24.pdf.coredownload.pdf
[85] California Energy Commission, Diablo Canyon, https://www.energy.ca.gov/data-reports/california-energy-planning-library/reliability/diablo-canyon

which was solar, 32 percent wind, 14 percent geothermal, 6 percent biomass, and three percent small hydroelectric.[86]

Geothermal Energy: California contains the largest amount of geothermal electricity generation capacity in the United States. In California 13,462 GWh of electricity was produced by geothermal resources in 2022. The largest concentration of geothermal plants is located north of San Francisco in the Geysers Geothermal Resource Area in Lake and Sonoma Counties.[87]

Solar: Solar electricity production in California falls into two categories: solar thermal, using the concentrated heat of sunlight to heat a fluid to make steam to turn a traditional steam turbine to convert energy to mechanical energy to drive an electric generator making electricity; and solar photovoltaic (PV), the direct conversion of sunlight into electricity. Additionally, the heat from the sun is used in solar thermal systems for hot water in homes and businesses and in heating swimming pools. Most electricity from PV production is not counted into the total electricity production of the utility companies as the solar panels are mounted on individual homes or businesses. Solar thermal facilities are concentrated in the desert areas of the state in the Mojave area. In 2022, solar PV and solar thermal power plants produced 43,906 GWh of energy or 17.8 percent of California's in-state generation portfolio. In California, there are a total of 1.9 million solar projects, with an installed capacity of approximately about 16,996 megawatts.[88]

Hydroelectricity: Hydro facilities in California fall into one of two categories. Facilities smaller than 30 MW capacity are generally considered an eligible renewable energy resource and are referred to as small hydro. These small hydro facilities must be certified for the net MWh to count according to renewable energy portfolio standards. All other hydro facilities are referred to as large hydro and includes projects such as the Folsom Dam, Oroville Dam, and Shasta Dam. In 2022, hydro-produced electricity used by California totaled 29,758 GWh, or 10.36 percent of California's in-state generation portfolio. The amount of hydroelectricity produced varies each year and is largely dependent on snowmelt runoff and rainfall.

Wind Power: In 2022, wind energy generated within California totaled 31,099 GWh or 10.8 percent of California's electricity use[89]. The major wind farms in California, are located in six regions: San Gorgonio, Altamont, East San Diego County, Pacheco, Solano, and Tehachapi passes. The wind farms in the San Gorgonio pass, located in Riverside County, produce electricity to the grid within South Coast AQMD's jurisdiction.

Biomass Electricity: A biomass power plant is the general term for waste-to-energy power plants that burn organic material. They are comprised of four specific types defined by the fuel they burn: Biomass; digester gas (anaerobic digestion); landfill gas; and municipal solid waste. In 2022, biomass-produced electricity in California totaled 6,162 GWh.[90]

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[86] California Energy Commission, Estimated Annual RPS-Certified Renewable Energy, https://www.energy.ca.gov/programs-and-topics/topics/renewable-energy/clean-energy-serving-california/estimated-annual-rps?utm_medium=email&utm_source=govdelivery

[87] California Energy Commission. California Geothermal Energy. Available online at: https://www.energy.ca.gov/data-reports/california-power-generation-and-power-sources/geothermal-energy, accessed on September 10, 2024

[88] California Energy Commission. California Solar Energy Statistics and Data. Available online at: https://www.californiadgstats.ca.gov/, accessed September 9, 2024.

[89] California Energy Commission. 2022 Total System Electric Generation, https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2022-total-system-electric-generation

[90] Id.

One such facility in Los Angeles County is the Southeast Resource Recovery Facility (SERRF) in Long Beach, California. The facility was operated under a joint powers agreement between the Los Angeles County Sanitation Districts and the City of Los Angeles. Solid waste was sent to the SERRF facility where it was processed (burned) through one of three boilers. The heat generated by burning the refuse converts water flowing through tubes in the boiler to steam. The steam was used to drive the turbine generator producing electricity. The SERRF was shutdown January 31, 2024 and is no longer operating.[91]

Renewable Natural Gas: It is estimated between 70 and 170 billion cubic feet (Bcf) of annual renewable natural gas production is available from anaerobic digestion with potential for an additional 50 to 257 Bcf of annual RNG available from non-combustion gasification (syngas). Studies estimate that anaerobic digestion and gasification are estimated to provide between 148 to 387 Bcf of annual renewable natural gas in California, which would equate to approximately 75 percent of the 2020 residential natural gas demand (California Gas Report, 2024).[92]

3.3.2.4 Transportation Fuels

Petroleum-Based Fuels

In 2023, 13.6 billion gallons of gasoline (non-diesel) were sold in California.[93] In 2023, California reported over 32 million registered on-road vehicles, including light-duty cars (78.9 percent), motorcycles (1.6 percent), light-duty trucks (16 percent), and medium- and heavy-duty trucks (1.6). In 2023, approximately 37,218 gallons of gasoline were sold daily.

Biodiesel and Renewable Diesel Fuels

Biodiesel and renewable diesel fuels are both replacements for diesel fuel. Biodiesel is produced by transesterification of vegetable oils and animal fats. Vegetable oils (mainly soybean oil) are the main feedstocks for U.S. biodiesel production. Other major U.S. biodiesel feedstocks include animal fats from meat processing plants and used/recycled cooking oil and yellow grease from restaurants. Rapeseed oil, sunflower oil, and palm oil are major feedstocks for biodiesel production in other countries. Biodiesel meets the American Society for Testing and Materials (ASTM) specification D6751 and is approved for blending with petroleum diesel/distillate.[94] Biodiesel is generally higher priced than diesel, especially for higher blends of biodiesel. Neat (100 percent) biodiesel is often transported via truck or rail for blending, which adds to the cost of biodiesel.

Renewable diesel and other (non-fuel ethanol) biofuels and biointermediates can be produced from nearly any biomass feedstock, including those used for biodiesel production, through a variety of processes such as hydrotreating, gasification, pyrolysis, and other biochemical and thermochemical technologies. Renewable diesel is a biomass-based diesel fuel similar to biodiesel, but with important differences. Unlike biodiesel, renewable diesel is a hydrocarbon that is chemically equivalent to petroleum diesel and can be used as a drop-in biofuel that does not require blending with petroleum diesel for use. This also means that it could be used in diesel engines without any modifications to the engines and could be transported via existing pipelines. Renewable diesel production uses a hydrogenation process rather than the esterification process used to produce biodiesel. Because renewable diesel is a drop-in fuel, it meets ASTM D975

[91] https://www.lacsd.org/services/solid-waste/facilities/southeast-resource-recovery-facility-serrf, accessed on September 10, 2024.

[92] SoCalGas Utility Report. https://www.pge.com/assets/pipeline/docs/library/regulatory/downloads/cgr24.pdf.coredownload.pdf

[93] California Department of Tax and Fee Administration, Fuel Taxes Statistics and Reports, Motor Vehicle Fuel 10 Year Report. Available online at https://www.cdtfa.ca.gov/taxes-and-fees/spftrpts.htm.

[94] U.S. Energy Information Administration. Biofuels Explained, Biodiesel, Renewable Diesel, and other Biofuels. Available at: https://www.eia.gov/energyexplained/biofuels/biodiesel.php, accessed on May 18, 2022.

specification for petroleum diesel and can be seamlessly blended, transported, and even co-processed with petroleum diesel.[95]

In 2022, the annual biodiesel and renewable diesel production in the U.S. were 1,699 million gallons, and 1,483 million gallons, respectively.[96] California's renewable diesel consumption grew substantially after its Low Carbon Fuel Standards (LCFS) went into effect in 2011. Between 2011 and 2021, consumption few from one million barrels to 28 million barrels per year.[97] As of 2024, there are a number of renewable fuel facilities operating or permitted at existing (or former petroleum) refineries in California, including Chevron El Segundo, Kern Oil and Refining, Bakersfield, Marathon Martinez Refinery, Phillips 66 Rodeo Refinery, and World Energy/Alt Air in Paramount with a published annual production capacity of 459 million gallons per year.[98]

Natural Gas

Approximately five percent of the entire natural gas demand in California is used to fuel natural gas vehicles, in one of two forms: compressed natural gas and liquefied natural gas (California Gas and Utilities, 2024). Liquified natural gas is used less frequently than compressed natural gas, but it may have applications as a fuel for larger trucks where driving range and fuel energy density are important. Due to the low temperature required for liquefied natural gas, pipeline transportation is not practical, and trucks are often used to transport the gas. Compressed natural gas is typically stored at 3,600 pounds per square inch. Natural gas costs are typically lower compared to gasoline on a gasoline gallon equivalent basis, and natural gas generally produces lower greenhouse gas emissions. The biggest barrier to natural gas vehicle growth is the higher incremental cost of a natural gas vehicle compared to a conventional or flex-fuel vehicle. [CEC, 2021].

Electric Charging

California has the most public electric charging stations of any state; however, not all equipment and technologies associated with electric vehicles and electric vehicle support equipment have been standardized. California faces challenges and policy choices, including how best to support charging infrastructure development, where charging stations should be located, and how to support electric vehicle supply equipment expansion compared to vehicle deployment (CEC, 2021). As shown in Table 3.3-5, there are overs 19,000 electric charging stations within the jurisdiction of the South Coast AQMD.

Hydrogen

Hydrogen fuel cell electric vehicles are appealing because their tailpipe emissions are simply water vapor, and hydrogen can be produced from low-carbon energy resources. Fuel-cell electric vehicle refueling times are similar to conventional gasoline refueling times, and hydrogen fuel costs are comparable to gasoline on a per mile basis. Hydrogen challenges include the relatively expensive retail infrastructure cost ($2-3 million per station) and additional production and delivery components associated with the full supply chain, which can also be capital intensive. Although high-volume hydrogen pipelines exist for large volume users, hydrogen distribution for transportation use is typically done through truck delivery. Currently, most hydrogen is produced using a steam methane reforming process with natural gas as the energy feedstock, but future

[95] Id.

[96] Alternative Fuels Data Center (AFDC), U.S. Biodiesel Production, Exports, and Consumption Report and Renewable Diesel Production and Consumption Report, downloaded from https://afdc.energy.gov/data.

[97] U.S Energy Information Administration, 2023. https://www.eia.gov/todayinenergy/detail.php?id=57180#:~:text=California's%20renewable%20diesel%20consumption%20grew,18%20times%20its%20original%20volume.

[98] AFDC, Table of Renewable Fuels Plants in the U.S., available at https://afdc.energy.gov/fuels/renewable-diesel

hydrogen production may be less carbon intensive using water electrolysis and renewable energy. Since 2008, the CEC has invested 242 million to support hydrogen research, development, and deploy projects[99]. The LCFS Hydrogen Refueling Infrastructure predicted that the state would reach a goal of 200 hydrogen stations by 2025 (California Gas and Utilities, 2024).

As presented in Table 3-13, there are over 20,000 alternative fuel stations in in the four counties located within the South Coast AQMD's jurisdiction (e.g., Los Angeles, Orange, Riverside and San Bernardino Counties. Statewide data is also presented in Table 3-13 for context, and over 36 percent of California's alternative fuel stations are in the South Coast AQMD's jurisdiction.

Table 3-13
Alternative Fueling Stations by County within South Coast AQMD's Jurisdiction

Alternative Fuel Type	Number of Stations
Los Angeles County	
Biodiesel	3
Compressed Natural Gas	76
E85 (fuels containing 85% ethanol)	100
Electric Charging	11,819
Hydrogen	16
Liquid Natural Gas	11
Liquid Petroleum Gas	38
Renewable Diesel (R20 and above)	126
Total Alternative Fuel Stations in Los Angeles County	12,189
Orange County	
Biodiesel	1
Compressed Natural Gas	22
E85	56
Electric Charging	4,658
Hydrogen	12
Liquid Natural Gas	1
Liquid Petroleum Gas	21
Renewable Diesel (R20 and above)	54
Total Alternative Fuel Stations in Orange County	4,825

[99] https://www.energy.ca.gov/sites/default/files/2021-06/CEC_Hydrogen_Fact_Sheet_June_2021_ADA.pdf

Table 3-13 (concluded)
Alternative Fueling Stations by County within South Coast AQMD's Jurisdiction

Alternative Fuel Type	Number of Stations
Riverside County	
Biodiesel	4
Compressed Natural Gas	27
E85	47
Electric Charging	1,883
Hydrogen	3
Liquid Natural Gas	4
Liquid Petroleum Gas	21
Renewable Diesel (R20 and above)	43
Total Alternative Fuel Stations in Riverside County	2,932
San Bernardino County	
Biodiesel	13
Compressed Natural Gas	19
E85	47
Electric Charging	1,069
Hydrogen	0
Liquid Natural Gas	5
Liquid Petroleum Gas	5
Renewable Diesel (R20 and above)	44
Total Alternative Fuel Stations in San Bernardino County	1,202
Total Alternative Fuel Stations in South Coast AQMD's Jurisdiction	**20,248**
State of California	
Biodiesel	66
Compressed Natural Gas	297
E85	488
Electric Charging	53,755
Hydrogen	62
Liquid Natural Gas	37
Liquid Petroleum Gas	261
Renewable Diesel (R20 and above)	638
Total Alternative Fuel Stations in California	**55,604**
Source: USDOE Alternative Fuels Data Center - https://afdc.energy.gov/data_download	

CHAPTER 4

ENVIRONMENTAL IMPACTS

4.0 INTRODUCTION

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).

4.1 POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This document is a SEA to the Final Program EIR for the 2022 AQMP. The Final Program EIR for the 2022 AQMP determined that implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 has the potential to generate adverse environmental impacts to four topic areas: air quality and GHG emissions, energy, noise, and solid and hazardous waste. More specifically, the Final Program EIR for the 2022 AQMP evaluated the impacts from installation and operation of replacement zero-emission and low NOx technologies potentially resulting in construction air quality and GHG emissions, operational air quality and GHG emissions from production of electricity, increased electricity and natural gas demand, construction noise, and generation of solid waste from construction and disposal of old equipment.

The Final Program EIR for the 2022 AQMP also determined that implementation of other control measures in the 2022 AQMP had the potential to generate adverse environmental impacts to the topic areas of hazards and hazardous materials, and hydrology and water, in addition to the four

topic areas previously stated. For the entire plan, the analysis in the Final Program EIR for the 2022 AQMP concluded that significant and unavoidable adverse environmental impacts were expected to occur after implementing mitigation measures for the following environmental topic areas: 1) air quality during construction; 2) energy due to increased electricity, natural gas, and hydrogen demand; 3) hazards and hazardous materials due to accidental release of ammonia, natural gas via pipeline, and liquified natural gas via on-road trucks; 4) hydrology (water demand and water supply) and water quality; 5) construction noise and vibration at roadways; and 6) solid and hazardous waste from construction and early retirement of equipment. Since significant adverse environmental impacts were identified, mitigation measures were identified and applied. However, the Final Program EIR for the 2022 AQMP concluded that the 2022 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 prepared and adopted.

The proposed project is comprised of amendments to Rules 1111 and 1121. Thus, the analysis in this SEA focuses on the physical modifications expected to occur at affected facilities in response to complying with PAR 1111 and PAR 1121 and the corresponding environmental effects.

When comparing the types of activities and associated environmental impacts with implementing Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 that were previously analyzed in the Final Program EIR for the 2022 AQMP, to the currently proposed changes associated with the NOx limits and compliance dates presented in PAR 1111 and PAR 1121, the types of 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 Final Program EIR for the 2022 AQMP. However, regarding the scope of the affected equipment universe, Control Measures R-CMB-02 and C-CMB-02 were estimated to affect two million residential space heaters and 200,000 commercial space heaters, whereas PAR 1111 is estimated to affect over five million space heaters. Similarly, Control Measure R-CMB-01 was estimated to affect two million residential water heaters, whereas PAR 1121 is estimated to affect over five million water heaters. Thus, while the proposed project, PAR 1111 and PAR 1121, is expected to have similar secondary adverse environmental impacts for the environmental topic areas of construction air quality and GHG emissions, operational air quality and GHG emissions from the production of electricity, increased electricity and natural gas demand, construction noise, and generation of solid waste from construction and disposal of old equipment that were previously analyzed in the Final Program EIR for the 2022 AQMP, the impacts will be increased. The Final Program EIR for the 2022 AQMP relative to the implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 concluded less than significant impacts to operational air quality, greenhouse gas emissions, noise, and solid and hazardous waste and the analysis in this SEA confirms that these impacts will remain the same if PAR 1111 and PAR 1121 are implemented. In addition, the Final Program EIR for the 2022 AQMP concluded that the implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 will have potentially significant adverse air quality impacts from construction and energy impacts from electricity and natural gas demand and the analysis in this SEA determined that these impacts will be substantially made more severe if PAR 1111 and PAR 1121 are implemented.

The environmental impact analysis for the environmental topic areas 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 the proposed project are documented for the decision-makers and the public. Accordingly, the following analyses use a conservative "worst-case" approach for analyzing the potentially significant adverse air quality and energy impacts associated with the implementation of the proposed project.

4.2 AIR QUALITY AND GREENHOUSE GAS IMPACTS

The Final Program EIR for the 2022 AQMP assessed potential adverse air quality and GHG impacts associated with the implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02. The analysis identified significant air quality impacts from construction activities. However, air quality impacts from operational activities were found to be less than significant. Regarding greenhouse gas emissions, the impacts were deemed significant in the short-term but less than significant in the long-term.

4.2.1 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 the lead agency. There has been ongoing development of the significance thresholds, and detailed discussion is available on the South Coast AQMD website.[100] 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.

[100] 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** [b]	**Operation** [c]
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[d]		
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)[e] & 2.5 µg/m^3 (operation) 1.0 µg/m^3	
$PM_{2.5}$ 24-hour average	10.4 µg/m^3 (construction)[e] & 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] Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea and Mojave Desert Air Basins).
[c] For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.
[d] Ambient air quality thresholds for criteria pollutants based on South Coast AQMD Rule 1303, Table A-2 unless otherwise stated.
[e] 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: April 2019

PAR 1111 and PAR 1121 will require zero-emission heating units for installations in both new and existing residences and commercial buildings. Alternative compliance options are available for emergency replacements and installations requiring construction to expand the space to house or relocate a compliant unit and associated equipment, perform a service upgrade for necessary power, or replace a furnace that does not require the simultaneous replacement of space cooling equipment. The alternative compliance options allow time for necessary construction to occur so that the zero-emission heating units can be installed. Expansion of space to house units and service panel upgrades in residences are expected to be accomplished with hand tools, but service panel upgrades in commercial buildings are expected to require construction equipment. Replacement of furnaces and water heaters will occur at the end of the current equipment's useful life although a number of replacements could occur prior to the end of useful life due to the availability of incentive funding.

The Final Program EIR for the 2022 AQMP determined that demolition and replacement activities associated with residential control measures were not expected to require construction equipment. Household appliances, water heaters, and heaters are typically maneuvered using hand trucks, so no construction emissions were expected. For larger residential developments (e.g., apartment complexes with central boilers) and commercial developments, the need for construction equipment was anticipated to be minimal compared to industrial projects, due to the less extensive nature of the modifications required. The Final Program EIR for the 2022 AQMP therefore estimated construction emissions from a small construction project (one crane operating four hours and one backhoe operating eight hours per day) which showed that a project utilizing minimal construction equipment would not exceed the South Coast AQMD air quality significance thresholds for construction (see Table 4-2 which is a subset of Table 4.2-4 of the Final Program EIR for the 2022 AQMP). Nonetheless, because an individual project could occur concurrently alongside other large construction projects resulting from implementation of other control measures in the 2022 AQMP, the Final Program EIR for the 2022 AQMP concluded significant adverse air quality impacts due to construction.

Table 4-2
Estimated Unmitigated Construction Emissions for Typical Air Pollution Control Equipment Installations and Alternative Fuels Production Facilities

Project Type	Pollutant (lb/day)					
	CO	VOC	NOx	SOx	PM10	PM2.5
Small Construction Project(1)	2.4	0.03	<0.01	0.0	0.00	0.00
Alternative Fuels Facility Conversion(2)	261.3	53.3	402.0	1.6	138.6	38.1
South Coast AQMD Air Quality Significance Threshold for Construction	**550**	**75**	**100**	**150**	**150**	**55**
Significant?	**NO**	**NO**	**YES**	**NO**	**NO**	**NO**

(1) Calculated using one crane operating four hours and one backhoe operating eight hours per day.
(2) City of Paramount Final Subsequent EIR for the AltAir Renewables Fuels Conversion Project, 2022. Table 4.2.8.

Similar to what was anticipated in the Final Program EIR for the 2022 AQMP regarding implementation of residential and commercial control measures, implementation of PAR 1111 and PAR 1121 is not expected require construction equipment beyond hand tools for installation of zero-emission heaters in residences. Electrical service panel upgrades for commercial buildings, if

necessary, may require the use of construction equipment according to the existing conditions of the building. Upgrading an electrical panel may need to be accomplished in two steps: work by the utility provider to deliver power from the transformer to the building, and work by the property owner on the electrical panel(s) and building wiring system. As electricity is provided to buildings through overhead or underground lines, work by utility providers in a service upgrade may involve use of a backhoe or crane (both were assumed in the estimation for a small construction project in the Final Program EIR for the 2022 AQMP), and also potentially a forklift, concrete saw, and/or welder. However, the type and complexity of the work that may be conducted by the property owners can widely vary by property. For example, one commercial building may only require use of hand tools, while another may require trenching with a backhoe, laying new conduit with a forklift, and back-filling with soil and pouring cement. Multi-story and high-rise buildings will involve more construction compared to a single-story building. Due to the highly variable conditions of commercial buildings, it is difficult to form a representative construction scenario.

PAR 1111 will affect 200,000 commercial buildings. An SCE report[101] noted that electrical panels installed prior to 1962 were smaller, less than 100 amps. Figures 19 and 61 of the SCE report show that 50 percent and 31 percent of buildings in Los Angeles County and Orange County, respectively, were installed prior to 1962. It is therefore assumed that 40 percent of the 200,000 commercial buildings in the South Coast Basin may require an electrical panel upgrade.

If more than 10,000 commercial buildings were to undergo the small construction project concurrently, construction air quality emissions would exceed the South Coast AQMD significance threshold for construction (10,000 projects x 0.01 lbs of NOx/project = 100 lbs/day of NOx significance threshold). The number of concurrent projects causing an exceedance of the threshold would be less than 10,000 if the projects incorporated additional construction equipment, which is likely. **Based upon these considerations, significant adverse air quality impacts relating to construction are expected from implementing the proposed project.**

Project-Specific Mitigation: The Final Program EIR for the 2022 AQMP concluded that construction air quality impacts from implementing 2022 AQMP control measures would be potentially significant. As a result, mitigation measures were required to minimize the significant air quality impacts during construction. Implementation of PAR 1111 and PAR 1121 will result in construction air quality impacts similar to those analyzed in the Final Program EIR for the 2022 AQMP, and the mitigation measures proposed in the Final Program EIR for the 2022 AQMP will also minimize the significant impacts from the proposed project.

AQ-1 Develop a Construction Emission Management Plan to minimize emissions from vehicles including, but not limited to: consolidating truck deliveries so as to minimize the number of trucks on a peak day; scheduling deliveries to avoid peak hour traffic conditions; describing truck routing; describing deliveries including logging delivery times; describing entry/exit points; identifying locations of parking; identifying construction schedule; and prohibiting truck idling in excess of five consecutive minutes or another time-frame as allowed by the California Code of Regulations, Title 13 Section 2485 - CARB's Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling. The Construction Emission Management Plan shall be submitted to South Coast AQMD – PRDI/CEQA for approval prior to

[101] SCE, Building Inventory for Strategic Electrification, Interim Report, 2024. https://www.etcc-ca.com/reports/building-inventory-strategic-electrification

the start of construction. At a minimum, the Construction Emission Management Plan would include the following types of mitigation measures and Best Management Practices.

AQ-2 Tune and maintain all construction equipment to be in compliance with the manufacturer's recommended maintenance schedule and specifications that optimize emissions without nullifying engine warranties. All maintenance records for each equipment and their construction contractor(s) shall be made available for inspection and remain onsite for a period of at least two years from completion of construction.

AQ-3 Survey and document the construction areas and identify all construction areas that are served by electricity. Onsite electricity, rather than temporary power generators, shall be used in all construction areas that are demonstrated to be served by electricity. This documentation shall be provided as part of the Construction Emissions Management Plan.

AQ-4 Require the use of electric or alternative-fueled (i.e., renewable combustion fuels and hydrogen) construction equipment, if available, including but not limited to, concrete/industrial saws, pumps, aerial lifts, material hoist, air compressors, forklifts, excavator, wheel loader, and soil compactors.

