

BOARD MEETING DATE: June 6, 2025

AGENDA NO. 28

PROPOSAL: Certify Final 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 Residential Type, Natural Gas-Fired Water Heaters; and Amend Rule 1111 and Rule 1121

SYNOPSIS: Proposed Amended Rule 1111 (PAR 1111) and Proposed Amended Rule 1121 (PAR 1121) establish requirements to reduce NOx emissions from space and water heating units, respectively. PAR 1111 and PAR 1121 establish manufacturer requirements for the sale of space and water heating units that meet low-NOx and zero-NOx emission standards that change over time, and include a mitigation fee for NOx-emitting units, with an option to pay a higher mitigation fee if manufacturers sell more low-NOx units than the targets. Alternatively, manufacturers that elect to sell only zero-emission space and water heating units would not be subject to a per unit mitigation fee.

COMMITTEE: Stationary Source, October 18, and December 20, 2024, February 21, March 21, April 18, and May 16, 2025

RECOMMENDED ACTIONS:

Adopt the attached Resolution:

1. Certifying the Final 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 Residential Type, Natural Gas-Fired Water Heaters; and
2. Amending Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces, and Rule 1121 – Reduction of NOx Emissions from Residential Type, Natural Gas-Fired Water Heaters.

Wayne Nastri
Executive Officer

Background

Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces (Rule 1111), was adopted in December 1978 and regulates NO_x 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 amended in 2009 to lower the NO_x emissions 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 NO_x emission limit. Currently, all furnace types have transitioned to 14 ng/J, except for mobile home furnaces. Staff is not recommending any significant revisions to this sector and will allow manufacturers to continue to use the current mitigation fee alternative compliance option for mobile home furnaces.

Rule 1121 – Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters (Rule 1121), was adopted in December 1978 and regulates NO_x emissions from natural gas-fired water heaters with a rated heat input capacity of less than 75,000 Btu/hr. This rule was amended in 1999 to reduce the NO_x emission limit from 40 ng/J to 10 ng/J and amended again in 2004 to extend the compliance dates of the 10 ng/J limit for some categories. Currently, all Rule 1121 water heaters are meeting the NO_x emissions limit of 10 ng/J, except for mobile home water heaters that are subject to an emissions limit of 40 ng/J.

Rule 1111 and Rule 1121 are applicable to manufacturers, distributors, retailers, resellers, and installers of space and water heating appliances that are used in over five million structures, mostly residential homes.

Proposed Amendments

PAR 1111 and PAR 1121 establish zero-NO_x emission limits for space and water heating units with compliance dates for units installed in new or existing buildings. A zero-emission manufacturer alternative compliance option is also provided that establishes targets for manufacturers for the sale of both NO_x-emitting and zero-emission space and water heating units. Manufacturers that elect to sell NO_x-emitting gas units will be required to pay a mitigation fee of \$100 and \$50 for each space and water heating unit, respectively, sold within the target. The target goals change over a ten-year period to encourage increased market adoption of zero-emission space and water heating units. The zero emission sales target is 30 percent in 2027, 50 percent in 2029, 75 percent in 2033, and 90 percent in 2036. PAR 1111 and PAR 1121 include provisions that allow manufacturers to sell NO_x-emitting gas units over the sales targets by paying a higher mitigation fee of \$500 and \$250 per space and water heating unit. If the manufacturer meets the annual target goal, there are no additional mitigation fees. The fees will be adjusted annually to reflect the consumer price index with a three percent cap to provide certainty for the manufacturers. The mitigation fees collected will be used to provide incentives to install zero-emission units.

The analysis of zero-emission space and water heating focused mostly on heat pumps, as they are the zero-emission technology for space and water heating with the highest market penetration; however, there are other zero-emission technologies commercially available. Heat pumps do not produce NOx emissions at the point of use. Heat pumps provide both heating and cooling, which can result in upfront savings for certain installations, e.g., when replacing both a furnace and air conditioner. Heat pumps are three to four times more efficient than conventional NOx emitting appliances, which can result in utility cost savings over the life of the equipment.

Both proposed amended rules provide an exemption from the zero-NOx emission standards for space and water heating appliances installed or used in existing mobile homes, any mobile homes located in master-metered mobile home parks, and new buildings with a building permit issued prior to the date of rule adoption.

PAR 1111 and PAR 1121 have clarified and updated rule language, restructured the rule, removed obsolete language, and streamlined the labeling, recordkeeping, and reporting requirements.

Public Process

PAR 1111 and PAR 1121 were developed through a public process that began in the third quarter of 2023 and included eight Working Group Meetings on October 5, 2023, November 28, 2023, January 31, 2024, April 4, 2024, June 20, 2024, August 15, 2024, December 4, 2024, and February 13, 2025. The working group is composed of representatives from manufacturers, trade organizations, businesses, environmental groups, public agencies, consultants, and other interested parties. A public workshop was held on October 3, 2024, and a public consultation was held on March 6, 2025. Throughout the rulemaking, staff also met with many individual stakeholders and conducted site visits to a wide variety of affected facilities.

At the November Board Meeting, Board Members directed staff to conduct additional outreach to local governments as the proposed amended rules would affect residents. As a result, staff enhanced the outreach effort and presented the revised rule concept to many cities, council of governments, and other organizations along with conducting numerous stakeholder meetings. Staff developed a [myth versus fact sheet](#) to dispel misinformation, added the email addresses from each commenter to our electronic subscribers list, and sent the fact sheet to over 17,000 individuals to clearly explain the rule concept. In addition, staff wrote an article that was printed in several newspapers to attempt to dispel misinformation.

Emission Reductions

PAR 1111 and PAR 1121 will affect approximately 10 million units in the South Coast AQMD. The rule approach sets manufacturer sales targets for zero-emission units that increase over time and apply when a new unit is installed or an existing unit is replaced; therefore, the emission reductions are based on the expected unit turnover, which is generally 25 years for space heaters and 15 years for water heaters. At full

implementation, PAR 1111 and PAR 1121 are estimated to reduce NOx emissions by 6.1 tons per day (tpd) by 2061 if the manufacturers meet the proposed compliance sales targets.

Key Issues

Throughout the rule development process, staff worked with stakeholders and revised PAR 1111 and PAR 1121 to address key issues such as consumer choice and individual affordability. The initial rule proposal included a mandate, which would have required applicable units to transition to zero-emission units on replacement. PAR 1111 initially also proposed to expand the applicability of natural gas-fired furnaces with heat input rated from 175,000 Btu/hr to 2 million Btu/hr. At the November 2024 Governing Board meeting, the Board directed staff to conduct more outreach for PAR 1111 and PAR 1121, with an emphasis on cities and local governments. Based on extensive stakeholder feedback, staff made significant revisions and released a revised proposal that allows manufacturers to sell zero-emission units (with no mitigation fee) and NOx-emitting gas units (with a mitigation fee). The revised rule concept for PAR 1111 and PAR 1121 was released on February 7, 2025, and presented at Working Group Meeting #8 on February 13, 2025, and numerous subsequent public meetings.

There are four remaining key issues: 1) concerns for affordability and consumer choice, 2) cost of zero emission units is substantially higher than estimates in Draft Staff Report, 3) lower mitigation fees will ensure NOx-emitting gas units remain affordable, and 4) higher mitigation fees will encourage manufacturers to stay within targets.

Affordability and Consumer Choice

Staff received more than 14,500 comments, many that opposed the proposed amended rules because they believe the proposed rules will require them to replace their existing NOx-emitting gas units with electric units, including their stoves. This is in large part due to misinformation provided by outside groups, implying the proposed rules are still a mandate and consumers will not be able to purchase NOx-emitting gas units. Each person who submitted a comment was added to the subscribers list if an email address was provided and now the subscribers list has over 17,000 email addresses. Staff sends all rule updates and outreach materials (e.g., infographic flyer Myths vs Facts) to that list of over 17,000 subscribers.

Under the provisions of the proposed rules, manufacturers can still sell NOx-emitting units. While the proposed rules do contain a zero-NOx emission requirement for manufacturers that do not opt-in to the alternative compliance option, staff anticipates that all major space and water heating manufacturers will take advantage of the alternative compliance option. Staff has also recommended a check-in for the third quarter of 2028 to assess the manufacturer targets and mitigation fee structure.

Cost Estimates of Zero-Emission Units

The Cost of Living Council has developed a cost analysis that presents cost estimates of \$47,800 for a single family home and \$8.9 billion annually that has been widely distributed. This cost analysis overstates the cost impacts of the proposed rules with no supporting data. For instance, the Cost of Living Council reports cost estimate for a heat pump water heater installation is nearly five times greater than staff's cost estimates, which were developed using thousands of real-world installation costs. The Staff Report and Socioeconomic analysis includes cost data based on real installations of space and water heat pumps, public cost data, where cost estimates were presented to stakeholders at numerous public meetings, and fully disclosed how the cost effectiveness was calculated. On March 6th, staff presented an update on cost estimates to include more recent 2024 costs and presented the revised costs at the Public Consultation Meeting to address any questions on the proposed amended rules and cost analysis.

Lower Mitigation Fees to Address Affordability

Some stakeholders suggested that the mitigation fees would be passed down to consumers, making the NOx emitting appliances unaffordable. Under PAR 1111 and 1121, manufacturers are required to pay a mitigation fee of \$100 for NOx-emitting furnaces and \$50 for NOx-emitting water heaters, which is about one percent of the unit and installation cost. Space and water heating units are a major household expense, but these units have a long service life, meaning the upfront mitigation fee equates to less than \$4.00 per year of the equipment life which should not change the level of affordability for the consumer. The “over the target” fee of \$500 for furnaces and \$250 for water heaters applies only to those NOx-emitting units sold *above* sales target and the targets were established to reflect current market trends. If the manufacturer stays within the target goals, no “over the target” fee is required. If the rules did not include “over the target” fees, the sales targets would not have any impact, i.e., the manufacturers would not be motivated to sell zero-emission units and it would remain business as usual for the region.