AQ-5 Require all off-road diesel-powered construction equipment rated greater than 50 hp to meet Tier-4 off-road emission standards at a minimum. In addition, if not already supplied with a factory-equipped diesel particulate filter, all construction equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. Construction equipment shall incorporate, where feasible, emissions-reducing technology such as hybrid drives and specific fuel economy standards. In the event that any equipment required under this mitigation measure is not available, the project proponent shall provide documentation in the Construction Emissions Management Plan or associated subsequent status reports as information becomes available.

AQ-6 Require the use of zero-emission (ZE) or near-zero emission (NZE) on-road haul trucks such as heavy-duty trucks with natural gas engines that meet CARB'S adopted optional NO_X emissions standard.

AQ-7 Provide electric vehicle (EV) charging stations or at a minimum, provide the electrical infrastructure and electrical panels which shall be appropriately sized. Electrical hookups should be provided for trucks to plug in any onboard auxiliary equipment.

AQ-8 Provide temporary traffic controls such as a flag person, during all phases of significant construction activity to maintain smooth traffic flow, where necessary.

AQ-9 Provide dedicated turn lanes for the movement of construction trucks and equipment on- and off-site, where applicable.

AQ-10 Clearly identify truck routes with trailblazer signs to guide and ensure that the route shall avoid congested streets and sensitive land uses (e.g., residences, schools, day care centers, etc.), where applicable

AQ-11 Improve traffic flow by signal synchronization, where applicable and ensure that check-in point for trucks is inside the project site.

AQ-12 Ensure that vehicle traffic inside the project site is as far away as feasible from sensitive receptors.

AQ- 13 Restrict overnight truck parking in sensitive land uses by providing overnight truck parking inside the project site.

AQ-14 Design the project such that truck entrances and exits are not facing sensitive receptors and trucks will not travel past sensitive land uses to enter or leave the project site.

AQ-15 Reduce traffic speeds on all unpaved roads to 15 miles per hour (mph) or less.

AQ-16 Prohibit truck idling in excess of five minutes, on- and off-site.

AQ-17 Schedule construction activities that affect traffic flow on the arterial system to off-peak hours to the extent practicable.

AQ-18 Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 mph.

AQ-19 Suspend use of all construction activities that generate air pollutant emissions during first stage smog alerts.

AQ-20 Configure construction parking to minimize traffic interference.

AQ-21 Require covering of all trucks hauling dirt, sand, soil, or other loose materials.

AQ-22 Install wheel washers where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site for each trip.

AQ-23 Apply non-toxic soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for ten days or more).

AQ-24 Replace ground cover in disturbed areas as quickly as possible to minimize dust.

AQ-25 Pave road and road shoulders, where applicable.

AQ-26 Sweep streets at the end of the day with sweepers compliant with South Coast AQMD Rules 1186 and 1186.1 if visible soil is carried onto adjacent public paved roads (recommend water sweepers that utilize reclaimed water).

Remaining Air Quality Impacts from Criteria Pollutants during Construction: Similar to the 2022 AQMP, implementation of these construction mitigation measures for PAR 1111 and PAR 1121 would have to the potential to reduce some pollutants, especially particulates including diesel PM, as well as some NOx and VOC emissions. However, the reason the construction air quality impacts are concluded to be significant is because the NOx emissions substantially exceed the air quality significance threshold for construction. Since the mitigation measures overall primarily target reducing construction PM emissions, even if all the mitigation measures are applied, while some NOx emissions would be reduced to a limited extent, the quantity of potential NOx emissions would not be reduced to less than significant levels. Therefore, the overall construction air quality impacts after mitigation is applied would remain significant.

Project-Specific Air Quality Impacts During Operation

PAR 1111 and PAR 1121 will require zero-emission heating units for installations in both new and existing residences and commercial buildings; the rules will affect 5,350,000 and 5,128,000 space and water heaters, respectively. Alternative compliance options are available for emergency replacements and installations requiring construction to expand the space to house or relocate a compliant unit and associated equipment, perform a service upgrade for necessary power, or replace a furnace that does not require the simultaneous replacement of space cooling equipment. The alternative compliance options allow time for necessary construction to occur so that the zero-emission heating units can be installed. Replacement of furnaces and water heaters will occur at the end of the current equipment's useful life although a number of replacements (0.5 percent) could occur prior to the end of useful life due to the availability of incentive funding.

The Final Program EIR for the 2022 AQMP determined that implementation of control measures such as R-CMB-01, R-CMB-02, and C-CMB-02, which convert combustion sources to electric, would result in potential NOx emission reductions, but with a corresponding increased demand for electricity if combustion sources in residential and commercial settings are replaced with electrified equipment. The control measures were evaluated for NOx emission reductions at the regional level using statewide data. Due to a variety of factors such as the number of pieces of equipment, the size of the equipment, and the type of the operations, etc., it was difficult to quantify all potential electricity demand impacts. Nonetheless, for the equipment which had electricity use data available, electricity demand impacts were quantified but these estimates only provided a partial quantification of the overall potential electricity demand impacts from electrified equipment used in residential and commercial settings.

- R-CMB-01 seeks to encourage the deployment of zero-emission water heating units for new and existing residences. The zero-emission water heating units could be all-electric heat pump water heaters, either as stand-alone or in combination with heat pumps used for cooling and heating, thereby increasing electricity demand by an estimated 6,000 gigawatt-hours per year (GWh/yr).
- R-CMB-02 seeks to encourage the deployment of zero-emission space heating units for new and existing residences. The zero-emission space heating units could be all-electric

heat pumps that replace natural-gas fired furnaces, thereby increasing electricity demand by an estimated 1,095 GWh/yr.

- C-CMB-02 seeks to deploy zero-emission space heating units for new and existing commercial buildings. The zero-emission space heating units could be all-electric heat pumps that replace natural-gas fired furnaces, thereby increasing electricity demand by an estimated 730 GWh/yr.

The Final Program EIR for the 2022 AQMP estimated that Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 would affect approximately 4.2 million units, and that 50 percent of the equipment would be replaced with zero-emission technology while the remaining 50 percent would utilize low NOx burners; PAR 1111 and PAR 1121 together are expected to affect over 10 million units, and 100 percent of the units are expected to be replaced with zero-emission technology. Although 0.5 percent of the units are expected to be replaced before the end of their useful life, this SEA has calculated the total estimated electricity use based on the full number of units being replaced to account for the worst-case scenario, representing peak electricity usage when all units are replaced. Table 4-3 presents a summary of the potential electricity use associated with operation of zero-emission technology as analyzed for Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 in the Final Program EIR for the 2022 AQMP (this is subset of Table 4.2-6 of the Final Program EIR for the 2022 AQMP), and for PAR 1111 and PAR 1121.

Table 4-3
Comparison of Potential Increase in Electricity Use

	Control Measure	**Total Number of Affected Units**	**Estimated Electricity Use[(1)]**	**Estimated Total Electricity Use (Gwh/Yr)**
Final Program EIR for 2022 AQMP	R-CMB-01	Of 2 million water heaters installed, 50% of residences will be zero-emission and 50% will be low NOx space heaters [(2)]	380-500 kWh/month	6,000
	R-CMB-02	Of 2 million space heaters installed, 50% of residences will be zero-emission and 50% will be low NOx space heaters [(3)]	1.5 KWh/hr	600
	C-CMB-02	200,000 commercial buildings will convert to zero-emission technology with 50% of applicable sources replaced; mitigation fee for other 50% [(1) and (3)]	10 KWh/hr	400
	Total			**7,000**
	Control Measure	**Total Number of Affected Units**	**Estimated Electricity Use[(1)]**	**Estimated Total Electricity Use (Gwh/Yr)**
PAR 1111 and PAR 1121	R-CMB-01	5,128,800 water heaters installed	380-500 kWh/month	30,768
	R-CMB-02	5,350,000 space heaters installed	1.5 KWh/hr	3,210
	C-CMB-02	112,435 space heaters in commercial buildings will convert to zero-emission technology.	10 KWh/hr	450
	Total			**34,428**

(1) https://www.siliconvalleypower.com/residents/save-energy/appliance-energy-use-chart
(2) For purposes of calculating maximum electricity increases, all new units are assumed to be third-party provided power even though some portion will be solar powered.
(3) Assumes 4 hours of operation on 100 days per year when temperature is below 70° F.

Since there are critical interdependencies between electricity and the natural gas system reliability in California, natural gas-fired electricity generation has been an integral part of the electricity system, providing baseload power. It has also served as the backstop during drought conditions that reduce the availability of hydroelectric power generation. Thus, over the short-term as more electric residential and commercial equipment is deployed, the demand for electricity will increase resulting in an interim increase of natural gas demand for electricity generation. The role of natural gas-fired electricity generation in the electricity system is shifting with the addition of large amounts of renewable generation, primarily solar and wind. The large influx of renewable energy on the grid has reduced natural gas-produced electricity from 53 percent of total electric generation in 2010 to 48 percent in 2020. Renewables have displaced a portion of daytime generation previously provided by natural gas, but the intermittency of solar and wind resources necessitates flexible resources that can quickly come on-line when the sun sets, or winds stop blowing. [CEC, 2021]. Therefore, as electricity generation grid transitions to utilizing renewable energy as cleaner alternatives over the long-term, the interim increase in natural gas demand will eventually decrease.

The Final Program EIR for the 2022 AQMP concluded that, as more electric residential and commercial equipment is deployed, the demand for electricity will increase, while the demand for natural gas and its corresponding emissions will decrease over long-term, resulting in an overall net reduction in combustion emissions during operation from residential and commercial equipment. The electrification of residential and commercial equipment was therefore determined to result in a less than significant impact to operational air quality.

The Final Program EIR for the 2022 AQMP concluded that implementation of other control measures relying on electrification, such as those targeting NOx emission reductions from large combustion sources, would result in potentially significant air quality impacts due to an increase in combustion emissions associated with electricity generation. Because PAR 1111 and PAR 1121 will impact a significantly greater number of units compared to what was previously analyzed for Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 in the Final Program EIR for the 2022 AQMP, the proposed project is expected to result in potentially significant air quality impacts due to an increase in combustion emissions associated with electricity generation.

The South Coast AQMD air quality significance thresholds for mass daily emissions of criteria pollutants are in units of pounds per day. PAR 1111 and PAR 1121 quantify NOx emissions reductions in tons per day (2,000 pounds = 1 ton). Therefore, while increased electricity demand may result in potentially significant impacts, a net NOx emission reduction at an order of magnitude greater than any of the adverse air quality impacts is expected, resulting in an air quality benefit. **Thus, operational activities resulting from implementation of PAR 1111 and PAR 1121 are expected to generate less than significant criteria pollutant air quality impacts.**

Project-Specific Mitigation: Since no significant air quality impacts relating to operational activities were identified, no mitigation measures are necessary or required.

Remaining Air Quality Impacts from Criteria Pollutants during Operational Activities: Since no mitigation measures are required, air quality impacts from criteria pollutants during operational activities remain less than significant.

Conclusion - Cumulative Air Quality Impacts: The preceding analysis concluded that air quality impacts from construction activities would be significant from implementing PAR 1111 and PAR 1121, similar to the 2022 AQMP, because exceedances of the South Coast AQMD air quality significance threshold for NOx during construction may be exceeded. In addition, while feasible mitigation measures were identified that may reduce the significant adverse construction air quality impacts for NOx emissions, the mitigation measures are not expected to reduce these construction impacts to less than significant levels. Because the air quality impacts exceed the air quality significance thresholds for construction, the air quality construction impacts are considered cumulatively considerable.

Cumulative Mitigation: No feasible mitigation measures are available that would eliminate or reduce the cumulatively considerable construction air quality impacts to less than significant levels.

Remaining Cumulative Air Quality Impacts: While air quality impacts from construction activities are cumulatively significant, no feasible mitigation measures have been identified that would eliminate or reduce the significant adverse air quality impacts to less than significant levels. Therefore, the cumulative air quality impacts from construction activities remain significant and unavoidable. The Final Program EIR for the 2022 AQMP also concluded that the 2022 AQMP control measures would result in significant adverse air quality impacts during construction and, when combined with past, present, and reasonably foreseeable activities, in particular with transportation projects projected in the Connect SoCal Plan and the Proposed 2022 State SIP Strategy[102], would contribute to cumulatively considerable impacts to air quality related to criteria pollutant emissions during construction, a significant, unavoidable cumulative impact.

Greenhouse Gas Impacts

PAR 1111 and PAR 1121 will require zero-emission heating units for installations in both new and existing residences and commercial buildings. Alternative compliance options are available for emergency replacements and installations requiring construction to expand the space to house or relocate a compliant unit and associated equipment, perform a service upgrade for necessary power, or replace a furnace that does not require the simultaneous replacement of space cooling equipment. The alternative compliance options allow time for necessary construction to occur so that the zero-emission heating units can be installed. Expansion of space to house units and service panel upgrades in residences are expected to be accomplished with hand tools, but service panel upgrades in commercial buildings are expected to require construction equipment. Replacement of furnaces and water heaters will occur at the end of the current equipment's useful life although a number of replacements could occur prior to the end of useful life due to the availability of incentive funding.

In September 2011, the South Coast AQMD Governing Board adopted its Air Quality-Related Energy Policy (AQREP). This policy integrates the topics of energy, air quality, and climate change by explaining how the current dependence upon fossil fuels for energy generation and consumption within South Coast AQMD's jurisdiction results in emissions of criteria pollutants, toxic air contaminants, and GHGs. The South Coast AQMD's AQREP articulates policies and

[102] California Air Resources Board, 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy), accessed on September 19, 2024. https://ww2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy

actions to ensure clean air and to meet state and global climate goals by promoting the development of reliable, safe, cost effective, and clean energy.

Any newly adopted programs, as well as those under development as included within the 2022 AQMP, may have impacts that are not yet fully accounted for in future California energy use projections. However, adopting the 2022 AQMP control measures would be expected to not only reduce criteria pollutant emissions, but also provide co-benefits of reducing GHG emissions over the long-term, increasing energy efficiency, while increasing the use of renewable power sources. More specifically, to the extent that the 2022 AQMP control measures reduce or eliminate combustion processes in favor of zero-emission or low NOx technologies, such as through Control Measures R-CMB-01, R-CMB-02, and C-CMB-02, GHG emission reduction co-benefits would also be expected to occur. Table 4-4 is a subset of Table 4.2-14 of the Final Program EIR for the 2022 AQMP which qualitatively shows the GHG emission impacts of implementing Control Measures R-CMB-01, R-CMB-02, and C-CMB-02. The relative effects, either an increase (+) or decrease (-)), are presented along with the activities associated with the impact (e.g., construction necessary to implement the control measure).

Table 4-4
Potential Greenhouse Gas Emission Impacts

Control Measure Number	Control Measure Title	Control Methodology	Potential GHG Impact[(1)]
R-CMB-01	Emission Reduction from Replacement with Zero Emission or Low NOx Appliances – Residential Water Heating	Installation of zero-emission water heaters and low NOx technologies (when zero-emission is infeasible) in new and existing residences.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; reduction in conventional fuel combustion emissions; increase energy efficiency)
R-CMB-02	Emission Reduction from Replacement with Zero Emission or Low NOx Appliances – Residential Space Heating	Installation of zero-emission space heaters and low NOx technologies (when zero-emission is infeasible) in new and existing residences.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; reduction in conventional fuel combustion emissions; increase energy efficiency)
C-CMB-02	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Commercial Space Heating	Installation of zero-emission space heaters and low NOx technologies (when zero-emission is infeasible) in commercial buildings.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; reduction in conventional fuel combustion emissions; increase energy efficiency)

(1) + Control measure is expected to result in an increase in GHG emissions
- Control measure is expected to result in a decrease in GHG emissions
= Control measure is expected to result in equivalent GHG emissions

Because of the qualitative nature of Table 4.2-14 of the Final Program EIR for the 2022 AQMP, it was not possible to show the magnitude of GHG emission effects from implementing 2022 AQMP control measures. For example, a positive effect (i.e., a GHG emission increase) for one control measure may be substantially less than the positive GHG emission effect of a different control measure.

The Final Program EIR for the 2022 AQMP concluded that implementing the 2022 AQMP control measures would ultimately be expected to reduce GHG emissions consistent with the AB 32 scoping plan. Compared to the 2018 baseline for electricity demand, implementation of the 2022 AQMP control measures was expected to increase electricity use by 13,429 GWh[103], approximately an 11 percent increase, by 2037 which will produce approximately 2.76 million metric tons (MMT) of GHG emissions.[104] As shown in Table 4-3, implementation of PAR 1111 and PAR 1121 will increase the projected electricity demand to 40,857 GWh, approximately a 34.6 percent increase compared to the 2018 baseline. Extrapolating the GHG emissions calculated for the Final Program EIR for the 2022 AQMP, the higher electricity usage would produce 8.38 MMT of GHG emissions.

The Final Program EIR for the 2022 AQMP estimated that implementation of 2022 AQMP control measures would cause a reduction in gasoline and diesel use that results in GHG emission reductions that exceed the GHG emissions from increased electricity use. As shown in Table 4-5, which expands upon Table 4.2-16 of the Final Program EIR for the 2022 AQMP, even with the updated GHG emissions expected as a result of implementing PAR 1111 and PAR 1121, a net decrease in GHG emissions would still be expected.

Table 4-5
Estimated GHG Emissions Impacts from 2022 AQMP Control Measures

Description	2037 CO2eq Emissions (MMT)
Change in Gasoline Use	-2.23
Change in Diesel Use	-15.57
Increased Electricity Use as Estimated in the Final Program EIR for the 2022 AQMP	2.18
Net Change in GHG Emissions as Calculated in the Final Program EIR for the 2022 AQMP	**-15.62**
Increased Electricity Use with Implementation of PAR 1111 and PAR 1121	8.38
Net Change in GHG Emissions with Implementation of PAR 1111 and PAR 1121	**-9.42**

The electricity that will be needed to power zero-emission equipment is expected to be provided by public utility companies. Most existing power generating facilities are subject to AB32 and will be required to reduce their GHG emissions. Moreover, any future power generating stations that may be built in response to meeting the future electricity demand would be subject to stringent emission control requirements, including those for GHG emissions. **Therefore, after taking into consideration that the short-term increases in GHG emissions will eventually be offset in the overarching goal of transitioning to electricity sourced with 100 percent renewables by 2045 as required by SB 100, the additional electricity that may be needed to implement PAR 1111 and PAR 1121, similar to the 2022 AQMP control measures, is expected to generate less than significant GHG emission impacts in the long-term.**

Project-Specific Mitigation: Since less than significant greenhouse gas impacts overall were identified, no mitigation measures are necessary or required.

[103] Based on quantifiable increases in electricity from Tables 4.3-2 and 4.3-3. (12,960+469)/118,200 = 11.3% increase.
[104] 2020 eGRID data of 453 lb/MWh for SCE, U.S. EPA, 2022, https://epa.gov/egrid/download-data.

Remaining Greenhouse Gas Impacts: Since no mitigation measures are required, greenhouse gas impacts remain less than significant.

Conclusion - Cumulative Greenhouse Gas Emissions Impacts: The preceding analysis concluded that GHG emissions impacts from construction and operational activities would be less than significant in the long-term as a result of implementing the proposed project. Thus, the GHG emissions impacts are not considered to be cumulatively considerable. The Final Program EIR for the 2022 AQMP also concluded that implementation of control measures in the 2022 AQMP was not cumulatively considerable to the significant impact and in fact is expected to improve the goal towards the mandated GHG reduction target. Therefore, the cumulative GHG impact was considered beneficial and less than significant.

4.3 ENERGY IMPACTS

The Final Program EIR for the 2022 AQMP assessed potential adverse energy impacts associated with the implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02. The analysis identified significant energy impacts from: 1) increase in electricity demand due to increased usage of zero-emission technologies installed in residential and commercial settings, and 2) increase in natural gas demand to produce electricity.

4.3.1 Significance Criteria

Implementation of the PAR 1111 and PAR 1121 would be considered to have significant adverse energy impacts if any of the following conditions occur:

- The project conflicts with adopted energy conservation plans or standards.
- The project results in substantial depletion of existing energy resource supplies.
- An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities.
- The project uses non-renewable energy resources in a wasteful and/or inefficient manner.

Short-Term Construction Impacts to Energy Resources

PAR 1111 and PAR 1121 will require zero-emission heating units for installations in both new and existing residences and commercial buildings. Alternative compliance options are available for emergency replacements and installations requiring construction to expand the space to house or relocate a compliant unit and associated equipment, perform a service upgrade for necessary power, or replace a furnace that does not require the simultaneous replacement of space cooling equipment. The alternative compliance options allow time for necessary construction to occur so that the zero-emission heating units can be installed. Expansion of space to house units and service panel upgrades in residences are expected to be accomplished with hand tools, but service panel upgrades in commercial buildings are expected to require construction equipment.

The Final Program EIR for the 2022 AQMP anticipated that temporary increases in energy demand associated with the modifications to existing facilities are expected from construction equipment such as backhoes, cranes, welders, delivery trucks, and dump trucks. Construction equipment are typically powered by diesel or gasoline, although some types of equipment can be electric (e.g., welders). Construction equipment that use alternative fuels (e.g., natural gas, hydrogen, propane, LPG, etc.) are not currently available on the market and are not expected to be used. Construction activities are temporary, as is the use of fuel to power construction equipment, and would cease following completion of construction.

While construction activities would require the consumption of energy resources, these actions would enable the transition to zero-emission technologies and help attain the federal 8-hour ozone standard which would in turn, provide beneficial air quality impacts. The energy required to operate electrified construction equipment would not be anticipated to cause a permanent increase in the demand for electricity in excess of the baseline electricity loads because construction activities are intermittent and short-term, and most of the currently available construction

equipment relies on petroleum fuels. Construction equipment that uses electricity is largely limited to welding equipment for construction projects located at large facilities with access to electrical connections. Electricity associated with welding during construction activities would not result in a substantial depletion of existing energy resources or require the construction of new electric or natural gas utilities.

Renewable diesel, which produces fewer emissions than traditional diesel, is available and could be used in construction. California is also advancing renewable fuel projects to boost supply, with existing refineries set to produce over 130,000 barrels per day (47.5 million barrels per year) of renewable fuels. CEC has reported that other refineries have the capacity to blend biodiesel, with an estimated capacity of 110 million gallons annually. Therefore, the Final Program EIR for the 2022 AQMP concluded that sufficient supplies of renewable diesel or petroleum diesel are expected to be available. **Therefore, short-term construction-related energy resources impacts associated with implementation of the PAR 1111 and PAR 1121, similar to the 2022 AQMP, would not be expected to cause a substantial depletion of existing energy resource supplies or require the construction of new electric or natural gas facilities.**

Project-Specific Mitigation: Since no significant air quality impacts relating to construction activities were identified, no mitigation measures are necessary or required.

Remaining Energy Impacts from Short-Term Construction Impacts to Energy Resources: Since no mitigation measures are required, energy impacts related to construction activities remain less than significant.

Electricity Demand

PAR 1111 and PAR 1121 will require zero-emission heating units for installations in both new and existing residences and commercial buildings; the rules will affect 5,350,000 and 5,128,000 space and water heaters, respectively. Replacement of furnaces and water heaters will occur at the end of the current equipment's useful life although a number of replacements (0.5 percent) could occur prior to the end of useful life due to the availability of incentive funding.

The Final Program EIR for the 2022 AQMP estimated potential electricity use associated with various equipment/source categories, such as residential and commercial water and space heating, where sufficient data was available to make reasonable estimates. However, the Final Program EIR for the 2022 AQMP considered Basin-wide electricity use to form its conclusion regarding energy impacts due to electricity demand. Statewide electricity consumption was more than 279,000 GWh in 2020, with approximately 118,200 GWh (42 percent) in the South Coast Air Basin. [CEC, 2021]. CEC estimated an increase in electricity demand of about 1.6 percent annually through 2035. [CEC, 2021]. By applying that growth rate, the total electricity use in California would be approximately 354,000 GWh by 2035. Approximately 150,000 GWh (42 percent) of that would be within the South Coast Air Basin (assuming the percentage attributed to the South Coast Air Basin remains the same). The 2022 AQMP control measures would then increase the electricity demand by an additional estimated 13,429 GWh (approximately 11 percent over 2020 consumption and nine percent over the CEC projected growth) and this amount did not take into account the electricity that may be needed to operate additional air pollution control equipment or to convert combustion equipment to fully electric. Thus, the overall potential increase in electricity demand could be higher.

In order for utilities to be able to provide sufficient electricity to meet future demands, the use of additional energy storage systems (e.g., battery arrays) is also a key component for being able to store electricity at the time when resources are available (e.g., when the sun shines and the wind blows), and to use that stored electricity at a later time. Further, the analysis in the Final Program EIR for the 2022 AQMP conservatively assumed that all sources affected by a control measure with the potential to increase demand for electricity, would use electricity rather than other forms of energy. In addition, any increase in electricity demand would likely result in a concurrent reduction in demand for other types of fuels, particularly petroleum fuels. Because the control measures in the 2022 AQMP were developed with the goal of attaining the federal ozone standard, the successful implementation of some of the control measures relied on the use of electricity in order to reduce NOx emissions, an overall air quality benefit for the region. Therefore, the 2022 AQMP was expected to result in a substantial depletion of existing energy (specifically electricity) resource supplies. The Final Program EIR for the 2022 AQMP concluded that significant adverse electricity demand impacts would be created by the 2022 AQMP because the potential increase in electricity usage would exceed baseline electricity consumption by up to 11 percent. Even after mitigation measures E-1 to E-7 were applied, electricity demand impacts would remain significant.

Table 4-6 utilizes a subset of Table 4.3-2 of the Final Program EIR for 2022 AQMP to estimate the electricity demand impacts from the proposed project (PAR 1111 and PAR 1121). Table 4.3-2 of the Final Program EIR for the 2022 AQMP forecasted electricity use based on the information available at the time. Of 2 million water heaters and 2 million space heaters installed, 50 percent of residences would be zero-emission and 50 percent would be low NOx. 200,000 commercial buildings would convert to zero-emission technology with 50 percent of applicable sources replaced and a mitigation fee paid for the other 50 percent. PAR 1111 and PAR 1121 will require zero-emission heating units for installations in both new and existing residences and commercial buildings; the rules will affect 5,350,000 and 5,128,000 space and water heaters, respectively. 0.5 percent of the equipment replacements could occur prior to the end of useful life due to the availability of incentive funding.

Table 4-6
Comparison of Potential Increase in Electricity Use

	Control Measure	Total Number of Affected Units	Estimated Electricity Use[(1)]	Estimated Total Electricity Use (Gwh/Yr)
Final Program EIR for 2022 AQMP	R-CMB-01	Of 2 million water heaters installed, 50% of residences will be zero-emission and 50% will be low NOx water heaters [(2)]	380-500 kWh/month	6,000
	R-CMB-02	Of 2 million heaters installed, 50% of residences will be zero-emission and 50% will be low NOx space heaters [(3)]	1.5 KWh/hr	600
	C-CMB-02	200,000 commercial buildings will convert to zero-emission technology with 50% of applicable sources replaced; mitigation fee for other 50% [(1) and (3)]	10 KWh/hr	400
	Total for Control Measures R-CMB-01, R-CMB-02, and C-CMB-02			**7,000**
	Total for All 2022 AQMP Control Measures			13,429
	2020 Electricity Use within South Coast AQMD's Jurisdiction			118,210
	2022 Electricity Use within South Coast AQMD's Jurisdiction			123,141
	Electricity Percent Increase from All 2022 AQMP Control Measures			**11.3%**
	Updated Electricity Percent Increase from All 2022 AQMP Control Measures with Updated 2022 Electricity Use data			**10.9%**
PAR 1111 and PAR 1121	**Control Measure**	**Total Number of Affected Units**	**Estimated Electricity Use[(1)]**	**Estimated Total Electricity Use (Gwh/Yr)**
	R-CMB-01	5,128,000 water heaters installed	380-500 kWh/month	30,768
	R-CMB-02	5,350,000 space heaters installed	1.5 KWh/hr	3,210
	C-CMB-02	112,435 space heaters in commercial buildings will convert to zero-emission technology.	10 KWh/hr	450
	Total			**34,428**
	Updated Total for All 2022 AQMP Control Measures			40,857
	2020 Electricity Use within South Coast AQMD's Jurisdiction			118,210
	2022 Electricity Use within South Coast AQMD's Jurisdiction			123,141
	Updated Electricity Percent Increase from All 2022 AQMP Control Measures			**34.6%**
	Updated Electricity Percent Increase from All 2022 AQMP Control Measures with Updated 2022 Electricity Use data			**33.2%**

(1) https://www.siliconvalleypower.com/residents/save-energy/appliance-energy-use-chart
(2) For purposes of calculating maximum electricity increases, all new units are assumed to be third-party provided power even though some portion will be solar powered.
(3) Assumes 4 hours of operation on 100 days per year when temperature is below 70° F.

Due to the increase in the number of affected equipment, the energy use estimate will increase from 7,000 GWh/year (for implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 in the Final Program EIR for 2022 AQMP) to 34,358 GWh/year (for implementation of PAR 1111 and PAR 1121). Overall, the electricity demand from implementation of all 2022 control measures will increase from 13,429 GWh (approximately 11.3 percent over 2020 consumption or 10.9 percent over 2022 consumption) to 40,857 GWh (approximately 34.6 percent over 2020 consumption and 33.2 percent over 2022 consumption). The availability of incentive funding could cause the increase in electricity demand to occur sooner than if all equipment were to be replaced at the end of useful life.

This projected increase in the number of affected equipment from 4.2 million to over 10 million space and water heaters substantially changes the severity of overall energy impacts because, based on a 2022 consumption baseline, the Final Program EIR for the 2022 AQMP estimated a 10.9 percent increase in overall Basin-wide use of electricity at a minimum, stating that overall potential electricity use for all control measures implemented together could be higher; however, the minimum potential electricity use for all control measures implemented has increased to 33.2 percent. **Thus, the energy impacts from the implementation of PAR 1111 and PAR 1121 are expected to be significant for electricity demand.**

Project-Specific Mitigation: Because the energy impacts from the implementation of the 2022 AQMP were expected to be significant for electricity demand, the Final Program EIR for the 2022 AQMP provided feasible mitigation measures E-1 to E-7 for reducing impacts related to potential electricity demand. Because mitigation measure E-5 minimizes impacts from charging electric vehicles and mobile sources, and mitigation measure E-6 pertains to use of electrical transportation systems, and these two sources are not affected by Control Measures R-CMB-01, R-CMB-02, and C-CMB-02, only mitigation measures E-1 to E-4, and E-7 are applicable to minimizing energy impacts from increased electricity demand due to implementation of PAR 1111 and PAR 1121. The following mitigation measures have been identified for reducing potential electricity demand impacts:

E-1 Project sponsors should pursue incentives to encourage the use of energy efficient equipment and vehicles and promote energy conservation during electricity generation.

E-2 Utilities should increase capacity of existing transmission lines to meet forecast demand that supports sustainable growth where feasible and appropriate in coordination with local planning agencies.

E-3 Project sponsors should submit projected electricity calculations to the local electricity provider for any project anticipated to require substantial electricity consumption. Any infrastructure improvements necessary should be completed according to the specifications of the electricity provider.

E-4 Project sponsors should include energy analyses in environmental documentation with the goal of conserving energy through the wise and efficient use of energy.

E-7 Project sponsors should evaluate the potential for reducing peak energy demand by encouraging the use of electrified stationary sources during off-peak hours.

Remaining Electricity Impacts: The preceding analysis concluded that significant adverse electricity demand impacts could be created by the proposed project because the potential increase in electricity usage would exceed 2020 baseline electricity consumption by up to 33.2 percent. **Even after the mitigation measures are applied, electricity demand impacts would remain significant.**

Project-Specific Natural Gas Demand Impacts

PAR 1111 and PAR 1121 will require zero-emission heating units for installations in both new and existing residences and commercial buildings; the rules will affect 5,350,000 and 5,128,000 space and water heaters, respectively. Replacement of furnaces and water heaters will occur at the end of the current equipment's useful life although a number of replacements (0.5 percent) could occur prior to the end of useful life due to the availability of incentive funding.

The Final Program EIR for the 2022 AQMP determined that control measures in the 2022 AQMP, such as R-CMB-01, R-CMB-02, and C-CMB-02 were expected to result in: 1) an increase in demand for natural gas primarily associated with the production of electricity in the short-term, and 2) a decreased demand for natural gas appliances in commercial and residential setting. Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 were expected to require additional electricity. While the electrical grid needs to generate electricity that is comprised of 100 percent renewable energy by 2045 per Senate Bill 100 (SB 100, De León)[105] (and short-term natural gas usage for the production of electricity will cease), additional sources of electricity would be required in order to meet the 2035 goals of the 2022 AQMP.

The potential for growth in electrification poses considerable uncertainty on when, where, and how large the impact on natural gas demand in California will be. For the residential and commercial building sectors, electrification of various appliances such as water heating would have the potential to decrease the use of natural gas. However, while there will be a shift from utilizing natural gas in these types of appliances for residential and commercial land uses to electricity, the potential for increased electrification of buildings would also contribute to an overall increase in electricity demand which could require natural gas-fired turbines and engines to ramp up operations to meet the increased load. This load increase could cause additional use of natural gas in electricity generation equipment. [California Gas and Electric Utilities, 2020].

SoCal Gas projects total gas demand to decline at an annual rate of one percent between 2020 and 2035. The decline in natural gas demand is due to modest economic growth and California Public Utilities Commission (CPUC)-mandated energy efficiency standards and programs. Other factors that contribute to the downward trend are more stringent standards established in the revised Title 24 Building Codes, renewable electricity goals, a decline in core commercial and industrial demand, and conservation savings. [California Gas and Electric Utilities, 2020].

There are critical interdependencies between electricity and the natural gas system reliability in California. Natural gas-fired electricity generation has been an integral part of the electricity system, providing baseload power. It has also served as the backstop during drought conditions that reduce the availability of hydroelectric power generation. The role of natural gas-fired electricity generation in the electricity system is shifting with the addition of large amounts of

[105] Senate Bill 100, https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB100.

renewable generation, primarily solar and wind. The large influx of renewable energy on the grid has reduced natural gas produced electricity from 53 percent of total electric generation in 2010 to 48 percent in 2020. Renewables have displaced a portion of daytime generation previously provided by natural gas, but the intermittency of solar and wind resources necessitates flexible resources that can quickly come on-line when the sun sets, or winds stop blowing. [CEC, 2021]. Total electric generation load (including large cogeneration and non-cogeneration electric generation for a normal hydro year) is expected to decline from 245 billion cubic feet in 2020 to 182 billion cubic feet in 2035, a decrease of 2.0 percent per year. The main factors for the decline are an increasing renewable energy target level, retirement of older natural gas-fired plants, and the addition of more efficient natural gas-fired plants. [California Gas and Electric Utilities, 2020]. Ultimately, as natural gas is generally widely available, natural gas supplies were not expected to be limited if the 2022 AQMP was implemented. The combined increase in natural gas demand needed for producing electricity and hydrogen and for fueling vehicles could be somewhat offset over the long-term by a decrease in demand for natural gas appliances in commercial and residential settings. However, over the short-term, the natural gas demand was expected to increase. Based upon these considerations, significant adverse energy impacts relating to natural gas demand were expected from implementing the 2022 AQMP.

Because the energy impacts from the implementation of the 2022 AQMP are expected to be significant for natural gas demand, the Final Program EIR for the 2022 AQMP provided the feasible mitigation measures E-8 to E-9 for reducing impacts related to potential natural gas demand. Implementation of PAR 1111 and PAR 1121 will result in similar impacts as implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 of the 2022 AQMP.

Project-Specific Mitigation: If significant adverse environmental impacts are identified in a CEQA document, the CEQA document shall describe feasible measures that could minimize the significant adverse impacts. [CEQA Guidelines Section 15126.4]. Therefore, feasible mitigation measures for reducing impacts related to potential natural gas demand are required. As individual control measures are promulgated as new or amended rules, additional mitigation measures may also be necessary to minimize electricity impacts. The following mitigation measures were identified in the Final Program EIR for the 2022 AQMP for reducing potential natural gas demand impacts, in additional to mitigation measures E-1 through E-7 above. They will also apply to mitigating impacts from implementation of PAR 1111 and PAR 1121:

E-8 Projects that require a substantial increase in natural gas demand should consider the use of renewable gas, where available and feasible, including biofuel landfill gas and gas produced from renewable fuels projects.

E-9 Project sponsors should submit projected natural gas demand use to the local natural gas provider for any project anticipated to require substantial natural gas consumption. Any infrastructure improvements necessary should be completed according to the specifications of the natural gas provider.

Remaining Natural Gas Impacts: The preceding analysis concluded that significant adverse natural gas impacts could be created by the proposed project because of the potential increase in natural gas for electricity and hydrogen production. **Even after the mitigation measures are applied, natural gas demand impacts would remain potentially significant.**

Conclusion- Cumulative Energy Impacts: The Final Program EIR for the 2022 AQMP concluded that overall implementation of the 2022 AQMP could result in significant adverse electricity demand impacts because the potential electricity usage would increase by 10.9 percent if the 2022 baseline electricity consumption is applied. If PAR 1111 and PAR 1121 are implemented, the potential electricity usage of the overall 2022 AQMP would increase by an estimated 33.2 percent over the 2022 baseline electricity consumption. Significant impacts are also concluded for increased natural gas demand. The Final Program EIR for the 2022 AQMP concluded that the 2022 AQMP control measures, when combined with past, present, and reasonably foreseeable activities, in particular with transportation projects projected in the Connect SoCal Plan and the Proposed 2022 State SIP Strategy, would result in a significant increase in electricity and natural gas which may not currently be available and would contribute to cumulatively considerable impacts.

Cumulative Mitigation: No feasible mitigation measures are available that would eliminate or reduce the cumulatively considerable energy impacts from increased electricity and natural gas demand to less than significant levels.

Remaining Cumulative Energy Impacts: While energy impacts from increased electricity and natural gas demand are cumulatively significant, no feasible mitigation measures have been identified that would eliminate or reduce the significant adverse energy impacts to less than significant levels. Therefore, the cumulative energy impacts from increased electricity and natural gas demand remain significant and unavoidable. However, the Final Program EIR for the 2022 AQMP also concluded that the use of energy to comply with ambient air quality standards and climate change goals, while contributing to overall electricity and natural gas demand, , does not result in the wasteful, unnecessary, or inefficient use of energy. Therefore, the cumulative energy impacts are less than significant.

4.4 POTENTIAL 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.

This subchapter of the SEA identifies the environmental topic areas that were previously analyzed in the Final Program EIR for 2022 AQMP and concluded to have either less than significant impacts or no impacts (e.g., aesthetics, agriculture and forestry resources; air quality and GHG emissions related to operational activities; biological resources; cultural and tribal resources; energy related to other sources except electricity demand and natural gas demand; 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; transportation; and wildfires). For all environmental topics except air quality and GHG emissions from construction and energy impacts related to electricity and natural gas demands, which are discussed and further analyzed in previous chapters (4.1, 4.2 and 4.3), this section assesses whether these previously evaluated environmental topic areas in the Final Program EIR for 2022 AQMP would be affected by PAR 1111 and PAR 1121.

Environmental Topic Areas Previously Concluded in the Final Program EIR for 2022 AQMP to Have No Impacts

The following environmental topic areas were previously analyzed and concluded in the Final Program EIR for 2022 AQMP to have no impacts: aesthetics; agriculture and forestry resources; biological resources; cultural and tribal resources; geology and soils; land use and planning; mineral resources; population and housing; public services; recreation; transportation; and wildfire.

This SEA independently considers the PAR 1111 and PAR 1121 and analyzes the incremental changes, if any, relative to the baseline which is the project analyzed in the Final Program EIR for 2022. Although the Final Program EIR for 2022 AQMP identified potential impacts in the environmental topic areas of hazards and hazardous materials and hydrology and water quality, the specific Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 were found to have no impacts in these areas. Consequently, this section will address the topics of hazards and hazardous materials and hydrology and water quality as well.

The activities and environmental impacts associated with implementing NOx emission limits and their compliance dates, as analyzed in the Final Program EIR for 2022 AQMP, are expected to produce similar effects in the environmental topic areas previously examined—excluding air quality, greenhouse gas emissions, and energy, which are addressed in Sections 4.1, 4.2, and 4.3 of this document. Therefore, the incremental changes from implementing the proposed project are not anticipated to alter the previous conclusions of no impact for the following environmental topics: aesthetics; agriculture and forestry resources; biological resources; cultural and tribal resources; geology and soils; of hazards and hazardous materials; hydrology and water quality;

land use and planning; mineral resources; population and housing; public services; recreation; transportation; and wildfire. As a result, these topics are not further evaluated in this SEA. A brief summary of the previous conclusions and the reasons why these no-impact conclusions remain valid for PAR 1111 and PAR 1121 is provided for each of these environmental topic areas.

Aesthetics

The Final Program EIR for 2022 AQMP previously analyzed aesthetics impacts associated with control measures R-CMB-01, R-CMB-02, and C-CMB-02. The Final Program EIR for 2022 AQMP concluded that no aesthetics impacts would occur because: 1) modifications would typically occur inside buildings, within the confines of the affected facilities, or because of the nature of the business (e.g., commercial or residential), can easily blend in with the facilities with little or no noticeable effect on adjacent areas; 2) the control measures R- CMB-01, R-CMB-02, and C-CMB-02 which focus on certain residential and commercial sources of air pollution (e.g., water heaters, space heaters), and any modifications needed would occur inside buildings or in the case of energy efficiency improvements such as installing solar, on the roofs of residential buildings; and 3) improved air quality would provide benefits to scenic vistas and resources throughout South Coast AQMD's jurisdiction. In addition, PAR 1111 and PAR 1121 will not require construction activities to install new or modify existing structures which means that PAR 1111 and PAR 1121 will also not require new light generating equipment or cause any changes in the visual profile of the facility structures, or adversely affect day or nighttime views in any areas. Therefore, the previous conclusion of no impact to aesthetics reached in the Final Program EIR for 2022 AQMP will continue to apply to PAR 1111 and PAR 1121.

Agriculture and Forestry Resources

The Final Program EIR for 2022 AQMP previously analyzed agriculture and forestry resources impacts associated with control measures R-CMB-01, R-CMB-02, and C-CMB-02. The Final Program EIR for 2022 AQMP concluded that no agriculture and forestry resources impacts would occur since implementation of control measures R-CMB-01, R-CMB-02, and C-CMB-02 is not expected to generate any new construction of buildings or other structures that would require conversion of farmland to non-agricultural use, conflict with zoning for agricultural uses, or a Williamson Act contract. Further, the control measures typically affect existing facilities that are located in appropriately zoned areas. In addition, physical changes associated with the 2022 AQMP are expected to occur at previously developed sites and would not warrant construction in undeveloped areas where agricultural and forest resources are more likely to exist. The control measures, including control measures related to PAR 1111 and PAR 1121, would have no direct or indirect effects on agricultural or forest land resources because their focus is on achieving emission reductions by increasing the penetration of zero and low NOx technologies into market. Therefore, the previous conclusion of no impact to agriculture and forestry resources reached in the Final Program EIR for 2022 AQMP will continue to apply to PAR 1111 and PAR 1121.

Biological Resources

The Final Program EIR for 2022 AQMP previously analyzed biological resources impacts associated with implementation of control measures R-CMB-01, R-CMB-02, and C-CMB-02. The Final Program EIR for 2022 AQMP concluded that no biological resources impacts would occur as a result of implementation of its control measures because these activities would occur inside the boundaries of established 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. Similarly,

PAR 1111 and PAR 1121 will continue to occur within the boundaries of existing industrial facilities which have been previously cleared of vegetation and have already been paved for safety and fire prevention reasons. Thus, PAR 1111 and PAR 1121 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 reached in the Final Program EIR for 2022 AQMP will continue to apply to PAR 1111 and PAR 1121.

Cultural and Tribal Resources

The Final Program EIR for the 2022 AQMP assessed the impacts on cultural and tribal resources from implementing control measures R-CMB-01, R-CMB-02, and C-CMB-02 and concluded that there would be no significant impacts on cultural and tribal resources. This is because the commercial areas affected are generally not located within historic districts, and the control measures are not expected to substantially alter the significance of any historical resources.

As part of the process, the South Coast Air Quality Management District (South Coast AQMD) sent a formal notice about the proposed project to all California Native American Tribes listed on the Native American Heritage Commission's (NAHC) notification list, as required by Public Resources Code Section 21080.3.1(b)(1). This notice allowed a 30-day period for tribes to request consultation. No tribes requested consultation during this period.

The provisions of CEQA, Public Resources Code Section 21080.3.1 et seq. (also known as AB 52), requires meaningful consultation with tribes if there could be impacts on tribal cultural resources. These resources include sites, features, and objects with cultural value to tribes, which are eligible for listing on the California Register of Historical Resources or local historical registers. Tribes must request to be notified of projects affecting their traditionally and culturally affiliated areas.

Under PAR 1111 and PAR 1121, replacement of old equipment with new ones will not require any construction-related activities that would affect cultural or tribal cultural resources. In addition, if any new residential buildings are to be constructed, the project would be subject to project-level review, including separate tribal consultation pursuant to AB 52, as applicable, to address site-specific requests identified by the tribes. Therefore, impacts to tribal cultural resources are considered to be less than significant, and the 2022 AQMP is not expected to cause any impacts to significant historic cultural resources. Therefore, the previous conclusion of no impact to cultural and tribal resources reached in the Final Program EIR for 2022 AQMP will continue to apply to PAR 1111 and PAR 1121.

Geology and Soils

The Final Program EIR for 2022 AQMP previously analyzed geology and soil impacts associated with implementation of control measures R-CMB-01, R-CMB-02, and C-CMB-02 and concluded that no geology and soil impacts would occur because the control measures would not directly or indirectly expose people or structures to earthquake faults, seismic shaking, seismic-related ground failure including liquefaction, lateral spreading, landslides, mudslides, or substantial soil erosion. Even though control measures R-CMB-01, R-CMB-02, and C-CMB-02 would accelerate the penetration of zero-emission or low NOx off-road equipment into market, replacing equipment such as water and space heaters would not be expected to require construction that would result in grading.

In addition, affected facilities or modifications to affected facilities, including the construction of new electricity infrastructure, would be required to comply with relevant California Building Code requirements in effect at the time of initial construction or modification of a structure. Even as a result of implementation of control measure C-CMB-02 which will require minimum amount of construction, the California Building Code (CBC) as promulgated in the CCR, Title 24, Part 2, contains provisions to safeguard against major structural failures or loss of life caused by earthquakes or other geologic hazards. The CBC contains provisions for earthquake safety based on factors including the types of soil and rock onsite, and the strength of ground motion with specified probability of occurring at the site. The CBC requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. Additionally, CBC Section 1803.2 requires a geotechnical investigation that must evaluate soil classification, slope stability, soil strength, position and adequacy of load-bearing soils, the effect of moisture variation on soil-bearing capacity, compressibility, liquefaction, and expansiveness, as necessary. The geotechnical investigation must be prepared by registered professionals (i.e., California Registered Civil Engineer or Certified Engineering Geologist). Compliance with the requirements of the CBC for structural safety during a seismic event would reduce hazards from strong seismic ground shaking, as well as liquefaction, to less than significant. The issuance of building permits from the local cities or counties will assure compliance with the California Building Code requirements. Finally, no control measures would require the location of new facilities, or relocation of existing ones, in areas prone to liquefaction or other earthquake hazards. Land use decisions are under the authority of the local jurisdictions, typically cities or counties. The South Coast AQMD has no authority over land use decisions except to impose specific air pollution control requirements, which do not drive the land use approval process, and CEQA does not grant an agency new powers independent of the powers granted to the agency by other laws. The issuance of building permits from the local cities or counties will assure compliance with the California Building Code requirements. Finally, no control measures would require the location of new facilities, or relocation of existing ones, in areas prone to liquefaction or other earthquake hazards. Land use decisions are under the authority of the local jurisdictions, typically cities or counties. The South Coast AQMD has no authority over land use decisions except to impose specific air pollution control requirements, which do not drive the land use approval process, and CEQA does not grant an agency new powers independent of the powers granted to the agency by other laws.

Projects that occur as a result of the 2022 AQMP are largely expected to occur at commercial and industrial areas, and have a small construction footprint. Construction activities would be subject to local, regional, and state codes and requirements for erosion control and grading during construction. Projects would be subject to the National Pollution Discharge Elimination System (NPDES) permitting regulations, including the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) as applicable. Construction contractors would be required to prepare and implement a SWPPP and associated Best Management Practices (BMPs) in compliance with the Construction General Permit (CGP) during grading and construction of any site that disturbs more than one acre of land. Adherence to the BMPs in the SWPPP and adherence with local, regional, and state codes and requirements for erosion control and grading during construction would reduce, prevent, or minimize soil erosion from grading and construction activities. Therefore, soil erosion impacts would be less than significant.