Collected mitigation fees will help transition the region to zero-emission units by funding the GO ZERO incentive program. The GO ZERO incentive program will help offset upfront costs to consumers interested in making the transition to zero-emission space and water heating units. The GO ZERO program seeks to target up to 75 percent of the incentive funds to overburdened communities to help residents who need the most financial assistance to transition to clean, modern, healthy appliances.

Higher Mitigation Fees to Encourage Staying Within Sales Targets

Environmental stakeholders are advocating for a three-step tiered mitigation fee structure for units sold over the sales targets that would start at \$500 and go up to \$1,000 for space heating and would start at \$250 and go up to \$500 for water heating. Environmental stakeholders propose scaling the mitigation fees to increase depending on the percent of sales over the target: \$500 per furnace that exceeds the target by 1 – 10 percent, \$750 per furnace that exceeds the target by 11 – 20 percent, and \$1,000 per

furnace that exceeds the target by over 21 percent. Environmental stakeholders have commented that a three-step tiered mitigation fee will encourage the manufacturers to meet the sales targets, and the tiered approach will encourage manufacturers to not go over 20 percent of the target.

Manufacturers have commented that the current two-tier mitigation fee structure for under and above the sales target is complicated to implement, and manufacturers strongly prefer a flat fee.

Staff considered this tiered approach proposed by the Environmental stakeholders and the flat fee requested by the manufacturers and presented options at the Stationary Source Committee in March 2025. Staff recommended maintaining the proposed fee structure to balance affordability with NOx emission reduction goals. Staff will monitor the implementation of the rules and assess zero-emission unit market adoption.

California Environmental Quality Act (CEQA)

Pursuant to the California Environmental Quality Act (CEQA) and South Coast AQMD's certified regulatory program (Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110), the South Coast AQMD, as lead agency for PAR 1111 and PAR 1121, prepared a Subsequent Environmental Assessment (SEA), a substitute CEQA document in lieu of a Subsequent Environmental Impact Report (EIR), which tiers off of the Final Program EIR for the 2022 AQMP. The Draft SEA was released for a 46-day public review and comment period, three comment letters were received, and responses to the comments are included in Appendix B of the Final SEA (see Attachment J of this Board Letter). The Final SEA concluded that while implementation of the proposed project will result in an air quality benefit of 6.1 tpd of NOx emission reductions, significant and unavoidable adverse environmental impacts may occur for the topics of: 1) air quality due to construction activities; and 2) 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. Specific feasible mitigation measures in the previously adopted Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP have been identified as being applicable to Proposed Amended Rule 1111 and Proposed Amended Rule 1121; thus, the previously adopted Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP and these specified mitigation measures remain in effect and enforceable for Proposed Amended Rule 1111 and Proposed Amended Rule 1121. No further feasible mitigation measures were identified that would reduce these impact areas to less than significant levels. In addition, Findings pursuant to CEQA Guidelines Section 15091 and a Statement of Overriding Considerations pursuant to CEQA Guidelines Section 15093 were also prepared (see Attachment F of this Board Letter).

Socioeconomic Impact Assessment

The proposed project is expected to yield an overall savings, mainly due to a savings from reduced energy bill costs over the equipment lifetime. For some equipment

categories, upfront incremental costs associated with purchasing and installing zero-emission units will be incurred, but these upfront costs will be offset by energy-cost savings over time, resulting in an overall savings. The present value cost savings over the forecast period is estimated to be \$5.14 billion and \$2.68 billion, for a discount rate of 1 percent and 4 percent, respectively. The annual average savings are estimated to be \$250.34 million and \$191.25 million, for a 1 percent and 4 percent real interest rate, respectively. To explore cost- and job-impacts under different assumptions, a sensitivity analysis was performed which assumed no savings would occur from fuel switching when transitioning to zero-emission units. The sensitivity analysis estimated the cost of transitioning to zero-emission units at \$174.03 million annually for a 4 percent real interest rate from 2027 to 2060.

When the costs and savings from implementing PAR 1111 and PAR 1121 are annualized by applying a 4 percent real interest rate, the analysis forecasts 580 net jobs gained annually in the four-county economy on average over the forecast period, relative to the baseline scenario, representing 0.0045 percent of total jobs in the region. The sensitivity analysis forecasts 500 jobs gained annually from 2027 to 2060, relative to the baseline scenario.

Over the analysis period from 2027 to 2053, the benefit of achieving 6.1 tpd of NOx emission reductions from implementing PAR 1111 and PAR 1121 is estimated to prevent 2,490 premature deaths, 10,200 cases of newly onset asthma, 170,000 school loss days, 2,484 emergency room visits, 1.17 million minor restricted activity days, and many other negative health outcomes. The present value of the monetized health benefits from implementing PAR 1111 and PAR 1121 would be about \$25.43 billion when calculated at a 4 percent discount rate. The Final Socioeconomic Impact Assessment is included as an attachment to this Board Letter (see Attachment K).

AQMP and Legal Mandates

South Coast Air Basin has been classified as in “extreme” nonattainment for the 2015 federal 8-hour ozone standard and is subject to requirements of the federal Clean Air Act (CAA). Pursuant to Health and Safety Code Section 40460 (a), the South Coast AQMD is required to adopt an AQMP demonstrating compliance with all federal regulations and standards. The 2022 AQMP adopted on December 2, 2022, set forth a path for improving air quality and meeting federal air pollution standards by striving for zero-emission technologies across all sectors. The South Coast AQMD is required to adopt rules and regulations that carry out the objectives of the 2022 AQMP. The 2022 AQMP included Control Measures R-CMB-01 and R-CMB-02, which seek zero-NOx emission standards for residential water and space heating, wherever feasible; PAR 1111 and PAR 1121 will implement those control measures.

Implementation and Resource Impact

Resource impacts are expected in various divisions including Planning, Rule Development and Implementation, and Compliance and Enforcement; however, at this

time, no funds have been reserved for administration and implementation of PAR 1111 and PAR 1121, but additional resources or staffing might be requested in the future.

Attachments

- A. Summary of Proposal
- B. Key Issues and Responses
- C. Rule Development Process
- D. Key Contacts
- E. Resolution
- F. Attachment 1 to the Resolution – Findings and Statement of Overriding Considerations
- G. PAR 1111
- H. PAR 1121
- I. Final Staff Report
- J. Final Subsequent Environmental Assessment
- K. Final Socioeconomic Impact Assessment
- L. Board Meeting Presentation

ATTACHMENT A

SUMMARY OF PROPOSAL

Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired
Furnaces
and
Proposed Amended Rule 1121 – Reduction of NO_x Emissions from Residential Type, Natural
Gas-Fired Water Heaters

Purpose

- PAR 1111:
 - Reduce NO_x emissions from residential sized furnaces as defined
- PAR 1121:
 - Reduce NO_x emissions from residential sized water heaters as defined

Applicability

- PAR 1111:
 - Manufacturers, distributors, retailers, resellers, and installers of natural gas-fired furnaces used for interior space heating with a rated heat input capacity less than 175,000 British thermal units (Btu) per hour, or, for combination heating and cooling units, a cooling rate of less than 65,000 Btu per hour
- PAR 1121:
 - Manufacturers, distributors, retailers, resellers, and installers of natural gas-fired NO_x-emitting water heaters with a rated heat input capacity less than 75,000 Btu per hour

Requirements

- PAR 1111:
 - Unless the NO_x-emitting furnace is included in the zero-NO_x emission manufacturer alternative compliance option, on and after the applicable Table 2 compliance dates, a person shall only manufacture, supply, sell, resell, offer for sale, import, or install, for use in the South Coast AQMD, a zero-NO_x emission unit, that emits zero ng/J of NO_x, in place of a NO_x-emitting furnace according to the Table 2 compliance schedule for each furnace equipment category.

Table 2 – Zero-NO_x Emission Limit Compliance Schedule

| Equipment Category | Building Type | Compliance Date |
|---|---------------|-----------------|
| Residential Fan-Type Central Furnace ¹ | New | January 1, 2027 |
| | Existing | January 1, 2029 |
| Mobile Home Furnace | New | January 1, 2027 |
| Wall Furnace and Floor Furnace | New | January 1, 2027 |
| | Existing | January 1, 2029 |

¹ Includes Condensing, Non-Condensing, and Weatherized Furnaces

Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired
Furnaces
and
Proposed Amended Rule 1121 – Reduction of NO_x Emissions from Residential Type, Natural
Gas-Fired Water Heaters

- PAR 1121:
 - Unless the NO_x-emitting water heater is included in the zero-NO_x emission Manufacturer alternative compliance option, on and after the applicable Table 2 compliance dates, a person shall only manufacture, supply, sell, resell, offer for sale, import, or install, for use in the South Coast AQMD, a zero-NO_x emission unit, that emits zero ng/J of NO_x, in place of a NO_x-emitting water heater according to the Table 2 compliance schedule.

Table 2 – Zero-NO_x Emission Limit Compliance Schedule

| Equipment Category | Building Type | Compliance Date |
|---------------------------|---------------|-----------------|
| Water Heater ¹ | New | January 1, 2027 |
| | Existing | January 1, 2029 |
| Mobile Home Water Heater | New | January 1, 2027 |

¹ Excluding Mobile Home Water Heater

Alternative Compliance Options

- PAR 1111:
 - Mobile home furnaces alternative compliance option
 - Removes the September 30, 2025 expirations date
 - On and after October 1, 2025, mitigation fee is reduced from \$150 to \$100 per unit
- PAR 1111 and PAR 1121:
 - Zero-NO_x Emission Manufacturer (ZEM) alternative compliance option
 - Manufacturers can opt-in to ZEM option that allows for the sale of both zero-NO_x emission and NO_x-emitting units based on established sales targets
 - Submit an alternative compliance plan no later than November 1, 2026, or no later than 60 days prior to any sales into or within the South Coast AQMD for a new manufacturer
 - Submit a report no later than 90 days after the end of each calendar year utilizing this alternative compliance option for the specified sales information; and
 - Pay the mitigation fee
 - If a manufacturer meets the sales target for zero-NO_x emission units, the under the target per unit mitigation fee of \$100 for furnaces and \$50 for water heaters will apply

Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired
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- If a manufacturer does not meet the zero-NO_x emission unit target, the over the target per unit mitigation fee of \$500 for furnaces and \$250 for water heaters will apply
- Mitigation fees for 2027 will be adjusted by the consumer price index, not exceeding 3 percent, for each subsequent calendar year after 2027

Informative Materials, Labeling, Recordkeeping, and Reporting

- PAR 1111 and PAR 1121
 - Includes informative materials requirements for mobile home units, downflow furnaces for high-altitude, and units under ZEM alternative compliance option
 - Includes annual reporting requirements for manufacturers electing to comply with the ZEM alternative compliance option
 - Includes recordkeeping requirements for manufacturers electing to comply with the ZEM alternative compliance option
 - Includes labeling requirements for furnaces and water heaters installed in new and existing building that apply between January 1, 2027 to January 1, 2029
 - Includes labeling requirements for units, other than mobile home units, that are sold in the region not using the ZEM alternative compliance option

Exemptions

- PAR 1111:
 - Exemption from zero-NO_x emission limits
 - Mobile home furnaces in compliance with 14 ng/J NO_x emissions limit, or by mitigation fee alternative compliance option, for installation in existing buildings
 - Mobile home furnace in compliance with 14 ng/J NO_x emissions limit, or by mitigation fee alternative compliance option, for installation or use in a master-metered mobile home park
 - Furnaces in compliance with the 14 ng/J NO_x emissions limit with a building permit issued prior to the date of rule adoption
- PAR 1121
 - Exemption from zero-NO_x emission limits
 - Mobile home water heaters in compliance with the 40 ng/J emissions limit for installation in existing building
 - Mobile home water heaters in compliance with the 40 ng/J emissions limit for installation or use in master-metered mobile home parks
 - Water heaters in compliance with the 14 ng/J NO_x emissions limit with a building permit issued prior to the date of rule adoption

ATTACHMENT B

KEY ISSUES AND RESPONSES

Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces

and

Proposed Amended Rule 1121 – Reduction of NO_x Emissions from Residential Type, Natural Gas-Fired Water Heaters

Throughout the rule development process, staff worked with stakeholders and revised PAR 1111 and PAR 1121 to address key issues such as consumer choice and individual affordability. The initial rule proposal included a mandate, which would have required applicable units to transition to zero-emission units on replacement. PAR 1111 initially also proposed to expand the applicability of natural gas-fired furnaces with heat input rated from 175,000 Btu/hr to 2 million Btu/hr. At the November 2024 Governing Board meeting, the Board directed staff to conduct more outreach for PAR 1111 and PAR 1121, with an emphasis on cities and local governments. Based on extensive stakeholder feedback, staff made significant revisions and released a revised proposal that allows manufacturers to sell zero-emission units (with no mitigation fee) and NO_x-emitting gas units (with a mitigation fee). The revised rule concept for PAR 1111 and PAR 1121 was released on February 7, 2025, and presented at Working Group Meeting #8 on February 13, 2025, and numerous subsequent public meetings.

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Collected mitigation fees will help transition the region to zero-emission units by funding the GO ZERO incentive program. The GO ZERO incentive program will help offset upfront costs to consumers interested in making the transition to zero-emission space and water heating units. The GO ZERO program seeks to target up to 75 percent of the incentive funds to overburdened communities to help residents who need the most financial assistance to the transition to clean, modern, healthy appliances.

Higher Mitigation Fees to Encourage Staying Within Sales Targets

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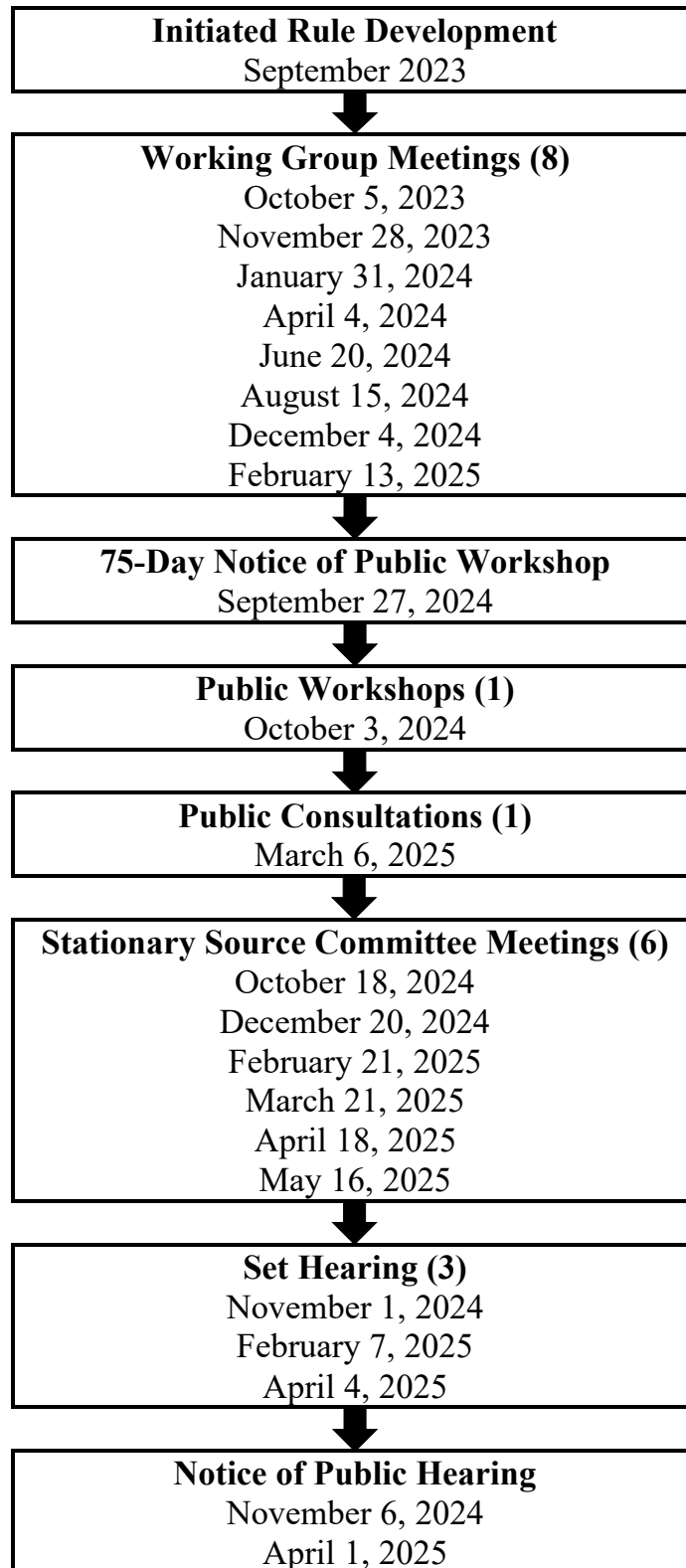
exceeds the target by 11 – 20 percent, and \$1,000 per furnace that exceeds the target by over 21 percent. Environmental stakeholders have commented that a three-step tiered mitigation fee will encourage the manufacturers to meet the sales targets, and the tiered approach will encourage manufacturers to not go over 20 percent of the target.

Manufacturers have commented that the current two-tier mitigation fee structure for under and above the sales target is complicated to implement, and manufacturers strongly prefer a flat fee.

Staff considered this tiered approach proposed by the Environmental stakeholders and the flat fee requested by the manufacturers and presented options at the Stationary Source Committee in March 2025. Staff recommended maintaining the proposed fee structure to balance affordability with NOx emission reduction goals. Staff will monitor the implementation of the rules and assess zero-emission unit market adoption.