Paleontological resources, commonly known as fossils, are the recognizable physical remains or evidence of past life forms found on earth in past geological periods — and can include bones,

shells, leaves, tracks, burrows, and impressions. Ground-disturbing activities such as grading, or excavation have the potential to unearth paleontological resources. Most facilities affected by 2022 AQMP control measures would be located on previously disturbed industrial and commercial sites where there is little likelihood of identifiable artifacts. It is possible, however, that cultural or archaeological resources or human remains may nevertheless be discovered. New installations of air pollution control equipment or infrastructure for zero-emission and low NOx equipment are unlikely to require substantial soil excavation and would be located on already disturbed and developed industrial land uses. Therefore, no significant impact would occur. Further, projects implemented as a result of the 2022 AQMP would be subject to project-level review, including review of both geological and paleontological impacts under CEQA, as applicable. Therefore, implementation of the 2022 AQMP is not expected to directly or indirectly destroy a unique paleontological resource or site or unique geological feature or result in other significant adverse geology or soils impacts. Additionally, the nature of the construction activities that may result from implementing PAR 1111 and PAR 1121 will affect existing structures which house the equipment to be replaced and thus would not be expected to involve significant soil excavation or other activities that would disturb geological features. Therefore, the previous conclusion of no impact to geology and soil reached in Final Program EIR for 2022 AQMP will continue to apply to PAR 1111 and PAR 1121.

Hazards and Hazardous Waste

The Final Program EIR for 2022 AQMP previously concluded potential significant hazards and hazardous materials impacts associated with implementation of series of control measures in 2022 AQMP.

Implementation of the 2022 AQMP would be considered to have significant hazards or hazardous materials impacts if any of the following conditions occur:

- Non-compliance with any applicable design code or regulation.
- Non-conformance to National Fire Protection Association standards.
- Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment, or fire protection.
- Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

PAR 1111 and PAR 1121 does not contain any requirements that would interfere or conflict with the adherence with established design codes and safety regulations which are typically implemented through local planning departments and building permits through the plan check process. Thus, any proposed construction that may occur as a result of PAR 1111 and PAR 1121 would undergo rigorous checks to meet National Fire Protection Association standards and adhere to industry best practices for operating procedures. Additionally, the measures are structured to avoid significant impacts related to hazards and hazardous materials and include comprehensive protocols for leak detection, spill containment, and fire protection, minimizing the risk of hazardous emissions. The design and operational standards will be enforced to ensure that hazardous chemicals are managed safely, well below the ERPG 2 levels. Any construction occurring as a result of PAR 1111 and PAR 1121 would not be expected to supercede implementation of these safeguards.

The analysis in this SEA focuses on the following key components of PAR 1111 and PAR 1121 which propose to: 1) expand the applicability to include furnaces with a rated heat input capacity from 175,000 Btu/hr to 2,000,000 Btu/hr that are currently unregulated; and 2) divide the applicable units into four categories for zero-emission limits for new installations based on future effective dates, with a later implementation date for mobile home furnaces. PAR 1121 proposes to include zero-emission limits for new installations based on future effective dates with a later implementation date for mobile home water heaters. Both PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-emission compliance dates for units installed in new or existing buildings; 2) provide alternative compliance options for emergency replacement and installations requiring construction to expand the space to house or relocate a compliant unit and associated equipment, perform a service upgrade for necessary power, or replace a furnace that does not require the simultaneous replacement of space cooling equipment; 3) introduce labeling and reporting requirements; 4) provide an exemption from zero-emission requirements for mobile homes in a master-metered mobile home park; and 5) update and clarify rule language. Replacement of furnaces and water heaters will occur at the end of the current equipment's useful life although a number of replacements could occur prior to the end of useful life with the availability of incentive funding.

PAR 1111 and PAR 1121 are not anticipated to increase or create new hazardous emissions affecting the installation or replacement of space and water heaters in commercial and residential buildings. Instead, these measures are expected to improve air quality by reducing NOx emissions by up to 7.7 tpd by 2055 and 2.3 tpd by 2045. Therefore, the implementation of PAR 1111 and PAR 1121 is not expected to impact hazards and hazardous materials.

Hydrology and Water Quality

The Final Program EIR for 2022 AQMP previously concluded potential significant hydrology and water quality impacts associated with implementation of series of control measures in 2022 AQMP.

Implementation of the 2022 AQMP would be considered to have significant adverse hydrology or water quality impacts if any of the following conditions occur:

Water Demand

- The existing water supply does not have the capacity to meet the increased demands of the project, or the project would use more than 262,820 gallons per day of potable water.
- The project increases demand for total water by more than five million gallons per day.

Water Quality

- The project will cause degradation or depletion of ground water resources substantially affecting current or future uses.
- The project will cause the degradation of surface water substantially affecting current or future uses.
- The project will result in a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements.
- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the project.

- The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The project results in alterations to the course or flow of floodwaters.

The proposed PAR 1111 and PAR 1121 are designed to ensure compliance with these criteria. Specifically, the implementation of these measures will not require significant amounts of additional water, thus avoiding any increase in water demand beyond the thresholds specified. The measures do not involve activities that would lead to groundwater or surface water degradation, violate NPDES permit requirements, or strain wastewater treatment and sewer system capacities. Additionally, PAR 1111 and PAR 1121 do not introduce significant increases in impervious surfaces or alter floodwater courses. The focus of these measures is on improving air quality through reduced NOx emissions while ensuring that hydrology and water quality are not adversely impacted. Consequently, the implementation of PAR 1111 and PAR 1121 is anticipated to have no significant impact on hydrology and water quality.

The analysis in this SEA focuses on the following key components of PAR 1111 and PAR 1121 which propose to: 1) expand the applicability to include furnaces with a rated heat input capacity from 175,000 Btu/hr to 2,000,000 Btu/hr that are currently unregulated; and 2) divide the applicable units into four categories for zero-emission limits for new installations based on future effective dates, with a later implementation date for mobile home furnaces. PAR 1121 proposes to include zero-emission limits for new installations based on future effective dates with a later implementation date for mobile home water heaters. Both PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-emission compliance dates for units installed in new or existing buildings; 2) provide alternative compliance options for emergency replacement and installations requiring construction to expand the space to house or relocate a compliant unit and associated equipment, perform a service upgrade for necessary power, or replace a furnace that does not require the simultaneous replacement of space cooling equipment; 3) introduce labeling and reporting requirements; 4) provide an exemption from zero-emission requirements for mobile homes in a master-metered mobile home park; and 5) update and clarify rule language. Replacement of furnaces and water heaters will occur at the end of the current equipment's useful life although a number of replacements could occur prior to the end of useful life with the availability of incentive funding.

PAR 1111 and PAR 1121 are not anticipated to increase or create new hydrology and water quality affecting the installation or replacement of space and water heaters in commercial and residential buildings. Instead, these measures are expected to improve air quality by reducing NOx emissions by up to 7.7 tons per day by 2055 and 2.3 tons per day by 2045. Therefore, the implementation of PAR 1111 and PAR 1121 is not expected to impact hydrology and water quality.

Land Use and Planning

The Final Program EIR for 2022 AQMP previously analyzed land use and planning impacts associated with implementation of control measures R-CMB-01, R-CMB-02, and C-CMB-02 and concluded that no impacts to present or planned land uses in the region would occur because these control measures propose to promote the installation of stationary source control equipment such as water and space heaters, at existing commercial or residential facilities and would not create land use impacts because construction of major new developments (e.g., new neighborhoods) which would result in affecting land use planning.

Potential land use impacts associated with the control measures R-CMB-01, R-CMB-02, and C-CMB-02 could come from the construction of support systems (e.g., electrical panel upgrade or installation). For purposes of evaluating potential land use impacts, the Final Program EIR for 2022 AQMP analysis concluded no significant land use impacts were identified because any activities undertaken to implement the control measures would be expected to comply with, and not interfere with, applicable land use plans, policies, or regulations of an agency with jurisdiction over the project, including, but not limited to the general plans, specific plans, local coastal programs or zoning ordinances. PAR 1111 and PAR 1121 focus on the installation of equipment in existing structures and do not propose new developments that would interfere with land use and planning. Additionally, any new developments affected by PAR 1111 and PAR 1121 would be required to comply with applicable land use plans, policies and regulations. Therefore, the previous conclusion of no impact to land use and planning reached in Final Program EIR for 2022 AQMP will continue to apply to PAR 1111 and PAR 1121.

Mineral Resources

The Final Program EIR for 2022 AQMP previously analyzed mineral resources impacts associated with implementation of control measures R-CMB-01, R-CMB-02, and C-CMB-02 and concluded that there are no provisions in the 2022 AQMP that would result in the loss of availability of a known mineral resource of value to the region and the residents of the state, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. PAR 1111 and PAR 1121 provide incentives for the penetration of low NOx and zero-emission technologies into market which are not expected to result in an increase in the use of mineral resources. The proposed project is not expected to require substantial construction activities and would not have any significant effects on the use of important minerals. Therefore, no new demand for mineral resources is expected to occur and no significant adverse mineral resources impacts from implementing the proposed project are anticipated. Therefore, the previous conclusion of no impact to mineral resources reached in the Final Program EIR for 2022 AQMP will continue to apply to PAR 1111 and PAR 1121.

Population and Housing

The Final Program EIR for 2022 AQMP previously analyzed population and housing impacts associated with implementation of control measures R-CMB-01, R-CMB-02, and C-CMB-02 and concluded that proposed project is not anticipated to generate any significant effects, either direct or indirect, on the population or population distribution of people living in the South Coast AQMD's jurisdiction as no additional workers are anticipated to be required in order to implement any of the control measures. Consistent with past experience, it is expected that the existing labor pool within the southern California area would accommodate the labor requirements for any modifications requiring construction at affected facilities. Additionally, the control measures contain no provisions that would cause displacement of substantial numbers of people or housing necessitating construction of replacement housing elsewhere. Accordingly, population and housing impacts are not expected from the implementation of the 2022 AQMP. Since PAR 1111 and PAR 1121 focus on the installation of equipment in existing structures and do not require new construction or major developments. As such, they are not expected to impact population or housing availability. Therefore, the previous conclusion of no impact to population and housing reached in the Final Program EIR for 2022 AQMP will continue to apply to PAR 1111 and PAR 1121.

Public Services

The Final Program EIR for 2022 AQMP previously analyzed public services impacts associated with implementation of control measures R-CMB-01, R-CMB-02, and C-CMB-02 and concluded that fire protection and emergency medical services would be provided to affected facilities and residential developments by local county and city fire departments. Although the implementation of the control measures would use alternative fuels (e.g., hydrogen), alternative fuels would displace gasoline and diesel fuels. As first responders to emergency situations, fire departments are trained to respond to a variety of situations related to hazardous materials. Large industrial facilities (e.g., electric generating plants and refineries) have on-site fire response personnel and the local fire departments provide assistance to the on-site personnel. Therefore, no increase in calls for fire protection, and emergency medical service would be expected from implementation of the control measures. New residential and commercial developments would be required to comply with Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 and development proposals would be subject to project-level review by the local land use agency, including review of fire protection impacts under CEQA, as applicable.

Furthermore, all activities undertaken as a result of implementing the control measures would be required to comply with fire-related safety features in accordance with the applicable provisions of the adopted California Fire Code, any county or city ordinances, and standards regarding fire prevention and suppression measures related to water improvement plans, fire hydrants, fire access, and water availability. Based on the preceding discussion, implementation of the control measures would not adversely affect the ability of local fire protection to provide adequate service and impacts would be less than significant.

Implementation of the control measures would not result in an increase in calls for police protection. Implementation of the control measures occur at existing facilities or promote transition to cleaner emitting equipment at new developments but would not facilitate the construction of new development. At existing industrial facilities, on-site security is typical and would be expected to continue to with the same demand for police department support as is currently needed. In addition, new residential and/or commercial developments would be required to comply with the Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 and the development proposals would be subject to project-level review by the local land use agency, including review of police protection impacts under CEQA, as applicable.

Since PAR 1111 and PAR 1121 focus on the installation of equipment in existing structures and do not require new construction or major developments. As such, they are not expected to impact population or housing availability and would not induce population growth either directly or indirectly. With no increase in local population, there would be no additional demand for new or expanded schools, parks, and libraries and no other adverse population or housing impacts are expected. Therefore, the previous conclusion of no impact to public services reached in the Final Program EIR for 2022 AQMP will continue to apply to PAR 1111 and PAR 1121.

Recreation

The Final Program EIR for 2022 AQMP previously analyzed recreation impacts associated with implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 and concluded the implementation of the control measures does not include the development of new homes, which would lead to an increase in population and thereby, the need for additional park and recreation facilities. Since PAR 1111 and PAR 1121 focus on the installation of equipment in existing

structures and do not require new construction or major developments, implementation of PAR 111 and PAR 1121 would not increase the need for or the use of existing neighborhood and regional parks or other recreational facilities, nor would these rules require the construction of new or expanded parks or recreational facilities. No impacts to park and recreational facilities would occur and no mitigation measures are necessary. Therefore, the previous conclusion of no impact to recreation reached in the Final Program EIR for 2022 AQMP will continue to apply to PAR 1111 and PAR 1121.

Transportation

The Final Program EIR for 2022 AQMP previously analyzed transportation impacts associated with implementation of control measures R-CMB-01, R-CMB-02, and C-CMB-02 and concluded that no transportation impacts would occur because;

1) development of incentives to remove/replace higher emitting equipment is not expected to substantially alter vehicle mileage or transportation routes.

2) the 2022 AQMP builds upon transportation and related TCMs developed by SCAG and included in the SCAG RTP/SCS. Therefore, the control measures would not conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

3) While implementation of the control measures has the potential to result in an increase in transportation related to construction of new or modified air pollution control equipment, construction activity impacts, including construction trips and vehicle miles traveled (VMT) associated with contractors and vendors delivering and installing equipment at affected facilities, are temporary in nature and will vary depending on the number and location of facilities, and the size of the construction workforce needed. ..

4) the CARB Technical Advisory on Evaluating Transportation Impacts in CEQA to comply with CEQA Guidelines Section 15064.3 focuses on permanent, new employee VMT. [California Office of Planning and Research, 2018]. Because of the temporary nature of construction activities, any increase in VMT related to construction activities would occur on a short-term basis at each location. In general, temporary construction-related increases in VMT are not considered to be a transportation impact or inconsistent with the requirements in CEQA Guidelines Section 15064.3, as they do not have a permanent impact on regional VMT. Additionally, discretionary projects at affected facilities could be subject to project-level review under CEQA. Therefore, temporary effects of construction-related vehicles would not conflict with the state's GHG reduction and associated VMT goals for the transportation sector.

5) implementation of the control measures does not involve or require the construction of new roadways, alter existing roadways, or introduce incompatible uses to existing roadways.

Given that PAR 1111 and PAR 1121 are designed to replace equipment in existing structures without requiring significant new construction or changes in operational demands, they will not result in substantial transportation impacts. Therefore, the previous conclusion of no impact to transportation reached in the Final Program EIR for 2022 AQMP will continue to apply to PAR 1111 and PAR 1121.

Wildfires

The Final Program EIR for 2022 AQMP previously analyzed wildfire impacts associated with implementation of control measures R-CMB-01, R-CMB-02, and C-CMB-02 and concluded that no wildfire impacts would occur because activities that result from implementation of the control measures would not block or otherwise interfere with the use of evacuation routes; nor would they interfere with operations of emergency response agencies or with coordination and cooperation between such agencies. Therefore, there would be no impacts on emergency activities.

Implementation of the control measures would affect existing commercial facilities and residential developments and develop incentives to remove/replace higher emitting equipment. Since commercial areas are not typically located near wildland or forested areas, implementation of the control measures is not expected to increase the risk of wildland fires. Therefore, affected industrial facilities are expected to be devoid of plant life (except landscape vegetation), especially native vegetation. Similarly, for the control measures R-CMB-01, R-CMB-02 that affect residential land uses, any modifications needed would occur inside the buildings or in the case of energy efficiency improvements such as installing new water and space heaters, would not be expected to create any greater risk of wildland fires than the existing residential developments themselves. Moreover, the proposed residential control measures may involve replacing gas-fired water heaters, space heaters, reducing the use of fuel and the potential to cause wildland fires.

Any structures subject to the implementation of control measures that would be located in fire hazard severity zones are required to be designed, built, and operated in accordance with state regulations specifying building materials and structural designs for structures in such zones, including CBC Chapter 7A and California Fire Code Chapter 49; regulatory requirements for defensible space including Public Resources Code Section 4291 et seq.; and subject to project-level CEQA review, including review of wildfire impacts, as applicable. Electric utilities are required to abide by the requirements of the California Public Utilities Commission (CPUC) Fire Safety Regulations as they relate to utility poles and wires, and vegetation management.

Additional measures are in place to minimize the impacts of pollutant concentrations from wildfire ash. Recognition of the growing threat that wildfire smoke poses to public health and safety has resulted in a response led by the U.S. Forest Service and enhanced partnership with many other agencies, such as the National Park Service. The Wildland Fire Air Quality Response Program (WFAQRP) was created to directly assess, communicate, and address risks posed by wildfire smoke to the public as well as fire personnel. South Coast AQMD also issues air quality alerts, advisories, and forecasts by email through www.AirAlerts.org. South Coast AQMD also maintains an interactive online map to view current air quality conditions in the region. Therefore, the control measures in the 2022 AQMP are not expected to result in structures being built within or adjacent to wildfire areas, or result in an increased risk of wildfire.

Catastrophic wildfire can create favorable conditions for other hazards, such as flooding and landslides during the rainy season. However, since commercial areas are not typically located near wildland or forested areas, implementing the 2022 AQMP control measures would not expose people or structures to post-fire hazards such as flooding, landslides, slope instability, or drainage changes. Any new structures subject to the implementation of the control measures (e.g., new residential developments) that would be located in fire hazard severity zones would be subject to project-level CEQA review, including review of wildfire impacts, as applicable. Control measures

applicable to reducing emissions from residential developments (e.g., R-CMB-01 and R-CMB-02) do not affect the siting of residential developments. Therefore, there would be no impacts or increased fire risks to people or structures associated with implementation of the 2022 AQMP. In addition, given that PAR 1111 and PAR 1121 are designed to replace equipment located within existing structures, even if some structures are located within fire-prone areas, the nature of the construction activities would be minimal and would occur mainly indoors, and thus, would not be expected to increase wildfire risks. Therefore, the previous conclusion of no impact to wildfire reached in the Final Program EIR for 2022 AQMP will continue to apply to PAR 1111 and PAR 1121.

Environmental Topic Areas Previously Concluded in the Final Program EIR for 2022 AQMP to Have Less Than Significant Impacts

The following environmental topic areas were previously analyzed in the Final Program EIR for 2022 AQMP to have less than significant impacts related to control measures R-CMB-01, R-CMB-02, and C-CMB-02: noise and solid and hazardous waste.

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 Final program EIR for 2022 AQMP, in order to determine if the previous conclusions of less than significant impacts for the environmental topic areas of noise; and solid and hazardous waste need to be changed.

Noise

The Final Program EIR for 2022 AQMP concluded that noise impacts from some control measures, including R-CMB-01, R-CMB-02, and C-CMB-02, would be less than significant. The primary sources of noise would be brief and associated with the replacement of appliances such as water heaters and space heaters in residential and commercial settings. These sources include delivery trucks, electronic hand trucks for moving appliances, and hand tools for disconnecting and connecting appliances. Given the temporary nature and limited scope of these activities, the noise impacts are anticipated to be less than significant.

For electrical panel upgrades in commercial buildings, typical construction equipment includes:

- Hand Tools such as screwdrivers, pliers, wire cutters, and wire strippers for handling and installing electrical components.
- Power Tools including drills for making mounting holes and reciprocating saws for cutting through materials if necessary.
- Safety Equipment like insulated tools, gloves, and safety glasses to ensure protection against electrical hazards.
- Electrical Equipment such as voltage testers and circuit finders to safely work on electrical systems.
- Heavy Equipment like lifts or scaffolding to reach high-mounted panels and portable work lights to ensure adequate illumination in work areas.
- Miscellaneous Items including conduit benders, cable trays, and mounting hardware.

Most of this equipment does not generate significant noise. The construction activities associated with panel upgrades are generally short-term and involve relatively low-noise equipment compared to other types of construction work.

Additionally, the Final Program EIR addressed potential noise impacts from construction activities near sensitive receptors (e.g., residences, hotels, hospitals). Noise impacts would vary based on existing ambient noise levels and the proximity of sensitive receptors to construction sites. Typically, modifications would occur in industrial or commercial zones, where noise impacts on sensitive receptors are expected to be minimal.

Similar to what was anticipated in the Final Program EIR for the 2022 AQMP regarding implementation of residential and commercial control measures, implementation of PAR 1111 and PAR 1121 PAR 1121 is expected to involve minimal construction equipment beyond hand tools for the installation of zero-emission heaters in residences. Electrical panel upgrades can be divided into two phases: work by the utility provider to deliver power from the transformer to the building, and work by the property owner on the electrical panel(s) and building wiring system. Utility provider work might involve a backhoe, crane, forklift, concrete saw, and/or welder, as estimated in the Final Program EIR for 2022 AQMP. Property owner work, which varies depending on the building's specifics, could range from hand tools to more extensive equipment like trenching with a backhoe and laying conduit with a forklift. Multi-story and high-rise buildings will generally require more construction effort compared to single-story structures, making it challenging to standardize noise impacts.

PAR 1111 will impact approximately 200,000 commercial buildings. A report from Southern California Edison (SCE) indicates that a significant number of electrical panels in these buildings were installed before 1962, which may necessitate panel upgrades and potentially result in temporary construction noise. However, the types of equipment used for these upgrades are not expected to generate significant noise. Therefore, the previous conclusion of less than significant noise impacts related to control measures R-CMB-01, R-CMB-02, and C-CMB-02 will continue to apply to PAR 1111 and PAR 1121.

Solid and Hazardous Waste

The Final Program EIR for 2022 AQMP determined that the impacts of solid and hazardous waste from control measures R-CMB-01, R-CMB-02, and C-CMB-02 would be less than significant. The anticipated activities involve replacing old appliances or equipment, such as water heaters and space heaters, with new, electrified or low NOx models. This includes both the replacement of existing equipment in residential and commercial settings and the installation of new appliances in new developments.

The replacement of outdated equipment is driven by the end of its useful life or high repair costs and may be accelerated by financial incentives offered by local utilities. When equipment is removed, it is typically either dismantled with the metals sold as scrap or, if still functional, sold for reuse outside the South Coast AQMD jurisdiction. For these activities, minimal construction waste is expected. New zero-emission or low NOx appliances are generally selected to fit within the existing footprint of the units they replace, minimizing additional waste. Packaging waste, such as cardboard, plastic bags, straps, and padding, is recyclable and represents a minor component of the overall waste generated. If modifications are needed to accommodate new appliances, such as upgrading electrical plugs, the resulting construction waste would be minimal.

In the case of new residential and commercial developments, the decision to install zero-emission or low NOx appliances is integrated into the construction design plans from the outset. While new construction generates some waste, the addition of these appliances contributes only minimal additional waste, primarily from packaging.

PAR 1111 and PAR 1121, which propose to replace furnaces and water heaters, will continue to follow the same approach, with many replacements occurring at the end of the equipment's useful life and some potentially happening earlier due to incentive funding. Given these considerations, the previous conclusion of less than significant impacts regarding solid and hazardous waste from control measures R-CMB-01, R-CMB-02, and C-CMB-02 remains applicable to PAR 1111 and PAR 1121.

4.5 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

CEQA Guidelines Section 15126(b) requires an environmental analysis to consider "any significant environmental effects which cannot be avoided if the proposed project is implemented." This SEA identified the topics of air quality from construction and energy as the only environmental topic areas having potentially significant adverse environmental affects if the proposed project is implemented.

4.6 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

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 SEA identified the topics of air quality from construction and energy as the only environmental areas with potentially significant adverse impacts if the proposed project is implemented. Air quality impacts from construction are temporary in nature and therefore, not considered to be an irreversible environmental change. Similarly, natural gas impacts are determined to be significant in the short-term in order to produce electricity; however, natural gas demand will decrease over the long-term, shifting with the addition of large amounts of renewable energy generation. Significant adverse impacts to energy from electricity demand cannot be mitigated to less than significant levels; thus, they may be considered irreversible because operators that install new and replacement space and water heaters for reducing NOx emissions are likely to operate these systems for the lifetime of the equipment, resulting in an irreversible increase to electricity demand.

4.7 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.

4.7.1 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 2022 AQMP was designed to reduce emissions from existing emission sources and promote the use of the cleanest technology available. PAR 1111 and PAR 1121 implement control measures from the 2022 AQMP which focus on maximizing the implementation of existing zero-emission technologies. Neither the 2022 AQMP nor PAR 1111 and PAR 1121 would be cause of residential, commercial, or industrial development.

The Final Program EIR for the 2022 AQMP concluded that implementation of the 2022 AQMP would not remove barriers to population growth, as it involved no changes to a General Plan, zoning ordinance, or a related land use policy. PAR 1111 and PAR 1121, evaluated in this SEA, contain incremental changes to the project previously evaluated in the Final Program EIR for the 2022 AQMP. 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 Final Program EIR for the 2022 AQMP, 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 Final Program EIR for the 2022 AQMP, 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 1111 and PAR 1121 would not directly trigger new residential development in the area or alter land use policies.