ATTACHMENT C
RULE DEVELOPMENT PROCESS

**Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces
and
Proposed Amended Rule 1121 – Reduction of NO_x Emissions from Residential Type, Natural
Gas-Fired Water Heaters**



April 17, 2025

April 29, 2025



Public Hearing

June 6, 2025

Twenty (20) months spent in rule development

One (1) Public Workshop Session

One (1) Public Consultation Meeting

Six (6) Stationary Source Committee Meetings

Eight (8) Working Group Meetings

40 Presentations to cities and Council of Governments (COG)

Over 100 stakeholder meetings

ATTACHMENT D

KEY CONTACTS LIST

Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces

and

Proposed Amended Rule 1121 – Reduction of NO_x Emissions from Residential Type, Natural Gas-Fired Water Heaters

Manufacturers

- A.O. Smith
- Bradford White Corporation
- Goodman (Daikin)
- Johnson Controls International
- Carrier
- Nortek
- Lennox
- Rheem Manufacturing Company
- Trane

Government Agencies

- California Air Resources Board (CARB)
- California Public Utilities Commission (CPUC)
- California Energy Commission (CEC)
- Bay Area Air District (BAAD)
- Southern California Association of Governments (SCAG)
- Orange County Council of Governments (OCCOG)
- San Bernardino County Council of Governments (SBCOG)
- Gateway Cities Council of Governments (Gateway Cities COG)
- San Gabriel Valley Council of Governments (SGVCOG)
- Coachella Valley Association of Governments (CVAG)
- Inland Regional Energy Network (IREN)
- City of Redlands
- City of Fountain Valley
- City of Fullerton
- City of Irvine
- Northeast States for Coordinated Air Use Management (NESCAUM)
- San Diego County Air Pollution Control District
- San Joaquin Valley Air Pollution Control District

Utilities

- Los Angeles Department of Water & Power

- Southern California Edison
- Southern California Gas Company
- Clean Power Alliance

Other Interested Parties

- Active SGV
- Air-Conditioning, Heating, & Refrigeration Institute
- Apartment Association of Orange County
- Building Owners & Managers Association of California
- California Apartment Association
- California Building Industry Association
- California Business Properties Association
- California Council for Environmental and Economic Balance
- California Manufacturers & Technology Association
- California Restaurant Association
- California State University Dominguez Hills
- Coalition for Clean Air
- Commercial Real Estate Development Association
- DAUM Commercial Real Estate Services
- Earthjustice
- Heating Air-Conditioning Refrigeration Distributors International (HARDI)
- Indoor Weather Inc.
- Industrious Labs
- Inland Empire Economic Partnership
- Latham and Watkins
- Los Angeles County Business Federation
- Ramboll
- Redwood Energy
- Regulatory Flexibility Group
- RMI
- Sierra Club
- Whittingham Public Affairs Advisors

ATTACHMENT E

RESOLUTION NO. 25-_____

A Resolution of the Governing Board of the South Coast Air Quality Management District (South Coast AQMD) certifying the Final 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 Residential Type, Natural Gas-Fired Water Heaters.

A Resolution of the South Coast AQMD Governing Board Amending Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces, and Rule 1121 – Reduction of NOx Emissions from Residential Type, Natural Gas-Fired Water Heaters.

WHEREAS, the South Coast AQMD Governing Board finds and determines that Proposed Amended Rule 1111 and Proposed Amended Rule 1121 are considered a "project" as defined by CEQA; and

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

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

WHEREAS, the South Coast AQMD has prepared a SEA pursuant to its certified regulatory program and CEQA Guidelines Section 15187, which tiers off of the Final Program Environmental Impact Report (EIR) for the 2022 Air Quality Management Plan (AQMP) as allowed by CEQA Guidelines Sections 15152, 15162, 15168, and 15385 because Proposed Amended Rule 1111 and Proposed Amended Rule 1121 implement Control Measures R-CMB-01 – Residential Water Heating, and R-CMB-02 – Residential Space Heating, which were previously adopted in the 2022 AQMP. Because the SEA is a subsequent document to the Final Program EIR for the 2022 AQMP, the baseline is the project analyzed in the Final Program EIR for the 2022 AQMP. The SEA, in setting forth the potential environmental consequences of the proposed project, determined that substantial increases in the severity of the significant effects that were previously examined in the Final Program EIR for the 2022 AQMP would occur. [CEQA Guidelines Section 15162(a)(3)(B)]. The SEA concluded that the proposed project would have the potential to

generate significant adverse environmental impacts for the topics of air quality during construction, and energy associated with electricity and natural gas demand during operation even after mitigation measures are applied; and

WHEREAS, the Draft SEA was circulated for a 46-day public review and comment period from September 27, 2024 to November 12, 2024 and three comment letters were received; and

WHEREAS, the Draft SEA has been revised to include the comment letters received on the Draft SEA and the responses, so that it is now a Final SEA; and

WHEREAS, it is necessary that the South Coast AQMD Governing Board review the Final SEA prior to its certification, to determine that it provides adequate information on the potential adverse environmental impacts that may occur as a result of amending Rule 1111 and Rule 1121, including the responses to the comment letters received relative to the Draft SEA; and

WHEREAS, pursuant to CEQA Guidelines Section 15252(a)(2)(A), significant adverse impacts were identified such that alternatives and mitigation measures are required for project approval; however, the following mitigation measures in the previously adopted Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP have been identified in the Final SEA as being applicable to Proposed Amended Rule 1111 and Proposed Amended Rule 1121: AQ-1 through AQ-26 which address air quality construction impacts, E-1 to E-4 and E-7 which address electricity impacts, and E-8 and E-9 which address natural gas demand impacts; thus, the previously adopted Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP and these specified mitigation measures remain in effect and enforceable for Proposed Amended Rule 1111 and Proposed Amended Rule 1121 such that no new Mitigation, Monitoring, and Reporting Plan for Proposed Amended Rule 1111 and Proposed Amended Rule 1121 pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097 has been prepared or is required; and

WHEREAS, no new feasible mitigation measures have been identified that would reduce or eliminate the significant adverse impacts to less than significant levels beyond the aforementioned mitigation measures adopted in the Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP that were identified as being applicable to Proposed Amended Rule 1111 and Proposed Amended Rule 1121; and

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

WHEREAS, Findings and a Statement of Overriding Considerations have been prepared and are included in Attachment 1 to this Resolution (labeled as Attachment F in the Board letter), which is attached and incorporated herein by reference; and

WHEREAS, the Mitigation, Monitoring, and Reporting Plan that was adopted for the 2022 AQMP is also included in Attachment 1 to this Resolution (labeled as Attachment F in the Board letter), which is attached and incorporated herein by reference; and

WHEREAS, the South Coast AQMD Governing Board voting to amend Rule 1111 and Rule 1121, has reviewed and considered the information contained in the Final SEA, including responses to comments, the Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP, the Findings, the Statement of Overriding Considerations, and all other supporting documentation, prior to its certification, and has determined that the Final SEA, including responses to comments received, has been completed in compliance with CEQA; and

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

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

WHEREAS, Proposed Amended Rule 1111 and Proposed Amended Rule 1121, and supporting documentation, including but not limited to, the Final Staff Report, Final SEA, the Findings and Statement of Overriding Considerations, and the Final Socioeconomic Impact Assessment for Proposed Amended Rule 1111 and Proposed Amended Rule 1121, and the Final Program EIR for the 2022 AQMP, and the Findings, Statement of Overriding Considerations, and the Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP, were presented to the South Coast AQMD Governing Board and the South Coast AQMD Governing Board has reviewed and considered this information, as well as has taken and considered staff testimony and public comment prior to approving the project; and

WHEREAS, the South Coast AQMD Governing Board finds and determines, taking into consideration the factors in Section (d)(4)(D) of the Governing Board Procedures (Section 30.5(4)(D)(i) of the Administrative Code), that the modifications to Proposed Amended Rule 1111 and Proposed Amended Rule 1121 since the latest Notice of Public Hearing was published through email notification on April 17,

2025, are changes that meet the same air quality objective and are not so substantial as to significantly affect the meaning of Proposed Amended Rule 1111 and Proposed Amended Rule 1121 within the meaning of Health and Safety Code Section 40726 because the removal of an obsolete definition for heat pump from Proposed Amended Rule 1111, reverting the definition name for residential fan-type central furnace to the existing name (fan-type central furnace) with no change to the definition content, adding “and” in the new and existing building labeling requirement, and adding subdivision (i) to both Proposed Amended Rule 1111 and Proposed Amended Rule 1121 to address severability regarding rule implementation in the event a lawsuit is filed after rule adoption, are clarifications or minor revisions and: (a) the changes do not impact emission reductions, (b) the changes do not affect the number or type of sources regulated by the rules, (c) the changes are not inconsistent with the information contained in the notice of public hearing, and (d) the effects of Proposed Amended Rule 1111 and Proposed Amended Rule 1121 do not exceed the effects of the range of CEQA alternatives analyzed in the Final SEA; and

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

WHEREAS, the South Coast AQMD Governing Board has determined that a need exists to amend Rule 1111 and Rule 1121 to establish appropriate Best Available Retrofit Control Technology (BARCT) emission limits, implement the 2022 AQMP Control Measures R-CMB-01 and R-CMB-02, and address consumer choice and affordability; and

WHEREAS, the South Coast AQMD Governing Board has determined, pursuant to Health and Safety Code Section 40001(c), that there is a problem that the proposed amended rules will alleviate, namely nonattainment of several federal ozone standards, and the rule will help attain state and federal ambient air quality standards; and

WHEREAS, the South Coast AQMD Governing Board obtains its authority to adopt, amend or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728.5, 40920.6, and 41508 as well as the federal Clean Air Act; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1111 and Proposed Amended Rule 1121 are written or displayed so that their meaning can be easily understood by the persons directly affected by them; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1111 and Proposed Amended Rule 1121 are in harmony with,

and not in conflict with or contradictory to, existing statutes, court decision, or state or federal regulations; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1111 and Proposed Amended Rule 1121 do not impose the same requirements as any existing state or federal regulations, and the proposed amended rules are necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board, in amending Rule 1111 and Rule 1121, references the following statutes which the South Coast AQMD hereby implements, interprets or makes specific: Health and Safety Code Sections 39002, 40000, 40001, 40406, 40702, 40440(a), 40725 through 40728.5, 40920.6, 41508 and federal Clean Air Act Sections 110, 172, and 182(e); and

WHEREAS, Health and Safety Code Section 40727.2 requires the South Coast AQMD to prepare a written analysis of existing federal air pollution control requirements applicable to the same source type being regulated whenever it adopts, or amends a rule, and that the South Coast AQMD's comparative analysis of Proposed Amended Rule 1111 and Proposed Amended Rule 1121 are included in the Final Staff Report; and

WHEREAS, the South Coast AQMD Governing Board finds that staff's proposed control options for Proposed Amended Rule 1111 and Proposed Amended Rule 1121 are being adopted because they constitute BARCT, and there are no other control options that meet BARCT and the air quality objectives; and

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

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

WHEREAS, the South Coast AQMD Governing Board has determined that the Final Socioeconomic Impact Assessment concludes that Proposed Amended Rule 1111 and Proposed Amended Rule 1121 will result in an overall cost saving and net jobs gained in the South Coast AQMD jurisdiction; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Final Socioeconomic Impact Assessment concludes that the anticipated NOx emission reductions of 6.1 tons per day from implementing Proposed Amended Rule 1111 and Proposed Amended Rule 1121 will result in substantial health benefits within the South Coast AQMD jurisdiction by preventing approximately 2,490 premature deaths, 10,200

cases of newly onset asthma, 170,000 school loss days, 2,484 emergency room visits, and many other negative health outcomes at a monetized worth of approximately \$25.43 billion; and

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

WHEREAS, the South Coast AQMD staff conducted a Public Workshop on October 3, 2024, and a Public Consultation on March 6, 2025; and

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

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

WHEREAS, the South Coast AQMD Governing Board specifies the Planning, Rule Development and Implementation Manager overseeing the rule development for Proposed Amended Rule 1111 and Proposed Amended Rule 1121 as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of this proposed project is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

NOW, THEREFORE, BE IT RESOLVED, that the South Coast AQMD Governing Board has considered the Final SEA for Proposed Amended Rule 1111 and Proposed Amended Rule 1121, together with all comments received during the public review period, and, on the basis of the whole record before it, the South Coast AQMD Governing Board: 1) finds that the Final SEA, including the responses to the comment letters, was completed in compliance with CEQA and the South Coast AQMD's certified regulatory program, 2) finds that the Final SEA and all supporting documents were presented to the South Coast AQMD Governing Board, whose members exercised their independent judgment and reviewed, considered, and approved the information therein prior to acting on Proposed Amended Rule 1111 and Proposed Amended Rule 1121, and 3) certifies the Final SEA; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby adopt Findings for Proposed Amended Rule 1111 and Proposed Amended Rule 1121 pursuant to CEQA Guidelines Section 15091, a Statement of Overriding Considerations for Proposed Amended Rule 1111 and Proposed Amended Rule 1121 pursuant to CEQA Guidelines Section 15093, and affirms that the Mitigation, Monitoring, and Reporting Plan adopted for the 2022 AQMP pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097 remains in effect and applicable to Proposed Amended Rule 1111 and Proposed Amended Rule 1121 for the

specified mitigation measures, as required by CEQA and which are included as Attachment F (Attachment 1 to the Resolution) and incorporated herein by reference; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board directs the South Coast AQMD to limit the use of mitigation fees collected from the implementation of Proposed Amended Rule 1111 and Proposed Amended Rule 1121 to funding the installation of zero-NOx emission appliances, associated equipment, and related activities, including, but not limited to, installer training, public outreach for installations in residential and commercial buildings, and administrative costs of implementing the program; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board directs staff to conduct a status update and technology check-in by examining annual reports submitted by manufacturers and to report to the Stationary Source Committee by the third quarter of 2028 on sales of NOx-emitting and zero-NOx emission units, mitigation fees collected, deviations from sales targets, and if any changes are needed to the manufacturer targets or mitigation fee structure; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby adopt, pursuant to the authority granted by law, Proposed Amended Rule 1111 and Proposed Amended Rule 1121 as set forth in the attached, and incorporated herein by reference.

DATE: _____

CLERK OF THE BOARDS

ATTACHMENT F

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Attachment 1 to the Governing Board Resolution for:

Final Subsequent Environmental Assessment for Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces, and Proposed Amended Rule 1121 – Reduction of NO_x Emissions from Residential Type, Natural Gas-Fired Water Heaters

Findings, and Statement of Overriding Considerations

June 2025

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

Executive Officer
Wayne Nastri

Deputy Executive Officer
Planning, Rule Development and Implementation
Sarah Rees, Ph.D.

Assistant Deputy Executive Officer
Planning, Rule Development and Implementation
Michael Krause

Planning and Rules Manager
Planning, Rule Development and Implementation
Barbara Radlein

| | | |
|---------------------|---|--|
| Author: | Jivar Afshar | Air Quality Specialist |
| Reviewed By: | Kevin Ni Sina Taghvaei, Ph.D. Heather Farr Josephine Lee Kathryn Roberts Barbara Baird | Program Supervisor, CEQA Air Quality Specialist Planning and Rules Manager Principal Deputy District Counsel Principal Deputy District Counsel Chief Deputy Counsel |

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD**

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Senator (Ret.)
Senate Rules Committee Appointee

Vice Chair: MICHAEL A. CACCIOTTI
Council Member, South Pasadena
Cities of Los Angeles County/Eastern Region

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V. MANUEL PEREZ
Supervisor, Fourth District
County of Riverside

NITHYA RAMAN
Councilmember, Fourth District
City of Los Angeles Representative

CARLOS RODRIGUEZ
Mayor Pro Tem, Yorba Linda
Cities of Orange County

VACANT
Governor's Appointee

EXECUTIVE OFFICER:

WAYNE NASTRI

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Attachment 1 to the Governing Board Resolution for:

**Final Subsequent Environmental Assessment for Proposed Amended Rule 1111 –
Reduction of NO_x Emissions from Natural Gas-Fired Furnaces, and Proposed Amended
Rule 1121 – Reduction of NO_x Emissions from Residential Type, Natural Gas-Fired Water
Heaters**

Findings, and Statement of Overriding Considerations

Introduction

California Environmental Quality Act Provisions Regarding Findings

Summary of the Proposed Project

**Potentially Significant Adverse Impacts That Cannot Be Reduced Below A
Significant Level**

Findings Regarding Potentially Significant Environmental Impacts

Statement of Overriding Considerations

Mitigation

Record of Proceedings

1.0 Introduction

Proposed Amended Rule (PAR) 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces, and PAR 1121 – Reduction of NO_x Emissions from Residential Type, Natural Gas-Fired Water Heaters, are considered a “project” as defined by the California Environmental Quality Act (CEQA). [Public Resources Code Section 21000 et seq.]. Specifically, CEQA requires: 1) the potential adverse environmental impacts of proposed project to be evaluated; and 2) feasible methods to reduce or avoid any identified significant adverse environmental impacts of this project to also be evaluated. Public Resources Code Section 21061.1 and CEQA Guidelines Section 15364 define “feasible” as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.”

Since the South Coast AQMD has developed PAR 1111 and PAR 1121, the South Coast AQMD has the greatest responsibility for carrying out or approving the project as a whole and as such, is the most appropriate public agency to act as lead agency. [Public Resources Code Section 21067 and CEQA Guidelines Section 15051(b)].¹

Rule 1111 regulates NO_x 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 NO_x 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 NO_x emission limit. All furnace types have transitioned to 14 ng/J, except for mobile home furnaces for which the existing mitigation fee alternative compliance option will end by September 30, 2025.

Rule 1121 regulates NO_x 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 NO_x 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 NO_x emission limit of 10 ng/J, except for mobile home water heaters that are subject to a NO_x emission limit of 40 ng/J.

PAR 1111 proposes to: 1) expand rule applicability to include previously unregulated wall furnaces and floor furnaces with a rated heat input capacity less than 175,000 British Thermal Units per hour (Btu/hr); 2) establish three categories for the applicable units, each with zero-NO_x emission limits for new installations based on future effective dates. PAR 1121 proposes to include zero-NO_x emission limits for new installations based on future effective dates. PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-NO_x emission compliance dates for units installed in new or existing buildings; 2) provide Zero-NO_x Manufacturer (ZEM) alternative compliance option that establishes compliance targets for the sale of NO_x-emitting and Zero-NO_x emission appliances; 3) introduce informative materials, labeling, recordkeeping, and reporting requirements; 4) provide an exemption from zero-NO_x emission requirements for mobile homes

¹ CEQA Guidelines refers to California Code of Regulations, Title 14, Section 15000 et seq.

in a master-metered mobile home park, existing homes, and units for new buildings with building permit issued prior to the date of rule adoption; and 5) update and clarify rule language. Replacements 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.

Space and water heating appliances for existing mobile homes and any mobile home in master-metered mobile home parks will be exempt from the zero-NOx emission standards, and mobile home appliances will transition to zero-NOx emission appliances in new mobile homes or when existing mobile homes are replaced with new mobile homes. Space and water heating appliances that will be installed or used in new buildings with building permit issued prior to the date of rule adoption are also exempted from zero-NOx emission standards. Downflow space heating furnaces for high-altitude installation are exempted from 14 ng/J NOx limit and zero-NOx emission standards.

A Zero-NOx Manufacturer (ZEM) alternative compliance option is provided that establishes compliance targets for the sale of NOx-emitting and Zero-NOx emission appliances. The targets change over time to transition the market to zero-NOx emission appliances. The ZEM alternative compliance option also includes fees for the sale of all NOx-emitting appliances, with higher fees for the NOx-emitting appliances sold over the NOx-emitting unit sales target. The fees increase annually to reflect the consumer price index after 2027.

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. Upon full implementation by 2061, incorporating the ZEM alternative compliance option, PAR 1111 will reduce NOx emissions by 4.05 tons per day (tpd), and PAR 1121 will reduce NOx emissions by 2.07 tpd.