PAR 1111 and PAR 1121 may result in construction activities; however, they 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. Considering the existing labor

force is about 8.8 million in the region and current unemployment rate of four to five percent,[106] it is expected that a sufficient number of workers are available locally and that few or no workers would need to relocate for construction jobs potentially created by the proposed project as construction activities would be spread over a period of 2023 to 2036. Further, PAR 1111 and PAR 1121 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 permanent number of workers is expected. Likewise, the proposed project 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 the proposed project 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.

4.7.2 Removal of Obstacles to Growth

Similar to the 2022 AQMP, PAR 1111 and PAR 1121 will be implemented within South Coast AQMD's jurisdiction which is located within an existing urbanized area where adequate infrastructure is already in place to serve the existing surrounding population. The proposed project would not employ activities or uses that would result in growth inducement, such as the development of new infrastructure (e.g., new roadway access) that would directly or indirectly cause the growth of new populations, communities, or currently undeveloped areas. PAR 1111 and PAR 1121 are not expected to result in the use of energy resources in a wasteful manner. However, the project includes incentives to increase electrification of residential and commercial space and water heaters.

PAR 1111 and PAR 1121 could result in a substantial increase in electricity and natural gas demand, the impact of which is potentially significant. In the CEQA Guidelines, Appendix F: Energy Conservation, the wise and efficient use of energy includes: 1) decreasing overall per capita energy consumption; 2) decreasing reliance on fossil fuel such as coal, natural gas, and oil; and 3) increasing reliance on renewable energy sources. Implementation of PAR 1111 and PAR 1121 would increase demand for renewable energy because the increased use of zero-emission technologies would increase the use of electricity and decrease the use of other higher-emitting technologies. Thus PAR 1111 and PAR 1121 would support the efficient use of energy by increasing the reliance on renewable energy sources, providing a beneficial long-term operational impact on energy conservation.

While construction and operation activities that may occur as a result of the proposed project will require trips associated with construction workers and delivery of supplies, the trips are expected to occur via existing roadways and transportation corridors. Thus, the proposed project is not expected to require the development of new roads or freeways. Likewise, PAR 1111 and PAR 1121 would not result in the expansion of public service facilities (e.g., police, fire, libraries, and schools). However, growth induced by PAR 1111 and PAR 1121 would be limited to the increase

[106] EDD, Labor Market Information Division, Labor Market Information by County, July 2022. https://www.labormarketinfo.edd.ca.gov/geography/lmi-by-county.html

in electricity and natural gas to support the increased penetration of low NOx and zero-emission technologies.

4.7.3 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. Similar to the 2022 AQMP, PAR 1111 and PAR 1121 will be implemented within South Coast AQMD's jurisdiction which is located within an existing urbanized area. The areas where construction activities may occur would be at existing stationary sources and along transportation corridors. Stationary sources are located within residential and commercial areas. Any related construction activities would be expected to be within the confines of the existing facilities and would not encroach into open space.

4.7.4 Precedent Setting Action

The 2022 AQMP demonstrated attainment of the 8-hour federal 70 ppb ozone standard by 2037 as required by the CAA. The federal CAA requires ozone nonattainment areas to prepare a State Implementation Plan which must be submitted to the U.S. EPA. Therefore, the 2022 AQMP was prepared to comply with federal air quality planning regulations and requirements. The proposed project is being prepared to demonstrate compliance with federal air quality planning regulations and requirements as initially proposed in control measures of the 2022 AQMP. This proposed project would not result in precedent-setting actions that might cause other significant environmental impacts (other than those already evaluated in the Final Program EIR for the 2022 AQMP).

4.7.5 Conclusion

The 2022 AQMP was developed to comply with federal air quality planning requirements for ozone, and PAR 1111 and PAR 1121 implement control measures in the 2022 AQMP. PAR 1111 and PAR 1121 are not expected to foster economic or population growth, nor result in the construction of additional housing or other infrastructure, either directly or indirectly, that would further encourage growth. PAR 1111 and PAR 1121 could result in construction projects at existing stationary sources and along existing transportation corridors. However, 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, other than as evaluated in Chapter 4 of this SEA.

4.8 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. The objectives of the proposed project are to: 1) reduce NOx emissions from residential water heaters and residential and commercial space heaters, by proposing NOx limits that represent BARCT for

the applicable equipment; 2) address challenges with installation of zero-emission technology through differentiated compliance dates for new versus existing buildings, alternative compliance options, exemptions, and other means; and 3) provide incentive funds to facilitate the transition to zero-emission technologies and promote further emission reductions earlier than required. By achieving additional reductions in NOx, an ozone and PM2.5 precursor, the proposed project will help attain federal and state air quality standards which are expected to enhance short and long-term environmental productivity in the region.

Implementing the proposed project does not narrow the range of beneficial uses of the environment. Of the potential environmental impacts discussed in Chapter 4, only those related to air quality during construction and energy impacts due to electricity and natural gas demand are considered potentially significant. Implementation of mitigation measures will ensure such impacts are mitigated to the greatest extent feasible.

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 provide 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 the proposed project determined that, of the amendments proposed, only the components that pertain to the compliance schedule to meet certain NOx emission limits (including alternative compliance options which allow for use of low NOx units in emergency replacements or necessary expansion of housing or service upgrades, and effect of incentives), could have potential adverse significant impacts to air quality due to construction and energy due to increased electricity and natural gas demand. As such, alternatives to the proposed project were crafted by varying aspects of the proposed project which affect when equipment would be installed.

5.2 DESCRIPTION OF ALTERNATIVES TO THE PROPOSED PROJECT

Four alternatives to the proposed project 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 – Additional Incentive Fundings. The primary differences among the alternatives involve adjustments in compliance dates and the replacement of affected equipment prior to the end of its useful life, as well as the types of the new equipment being installed. Unless otherwise noted, all other components of the alternatives are the same as the proposed project. The following subsections provide a brief description of each alternative.

5.2.1 Alternative A – No Project

CEQA mandates that the specific alternative of "No Project" be evaluated. The No Project Alternative outlines what would happen if the proposed project (PAR 1111 and PAR 1121) was not approved; in this case, not proposing amendments to Rules 1111 and 1121. Under Alternative A, both new and existing residential fan-type central furnaces, commercial fan-type central furnaces, mobile home furnaces, wall and floor furnaces would need to comply with the September 2023 version of Rule 1111. Additionally, new and existing residential, commercial and mobile home water heaters will need to comply with September 2004 version of Rule 1121. Currently, all Rule 1111 furnaces meet the NOx emission limit of 14 ng/J, except for mobile home furnaces, for which the mitigation fee alternative compliance option will end by September 30, 2025. For Rule 1121, all water heaters currently meet the NOx emission limit of 10 ng/J, except for mobile home water heaters, which are subject to a higher emission limit of 40 ng/J.

5.2.2 Alternative B – More Stringent Proposed Project

There are some elements in PAR 1111 and PAR 1121 that could be adjusted to create a more stringent proposed project. Making the project more stringent would involve imposing additional requirements, lowering the emission standards, or providing less flexibility or relief to those subject to PAR 1111 and PAR 1121. Under Alternative B, equipment in new buildings would need to meet the proposed NOx emission limits 12 months earlier than specified in the proposed project. Equipment in existing buildings would be required to be replaced by the compliance date listed in the proposed project, as opposed to being replaced at the end of useful life after the compliance date. This means that new buildings would feature zero-emission equipment a year sooner and existing buildings would feature zero-emission space heaters 25 years sooner and water heaters 15 years sooner than the proposed project. Overall, Alternative B proposes a more stringent approach by requiring emission reductions for specific categories of equipment to occur by a set date.

5.2.3 Alternative C – Less Stringent Proposed Project

In contrast to Alternative B, there are a number of elements in PAR 1111 and PAR 1121 that could be adjusted to create a less stringent proposed project. To be less stringent would be to impose fewer requirements, increase the NOx emission limits to be achieved, or provide more flexibility or relief to those subject to PAR 1111 and PAR 1121. Under Alternative C, equipment in new buildings would meet the proposed NOx emission limits as specified under the proposed project; however, equipment in existing buildings would be allowed to be replaced with low NOx heaters in situations where alternative compliance options would be necessary in the proposed project. It is expected that 50 percent of equipment in existing buildings would be replaced with zero-emission heaters, while 50 percent would be low NOx. This alternative aligns with the assumptions made in the Final Program EIR for the 2022 AQMP for analyzing impacts from implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02.

5.2.4 Alternative D – Additional Incentive Funding

Alternative D considers the effect of providing double the amount of financial incentives as a means to encourage the early replacement of heaters if all other aspects of the proposed project were to remain the same. Incentives offset costs and enable the transition to zero-emission

technology to be financially feasible sooner for more operators. It is estimated that the percentage of equipment that would be replaced before the end of its useful life will increase from 0.5 percent to one percent due to the availability of additional funding.

5.3 ALTERNATIVES ANALYSIS

The following sections describe the potentially significant adverse air quality impacts due to construction, and energy impacts due to increased electricity and natural gas demand that may occur for each project alternative. A comparison of the environmental impacts for each project alternative is also provided in Table 5-2. No other environmental topics other than air quality impacts due to construction, and energy impacts due to increased electricity and natural gas demand were determined to be significantly adversely affected by implementing any project alternative.

5.3.1 Air Quality and Greenhouse Gas Emissions

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 4.2 - Air Quality and Greenhouse Gas Emissions.

5.3.1.1 Proposed Project

Implementation of PAR 1111 and PAR 1121 is estimated to reduce NOx emissions by up to 7.7 tpd upon full implementation by 2055, and 2.3 tpd upon full implementation by 2045, respectively. As previously described, the implementation of PAR 1111 and PAR 1121 will involve replacing existing natural gas-fired space and water heaters with zero-emission technologies in both new and existing buildings. The implementation of PAR 1111 and PAR 1121 is not expected to require construction equipment beyond hand tools for installing zero-emission heaters in residences. In contrast, some commercial developments may need construction equipment, and the analysis in the SEA (presented in Table 4-2) estimated that if 10,000 commercial buildings were to undergo concurrent electrical panel upgrades due to implementation of PAR 1111 and PAR 1121, construction emissions could exceed the South Coast AQMD significance threshold for NOx (100 lbs/day). As a result, potentially significant adverse air quality impacts from construction are expected if PAR 1111 and PAR 1121 are implemented.

5.3.1.2 Alternative A – No Project

Under Alternative A, the existing NOx emission limits for residential and commercial space and water heaters would remain unchanged, with no new limits implemented. The Final Program EIR for 2022 AQMP already analyzed Alternative A and concluded that if no further action is taken, there would be no significant incremental impacts on the existing environment, aside from air quality. While some existing regulations might lead to minor improvements in air quality, it is unlikely that all state and federal ozone standards would be achieved as mandated by the California and federal Clean Air Acts (CAAs). Therefore, under the "No Project" scenario, the use of gas-fired space and water heaters in both new and existing buildings would continue unchanged, meaning the proposed NOx emission reductions from PAR 1111 and PAR 1121 would not be realized and the associated co-benefits of GHG reductions linked to operational activities would also not occur. As a result, current adverse air quality impacts would persist, with no reduction in emissions from combustion since zero-

emission technologies would not be implemented. Additionally, Alternative A would not entail any new construction activities associated with the implementation of zero-emission technologies. As a result, no additional construction-related air quality impacts would occur, and operational impacts would remain unchanged. However, this would also mean there would be no operational benefits related to improved air quality or decreased NOx and GHG emissions. Alternative A would not align with the 2022 AQMP's goals of transitioning to zero-emission technologies and achieving the objectives of PAR 1111 and PAR 1121.

5.3.1.3 Alternative B – More Stringent Proposed Project

Alternative B proposes earlier effective dates for installation of zero-emission technology in new and existing buildings compared to the proposed project (PAR 1111 and PAR 1121). Alternative B may be challenging to implement due to the accelerated timeframes for zero-emission heater replacement.

Alternative B is anticipated to achieve substantial NOx emission reductions along with the resulting co-benefit of operational GHG emission reductions, sooner than the proposed project. However, since the number of affected units remains unchanged, but the timeframe for implementation is condensed, the construction-related air quality impacts are expected to be greater than those of the proposed project since more replacements would occur on a peak day.

5.3.1.4 Alternative C – Less Stringent Proposed Project

Alternative C proposes the same compliance deadlines for the installation of zero-emission technologies as the proposed project (PAR 1111 and PAR 1121). However, it introduces a mixed approach for existing buildings, wherein 50 percent of affected equipment will be replaced with zero-emission technologies, while the other 50 percent will be replaced with low-NOx equipment. Construction impacts from the installation of low NOx heaters are expected to be similar to zero-emission technology. While Alternative C may yield fewer NOx emission reductions compared to the proposed project and Alternatives B and D, which mandate only zero-emission technologies, it would still provide co-benefits of reducing operational GHG emissions, albeit to a lesser extent than the proposed project and Alternatives B and D.

Since Alternative C does not introduce any new construction activities beyond those outlined in the proposed project, the air quality impacts associated with construction are expected to remain significant, similar to the proposed project.

5.3.1.5 Alternative D – Additional Incentive Funding

Alternative D proposes the same compliance deadlines for the installation of zero-emission technologies as the proposed project (PAR 1111 and PAR 1121). However, it introduces additional incentive funding, which could lead to a higher rate of equipment replacements on an expedited timeline. Specifically, Alternative D is expected to result in one percent of equipment being replaced before the end of its useful lifetime, compared to 0.5 percent under the proposed project.

Alternative D is anticipated to achieve substantial NOx emission reductions along with the resulting co-benefit of operational GHG emission reductions, sooner than the proposed project. However, since the number of affected units remains unchanged, but more units could be replaced sooner than the end of useful life, the construction-related air quality impacts are expected to be greater than those of the proposed project since more replacements could occur on a peak day.

5.3.2 Energy

Potential energy impacts from the proposed project are summarized in the following subsection. For the complete analysis, refer to Section 4.3 – Energy.

5.3.2.1 Proposed Project

Compliance with PAR 1111 and PAR 1121 is expected to involve the replacement of approximately 5.35 million space heaters and 5.13 million water heaters, with up to 0.5 percent of replacements potentially occurring before the end of the current equipment's useful life due to available incentives. Alternative compliance options will be available for emergency replacements and installations that require construction to accommodate or relocate compliant units and associated equipment, perform necessary service upgrades, or replace furnaces without the simultaneous replacement of space cooling equipment. These alternative compliance options will allow for the necessary construction to ensure the installation of zero-emission heating units.

Due to the increase in the number of affected units, the operational energy use estimate will rise from 7,000 GWh/year (for the implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 in the Final Program EIR for the 2022 AQMP) to 34,358 GWh/year for PAR 1111 and PAR 1121. Overall electricity demand from the implementation of all 2022 control measures is projected to increase from 13,429 GWh (approximately 11.3 percent over 2020 consumption) to 40,857 GWh (approximately 34.6 percent over 2020 consumption). The introduction of incentive funding may accelerate this increase in electricity demand compared to a scenario where all equipment is replaced at the end of its useful life.

This substantial rise in the number of affected units, from 4.2 million to over 10 million space and water heaters for PAR 1111 and PAR 1121, substantially increases the severity of the overall energy impacts when compared to what was previously analyzed. Specifically, the Final Program EIR for the 2022 AQMP concluded potentially significant energy impacts based on an initial estimate of a minimum 10.9 percent increase in Basin-wide electricity use, However, under PAR 1111 and PAR 11121, more equipment replacements will occur tan originally estimated such that the Basin-wide electricity use is expected to increase to 33.2 percent. Consequently, the electricity demand impact is expected to be remain potentially significant but with substantially more severe impacts.

Similarly, for natural gas, the Final Program EIR for 2022 AQMP concluded that implementation of Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 may contribute to a short-term rise in natural gas demand due to increased electricity generation needs. However, as the grid incorporates more renewable sources and reduces its reliance on natural gas, this effect is expected to diminish over time. The same phenomenon is true for PAR 1111

and PAR 1121 except that the estimates for natural gas use during this interim period may be substantially more severe. Although natural gas demand for electricity generation is projected to increase in the short-term, as renewable energy use grows and reliance on natural gas for heating appliances decreases, the demand for natural gas is projected to decline in the long-term. Consequently, the natural gas demand impact during the interim period is expected to be remain potentially significant but with substantially more severe impacts.

5.3.2.2 Alternative A – No Project

Under Alternative A, the compliance deadlines for the installation of zero-emission limits would not be implemented, resulting in the continuation of existing energy usage patterns associated with gas-fired space and water heaters. Consequently, approximately 5.35 million space heaters and 5.13 million water heaters would remain in use without transitioning to zero-emission technologies.

The energy consumption associated with these existing appliances would persist at current levels, meaning no significant changes in electricity demand would occur. Without the incentive to replace older equipment with zero-emission technologies, the potential for energy efficiency improvements and reduced natural gas usage would not materialize. As a result, any opportunities for enhanced energy savings would be lost, leading to ongoing reliance on natural gas.

While the continued use of existing appliances would not lead to significant increases in energy demand or require the construction of new energy facilities, the long-term impacts would reflect the ongoing use of higher-emission natural gas systems. Thus, Alternative A would not contribute to the state's goals for energy efficiency or emissions reductions.

Therefore, under Alternative A, the expected energy impacts would remain unchanged resulting in no substantial improvements in reducing the use of electricity or natural gas.

5.3.2.3 Alternative B – More Stringent Project

Alternative B incorporates more stringent compliance dates for new and existing buildings to accelerate the transition to zero-emission technologies. Under this alternative, approximately 5.35 million space heaters and 5.13 million water heaters would be replaced, with a higher rate of early replacements due to the more aggressive timelines for compliance.

As explained in Chapter 4 and shown in Table 4-6, the electricity demand from implementing PAR 1111 and PAR 1121 will increase from the original projections in the Final Program EIR for the 2022 AQMP of 7,000 GWh/year to 34,358 GWh/year. However, Alternative B would result in an earlier increase in electricity demand which is driven by the earlier deployment of zero-emission technologies. Therefore, the electricity demand impacts will remain potentially significant, same as the proposed project. However, the long-term benefits of reduced natural gas usage and enhanced energy efficiency from the accelerated deployment of zero-emission technologies are expected to yield the same substantial reduction on electricity and natural gas consumption over the long-term.

Similarly, significant adverse short-term natural gas demand impacts could be created by the implementation of Alternative B because of the potential increase in natural gas needed to produce electricity until renewable energy resources are available to utilities to satisfy the electricity demand.

5.3.2.4 Alternative C – Less Stringent Project

Alternative C proposes the same compliance deadlines for the installation of zero-emission technologies as the proposed project but proposes a mixed approach for existing buildings. Under this alternative, approximately 5.35 million space heaters and 5.13 million water heaters would be replaced, but with 50 percent of affected units utilizing low-NOx equipment instead of transitioning entirely to zero-emission technologies.

The energy demand under Alternative C is expected to increase but to a lesser extent than the proposed project because the use of low-NOx technologies, in lieu of zero-emission technologies will require the ongoing reliance on natural gas, though to a lesser extent since the newer equipment will be more efficient than the equipment being replaced. As a result, while there will be proportionately smaller shift toward zero-emission technologies that are reliant on electricity, the overall reduction in energy consumption will be less pronounced when compared to the proposed project and Alternative B. Construction activities related to the installation of new equipment, whether for low NOx or zero emission technologies will require energy resources, but since no new construction beyond what is outlined in the proposed project is anticipated, the construction-related energy impacts are expected to be the same or similar to the proposed project.

In terms of overall energy usage, the mix of low-NOx and zero-emission technologies means that the full potential for energy efficiency improvements will not be realized. While this alternative allows for some reduction in NOx emissions, the slower transition to zero-emission technologies limits the long-term benefits in energy consumption.

In summary, Alternative C will result in an increase in electricity demand for the portion of equipment replaced by zero-emission technologies, but overall, to a lesser extent than the proposed project due to the continued use of gas-fired, albeit low-NOx, appliances alongside the zero-emission technologies. Nonetheless, the analysis concluded that there would be potentially significant impacts related to operational electricity demand for PAR 1111 and PAR 1121 and considering that Alternative C does not alter the compliance deadlines, it is anticipated that Alternative C would also have significant impacts on the demand for electricity and natural gas needed to produce electricity until renewable energy resources are available to utilities to satisfy the electricity demand.

5.3.2.5 Alternative D – Additional Incentive Funding

Alternative D proposes the same compliance deadlines for the installation of zero-emission technologies as the proposed project (PAR 1111 and PAR 1121) but it introduces additional incentive funding, which is expected to result in one percent of equipment being replaced before the end of its useful lifetime, compared to 0.5 percent under the proposed project.

The incentive funding will have the potential to increase the rate of replacing equipment with zero-emission technologies earlier than then proposed project, leading to an increased demand in electricity and natural gas over the short-term until renewable energy resources are available to utilities to satisfy the electricity demand, in a similar but greater amount when compared to the proposed project. Over the long-term, the accelerated deployment of zero-emission technology will decrease the use of natural gas needed to operate the affected equipment. Relative to construction, the additional incentives are likely to lead to more construction occurring earlier than for the proposed project.

Since the analysis concluded that there would be potentially significant impacts related to operational electricity and natural gas demand for PAR 1111 and PAR 1121, and considering that Alternative D accelerates the installation of zero-emission technologies earlier through incentive funding without altering compliance deadlines or introducing new construction activities, it is anticipated that Alternative D would also have significant impacts related to operational electricity and natural demand.