The South Coast AQMD, as Lead Agency for the proposed project, prepared a Subsequent Environmental Assessment (SEA) with significant impacts to conduct an environmental review of PAR 1111 and PAR 1121 pursuant to CEQA Guidelines Section 15187. The SEA is a substitute CEQA document prepared in lieu of a Subsequent Environmental Impact Report (EIR) with significant impacts [CEQA Guidelines Section 15162], pursuant to the South Coast AQMD's Certified Regulatory Program [Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110]. Pursuant to CEQA Guidelines Sections 15152, 15162, 15168, and 15385, the SEA tiers off of and is a subsequent document to the Final Program Environmental Impact Report for 2022 AQMP which was certified on December 2, 2022 (referred to herein as the Final Program EIR for 2022 AQMP).

Because this is a subsequent document, the baseline is the project analyzed in the Final Program EIR for 2022 AQMP. The SEA was prepared because PAR 1111 and PAR 1121 contain new information of substantial importance which was not known and could not have been known at the time the Final Program EIR for 2022 AQMP was certified, and the project is expected to substantially increase the severity of the significant effects that were previously examined [CEQA Guidelines Section 15162(a)(3)(B)].

The goal of Control Measures R-CMB-01 and R-CMB-02 in the 2022 AQMP is to reduce NOx emissions from residential heating sources. These control measures committed to: 1) developing rules to require zero-NOx emission heating units for installations in both new and existing residential buildings; 2) allowing low NOx technologies as a transitional alternative when installing a zero-NOx emission unit is determined to be infeasible; and 3) providing incentive funds to facilitate the transition to zero-NOx emission technologies and promotion of further emission reductions earlier than required. The Final Program EIR for the 2022 AQMP determined that implementation of Control Measures R-CMB-01 and R-CMB-02 has the potential to generate significant 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-NOx 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, feasible 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 the application of mitigation measures. 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. A copy of the Findings, Statement of Overriding Considerations, and Mitigation Monitoring Plan previously adopted for the Final Program EIR for the 2022 AQMP is provided in Appendix A.

When comparing the types of activities and associated environmental impacts with implementing Control Measures R-CMB-01 and R-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 Measure R-CMB-02 was estimated to affect two million residential 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 more severe. Of these environmental topic areas identified as having secondary adverse environmental impacts, only the topics of air quality during construction, and energy associated with electricity and natural gas demand during operation would be potentially significant for PAR 1111 and PAR 1121.

The Final Program EIR for the 2022 AQMP, relative to the implementation of Control Measures R-CMB-01 and R-CMB-02, also concluded less than significant impacts to operational air quality, greenhouse gas emissions, noise, and solid and hazardous waste, and the analysis in the Final SEA confirms that these impacts will remain less than significant if PAR 1111 and PAR 1121 are implemented.

The Draft SEA was released and circulated for a 46-day public review and comment period from September 27, 2024 to November 12, 2024 and three comment letters were received during the comment period. None of the comment letters identified other potentially significant adverse impacts from the proposed project that should be analyzed and mitigated in the SEA. The comments and responses relative to the Draft SEA are included in Appendix B of the Final SEA.

In addition to incorporating the comment letters and the responses to comments, some modifications have been made to the Draft SEA to make it a Final SEA which include updates to reflect changes made to PAR 1111 and PAR 1121 after the public notice of availability of the Draft SEA. Of the modifications made to PAR 1111 and PAR 1121 after the release of the Draft SEA for public review and comment, none of the revisions constitute significant new information, because: 1) no new significant environmental impacts would result from the proposed project; 2) there is no substantial increase in the severity of an environmental impact; 3) no other feasible project alternative or mitigation measure was identified that would clearly lessen the environmental impacts of the project and was considerably different from others previously analyzed, and 4) the Draft SEA did not deprive the public from meaningful review and comment. In addition, revisions to PAR 1111 and PAR 1121 and the analysis in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft SEA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft SEA has been revised to include the aforementioned modifications such that it is now the Final SEA. The Final SEA will be presented to the Governing Board prior to its June 6, 2025 public hearing (see Attachment J of the Governing Board package).

When considering for approval a proposed project that has one or more significant adverse environmental effects, a public agency must make one or more written findings for each significant adverse effect, accompanied by a brief rationale for each finding [Public Resources Code Section 21081 and CEQA Guidelines Sections 15065 and 15091]. The analysis in the Final SEA concluded that the proposed project has the potential to generate significant adverse environmental impacts which are more severe than what was previously analyzed in the Final Program EIR for 2022

AQMP for: 1) air quality during construction; and 2) energy associated with electricity and natural gas demand during operation.

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

South Coast AQMD’s certified regulatory program does not impose any greater requirements for making written findings for significant environmental effects than is required for an EIR under CEQA. When a lead agency adopts measures to mitigate or avoid significant adverse environmental effects, a mitigation, monitoring and reporting plan is required pursuant to CEQA Guidelines Section 15097 and Public Resources Code Section 21081.6.

For PAR 1111 and PAR 1121, significant adverse impacts were identified such that alternatives and mitigation measures are required for project approval as set forth in CEQA Guidelines Section 15252(a)(2)(A). However, specific feasible mitigation measures in the previously adopted Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP have been identified in the Final SEA as being applicable to PAR 1111 and PAR 1121. In addition, no new feasible mitigation measures have been identified that would reduce or eliminate the significant adverse impacts to less than significant levels beyond the specified mitigation measures adopted in the Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP that were identified as being applicable to PAR 1111 and PAR 1121. Thus, the previously adopted Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP and these specified mitigation measures remain in effect and enforceable for PAR 1111 and PAR 1121 such that no new Mitigation, Monitoring, and Reporting Plan for PAR 1111 and PAR 1121 has been prepared or is required. The Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP is incorporated by reference and included in Appendix A of this document.

2.0 CEQA Provisions Regarding Findings

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

Relative to making Findings, CEQA Guidelines Section 15091 provides:

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

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

1. Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.
 2. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
 3. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.
- (b) The findings required by subdivision (a) shall be supported by substantial evidence in the record.
- (c) The finding in subdivision (a)(2) shall not be made if the agency making the finding has concurrent jurisdiction with another agency to deal with identified feasible mitigation measures or alternatives. The finding in subdivision (a)(3) shall describe the specific reasons for rejecting identified mitigation measures and project alternatives.
- (d) When making the findings required in subdivision (a)(1), the agency shall also adopt a program for reporting on or monitoring the changes which it has either required in the project or made a condition of approval to avoid or substantially lessen significant environmental effects. These measures must be fully enforceable through permit conditions, agreements, or other measures.
- (e) The public agency shall specify the location and custodian of the documents or other material which constitute the record of the proceedings upon which its decision is based.
- (f) A statement made pursuant to Section 15093 does not substitute for the findings required by this section.

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

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

3.0 Summary of the Proposed Project

The proposed project involves amendments to South Coast AQMD Rule 1111 and Rule 1121, which were originally adopted in December 1978 to reduce NO_x emissions from fan-type central furnaces and natural gas-fired residential water heaters, respectively. Rule 1111 has been amended nine times, with the most recent amendment occurring in September 2023, while Rule 1121 has been amended three times, with the latest revision in September 2004.

The proposed amendments, PAR 1111 and PAR 1121, were developed to implement Control Measures R-CMB-01 and R-CMB-02 of the 2022 AQMP. PAR 1111 proposes to: 1) expand rule applicability to include previously unregulated wall furnaces and floor furnaces with a rated heat input capacity less than 175,000 British Thermal Units per hour (Btu/hr); 2) establish three categories for the applicable units, each with zero-NO_x emission limits for new installations based on future effective dates. PAR 1121 proposes to include zero-NO_x emission limits for new installations based on future effective dates. PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-NO_x emission compliance dates for units installed in new or existing buildings; 2) provide Zero-NO_x Manufacturer (ZEM) alternative compliance option that establishes compliance targets for the sale of NO_x-emitting and Zero-NO_x emission appliances; 3) introduce informative materials, labeling, recordkeeping, and reporting requirements; 4) provide an exemption from zero-NO_x emission requirements for mobile homes in a master-metered mobile home park, existing homes, and units for new buildings with building permit issued prior to the date of rule adoption; and 5) update and clarify rule language. Replacements 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 by 2061, PAR 1111 and PAR 1121 are expected to reduce NO_x emissions by up to 4.05 tons per day, and 2.07 tons per day, respectively.

When comparing the type of physical activities and environmental impacts resulting from the implementation of Control Measures R-CMB-01 and R-CMB-02 that were previously analyzed in the Final Program EIR for the 2022 AQMP, to the currently proposed changes associated with the NO_x 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, due to the larger scope of the affected equipment under proposed project, the secondary adverse environmental impacts will be more significant and more severe than what was previously analyzed in the Final Program EIR for the 2022 AQMP. Specifically, Control Measure R-CMB-02 was estimated to affect two million residential space heaters, whereas PAR 1111 is expected to affect over five million space heaters. Similarly, Control Measure R-CMB-01 was estimated to affect two million residential water heaters, while PAR 1121 is projected to impact over five million water heaters. Consequently, the proposed project, PAR 1111 and PAR 1121, is expected to result in increased secondary adverse environmental impacts to the environmental topic areas of construction air quality and GHG emissions, operational air quality and GHG emissions from electricity production, increased electricity and natural gas demand, construction noise, and the generation of solid waste from the construction and disposal of old equipment.

Despite these increased impacts, the proposed project is expected to achieve significant environmental benefits. Upon full implementation by 2061, NOx emission reductions are expected from PAR 1111 and PAR 1121 by up to 4.05 tons per day and 2.07 tons per day, respectively.

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

The Final SEA for PAR 1111 and PAR 1121 identified the topics of air quality impacts during construction and energy impacts from electricity and natural gas demand as the areas in which the proposed project may make the significant adverse impacts previously analyzed in the Final Program EIR for 2022 AQMP more severe. The Final SEA for the proposed project did not identify any new significant impact areas.

A. Air Quality Impacts During Construction

The South Coast AQMD air quality significance thresholds for construction-related emissions are: 75 pounds per day of VOC; 100 pounds per day of NOx; 550 pounds per day of CO; 150 pounds per day of SOx; 150 pounds per day of PM10; and 55 pounds per day of PM2.5.

While the implementation of Control Measures R-CMB-01 and R-CMB-02 in PAR 1111 and PAR 1121 is expected to result in emission reductions of 6.12 tons per day of NOx, a direct air quality benefit, the required installation of zero-NOx emission heating units especially in larger residential buildings requiring electrical service upgrades could lead to construction-related emissions. For larger residential buildings, electrical service upgrades may require the use of construction equipment, such as backhoes, cranes, forklifts, concrete saws, or welders, depending on the existing infrastructure. In smaller residential settings, space expansions for units and service panel upgrades are typically accomplished with hand tools. In addition, while replacement of furnaces and water heaters will occur at the end of the current equipment's useful life, a number of replacements could occur prior to the end of useful life due to the availability of incentive funding.

For comparison, 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), 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. 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.

Similarly, as anticipated in the Final Program EIR for the 2022 AQMP, the implementation of

PAR 1111 and PAR 1121 for the majority of the affected equipment replacements is not expected to require construction equipment beyond hand tools for installing zero-NOx emission heaters in residences. However, if electrical service panel upgrades for larger residential buildings are necessary, construction equipment may be needed depending on 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 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 large residential buildings will involve more construction compared to a single-story building. Due to the highly variable conditions of different buildings, it is difficult to form a representative construction scenario. For these reasons, similar to the conclusions reached in the Final Program EIR for the 2022 AQMP, the Final SEA for PAR 1111 and PAR 1121 concluded significant adverse air quality impacts due to construction.

Therefore, air quality mitigation measures for project-specific construction impacts from the Final Program EIR for the 2022 AQMP, AQ-1 through AQ-26, have been identified in the Final SEA as being applicable to PAR 1111 and PAR 1121.

While implementation of these air quality mitigation measures would reduce construction emissions to the maximum extent feasible from construction equipment other than hand tools needed for equipment installations and electrical service panel upgrades at multi-story and large residential buildings, none of these mitigation measures will avoid the significant air quality impacts during construction or reduce the construction-related air quality impacts to less than significant levels. No other feasible mitigation measures have been identified that would reduce project-specific or cumulative construction air quality impacts to less than significant levels. Therefore, PAR 1111 and PAR 1121 is considered to have significant and unavoidable project-specific and cumulative air quality impacts during construction, after mitigation is applied.

B. Energy Impacts Due to Increased Electricity and Natural Gas Demand

Electricity Demand

Relative to energy demand, the “worst-case” scenario involves the simultaneous, concurrent replacement of all affected space and water heating units across residential buildings. This scenario assumes that all the units subject to PAR 1111 and PAR 1121 will be replaced at the same time, resulting in a peak electricity demand. Specifically, this would include the large-scale installation of zero-NOx emission heating units in both new and existing buildings, driving a significant increase in electricity consumption. For larger residential buildings, electrical service upgrades could require the use of construction equipment, such as backhoes, cranes, forklifts, concrete saws, or welders, depending on the existing infrastructure.

The Final Program EIR for the 2022 AQMP estimated potential electricity use associated with various equipment/source categories, such as residential water and space heating, where sufficient data was not available to make reasonable estimates. In that analysis, the California Energy Commission (CEC) reported that statewide electricity consumption exceeded 279,000 GWh in 2020, with approximately 118,200 GWh (42 percent) of that occurring in the South Coast Air Basin. The CEC projected an annual increase in electricity demand of about 1.6 percent through 2035, which would bring total statewide electricity use to about 354,000 GWh by 2035, with roughly 150,000 GWh (42 percent) in the South Coast Air Basin. The 2022 AQMP forecasted that implementation of all control measures would increase electricity demand by 13,429 GWh, or approximately 11 percent over 2020 consumption, by 2035. This increase did not account for additional electricity that may be needed to operate air pollution control equipment or convert combustion equipment to fully electric systems, meaning the overall increase could be higher.

By comparison, the analysis in the SEA for PAR 1111 and PAR 1121 projected a larger number of affected units than was originally estimated in the Final Program EIR for the 2022 AQMP for Control Measures R-CMB-01 and R-CMB-02 such that an increase in electricity demand was expected to be more severe than what was analyzed in the Final Program EIR for the 2022 AQMP.

PAR 1111 and PAR 1121 will require zero-NOx emission heating units for installations in new residences and zero-NOx and/or low NOx emission heating units in existing residences; the rules will affect 5,237,000 and 5,128,000 space and water heaters, respectively while Control Measures R-CMB-01 and R-CMB-02 were initially estimated to affect two million space heaters and two million water heaters, respectively.

While the number of affected units attributed to PAR 1111 and PAR 1121 is substantially larger when compared to what was previously estimated for Control Measures R-CMB-01 and R-CMB-02, PAR 1111 and PAR 1121 do not require the installation of 100 percent zero-NOx equipment. For context, the electricity demand for implementing Control Measures R-CMB-01 and R-CMB-02 was estimated in the Final Program EIR for the 2022 AQMP at 6,600 GWh/year while the electricity demand attributable to PAR 1111 and PAR 1121 would be 30,519 GWh/year.

After updating the total affected units from implementing PAR 1111 and PAR 1121, the total electricity demand from implementing all 2022 AQMP control measures combined will increase from the original baseline 13,429 GWh to 37,348 GWh. For context, the portion of the electricity increase attributable to Control Measures R-CMB-01 and R-CMB-02 in the 2022 AQMP was estimated at 6,660 GWh while the portion of the electricity increase attributable to PAR 1111 and PAR 1121 was estimated at 30,519 GWh. Thus, the electricity demand for PAR 1111 and PAR 1121 when compared to the initial estimates for Control Measures R-CMB-01 and R-CMB-02 in the Final Program EIR for the 2022 AQMP is much larger due to the higher number of affected units.

As a result, the electricity demand impacts from implementing PAR 1111 and PAR 1121 are expected to be potentially significant and more severe than what was initially projected for Control Measures R-CMB-01 and R-CMB-02 in the Final Program EIR for the 2022 AQMP.

Energy mitigation measures pertaining to electricity generation, referred to as E-1 to E-4, and E-7 in the Final Program EIR for the 2022 AQMP, were intended to be applied to electricity producers (e.g., utilities) and the projects that would be implemented to provide sufficient electricity in support of the 2022 AQMP Control Measures R-CMB-01 and R-CMB-02. The SEA for PAR 1111 and PAR 1121 also included these electricity-specific energy mitigation measures since the changes that utility providers may employ would help provide electricity for the operation of the zero-NOx units installed as a result of PAR 1111 and PAR 1121. Thus, for PAR 1111 and PAR 1121, electricity-specific energy mitigation measures E-1 to E-4, and E-7 will remain in effect and enforceable. [CEQA Guidelines Section 15168 (c)(3)].

While these mitigation measures are expected to reduce electricity demand impacts to the greatest extent feasible from modifications proposed by electricity providers in their efforts to produce more electricity to its customers' demands, the overall increase in electricity demand from the end-users needing the electricity to operate zero-NOx units as a result of implementing PAR 1111 and PAR 1121 is expected to remain significant and unavoidable even after mitigation is applied.

Natural Gas Demand

Relative to natural gas demand, natural gas is generally widely available within the South Coast Air Basin, and supplies are not expected to be limited if the proposed project is implemented. However, the shift to zero-NOx emission heating units under PAR 1111 and PAR 1121 will result in a decreased reliance on natural gas appliances for residential buildings. While this transition may reduce long-term natural gas consumption, the short-term impacts on natural gas demand are expected to be significant, especially during the installation phase when gas-powered appliances are still in use and electricity demand surges since natural gas is also utilized to produce electricity at the utilities.

In the short term, as the zero-NOx emission heating units are phased in, there will be increased electricity demand, which may lead to greater natural gas consumption for power generation, as electricity generation in the South Coast Basin still relies on natural gas plants to some extent. Additionally, the proposed project may involve the continued use of natural gas appliances in some existing buildings until all affected equipment is fully replaced with either zero-NOx or low-NOx emission alternatives. The combination of these factors is expected to result in significant adverse energy impacts related to natural gas demand during the transition period. Comparatively, the analysis in the Final Program EIR for the 2022 AQMP also acknowledged the potential for an increase in natural gas demand due to electricity generation and the transition from gas-powered to more efficient zero-NOx and low-NOx emission heating equipment. However, the 2022 AQMP analysis estimated that any increase in natural gas demand due to electricity generation could be somewhat offset by the reduced demand for natural gas in residential buildings over time as the switch to electric heating systems progresses.