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 1111 and PAR 1121) and Alternatives

Categories with Proposed Changes	Building Type	Proposed Project: PAR 1111 and PAR 1121	Alternative A: No Project	Alternative B: More Stringent Than The Proposed Project	Alternative C: Less Stringent Than The Proposed Project	Alternative D: Additional Incentive Funding
Residential Fan-Type Central Furnace	New	*Zero-Emission at End of Life by 1/1/2026*	NOx emission limits would not be implemented. This means the projected reductions in NOx emissions would not be achieved, failing to meet the objectives of PAR 1111 and PAR 1121, which aim to reduce NOx emissions from natural gas-fired residential and commercial water and space heaters. Additionally, this alternative would not align with the 2022 AQMP's goal to reduce NOx emissions and transition to zero-emission technologies wherever possible.	*Zero-Emission at End of Life by 1/1/2025*	*Zero-Emission at End of Life by 1/1/2026*	*Zero-Emission at End of Life by 1/1/2026*
	Existing	*Zero-Emission at End of Life by 1/1/2028*		*Zero-Emission Required by 1/1/2028*	*Zero-Emission at End of Life by 1/1/2028*	*Zero-Emission at End of Life by 1/1/2028*
		0.5% of equipment estimated to be replaced before end of useful lifetime			*50% of residences will be zero-emission and 50% will be low NOx equipment*	*1% of equipment estimated to be replaced before end of useful lifetime*
Commercial Fan-Type Central Furnace	New	*Zero-Emission at End of Life by 1/1/2026*		*Zero-Emission at End of Life by 1/1/2025*	*Zero-Emission at End of Life by 1/1/2026*	*Zero-Emission at End of Life by 1/1/2026*
	Existing	*Zero-Emission at End of Life by 1/1/2028*		*Zero-Emission Required by 1/1/2028*	*Zero-Emission at End of Life by 1/1/2028*	*Zero-Emission at End of Life by 1/1/2028*
		0.5% of equipment estimated to be replaced before end of useful lifetime			*50% of buildings will be zero-emission and 50% will be low NOx equipment*	*1% of equipment estimated to be replaced before end of useful lifetime*
Mobile Home Furnace	New	*Zero-Emission at End of Life by 1/1/2026*		*Zero-Emission at End of Life by 1/1/2025*	*Zero-Emission at End of Life by 1/1/2026*	*Zero-Emission at End of Life by 1/1/2026*
	Existing	*Zero-Emission at End of Life by 1/1/2030*		*Zero-Emission Required by 1/1/2030*	*Zero-Emission at End of Life by 1/1/2030*	*Zero-Emission at End of Life by 1/1/2030*
		0.5% of equipment estimated to be replaced before end of useful lifetime			*50% of buildings will be zero-emission and 50% will be low NOx equipment*	*1% of equipment estimated to be replaced before end of useful lifetime*

Table 5-1 (concluded)
Summary of the Proposed Project (PAR 1111 and PAR 1121) and Alternatives

Categories with Proposed Changes	Building Type	Proposed Project: PAR 1111 and PAR 1121	Alternative A: No Project	Alternative B: More Stringent Than The Proposed Project	Alternative C: Less Stringent Than The Proposed Project	Alternative D: Additional Incentive Funding
Wall Furnaces, Floor Furnaces, and Others	New	*Zero-Emission at End of Life by 1/1/2026*	NOx emission limits would not be implemented. This means the projected reductions in NOx emissions would not be achieved, failing to meet the objectives of PAR 1111 and PAR 1121, which aim to reduce NOx emissions from natural gas-fired residential and commercial water and space heaters. Additionally, this alternative would not align with the 2022 AQMP's goal to reduce NOx emissions and transition zero-emission technologies wherever possible.	*Zero-Emission at End of Life by 1/1/2025*	*Zero-Emission at End of Life by 1/1/2026*	*Zero-Emission at End of Life by 1/1/2026*
	Existing	*Zero-Emission at End of Life by 1/1/2028*		*Zero-Emission Required by 1/1/2028*	*Zero-Emission at End of Life by 1/1/2028*	*Zero-Emission at End of Life by 1/1/2028*
		0.5% of equipment estimated to be replaced before end of useful lifetime			*50% of buildings will be zero-emission and 50% will be low NOx equipment*	*1% of equipment estimated to be replaced before end of useful lifetime*
Residential Water Heater	New	*Zero-Emission at End of Life by 1/1/2026*		*Zero-Emission at End of Life by 1/1/2025*	*Zero-Emission at End of Life by 1/1/2026*	*Zero-Emission at End of Life by 1/1/2026*
	Existing	*Zero-Emission at End of Life by 1/1/2027*		*Zero-Emission Required by 1/1/2027*	*Zero-Emission at End of Life by 1/1/2027*	*Zero-Emission at End of Life by 1/1/2027*
		0.5% of equipment estimated to be replaced before end of useful lifetime			*50% of buildings will be zero-emission and 50% will be low NOx equipment*	*1% of equipment estimated to be replaced before end of useful lifetime*
Mobile Home Water Heater	New	*Zero-Emission at End of Life by 1/1/2026*		*Zero-Emission at End of Life by 1/1/2025*	*Zero-Emission at End of Life by 1/1/2026*	*Zero-Emission at End of Life by 1/1/2026*
	Existing	*Zero-Emission at End of Life by 1/1/2030*		*Zero-Emission Required by 1/1/2030*	*Zero-Emission at End of Life by 1/1/2030*	*Zero-Emission at End of Life by 1/1/2030*
		0.5% of equipment estimated to be replaced before end of useful lifetime			*50% of buildings will be zero-emission and 50% will be low NOx equipment*	*1% of equipment estimated to be replaced before end of useful lifetime*

Table 5-2
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1111 and PAR 1121) and Alternatives

Air Quality & GHGs Impact Areas	Proposed Project: PAR 1111 and PAR 1121	Alternative A: No Project	Alternative B: More Stringent Than The Proposed Project	Alternative C: Less Stringent Than The Proposed Project	Alternative D: Additional Incentive Funding
Construction	**Potentially Significant Air Quality Impacts During Construction** due to: • increase in number of affected units by approximately 2.5 times (From 4.2 million to 10.5 million) • demolition and replacement activities associated with equipment in commercial buildings	**No Impacts** Since Alternative A involves no construction activities to transition from existing natural gas-fired equipment to zero-emission units, no impacts to air quality during construction are expected.	**Potentially Significant Air Quality Impacts During Construction** Alternative B will affect the same number of equipment for both existing and new buildings as the proposed project. However, the compliance date for new buildings will occur 12 months earlier than the proposed project, and the compliance dates for existing buildings will require replacement by these dates as opposed to end of useful life after these compliance dates. Alternative B will cause construction to occur in a more condensed timeline, so peak day construction air quality impacts will be increased compared to the proposed project.	**Potentially Significant Air Quality Impacts During Construction** Construction impacts from the installation of low NOx heaters are expected to be similar to zero-emission technology. Alternative C will affect the same number of equipment for both existing and new buildings as the proposed project. Therefore, the construction air quality impacts for Alternative C will be the same as for the proposed project.	**Potentially Significant Air Quality Impacts During Construction** Alternative D introduces funding incentives without altering compliance deadlines or introducing new construction activities. Since the number of affected units remains unchanged, but more units could be replaced sooner than the end of useful life, the construction-related air quality impacts are expected to be greater than those of the proposed project since more replacements could occur on a peak day.

Table 5-2 (concluded)
Comparison of Adverse Environmental Impacts of the Proposed Project (PAR 1111 and PAR 1121) and Alternatives

Energy	Proposed Project: PAR 1111 and PAR 1121	Alternative A: No Project	Alternative B: More Stringent Than The Proposed Project	Alternative C: Less Stringent Than The Proposed Project	Alternative D: Additional Incentive Funding
Electricity Demand	**Potentially Significant Energy Impacts** due to: • 34.6% increase in operational electricity demand compared to the 2018 baseline; and • 32.2% increase in operational electricity compared to 2022 baseline.	**No Impacts** Since PAR 1111 and PAR 1121 would not be implemented under Alternative A, no impacts related to increased electricity demand will occur.	**Potentially Significant Energy Impacts** Compared to proposed project, Alternative B will result in an earlier increase in operational electricity due to earlier installation of zero-emission technologies. It is anticipated that Alternative B would result in the same significant impacts for operational electricity demand.	**Potentially Significant Energy Impacts** Alternative C will result in a potentially significant increase in electricity demand, but to a lesser extent than the proposed project, primarily due to the continued use of gas-fired heaters alongside a portion of new installations of zero-emission technologies.	**Potentially Significant Energy Impacts** Alternative D will result in potentially significant impacts for electricity demand, earlier than the proposed project due to the accelerated deployment of zero-emission technologies due to incentive funding.
Natural Gas Demand	**Potentially Significant Natural Gas Demand Impacts** due to: increased use of natural gas to produce electricity as a result of replacing old equipment with zero-emission technologies.	**No Impacts** Since PAR 1111 and PAR 1121 would not be implemented under Alternative A, no impacts to increased demand for natural gas will occur.	**Potentially Significant Energy Impacts** Compared to proposed project, Alternative B will result in an earlier increase in natural gas use for the production of electricity due to earlier installation of zero-emission technologies. It is anticipated that Alternative B would result in the same significant impacts for operational natural gas demand until electricity is supplied by renewable resources.	**Potentially Significant Energy Impacts** Because the same number of units are being replaced in Alternative C compared to proposed project, and all would require natural gas usage in the short-term, it is anticipated that Alternative C would also experience potentially significant impacts related to natural gas demand.	**Potentially Significant Energy Impacts** Alternative D will result in potentially significant impacts for natural gas demand needed for electricity production, earlier than the proposed project due to the accelerated deployment of zero-emission technologies due to incentive funding.

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. 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 1111 and PAR 1121 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.

However, by not adopting PAR 1111 and PAR 1121, Alternative A would fail to implement necessary NOx emission limits for applicable equipment, while maintaining existing emissions levels resulting in the prevention of making progress toward achieving federal air quality standards. This approach would not align with the goals of the 2022 AQMP, which aims to meet federal air quality standards through effective emission reductions by transitioning to zero-emission technologies.

The main objective of the proposed project is to propose NOx limits that represent BARCT for the applicable equipment. Alternative A is rejected as infeasible because it neither meets the objective of the proposed project nor takes into consideration the 2022 AQMP's objective to meet the 2015 federal ozone standard through further emission reductions by transitioning to zero-emission technologies wherever feasible.

5.6 LOWEST TOXIC 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.

The proposed project aims to implement stringent NOx emission limits for applicable equipment, which are crucial for reducing harmful emissions and improving air quality. If current standards are maintained without further action, existing NOx levels would persist, leading to ongoing adverse health impacts. Upon full implementation, the proposed project is expected to result in all heaters being replaced which is expected to achieve 7.7 tpd of NOx emission reductions by 2055 for PAR 1111 and 2.3 tpd of NOx emission reductions 2045 for PAR 1121. Approximately 0.5 percent of the affected equipment is expected to be replaced prior to the end of equipment useful life due to incentive funding.

To qualify as the lowest toxic alternative, the alternative must achieve greater quantities or sooner NOx emission reductions and corresponding health benefits compared to other alternatives. Alternatives A and C would not require all heaters to be replaced with zero-emission technology. No NOx emission reductions would be expected under Alternative A, and less than 7.7 tpd of NOx emission reductions for PAR 1111 and 2.3 tpd of NOx emission reductions for PAR 1121 would be expected under Alternative C.

Alternatives B and D would each achieve the same quantity of NOx emission reductions as the proposed project at full implementation, but realize greater emission reductions sooner due to earlier compliance dates and incentive funding. Under Alternative D, 1 percent or double the number of equipment is expected to be replaced prior to the end of useful life. These replacements are expected to occur any time prior to full implementation of PAR 1111 by 2055 and PAR 1121 by 2045. Under Alternative B, new buildings will be required to install zero-emission technology one year earlier than the proposed project, and existing buildings will be required to replace equipment in existing buildings by the applicable compliance dates in PAR 1111 and PAR 1121, instead of occurring at the equipment's end of useful life after the compliance dates.

Thus, when considering all of the alternatives from the perspective of the quantity of NOx emission reductions achieved at full implementation and how quickly NOx emission reductions may be realized, Alternative B is the lowest toxic alternative. At full implementation, Alternative B achieves the same quantity of NOx emission reductions as the proposed project and Alternative D and more NOx emission reductions than Alternatives A and C. Compared to Alternative D which will have approximately 1 percent of equipment replaced before the end of useful life, Alternative B will achieve greater NOx emissions reductions sooner since all equipment in existing buildings would be required to be replaced by the compliance dates specified per category.

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 (No Project) would maintain existing NOx emission limits, resulting in continued adverse air quality impacts and failing to meet the goals of the 2022 AQMP. This alternative would allow the continued use of natural gas-fired equipment without transitioning to zero-emission technologies, which would perpetuate existing health risks associated with NOx emissions. Therefore, Alternative A is not the environmentally superior alternative.

Among the remaining alternatives, Alternative B proposes more stringent NOx emission limits and earlier compliance deadlines. This alternative is expected to lead to significant reductions in NOx emissions and corresponding improvements in air quality earlier than the other alternatives and earlier than the proposed project. While Alternative C allows for a mix of zero-emission and low-NOx technologies, it does not achieve the same level of emission reductions as Alternative B.

Alternative D, which introduces additional incentive funding to accelerate equipment replacements, offers significant benefits as well. However, while it increases the rate of deployment of zero-emission technologies, it does not achieve as immediate or as extensive reductions in NOx emissions as Alternative B.

Overall, Alternative B is the environmentally superior alternative due to the greatest quantity of equipment replacements occurring at earlier compliance dates, which are projected to result in corresponding reductions in harmful emissions and a significant positive impact on air quality compared to the other alternatives. However, it should be noted that this approach will also involve increased construction activity occurring sooner than proposed project.

5.7 CONCLUSION

As discussed previously, Alternative A (No Project) was dismissed as infeasible because it would not fulfill the objectives of PAR 1111 and PAR 1121. Alternative C would allow for the installation of low-NOx heaters in situations where alternative compliance options would occur, so 50 percent of equipment replacements in existing buildings was estimated to be with low NOx heaters. Alternative C would not achieve the same quantity of NOx emission reductions as the proposed project.

Alternatives B and D would achieve the same quantity of NOx emission reductions as the proposed project at full implementation, but utilize earlier compliance dates and incentive funding, respectively, to cause and promote equipment replacements to occur prior to the end of useful life. Alternative B would require substantial construction to occur within a short timeframe, and may be challenging to implement. Alternative D is estimated to require double the amount of incentive funding to achieve the additional 0.5 percent of equipment being replaced prior to the end of useful life.

Thus, when comparing the environmental effects of the project alternatives with PAR 1111 and PAR 1121, and evaluating the effectiveness of achieving the project objectives, the proposed project provides the best balance.

CHAPTER 6

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CHAPTER 7

ACRONYMS

7.0 Acronyms

Btu/hr = British Thermal Units per hour

µg/m= micrograms per cubic meter

APS = Alternative Planning Strategy (APS)

AQMP = Air Quality Management Plan

BAU = business-as-usual

Basin = South Coast Air Basin

BARCT =

CAA = Clean Air Act

CalEPA = California Environmental Protection Agency

CBC = California Building Code

CARB = California Air Resources Board

CCAA = California Clean Air Act

CCR = California Code of Regulations

CEC = California Energy Commission

CEQA = California Environmental Quality Act

CFR = Code of Federal Regulations

CH4 = methane

CO = carbon monoxide

CO2 = carbon dioxide

CO2eq = carbon dioxide equivalent

CPR = Consumer Products Regulation

CPUC = California Public Utilities Commission

CPVC = Chlorinated Poly (Vinyl Chloride)

DOT = Department of Transportation

EA = Environmental Assessment

EIR = Environmental Impact Report

EISA = Energy Independence and Security Act

EJ = Environmental Justice

EPA = Environmental Protection Agency

gal = gallons

GHG = greenhouse gases

GWP = global warming potential

H2S = hydrogen sulfide

H2SO4 = sulfuric acid

HCFC = hydrochlorofluorocarbon

HF = hydrofluoric acid

HFC = hydrofluorocarbons

HI = hazard index

HPWH =

HSC = Health and Safety Code

IOUs = investor-owned utilities (IOUs)

IS = Initial Study

LCFS = Low Carbon Fuel Standard

MATES = Multiple Air Toxics Exposure Studies

MDAB = Mojave Desert Air Basin

MPOs = Metropolitan Planning Organizations

N_2O = nitrous oxide

NAAQS = National Ambient Air Quality Standards

ND = Negative Declaration

NHTSA = National Highway Traffic and Safety Administration

NO = nitric oxide

NO_2 = nitrogen dioxide

NOC = Notice of Completion

NOP/IS = Notice of Preparation/Initial Study

NOx = oxides of nitrogen

O_2 = oxygen

O_3 = ozone

ODS = ozone depleting substance

OEHHA = 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

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

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

South Coast AQMD = South Coast Air Quality Management District

SCH = State Cleaning House

SCS = Sustainable Communities Strategy

SEA = Subsequent Environmental Assessment

SF6 = sulfur hexafluoride

SIP = State Implementation Plan

SO_2 = sulfur dioxide

SO_3 = sulfur trioxide

SOx = oxides of sulfur

South Coast AQMD = South Coast Air Quality Management District

SSAB = Salton Sea Air Basin

TACs = toxic Air Contaminants

tpd = tons per day

U.S. EPA = United States Environmental Protection Agency

VMT = Vehicle Mile Traveled

VOC = volatile organic compound(s)

WDR = waste discharge requirements

ZE/NZE = zero-emission and near-zero emission

APPENDIX A1

Proposed Amended Rule (PAR) 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces

This version of PAR 1111 included in this appendix was also posted on South Coast AQMD's website on September 20, 2024 at the following weblink: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-preliminary-draft-rule-language.pdf.

(Adopted December 1, 1978)(Amended July 8, 1983)(Amended November 6, 2009) (Amended September 5, 2014)(Amended March 2, 2018)(Amended July 6, 2018) (Amended December 6, 2019)(Amended September 4, 2020)(Amended October 1, 2021) (Amended September 1, 2023)(Amended [DATE OF RULE ADOPTION])

PROPOSED AMENDED RULE 1111 REDUCTION OF NO_X EMISSIONS FROM NATURAL- GAS- FIRED ~~, FAN-TYPE CENTRAL~~ FURNACES

[*RULE INDEX TO BE ADDED AFTER RULE ADOPTION*]

(a) Purpose ~~and Applicability~~

The purpose of this rule is to reduce Oxides of Nitrogen (NOx) emissions from ~~fan-type central~~ natural gas-fired ~~furnaces~~ Furnaces used for interior space heating, as defined in this rule. ~~This rule applies to manufacturers, distributors, sellers, and installers of residential and commercial fan-type central furnaces, requiring either single-phase or three-phase electric supply, used for comfort heating with a rated heat input capacity of less than 175,000 BTU per hour, or, for combination heating and cooling units, a cooling rate of less than 65,000 BTU per hour.~~

(b) Applicability

The provisions of this rule are applicable to manufacturers, distributors, retailers, Resellers, and Installers of natural gas-fired Furnaces used for interior space heating with a Rated Heat Input Capacity less than or equal to 2,000,000 British thermal units (Btu) per hour.

(~~b~~c) Definitions

(1) ANNUAL FUEL UTILIZATION EFFICIENCY (AFUE) is defined in Section 10.1 of Code of Federal Regulations, Title 10, Part 430, Subpart B, Appendix N.

~~(2) BTU means British thermal unit or units.~~

(2) COMMERCIAL FAN-TYPE CENTRAL FURNACE is a self-contained space heater using natural gas, or any fan-type central furnace that is in natural gas-firing mode, providing for circulation of heated air at pressures other than atmospheric through ducts more than 10 inches in length that have:

(A) A Rated Heat Input Capacity of 175,000 Btu per hour or more, but less than or equal to 2,000,000 Btu per hour; or

(B) For combination heating and cooling units, a cooling rate of 65,000 Btu per hour or more.

(3) COMPLIANCE PORTAL means the dedicated webpage on the South Coast AQMD website for submitting reports, notifications, or any documents to comply with South Coast AQMD rule(s).

(~~3~~4) CONDENSING FURNACE means a high-efficiency ~~furnace~~ Residential Fan-Type Central Furnace that uses a second heat exchanger to extract the latent heat in the flue gas by cooling the combustion gasses to near ambient temperature so that water vapor condenses in the heat exchanger, is collected and drained.

(~~4~~5) DOWNFLOW FURNACE means a ~~condensing~~ Condensing or ~~non-condensing~~Non-Condensing ~~furnace~~ Furnace installed in a configuration in which the furnace takes in cool air from the top, warms it, then releases the warm air through the ductwork below.

~~(5) DUAL FUEL SYSTEM is a heating, ventilation, and air conditioning system utilizing a HEAT PUMP as the primary source of heating and cooling with a FAN-TYPE CENTRAL FURNACE serving as auxiliary heating.~~

(6) EXISTING BUILDING means a building that is not a New Building as defined in this rule. Existing Building includes any structures on the property such as sheds and detached garages.

~~(6) FAN-TYPE CENTRAL FURNACE is a self-contained space heater using natural gas, or any fan-type central furnace that is in natural gas-firing mode, providing for circulation of heated air at pressures other than atmospheric through ducts more than 10 inches in length that have:~~

~~(A) a RATED HEAT INPUT CAPACITY of less than 175,000 BTU per hour; or~~

~~(B) for combination heating and cooling units, a cooling rate of less than 65,000 BTU per hour.~~

(7) FLOOR FURNACE means a self-contained, floor-mounted space heater using natural gas without ducts that has a Rated Heat Input Capacity at or less than 2,000,000 Btu per hour.

(8) FURNACE means any Residential Fan-Type Central Furnace, Commercial Fan-Type Central Furnace, Wall Furnace, or Floor Furnace as defined in this rule.

(~~7~~9) HEAT INPUT means the chemical heat released due to assumed complete combustion of fuel to a Furnace, using the higher heating value of the fuel. This does not include the sensible heat of incoming combustion air.~~means the higher heating value of the fuel to the furnace measured as BTU per hour.~~

~~(8) HEAT PUMP means an all-electric device that utilizes condensation and evaporation of refrigerant to absorb and release heat for heating, ventilation, and air conditioning applications.~~

(10) INSTALL means the action of an Installer to place a Furnace in a position ready for use.

(11) INSTALLER means a person who Installs a Furnace and is required to obtain a license issued by the Department of Consumer Affairs Contractors State License Board for a classification related to buildings and appliances.

(~~9~~12) MOBILE HOME means a prefabricated structure on a permanently attached chassis.

(~~10~~13) MOBILE HOME FURNACE means a Residential Fan-Type Central ~~furnace~~ Furnace designed specifically and solely for installation to heat a mobile home.

(14) NEW BUILDING means a building that is newly constructed or a building with a major alteration which changes the occupancy classification of a building, which means a change in the formal designation of the primary purpose of the building pursuant to 2022 Title 24 California Building Code Part 2 Chapter 3 for occupancy classification and use. For Mobile Homes, the newly constructed building includes installation of the Mobile Home onto the property of residence. New Building is comprised of any structures on the property including, but not limited to sheds, detached garages, pools, and spas.

(15) NON-CONDENSING FURNACE means a standard Residential Fan-Type Central Furnace that is not a Condensing Furnace, Weatherized Furnace, or Mobile Home Furnace.

(~~11~~16) NOx EMISSIONS means the sum of ~~nitrogen~~ nitric oxide and nitrogen dioxide~~ (oxides of nitrogen) in the flue gas~~ emitted, calculated, and ~~collectively~~ expressed as nitrogen dioxide.

(~~12~~17) RATED HEAT INPUT CAPACITY means the gross ~~HEAT INPUT~~Heat Input of the combustion device, as supported by required documentation.

(18) RESELLER means anyone who sells Furnace(s) either retail, wholesale, or on an individual basis.

(19) RESIDENTIAL FAN-TYPE CENTRAL FURNACE is a self-contained natural gas-fired space heater, or any fan-type central furnace that is in natural gas-firing mode, providing for circulation of heated air at pressures other than atmospheric through ducts more than 10 inches in length that have:

(A) A Rated Heat Input Capacity of less than 175,000 Btu per hour; or

(B) For combination heating and cooling units, a cooling rate of less than 65,000 Btu per hour.

(~~13~~20) RESPONSIBLE OFFICIAL means:

(A) For a corporation: a president or vice-president of the corporation in charge of a principal business function or a duly authorized person who performs similar policy-making functions for the corporation, or

(B) For a partnership or sole proprietorship: general partner or proprietor, respectively.

~~(14) SINGLE FIRING RATE means the burners and control system are designed to operate at only one fuel input rate and the control system cycles burners between the maximum heat output and no heat output.~~

(~~15~~21) USEFUL HEAT DELIVERED TO THE HEATED SPACE is the AFUE (expressed as a fraction) multiplied by the heat input.

~~(16) VARIABLE FIRING RATE means the burners and control system are designed to operate at more than one fuel input rate and the control system cycles burners between two or more heat output rates and no heat output.~~

(22) WALL FURNACE means a wall-mounted, self-contained space heater using natural gas without ducts that exceed 10 inches that has a Rated Heat Input Capacity at or less than 2,000,000 Btu per hour.

(~~17~~23) WEATHERIZED means a Residential Fan-Type Central Furnace designed for installation outside of a building, equipped with a protective jacket and integral venting, and labeled for outdoor installation.

(~~c~~d) Requirements

~~(1) A manufacturer shall not, after January 1, 1984, manufacture or supply for sale or use in the South Coast AQMD fan-type central furnaces, unless such furnaces meet the requirements of paragraph (c)(3).~~

~~(2) A person shall not, after April 2, 1984, sell or offer for sale within the South Coast AQMD fan-type central furnaces unless such furnaces meet the requirements of paragraph (c)(3).~~

~~(3) Fan-type central furnaces shall:~~

~~(A) not emit more than 40 nanograms of oxides of nitrogen (calculated as NO_2) per joule of useful heat delivered to the heated space; and~~

~~(B) be certified in accordance with subdivision (d) of this rule.~~

(~~4~~1) ~~On or after October 1, 2012~~Prior to the applicable Table 2 compliance date, ~~a~~no person shall ~~not~~ manufacture, supply, sell, resell, offer for sale, import, or ~~install~~Install, for use within the South Coast AQMD, ~~fan-type central furnaces subject to this rule~~ any Residential Fan-Type Central Furnace, unless such ~~furnace~~Furnace is certified pursuant to subdivision (e) not to exceed ~~complies with~~ the applicable Table 1 emission limit ~~and compliance date set forth in Table 1 and is certified in accordance with subdivision (d) of this rule.~~, expressed by nanograms of NOx per joule of Useful Heat Delivered to the Heated Space (ng/J)

~~Table 1 – Furnace NOx Limits and Compliance Schedule~~

~~Compliance Date~~	~~Equipment Category~~	~~NOx Emission Limit (nanograms/Joule *)~~
~~October 1, 2012~~	~~Mobile Home Furnace~~	~~40~~
~~April 1, 2015~~	~~Condensing Furnace~~	~~14~~
~~October 1, 2015~~	~~Non-condensing Furnace~~	~~14~~
~~October 1, 2016~~	~~Weatherized Furnace~~	~~14~~
~~October 1, 2018~~	~~Mobile Home Furnace~~	~~14~~

Table 1 – Residential Fan-Type Central Furnace NOx Limits and Compliance Schedule

Equipment Category	NOx Emission Limit (ng/J)	Compliance Date
Condensing Furnace	14	October 1, 2019
Non-Condensing Furnace	14	October 1, 2019
Weatherized Furnace	14	October 1, 2021
Mobile Home Furnace	14	October 1, 2018

(2) On and after the applicable Table 2 compliance date, no person shall manufacture, supply, sell, resell, offer for sale, import, or Install, any Furnace for use in the South Coast AQMD, that exceed the Table 2 NOx emission limits. The applicable Table 2 compliance dates for New Building types shall be determined based on the construction or alteration completion date.

Table 2 – Zero-Emission Limits and Compliance Schedule

Equipment Category	NOx Emission Limit (ng/J)	Building Type	Compliance Date
Residential Fan-Type Central Furnace*	0.0	New	January 1, 2026
		Existing	January 1, 2028
Commercial Fan-Type Central Furnace	0.0	New	January 1, 2026
		Existing	January 1, 2028
Mobile Home Furnace	0.0	New	January 1, 2026
		Existing	January 1, 2030
Wall Furnaces and Floor Furnaces	0.0	New	January 1, 2026
		Existing	January 1, 2028

* Includes Condensing, Non-Condensing, and Weatherized Furnaces.

~~(5) Any manufacturer of fan-type central furnaces regulated by this rule may elect to pay a per unit mitigation fee in lieu of meeting the 14 nanogram/Joule NOx emission limit in Table 1 of paragraph (c)(4) of this rule, provided the manufacturer complies with the following requirements:~~

~~(A) Prior to the phase one mitigation fee start date specified in Table 2, pays a per unit mitigation fee of $200 for each condensing furnace and $150 for each other type of furnace distributed or sold into the South Coast AQMD, disregarding the furnace size.~~

~~(B) On and after the phase one mitigation fee start date but no later than the mitigation fee option end date specified in Table 2, pays a per unit phase one or phase two mitigation fee for each condensing, non-condensing, weatherized or mobile home furnace according to Table 2.~~

~~Table 2 – Alternate Compliance Plan with the Phase One and Phase Two Mitigation Fee Schedules~~

Proposed Amended Rule 1111 (Cont.) (Amended ~~September 1, 2023~~TBD)

~~Furnace~~		~~Phase One Mitigation Fee~~		~~Phase Two Mitigation Fee~~		
~~Size Range~~	~~Furnace Category~~	~~Phase One Mitigation Fee Start Date~~	~~Phase One Mitigation Fee ($/Unit)~~	~~Phase Two Mitigation Fee Start Date~~	~~Phase Two Mitigation Fee ($/Unit)~~	~~Phase Two Mitigation Fee Option End Date~~
~~≤ 60,000 BTU/hr~~	~~Condensing~~	~~May 1, 2018~~	~~$275~~	~~October 1, 2018~~	~~$350~~	~~September 30, 2019~~
	~~Non-condensing~~	~~October 1, 2018~~	~~$225~~	~~April 1, 2019~~	~~$300~~	~~September 30, 2019~~
	~~Weatherized~~	~~October 1, 2018~~	~~$225~~	~~April 1, 2019~~	~~$300~~	~~September 30, 2021~~
	~~Mobile Home~~	~~October 1, 2018~~	~~$150~~	~~April 1, 2019~~	~~$150~~	~~September 30, 2025~~
~~> 60,000 Btu/hr and ≤ 90,000 BTU/hr~~	~~Condensing~~	~~May 1, 2018~~	~~$300~~	~~October 1, 2018~~	~~$400~~	~~September 30, 2019~~
	~~Non-condensing~~	~~October 1, 2018~~	~~$250~~	~~April 1, 2019~~	~~$350~~	~~September 30, 2019~~
	~~Weatherized~~	~~October 1, 2018~~	~~$250~~	~~April 1, 2019~~	~~$350~~	~~September 30, 2021~~
	~~Mobile Home~~	~~October 1, 2018~~	~~$150~~	~~April 1, 2019~~	~~$150~~	~~September 30, 2025~~
~~> 90,000 BTU/hr~~	~~Condensing~~	~~May 1, 2018~~	~~$325~~	~~October 1, 2018~~	~~$450~~	~~September 30, 2019~~
	~~Non-condensing~~	~~October 1, 2018~~	~~$275~~	~~April 1, 2019~~	~~$400~~	~~September 30, 2019~~
	~~Weatherized~~	~~October 1, 2018~~	~~$275~~	~~April 1, 2019~~	~~$400~~	~~September 30, 2021~~
	~~Mobile Home~~	~~October 1, 2018~~	~~$150~~	~~April 1, 2019~~	~~$150~~	~~September 30, 2025~~

~~(C) Submits an alternate compliance plan for each 12-month time period after the applicable Table 1 compliance date during which the manufacturer elects to pay the mitigation fee in lieu of meeting the NOx emission limit.~~

~~(D) Submits to the South Coast AQMD an alternate compliance plan no later than 60 days prior to the applicable compliance date, or no later than March 16, 2018 for the condensing furnace compliance plan starting on April 1, 2018, which includes the following:~~

~~(i) a letter with the name of the manufacturer requesting the mitigation fee compliance option signed by a responsible official identifying the category of fan-type central furnaces and the 12-month alternate compliance period that the mitigation fees cover;~~

~~(ii) an estimate of the quantity of applicable Rule 1111 fan-type central furnaces to be distributed or sold into the South Coast AQMD during the alternate compliance period, which estimate shall be based on total distribution and sales records or invoices of weatherized or mobile home fan-type central furnaces that were distributed or sold into the South Coast AQMD during the 12 month period of July 1 to June 30 prior to the applicable compliance date, along with supporting documentation;~~

~~(iii) a completed South Coast AQMD Form 400A with company name, identification that application is for an alternate compliance plan (section 7 of form), identification that the request is for the Rule 1111 mitigation fee compliance option (section 9 of form), and signature of the responsible official;~~

~~(iv) a check for payment of the alternate compliance plan filing fee (Rule 306, subdivision (c)).~~

~~(E) Submits to the Executive Officer a report signed by the responsible official for the manufacturer identifying by model number the quantity of Rule 1111 fan-type central furnaces actually distributed or sold into South Coast AQMD and a check for payment of mitigation fees for the applicable 12 month alternate compliance period for the quantity of applicable Rule 1111 fan-type central furnaces distributed or sold into the South Coast AQMD during the alternate compliance period. The report and the payment of mitigation fees must be submitted to the South Coast AQMD no later than thirty (30) days after the end of each 12-month mitigation fee alternate compliance period.~~

~~(F) Notwithstanding the requirements set forth in subparagraph (c)(5)(E), during the phase one period specified in Table 2, submits a report signed by the responsible official for the manufacturer identifying by model number the quantity of Rule 1111 fan-type central furnaces actually distributed or sold into South Coast AQMD and a check for payment of mitigation fees for the phase one period no later than thirty (30) days after the end of the phase one period. The 12-month compliance plan payment as specified in~~

~~subparagraph (c)(5)(E) that includes this phase one period shall be reconciled so as not to include the phase one payment.~~

~~(G) For the last and remaining 6-month period of the condensing furnace final alternate compliance plan ending on September 30, 2019, specified in Table 2, submits a report signed by the responsible official for the manufacturer identifying by model number the quantity of Rule 1111 fan-type central furnaces – condensing furnaces actually distributed or sold into South Coast AQMD and a check for payment of mitigation fees to the South Coast AQMD no later than October 30, 2019.~~

(~~d~~e) Certification

(1) The manufacturer shall have each ~~appliance~~ Furnace model that is required to be certified to meet Table 1 emission limits to be tested in accordance with the following:

(A) ~~Oxides of nitrogen~~NOx measurements, test equipment, and other required test procedures ~~shall be~~ in accordance with South Coast AQMD Method 100.1~~.~~; and

(B) Operation of the ~~furnace~~ Furnace ~~shall be~~ in accordance with the procedures specified in:

(i) Section 4.0 of Code of Federal Regulations, Title 10, Part 430, Subpart B, Appendix N~~.~~; or

(ii) South Coast AQMD Rule 1111 Nitrogen Oxides Emissions Compliance Testing for Natural Gas-Fired, Fan-Type Central Furnaces certification protocol.

(2) One of the two formulas shown below shall be used to determine the nanograms of ~~oxides of nitrogen~~NOx per joule of ~~useful heat delivered to the heated space:~~Useful Heat Delivered to the Heated Space:

$$N = \frac{4.566 \times 10^{4} \times P \times U_{f}}{H \times C \times E} \qquad N = \frac{3.655 \times 10^{10} \times P}{(20.9 - Y) \times Z \times E}$$

Where:

N = ~~nanograms~~ ng/J of emitted ~~oxides of nitrogen~~NOx ~~per joule~~ of useful heat.

P = concentration (parts per million by~~ppm~~ volume) of ~~oxides of nitrogen~~ NOx in flue gas as tested.

U = volume percent carbon dioxide (CO_2) in water-free flue gas for stoichiometric combustion.

H = gross heating value of fuel, ~~BTU/cu.ft.~~ Btu/ft^3 (60°F, 30-in. Hg).

C = measured volume percent of CO_2 in water-free flue gas, assuming complete combustion and no carbon monoxide ~~CO~~ present.

E = AFUE, percent

Y = volume percent of oxygen ~~O_2~~ in flue gas.

Z = heating value of gas, ~~joules/cu. meter~~ J/m^3 (0.0°C, 1 ~~ATM~~atmosphere).

(3) ~~Prior to the date a furnace model is first shipped to a location in the South Coast AQMD for use in the South Coast AQMD, the manufacturer shall obtain Executive Officer's approval for the emission test protocol and emission test results verifying compliance with the applicable NOx limit specified in Table 1, submitting the following~~When applying for certification of Furnaces, the manufacturer shall submit to the Executive Officer the following:

(A) A statement ~~that~~ indicating the model is in compliance with subdivision ~~(c)~~(d) that is ~~(The statement shall be~~ signed and dated by a ~~responsible official~~ Responsible Official, ~~and dated, and shall~~ attesting to the accuracy of all statements~~.)~~;

(B) General Information, including

(i) Name and address of manufacturer~~.~~;

(ii) Brand name; and~~.~~

(iii) Model number, as it appears on the ~~furnace~~ Furnace rating plate~~.~~;

(C) A description of the ~~furnace~~ Furnace and specifications for each model being certified~~.~~; and

(D) A source test report verifying compliance with the emission limits in subdivision (d) for each model to be certified. The source test report shall contain all the elements identified in the procedures specified in (e)(2) for each unit tested.

(4) When applying for certification of Furnaces, the manufacturer shall submit the items identified in paragraph (e)(3) no more than 180 days after the date of the source test identified in subparagraph (e)(3)(D).

Proposed Amended Rule 1111 (Cont.) (Amended ~~September 1, 2023~~TBD)

(~~e~~f) Identification of Compliant Units

(1) The manufacturer of the ~~furnace~~ Furnace complying with subdivisions ~~(c)~~ (d) and ~~(d)~~(e) shall display the following on the shipping container label and rating plate of the ~~furnace~~Furnace:

(A) Model number;

(B) Rated Heat ~~input capacity~~Input Capacity;

(C) Applicable NOx emission limit in Table 1 or Table 2; and

(D) Date of manufacture or date code.

(2) Any non-certified natural gas-fired ~~furnace~~ Furnace shipped to a location in the South Coast AQMD for distribution or sale outside of the South Coast AQMD shall have a label on the shipping container identifying the ~~furnace~~ Furnace as not certified for use in the South Coast AQMD.

(3) Consumer Notification Requirement

The manufacturer of any mobile home Furnace that is distributed or offered for sale into or within the South Coast AQMD that elects to comply using an alternate compliance plan pursuant to paragraph (g)(1) in lieu of meeting the 14 ng/J certification limit, shall:

(A) Only distribute or publish Informative Materials that clearly display the following language: "If installed in South Coast AQMD, this furnace is only allowed to be installed and used in mobile homes; does not meet the South Coast AQMD Rule 1111 NOx emission limit (14 ng/J); and is subject to a mitigation fee of up to $150.";

(~~A~~B) For the purposes of subparagraph ~~(e)(3)(B)~~(f)(3)(A), "Informative Materials" shall mean the following:

(i) The consumer brochure for the ~~furnace~~Furnace;

(ii) The technical specification sheet for the ~~furnace~~Furnace; and

(iii) The manufacturer's website that promotes, discusses, or lists the ~~furnace~~Furnace.

~~(B) Effective October 1, 2018, for any furnace that is for distribution or sale inside of the South Coast that is using an alternate compliance plan in lieu of meeting the 14 ng/J certification limit, a manufacturer shall only distribute or publish Informative Materials that clearly display the following language: "If installed in South Coast AQMD only: This furnace does not meet the South Coast AQMD Rule 1111 NOx emission limit (14 ng/J), and thus is subject to a mitigation fee~~

~~of up to $450. This furnace is not eligible for the Clean Air Furnace Rebate Program: www.CleanAirFurnaceRebate.com."~~

(C) A manufacturer may use alternative language in lieu of subparagraph ~~(e)(3)(B)~~(f)(3)(A), provided the alternative language is:

(i) Similar to the language in subparagraph ~~(e)(3)(B)~~(f)(3)(A);

(ii) Submitted to the Executive Officer by August 1, 2018; and

(iii) Approved by the Executive Officer no later than August 31, 2018~~.~~; and

(D) The manufacturer shall use the language in subparagraph ~~(e)(3)(B)~~(f)(3)(A) if the alternative language is not approved.

(g) Alternative Compliance Options

(1) Mitigation Fee Alternative Compliance Option

Prior to the applicable Table 2 compliance date, a manufacturer of Mobile Home Furnaces may elect to pay a per unit mitigation fee for selling or enabling distributors, retailers, Resellers, or Installers to sell Mobile Home Furnaces certified to meet the 40 ng/J NOx emission limit in lieu of complying with the 14 ng/J NOx emission limit in Table 1, provided the manufacturer complies with the following requirements:

(A) Pays a per unit mitigation fee of $150 for each Mobile Home Furnace distributed or sold into or within the South Coast AQMD~~.~~;

(B) Submits an alternative compliance plan, no later than 60 days prior to the applicable compliance date, for each 12-month time period after the applicable Table 1 compliance date during which the manufacturer elects to pay the mitigation fee in lieu of meeting the NOx emission limit that includes:

(i) A letter with the name of the manufacturer requesting the mitigation fee compliance option signed by a Responsible Official, identifying the category of Residential Fan-type Central Furnaces and the 12-~~-~~month alternate compliance period that the mitigation fees cover;

(ii) An estimate of the quantity of applicable Mobile Home Furnace to be distributed or sold into or within the South Coast AQMD during the alternate compliance period, which estimate shall be based on total distribution and sales records

or invoices of Mobile Home Furnaces that were distributed or sold into or within the South Coast AQMD during the 12-month period of July 1 to June 30 prior to the applicable compliance date, along with supporting documentation;

(iii) A complete South Coast AQMD Form 400A with company name, identification that application is for an alternative compliance plan (section 7 of form), identification that the request is for the Rule 1111 mitigation fee compliance option (section 9 of form), and signature of the Responsible Official; and

(iv) Payment for the alternate compliance plan filing fee pursuant to Rule 306– Plan Fees.

(C) Submits to the Executive Officer a report signed by the Responsible Official for the manufacturer, no later than thirty (30) days after the end of each 12-month mitigation fee alternate compliance period, that shall for the applicable 12-month alternate compliance period:

(i) Identify each model number and the quantity of Mobile Home Furnaces distributed or sold into or within South Coast AQMD; and

(ii) Include the payment of mitigation fees.

(2) Alternative Compliance Option for Emergency Replacements

If a Furnace requires a short-term replacement due to sudden unit failure after the applicable Table 2 compliance date and an electrical upgrade is required to increase the power supply capacity to operate in compliance with Table 2 emission limits:

(A) For Residential Fan-Type Central Furnaces, a manufacturer, distributor, retailer, Reseller, or Installer may elect to offer a Furnace for rent that complies with Table 1 emission limits for up to six months prior to installing a Furnace that complies with Table 2 emission limits provided the manufacturer, distributor, retailer, Reseller, or Installer report the date the temporary Furnace was rented through the Compliance Portal no later than 72 hours after the date the temporary unit was rented and comply with the labeling requirement in paragraph (h)(4); or.

(B) For Commercial Fan-Type Central Furnaces, Floor Furnaces, and Wall Furnaces, a manufacturer, distributor, retailer, Reseller, or

Installer may elect to offer a Furnace for rent for up to six months prior to installing a Furnace that complies with Table 2 emission limits provided the manufacturer, distributor, retailer, Reseller, or Installer report the date the temporary Furnace was rented through the Compliance Portal no later than 72 hours after the date the temporary unit was rented and comply with the labeling requirement in paragraph (h)(4).

(3) Alternative Compliance Option for Construction

A manufacturer, distributor, retailer, Reseller, or Installer may elect to offer a natural gas-fired Furnace for rent for up to 24 months prior to complying with Table 2 emission limits, provided:

(A) The natural gas-fired Furnace is installed in an Existing Building that requires any construction listed below to comply with Table 2 emission limits:

(i) Expanding the space designed to house the compliant Furnace or associated equipment;

(ii) Relocating the compliant Furnace or associated equipment;

(iii) Performing a utility upgrade; or

(iv) Replacing a Furnace that does not require the simultaneous replacement of space cooling equipment; and

(B) The manufacturer, distributor, retailer, Reseller, or Installer shall:

(i) Report the date the temporary Furnace was rented through the Compliance Portal no later than 72 hours after the date the temporary unit was rented;

(ii) Comply with the labeling requirement in paragraph (h)(4); and

(ii) Comply with Table 1 emission limits if the Furnace for rent is a Residential Fan-Type Central Furnace.

(h) Labeling, Recordkeeping, and Reporting

(1) If the manufacturer, distributor, Reseller, or Installer of any Furnace elects to comply pursuant to the exemption in paragraph (i)(1):

(A) The shipping carton or the name plate of the furnace shall clearly display: "This furnace is to be installed for propane firing only. Operating in natural gas mode is in violation of the South Coast AQMD Rule 1111"; and

(B) The manufacturer shall submit a report by March 1st of the following calendar year to the Executive Officer, which includes, but not limited to:

(i) The quantity of propane conversion kits for Furnaces distributed or sold for use into South Coast AQMD for the applicable compliance plan period; and

(ii) The quantity of propane conversion kits for Furnaces distributed or sold for use into the South Coast AQMD during the 12 month period of July 1 to June 30 prior to the applicable compliance date.

(2) If the manufacturer, distributor, Reseller, or Installer of any Furnace elects to use the exemption in paragraph (i)(2):

(A) The manufacturer, distributor, Reseller, or Installer shall record the following information and make it available upon request to the Executive Officer:

(i) Model number and serial number of the furnace;

(ii) Manufacturers shall record the date and number of Furnaces sold to a distributor, the distributor's name and full cont~~r~~act information (address and phone number);

(iii) Distributors and Resellers shall record the date and number of Furnaces sold to an installer, the installer's name and full contact information (address and phone number); and

(iv) Installers shall record the installation date and address of each Furnace installation; and

(B) The manufacturer shall clearly display on the shipping carton, or the name plate of the furnace, the following:

(i) "This furnace must be installed only as a replacement in a downflow configuration at or above 4,200 feet above sea level in the South Coast AQMD. Installation of this furnace for new construction, in any other configuration, or at a lower elevation will be a violation of South Coast AQMD Rule 1111." for the Downflow Furnace that is certified to meet the 40 ng/J NOx limit and is replacing an existing Furnace; and

(ii) "This furnace must be installed only as a replacement at or above 4,200 feet above sea level in the South Coast AQMD.

Installation of this furnace for new construction or at a lower elevation will be a violation of South Coast AQMD Rule 1111." for the Furnace with a rated heat input capacity greater than or equal to 100,000 Btu per hour is certified to meet 40 ng/J NOx limit and is replacing an existing Furnace.

(3) Pursuant to the labeling schedule in Table 3, any Furnace that is supplied or offered for sale for use in the South Coast AQMD prior to the applicable Table 2 compliance dates that complies with the Table 1 emission limits but not the Table 2 emission limits, shall prominently display the statement "If Installed in South Coast AQMD: 1) After January 1, 2026, shall not be sold for installation in new buildings 2) After January 1, 2028, only for installation in mobile homes; and 3) After January 1, 2030, not compliant for use and installation in South Coast AQMD."

Table 3 – Labeling Schedule

Furnace's Compliance Schedule	Labeling Requirements	
	Start Date	End Date
Mobile Home Furnaces	January 1, 2026	January 1, 2030
All Other Furnaces	January 1, 2026	January 1, 2028

(4) Any Furnace supplied or offered for rent for use within the South Coast AQMD in accordance with an alternative compliance option in subdivision (g), shall prominently display the statement "If Installed or used in South Coast AQMD: This unit is for rent only."

(5) Annual Reporting Requirement

Effective on and after the Table 2 compliance dates for Existing Buildings, manufacturers of natural gas-fired Furnace(s), distributed or sold for use into or within South Coast AQMD, shall submit a report by March 1st of the following calendar year to the Executive Officer, which includes:

(A) Name of the product manufacturer;

(B) List of product model(s);

(C) The applicable equipment category in Table 2;

(D) The provision of this rule that each model complies; and

(E) Number of units and Rated Heat Input Capacity of each model that was sold into or within the South Coast AQMD.

~~(f) Enforcement~~

~~The Executive Officer may periodically conduct such tests as are deemed necessary to ensure compliance with subdivisions (c), (d), and (e).~~

(~~g~~i) Exemptions

~~(1) The provisions of this rule shall not apply to furnaces installed in mobile homes before October 1, 2012.~~

~~(2) For furnaces manufactured, purchased, and delivered to the South Coast AQMD prior to the applicable compliance date in Table 1, any person may, until 300 days after the applicable compliance date, sell, offer for sale, or install such a furnace in the South Coast AQMD, so long as the furnace meets the requirements of paragraph (c)(3) and subdivisions (d) and (e).~~

~~(3) For furnaces that have been encumbered in a contractual agreement, signed prior to January 1, 2018, by a furnace manufacturer or distributor for future or planned construction, the manufacturer shall be allowed to sell the units within the South Coast AQMD at the mitigation fee specified in subparagraph (c)(5)(A), provided:~~

~~(A) An application for exemption is submitted to the Executive Officer prior to April 2, 2018;~~

~~(B) The total quantity of furnaces in application(s) by any one manufacturer does not exceed 15 percent of furnaces distributed and sold in the previous compliance plan period;~~

~~(C) Those furnaces are sold no later than their mitigation fee option end dates specified in Table 2; and~~

~~(D) The following documents and information are provided to the Executive Officer, including but not limited to:~~

~~(i) contractual agreement for the units sold or to be sold in the South Coast AQMD;~~

~~(ii) quantity, model number, and serial number of the subject units;~~

~~(iii) contract execution date; and~~

~~(iv) name(s) of the contractor (s).~~

~~(E) Failure to comply with the requirements specified in subparagraphs (g)(3)(A) through (g)(3)(D) shall result in the requirement to paying or retroactively paying the corresponding mitigation fee specified in~~

~~paragraph (c)(5) within 30 days upon notification from the Executive Officer.~~

(41) The manufacturer of any natural gas-fired ~~furnace~~ Furnace that is not certified to meet 14 ng/J of NOx emission and is to be installed with a propane conversion kit for propane firing only in the South Coast AQMD, is exempt from subdivisions ~~(c)~~(d) and ~~(d)~~(e), provided the labeling and reporting requirements in paragraph (h)(1) are followed.~~:~~

~~(A) Effective June 1, 2018, the shipping carton or the name plate of the furnace clearly displays: "This furnace is to be installed for propane firing only. Operating in natural gas mode is in violation of the South Coast AQMD Rule 1111."~~

~~(B) The following documents and information shall be provided to the Executive Officer, accompanying the compliance plan report specified in subparagraphs (c)(5)(E), (c)(5)(F), and (c)(5)(G), including but not limited to:~~

~~(i) The quantity of propane conversion kits for furnaces actually distributed or sold into South Coast AQMD for the applicable compliance plan period;~~

~~(ii) The quantity of propane conversion kits for furnaces distributed or sold into the South Coast AQMD during the 12 month period of July 1 to June 30 prior to the applicable compliance date; and~~

~~(iii) Photographic evidence of the required language set forth in subparagraph (g)(4)(A) as it appears on the carton or unit, including all versions utilized by the manufacturer, for approval by the Executive Officer. The photographs must be sufficient to verify the wording is correct and that it is "clearly visible," taking into account the font type, size, color, and location on the carton or unit.~~

~~(C) The manufacturer of this type of unit which has been installed in the South Coast AQMD without meeting above requirements shall be in violation of South Coast AQMD Rule 1111.~~

~~(5) Condensing or non-condensing furnaces that are certified to meet the 40 ng/J NOx limit and are installed at or above 4,200 feet above sea level are exempt from paragraph (c)(4), if that unit is installed on or before March 31, 2022.~~

(~~6~~2) ~~Effective April 1, 2022~~Until January 1, 2028, ~~downflow furnaces~~ Downflow Furnaces with a ~~rated~~ Rated Heat Input Capacity less than 175,000 ~~BTU~~ Btu per hour ~~in heat input capacity~~ and ~~condensing~~ Condensing or ~~non-condensing~~ ~~furnaces~~ Non-Condensing Furnaces with a ~~rated heat input~~Rated Heat Input Capacity ~~at or~~ greater than or equal to 100,000 ~~BTU~~ Btu per hour, either of which are installed at elevations at or above 4,200 feet above sea level as a replacement for an existing ~~furnace~~ Furnace are exempt from paragraph ~~(c)(4)~~(d)(1), provided ~~that~~ the recordkeeping requirements in (h)(2) are followed.

~~(A) The downflow furnace is certified to meet the 40 ng/J NOx limit, is replacing an existing furnace, and the shipping carton or name plate of the furnace clearly displays: "This furnace must be installed only as a replacement in a downflow configuration at or above 4,200 feet above sea level in the South Coast AQMD. Installation of this furnace for new construction, in any other configuration, or at a lower elevation will be a violation of South Coast AQMD Rule 1111."; or~~

~~(B) The condensing or non-condensing furnace rated at or greater than 100,000 BTU per hour in heat input capacity is certified to meet 40 ng/J NOx limit, is replacing an existing furnace~~Furnace, ~~and the shipping carton or name plate of the furnace clearly displays: "This furnace must be installed only as a replacement at or above 4,200 feet above sea level in the South Coast AQMD. Installation of this furnace for new construction or at a lower elevation will be a violation of South Coast AQMD Rule 1111."~~

(3) The emission limits specified in paragraph (d)(2) shall not apply to Mobile Home Furnaces for installation or use in master-metered Mobile Home parks, which are Mobile Home parks that take electricity through a master meter and then distribute it to park residents through their own system.

~~(7) Effective April 1, 2022 and until September 30, 2022, a manufacturer, distributor, or installer that manufactures, supplies, sells, offers for sale, or installs a natural gas furnace certified to meet 40 ng/J of NOx that is installed and operated as part of a dual fuel system at or above 4,200 feet above sea level in the South Coast AQMD, shall only install such a unit that:~~

~~(A) Is designed by the manufacturer with a system switchover point between heat pump and furnace at the external temperature of 32°F with a nonadjustable system that would prevent any person from changing the external ambient switchover temperature of 32°F;~~

~~(B) Includes installation of an external temperature sensor which acts as the sole method to determine switchover point;~~

~~(C) For systems equipped with condensing, noncondensing, or mobile home furnaces, includes communicating technology between the heat pump and furnace installed at the point of manufacture to prevent system operation without a heat pump and requires operations of only the heat pump at and above the switchover temperature outlined in (g)(7)(A); and~~

~~(D) The shipping carton or the name plate of the furnace clearly displays: "This furnace must be installed only in a dual fuel configuration with an electric heat pump. Installation of this furnace without a heat pump in a dual fuel configuration will be a violation of South Coast AQMD Rule 1111."~~

~~(8) The manufacturer of any furnace that elects to use the exemption in paragraph (g)(4), (g)(5), (g)(6), or (g)(7) shall record the following information and shall make this information available upon request to the Executive Officer:~~

~~(A) Sales date to distributor;~~

~~(B) Distributor's name and full contact information (address and phone number);~~

~~(C) Model number of the furnace and heat pump (if applicable); and~~

~~(D) Serial number of the furnace and heat pump (if applicable).~~

~~(9) The distributor that elects to use the exemption in paragraph (g)(4), (g)(5), (g)(6), or (g)(7) shall record the following information and shall make this information available upon request to the Executive Officer:~~

~~(A) Sales date to installer;~~

~~(B) Installer's name and full contact information (address and phone number);~~

~~(C) Model number of the furnace and heat pump (if applicable); and~~

~~(D) Serial number of the furnace and heat pump (if applicable).~~

Proposed Amended Rule 1111 (Cont.) (Amended ~~September 1, 2023~~TBD)

~~(10) The installer that elects to use the exemption in paragraph (g)(4), (g)(5), (g)(6), or (g)(7) shall record the following information and shall make this information available upon request to the Executive Officer:~~

~~(A) Installation date;~~

~~(B) Address of furnace installation;~~

~~(C) Model number of the furnace and heat pump (if applicable); and~~

~~(D) Serial number of the furnace and heat pump (if applicable).~~

APPENDIX A2

Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural Gas-Fired Water Heaters

This version of PAR 1121 included in this appendix was also posted on South Coast AQMD's website on September 20, 2024 at the following weblink: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1121-preliminary-draft-rule-language.pdf.

(Adopted December 1, 1978)(Amended March 10, 1995)(Amended December 10, 1999)
(Amended September 3, 2004)(Amended [Date of Rule Adoption])

PROPOSED AMENDED RULE 1121. ~~CONTROL OF NITROGEN OXIDES~~ REDUCTION OF NO_X EMISSIONS FROM ~~RESIDENTIAL TYPE,~~ SMALL NATURAL GAS-FIRED WATER HEATERS

[*RULE INDEX TO BE ADDED AFTER RULE ADOPTION*]

(a) Purpose

The purpose of this rule is to reduce Oxides of Nitrogen (NOx) emissions from natural gas-fired Water Heaters as defined in this rule.

(~~a~~b) Applicability

~~This~~ The provisions of this rule ~~applies~~ are applicable to manufacturers, distributors, retailers, Resellers, and ~~installers~~ Installers of natural gas-fired ~~water heaters~~Water Heaters, with ~~heat input~~ a Rated Heat Input Capacity ~~rates~~ less than 75,000 British thermal units (Btu) per hour.

(~~b~~c) Definitions

~~For the purpose of this rule:~~

~~(1) BTU means British thermal unit or units.~~

~~(2) DIRECT-VENT WATER HEATER means a water heater with air intake and exhaust ducts that use a gravity system to collect air from outside a building for combustion and exhaust combustion byproducts to the outside of a building.~~

(1) COMPLIANCE PORTAL means the dedicated webpage on the South Coast AQMD website for submitting reports, notifications, or any documents to comply with South Coast AQMD rule(s).

(2) EXISTING BUILDING means a building that is not a New Building as defined in this rule. Existing Building includes any structures on the property including, but not limited to, sheds, detached garages, pools, and spas.

(3) HEAT INPUT means ~~the heat of combustion released by fuels burned in a unit based on the higher heating value of fuel.~~ the chemical heat released due to assumed complete combustion of fuel to a Water Heater, using the higher heating value of the fuel. This does not include the ~~enthalpy~~ sensible heat of incoming combustion air.

(4) HEAT OUTPUT means ~~the product H_e as defined in Section 9.3 of the Protocol.~~the enthalpy of the working fluid output of the Water Heater.

(5) INDEPENDENT TESTING LABORATORY means a testing laboratory that meets the requirements of ~~District~~ the South Coast AQMD Rule 304 – Equipment, Materials, and Ambient Air Analyses~~,~~ subdivision (k) and is approved by the ~~District~~ South Coast AQMD to conduct certification testing under the Protocol.

~~(6) MITIGATION FEE is an emission reduction option, in which monies collected by the District from water heater manufacturers are placed in a restricted fund and are used to fund stationary and mobile source emission reduction programs targeted at equivalent NOx emission reductions as to those that would have otherwise occurred and have been approved by the District's Governing Board.~~

(6) INSTALL means the action of an Installer to place a Water Heater in a position ready for use.

(7) INSTALLER means a person who Installs a Water Heater ~~-~~and is required to obtain a license issued by the Department of Consumer Affairs Contractors State License Board for a classification related to buildings and appliances.

(8) MOBILE HOME means a prefabricated structure on a permanently attached chassis.

(~~7~~9) MOBILE HOME WATER HEATER means a Water Heater ~~closed vessel~~ manufactured exclusively for ~~mobile home~~ Mobile Home use ~~in which water is heated by combustion of gaseous fuel and is withdrawn for use external to the vessel at pressures not exceeding 160 psig, including the apparatus by which heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210°F (99°C)~~.

(10) NEW BUILDING means a building that is newly constructed , or a building with a major alteration which changes the occupancy classification of a building, which means a change in the formal designation of the primary purpose of the building pursuant to 2022 Title 24 California Building Code Part 2 Chapter 3 for occupancy classification and use. For Mobile Homes, the newly constructed building includes installation of the Mobile Home onto the property of residence. New Building is comprised of any structure(s) on the property including, but not limited to sheds, detached garages, pools, and spas.

(~~8~~11) NOx EMISSIONS means the sum of nitric oxide and nitrogen dioxide ~~in the flue gas,~~ emitted, calculated, and ~~collectively~~ expressed as nitrogen dioxide.

(12) PARTS PER MILLION BY VOLUME (ppmv) means, for the purpose of this rule, Parts Per Million by Volume of a pollutant at a three percent oxygen correction on a dry basis at Standard Conditions.

~~(9) POWER-VENT WATER HEATER means a water heater with a blower installed to assist in the expulsion of exhaust gases.~~

~~(10) POWER DIRECT-VENT WATER HEATER means a water heater with an air intake duct outside of a building with a blower installed to assist in the expulsion of exhaust gases.~~

(~~11~~13) PROTOCOL means the most recent version of the South Coast ~~Air Quality Management District~~ AQMD Protocol to ensure standardization of compliance certification test procedures, titled: Nitrogen Oxides Emissions Compliance Testing for Natural Gas-Fired Water Heaters and Small Boilers~~, January 1998~~.

(~~12~~14) RATED HEAT INPUT CAPACITY means ~~the heat input capacity specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified such that its maximum heat input is different from the heat input capacity specified on the nameplate, the new maximum heat input shall be considered as the rated heat input capacity.~~the gross Heat Input of the combustion device, as supported by required documentation.

(~~13~~15) RECREATIONAL VEHICLE means ~~either a motor home, travel trailer, truck camper, or camping trailer, with or without motive power, designed for human habitation for recreational, emergency, or other occupancy, as defined pursuant to Section 18010 of the California Health and Safety Code.~~any vehicle used for recreational purposes designed to include a Water Heater and licensed to be driven or moved on the highways of California.

(16) RESELLER means anyone who sells Water Heater(s) either retail, wholesale, or on an individual basis.

(17) STANDARD CONDITIONS are as defined by Rule 102 – Definition of Terms.

(~~14~~18) WATER HEATER means a closed vessel ~~other than a mobile home water heater in which water is heated by combustion of gaseous fuel and is withdrawn for use~~ that is fired with, or designed to be fired with, natural gas external to the vessel ~~at pressures not exceeding 160 psig~~, including the apparatus by which heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210ºF ~~(99ºC)~~.

(~~c~~d) Requirements

~~(1) Until July 1, 2002, no person shall manufacture for sale, distribute, sell, offer for sale, or install within the South Coast Air Quality Management District any gas-fired water heaters unless the water heater is certified pursuant to subdivision (d) to a NOx emission level of less than or equal to:~~

~~(A) 40 nanograms of NOx (calculated as NO_2) per joule of heat output (93 lb per billion Btu of heat output); or~~

~~(B) 55 ppmv at 3% O2, dry (71 lb per billion Btu of heat input).~~

~~(2) On or after July 1, 2002, no person shall manufacture for sale, distribute, sell, offer for sale, or install within the South Coast Air Quality Management District any gas-fired water heaters unless the water heater is certified pursuant to subdivision (d) to a NOx emission level of less than or equal to:~~

~~(A) 20 nanograms of NOx (calculated as NO2) per joule of heat output (46.5 lb per billion Btu of heat output); or~~

~~(B) 30 ppmv at 3% O2, dry (35 lb per billion Btu of heat input); or~~

~~(C) the emission limit specified in subparagraph (c)(1)(A) or (c)(1)(B) provided the manufacturer of the water heater meets the requirements of subdivision (e).~~

~~(3) On or after January 1, 2006, for water heaters less than or equal to 50 gallon capacity, excluding direct-vent, power-vent and power direct-vent water heaters; on or after January 1, 2007 for water heaters greater than 50 gallon capacity, excluding direct-vent, power-vent and power direct-vent water heaters; and on and after January 1, 2008 for all direct-vent, power- vent, and power direct-vent water heaters; no person shall manufacture for sale, distribute, sell, offer for sale, or install within the South Coast Air Quality Management District any gas-fired water heaters unless the water heater is certified pursuant to subdivision (d) to a NOx emission level of less than or equal to:~~

~~(A) 10 nanograms of NOx (calculated as NO_2) per joule of heat output (23 lb per billion Btu of heat output); or~~

~~(B) 15 ppmv at 3% O2, dry (17.5 lb per billion Btu of heat input).~~

~~(4) On and after January 1, 2000, no person shall manufacture for sale, distribute, sell, offer for sale, or install within the South Coast Air Quality Management District any gas-fired mobile home water heaters unless the water heater is certified pursuant to subdivision (d) to a NOx emission level of less than or equal to:~~

~~(A) 40 nanograms of NOx (calculated as NO2) per joule of heat output (93 lb per billion Btu of heat output); or~~

~~(B) 55 ppmv at 3% O2, dry (71 lb per billion Btu of heat input).~~

~~(5) The manufacturer of any water heater manufactured for sale in the district shall clearly display on the shipping carton and the name plate of the water heater:~~

~~(A) the model number;~~

~~(B) the date of manufacture; and~~

~~(C) the certification status.~~

~~(6) Notwithstanding the requirements in paragraph (c)(3), until July 1, 2006, any person may distribute, sell, offer for sale, or install any gas-fired water heaters less than or equal to 50 gallon capacity that are manufactured prior to January 1, 2006 and in compliance with paragraph (c)(2).~~

~~(7) Notwithstanding the requirements in paragraph (c)(3), until July 1, 2007, any person may distribute, sell, offer for sale, or install gas-fired water heaters greater than 50 gallon capacity that are manufactured prior to January 1, 2007 and in compliance with paragraphs (c)(2).~~

~~(8) Notwithstanding the requirements in paragraph (c)(3), until July 1, 2008, any person may distribute, sell, offer for sale, or install gas-fired direct- vent, power-vent, or power direct-vent water heaters that are manufactured prior to January 1, 2008 and in compliance with paragraphs (c)(2).~~

(1) Prior to the applicable Table 2 compliance date, no person shall manufacture, supply, sell, resell, offer for sale, import, or Install, for use in the South Coast AQMD, any Water Heater unless the Water Heater is certified pursuant to subdivision (e) and does not exceed the Table 1 NOx limit, expressed by nanograms of NOx per joule of Heat Output (ng/J) or ppmv.

Table 1 – NOx Emission Limits

Equipment	NOx Emission Limits	
	ng/J	ppmv
Water Heater*	10	15
Mobile Home Water Heater	40	55

* Excluding Mobile Home Water Heater

(2) On and after the applicable Table 2 compliance dates, no person shall manufacture, supply, sell, resell, offer for sale, import, or Install a Water Heater for use in the South Coast AQMD that exceeds the Table 2 NOx emission limits. The applicable Table 2 compliance dates for New Building types shall be determined based on the construction or alteration completion date.

Table 2 – Zero-Emission Limits and Compliance Schedule

Equipment Category	NOx limit (ng/J)	Building Type	Compliance Date
Water Heater*	0.0	New	January 1, 2026
	0.0	Existing	January 1, 2027
Mobile Home Water Heater	0.0	New	January 1, 2026
	0.0	Existing	January 1, 2030

* Excluding Mobile Home Water Heater

(~~d~~e) Certification

(1) The manufacturer shall obtain confirmation that each model of ~~water heater~~Water Heater complies with the applicable requirements of ~~subdivision (c)~~ paragraph (d)(1) from an ~~independent testing laboratory~~ Independent Testing Laboratory prior to applying for certification for a natural gas-fired Water Heater. This confirmation shall be based upon emission tests conducted pursuant to the Protocol of a randomly selected unit of each model ~~and the Protocol shall be adhered to during the confirmation testing of all water heaters subject to this rule~~.

(2) When applying for certification of ~~water heaters~~Water Heaters, the manufacturer shall submit to the Executive Officer the following:

(A) A statement that the model is in compliance with ~~subdivision (c)~~ paragraph (d)(1)~~. The statement shall be~~ signed and dated by the manufacturer ~~and dated, and shall~~ attesting to the accuracy of all statements;

(B) General Information, including:

(i) Name and address of manufacturer~~,~~;

(ii) Brand name, trade name; and

(iii) Model number, as it appears on the ~~water heater~~Water Heater rating plate;

(C) A description of each model being certified; and

(D) A source test report verifying compliance with ~~subdivision (c)~~ paragraph (d)(1) for each model to be certified~~. The source test report shall be~~ , prepared by the confirming ~~independent testing laboratory~~ Independent Testing Laboratory and ~~shall~~ containing all of the elements identified in ~~Section 10 of~~ the Protocol for each unit tested. ~~The source test shall have been conducted no more than ninety days prior to the date of submittal to the Executive Officer.~~

(3) When applying for certification of ~~water heaters~~Water Heaters, the manufacturer shall submit the items identified in paragraph ~~(d)(2)~~(e)(2) no more than ~~ninety~~ 180 days after the date of the source test identified in subparagraph ~~(d)(2)(D)~~(e)(2)(D).

~~(4) When applying for certification of water heaters for compliance with the emission limit specified in paragraph (c)(2) or (c)(3), the manufacturer shall submit the information identified in paragraph (d)(2) at least 90 days prior to the effective compliance date specified in either paragraph (c)(2) or (c)(3), respectively.~~

~~(5) The Executive Officer shall certify a water heater model which complies with the provisions of subdivision (c) and of paragraphs (d)(1), (d)(2), and (d)(3).~~

~~(6) Certification status shall be valid for three years from the date of approval by the Executive Officer. After the third year, recertification shall be required according to the requirements of paragraphs (d)(1) and (d)(2).~~

(f) Alternative Compliance Options

(1) Alternative Compliance Option for Emergency Replacements

If a Water Heater requires a short-term replacement due to sudden Water Heater failure after the applicable Table 2 compliance date and an electrical upgrade is required to increase the power supply capacity to operate in compliance with Table 2 emission limits, a manufacturer, distributor, retailer, Reseller, or Installer may elect to offer a Water Heater for rent that complies with Table 1 emission limits for up to six months prior to installing a Water Heater that complies with Table 2 emission limits, provided the manufacturer, distributor, retailer, Reseller, or Installer:

(A) Reports the date the temporary Water Heater was rented through the Compliance Portal no later than 72 hours after the date the Water Heater was rented; and

(B) Complies with the labeling requirement in paragraph (g)(2).

(2) Alternative Compliance Option for Construction

A manufacturer, distributor, retailer, Reseller, or Installer may elect to offer a Water Heater for rent that complies with Table 1 emission limits for up to 24 months prior to installing a Water Heater that complies with Table 2 emission limits, provided:

(A) The Water Heater is installed in an Existing Building that requires any construction listed below to comply with Table 2 emission limits:

(i) Expanding the space designed to house the compliant Water Heater or associated equipment;

(ii) Relocating the compliant Water Heater or associated equipment, or

(iii) Performing a utility upgrade; and

(B) The manufacturer, distributor, retailer, Reseller, or Installer shall:

(i) Report the date the temporary Water Heater was rented through the Compliance Portal no later than 72 hours after the date the Water Heater was rented; and

(ii) Comply with the labeling requirement in paragraph (g)(2).

(g) Labeling and Reporting

(1) Pursuant to the labeling schedule in Table 3, any Water Heater that is supplied or offered for sale for use in the South Coast AQMD prior to the applicable Table 2 compliance dates that complies with the Table 1 emission limits, but not the Table 2 emission limits, shall prominently display the statement "If Installed in South Coast AQMD: 1) After January 1, 2026, shall not be sold for installation in new buildings 2) After January 1, 2027, only for installation in mobile homes; and 3) After January 1, 2030, not compliant for use and installation in South Coast AQMD."

Table 3 – Labeling Schedule

Equipment	Labeling Requirement	
	Start Date	End Date
Water Heater*	January 1, 2026	January 1, 2027
Mobile Home Water Heater	January 1, 2026	January 1, 2030

* Excluding Mobile Home Water Heater

(2) Any Water Heater supplied or offered for rent for use within the South Coast AQMD in accordance with an alternative compliance option in subdivision (f) shall prominently display the statement "If Installed or used in South Coast AQMD: This unit is for rent only."

(3) The manufacturer of any Water Heater manufactured for sale in the South Coast AQMD shall clearly display on the shipping carton and the name plate of the water heater:

(A) Model number;

(B) Date of manufacture; and

(C) Certification status.

(4) Annual Reporting Requirement

Effective on and after the Table 2 compliance dates for Existing Buildings, manufacturers of natural gas-fired Water Heaters, distributed or sold for use into or within South Coast AQMD, shall submit a report by March 1st of the following calendar year to the Executive Officer. The report shall include:

(A) Name of the product manufacturer;

(B) List of product model(s);

(C) The applicable equipment category in Table 2;

(D) The provision of this rule that each model complies; and

(E) Number of units and Rated Heat Input Capacity of each model that was sold for use in the South Coast AQMD.

~~(e) Mitigation Fee~~

~~Any manufacturer that elects to submit a mitigation fee to the District to meet the Nox emission level established under subparagraph (c)(2)(C) shall:~~

~~(1) submit a Mitigation Fee Plan to the Executive Officer 180 days prior to complying with the provisions of paragraph (c)(2), where the Mitigation Fee Plan includes:~~

~~(A) the name of the manufacturer;~~

~~(B) the compliance period that the mitigation fee covers shall not exceed a 12-month time period; and~~

~~(C) the number of water heaters sold over the compliance period, which shall be based on sales records or invoices of water heaters in a similar model and size that were sold in the district over the past 12 months.~~

~~(2) receive written verification from the Executive Officer that the Mitigation Fee Plan was approved prior to complying with the provisions of paragraph (c)(2);~~

~~(3) on and after January 1, 2005, pay a mitigation fee at the beginning of the compliance period in the amount of $3.00 per water heater sold as specified in subparagraph (c)(1)(C), over the time period the mitigation fee covers as specified in subparagraph (c)(1)(B); and before January 1, 2005, pay a mitigation fee in the amount of $5,400 per ton of NOx multiplied by the amount of NOx emission reductions needed as specified in Equation 1;~~

~~*Equation 1:*~~

$$\sim\sim MF = \$5{,}400/ton \times \left[\frac{t \times n \times 190 therms/yr \times (93 - 46.5 lbs/billion Btu - output) \times 0.76}{2000 \times 10{,}000}\right]\sim\sim$$

~~where:~~

~~MF = Mitigation fee, Dollars~~

~~*t* = Time period that mitigation fee covers as specified in subparagraph (f)(1)(C)~~

~~*n* = Number of water heaters sold as specified in subparagraph (f)(1)(D)~~

~~(4) label water heaters identified in the Mitigation Fee Plan;~~

~~(5) maintain records and report sales of water heaters covered by the Mitigation Fee Plan and if the number of water heaters originally estimated exceed the number of water heaters identified in subparagraph (e)(1)(C), the water heater manufacturer shall update the Mitigation Fee Plan within 60 days after the end of the compliance period. Make these records available to the Executive Officer upon request, for a period of at least three years after the end of the compliance period.~~

~~(f) Enforcement~~

~~The Executive Officer may periodically inspect distributors, retailers, and installers of water heaters located in the District and conduct such tests as are deemed necessary to insure compliance with subdivision (e).~~

(~~g~~h) Exemptions

(1) The provisions of this rule shall not apply to~~:~~ Water Heaters used in Recreational Vehicles.

(2) The provisions of this rule shall not apply to Water Heaters subject to Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters.

(3) The emission limits specified in paragraph (d)(2) shall not apply to Mobile Home Water Heaters for installation or use in master-metered Mobile Home parks, which are Mobile Home parks that take electricity through a master meter and then distribute it to park residents through their own system.

~~(1) Water heaters with a rated heat input capacity of 75,000 Btu per hour or greater.~~

~~(2) Water heaters used in recreational vehicles.~~

~~(h) Final Progress Report~~

~~On or before April 1, 2007, any person that manufacturers direct-vent, power-vent or power direct-vent water heaters for sale within the South Coast Air Basin shall submit to the Executive Officer a final progress report that shall include:~~

~~(1) Identification of efforts that have been made to reach commercialization of direct-vent, power-vent, and power direct-vent water heaters that meet the NOx emission level specified under paragraph (c)(3);~~

~~(2) A description of the technologies used to meet the NOx emission level for direct-vent, power-vent, and power direct-vent water heaters specified under paragraph (c)(3); and~~

~~(3) Complete documentation for at least three laboratory test results each for direct-vent, power-vent, and power direct-vent water heaters developed to meet the NOx emission level specified under paragraph (c)(3) that shall include the emissions rate measured by an independent testing laboratory using the SCAQMD protocol specified under paragraph (b)(11) or other protocol approved in advance by the Executive Officer.~~

~~(i) Program Administration~~

~~On and after September 3, 2004, the Executive Officer is authorized to use up to 5% of the mitigation fee funds collected in any given year for program administration.~~