However, implementation of PAR 1111 and PAR 1121 will have a longer transition period of replacing existing units which means that buildings will continue to use their existing natural gas appliances while the infrastructure to provide electricity to consumers with zero-NOx emission heating units is being updated to increase generation capacity. The SEA for PAR 1111 and PAR 1121 notes that the demand for natural gas is expected to remain high in the short-term due to the large number of existing space and water heaters that will continue to rely on natural gas until the

end of the equipment's useful life. In the event that existing units are replaced with low-NOx units, natural gas use will continue but the demand at individual residences will be less than the existing setting since low-NOx units will be more efficient than the older units being replaced. Nonetheless, the increased natural gas that may be needed by the utilities to generate sufficient electricity will exacerbate the natural gas demand at residences operating existing units or low-NOx units. As a result, the natural gas impacts from implementing PAR 1111 and PAR 1121 are expected to be potentially significant and more severe than what was initially projected for Control Measures R-CMB-01 and R-CMB-02 in the Final Program EIR for the 2022 AQMP.

Energy mitigation measures specific to natural gas, referred to as E-8 and E-9 in the Final Program EIR for the 2022 AQMP, were intended to be applied to electricity producers that utilize natural gas to generate electricity and the natural gas providers (e.g., utilities) and the projects that would be implemented that would utilize natural gas to generate the additional electricity needed to support of the 2022 AQMP Control Measures R-CMB-01 and R-CMB-02. The SEA for PAR 1111 and PAR 1121 also included these natural gas-specific energy mitigation measures in anticipation of the modifications that electricity producers and natural gas providers may employ to help provide increased supplies of electricity for the operation of zero-NOx and low-NOx units installed as a result of PAR 1111 and PAR 1121. Thus, for PAR 1111 and PAR 1121, the natural gas-specific energy mitigation measures E-8 and E-9 will remain in effect and enforceable. [CEQA Guidelines Section 15168 (c)(3)].

While these mitigation measures are expected to reduce the natural gas demand impacts to the greatest extent feasible from modifications proposed by either electricity providers in their efforts to produce more electricity to its customers' demands or by natural gas providers to supply sufficient quantities of natural gas, the overall increase in natural gas demand as a result of implementing PAR 1111 and PAR 1121 is expected to remain significant and unavoidable even after mitigation is applied.

5.0 Findings Regarding Potentially Significant Environmental Impacts

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

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

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

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

As identified in the Final SEA and summarized in Section 4.0 of this attachment, PAR 1111 and PAR 1121 have the potential to create significant adverse air quality impacts during construction and energy impacts due to increased electricity and natural gas demand. The South Coast AQMD Governing Board, therefore, makes the following findings regarding the proposed project. The Findings are supported by substantial evidence in the record as explained in each finding. These Findings will be included in the record of project approval and will also be noted in the Notice of Decision. The Findings made by the South Coast AQMD Governing Board are based on the following significant adverse impacts identified in the Final SEA for PAR 1111 and PAR 1121:

A. Potential project-specific and cumulative construction air quality impacts exceed the South Coast AQMD's applicable significance air quality thresholds and cannot be mitigated to less than significant levels.

Finding and Explanation:

When comparing the types of activities and environmental impacts resulting from the implementation of control measures that were previously analyzed in the Final Program EIR for 2022 AQMP, to the currently proposed project, 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.

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), the need for construction equipment was anticipated to be minimal due to the less extensive nature of the modifications required and space limitations. The Final Program EIR for the 2022 AQMP estimated construction emissions from a small construction project (one crane operating four hours and one backhoe operating eight hours per day) which showed that replacement of equipment in response to PAR 1111 and PAR 1121 would utilize minimal construction equipment and the associated emissions would not exceed the South Coast AQMD air quality significance thresholds for construction. Nonetheless, because modifications at an individual site could occur concurrently alongside other larger 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.

Similar to what was anticipated in the Final Program EIR for the 2022 AQMP regarding implementation of residential control measures, implementation of PAR 1111 and PAR 1121 is not expected require construction equipment beyond hand tools for installation of zero-NOx or low-NOx emission heaters in residences. Electrical service panel upgrades, 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 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. Large residential buildings will involve more construction compared to a single-story building. Due to the highly variable conditions of different buildings, it is difficult to form a representative construction scenario. Nonetheless, similar to the Final Program EIR for the 2022 AQMP, the Final SEA for PAR 1111 and PAR 1112 concluded significant adverse air quality impacts due to construction.

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, feasible mitigation measures that can substantially lessen the impacts were required and were included in the Final Program EIR for the 2022 AQMP. 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 apply to the proposed project. However, similar to the Final Program EIR for the 2022 AQMP, while implementation of these air quality mitigation measures would reduce construction emissions to the maximum extent feasible, they will neither avoid the significant air quality impacts during construction nor reduce the construction-related air quality impacts to less than significant levels. No additional feasible mitigation measures have been identified beyond those previously adopted in the Final Program EIR for the 2022 AQMP and the corresponding Mitigation, Monitoring and Reporting Plan for the 2022 AQMP. **Thus, Finding 1 is applicable to the significant adverse air quality impacts during construction.**

The Governing Board finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the project-level and cumulative significant adverse construction air quality impacts identified in the Final SEA, though the impacts will ultimately remain significant and unavoidable. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

Implementation of all mitigation measures specific to construction air quality which are identified in the Final SEA may be within the authority of either the South Coast AQMD or other public agencies, as applicable if air permits are not required, to adopt or implement, depending on the individual facility projects that will occur in the future. **Thus, Finding 2 is applicable to the construction air quality mitigation measures.**

The Governing Board finds that, for project-level activities that do not require air permits from the South Coast AQMD, changes or alterations which avoid or

substantially lessen the significant construction air quality impacts as identified in the Final PEA are within the responsibility and jurisdiction of another public agency and not South Coast AQMD. Such changes, if feasible, can and should be adopted by such other agency as details of project-level actions become known. [Public Resources Code Section 21081(a)(2) and CEQA Guidelines Section 15091(a)(2)].

The construction air quality mitigation measures identified in the Final SEA are feasible. As such, there are no specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures identified in the Final SEA. **Thus, Finding 3 is not applicable to the construction air quality mitigation measures.** [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

B. Potential project-specific and cumulative energy impacts from increased electricity demand exceed the South Coast AQMD significance threshold for electricity; impacts from increased natural gas demand are expected to be significant in the short-term; and energy impacts from increased demand for electricity and natural gas cannot be mitigated to less than significant levels.

Findings and Explanation:

PAR 1111 and PAR 1121 are implementing Control Measures R-CMB-01 and R-CMB-02 from the 2022 AQMP and rely on the deployment of zero-NOx and low-NOx technologies to be utilized in residential settings. The Final Program EIR for 2022 AQMP estimated that implementation of all control measures would increase the electricity demand by 11 percent over 2020 consumption and nine percent over the CEC projected growth. However, the analysis in the Final SEA for PAR 1111 and PAR 1121 concluded that implementation of Control Measures R-CMB-01 and R-CMB-02 could increase the electricity demand originally projected in the Final Program EIR for the 2022 AQMP by approximately 31.6 percent over 2020 consumption and 30.3 percent over 2022 consumption (greater than the South Coast AQMD significance threshold of one percent).

Natural gas is generally widely available through existing infrastructure and expected to be used for producing electricity and hydrogen. Short-term natural gas demand is expected to be significant, although its use may be offset by a long-term decrease in overall demand for natural gas appliances in residential settings. Therefore, increases in electricity, and natural gas demand were concluded in the Final Program EIR for the 2022 AQMP to have potentially significant adverse energy impacts. Due to the potential for significant adverse energy impacts, feasible mitigation measures that can substantially lessen the impacts were required and were adopted in the Final Program EIR for the 2022 AQMP. However, none of the feasible mitigation measures were capable of avoiding or reducing the significant adverse energy impacts to less than significant levels.

The Final SEA concluded that the implementation of PAR 1111 and PAR 1121 will result in similar impacts as would occur for implementing control measures R-CMB-01 and R-CMB-02 of the 2022 AQMP. In addition, the mitigation measures E-1 to E-4, and E-7 specific to electricity providers and mitigation measures E-8 and E-9 specific to natural gas providers that were adopted in the Final Program EIR for the 2022 AQMP were determined

to be applicable to the proposed project. However, similar to the Final Program EIR for the 2022 AQMP, none of these feasible mitigation measures are capable of avoiding or reducing the significant adverse energy impacts from increased electricity and natural gas demand to less than significant levels. No additional feasible mitigation measures have been identified beyond those previously adopted in the Final Program EIR for the 2022 AQMP and the corresponding Mitigation, Monitoring and Reporting Plan for the 2022 AQMP. **Thus, Finding 1 is applicable to the significant adverse energy impacts.**

The Governing Board finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the project-level and cumulative significant adverse energy impacts identified in the Final SEA, though the impacts will ultimately remain significant and unavoidable. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

Implementation of these aforementioned mitigation measures for energy which are identified in the Final SEA may be within the authority of either the South Coast AQMD or other public agencies, as applicable if air permits are not required, to adopt or implement, depending on the individual facility projects that will occur in the future. **Thus, Finding 2 is applicable to the energy mitigation measures.**

The Governing Board finds that changes or alterations which avoid or substantially lessen the significant energy impacts as identified in the Final SEA are within the responsibility and jurisdiction of another public agency and not South Coast AQMD. Such changes, if feasible, can and should be adopted by such other agency as details of project-level actions become known. [Public Resources Code Section 21081(a)(2) and CEQA Guidelines Section 15091(a)(2)].

The energy mitigation measures identified in the Final SEA are feasible. As such, there are no specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures identified in the Final SEA. **Thus, Finding 3 is not applicable to the energy mitigation measures.** [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

5.1 Findings For Alternatives to the Proposed Project

A. Alternative A: No Project

Finding and Explanation:

The Final SEA analyzes a No Project Alternative, referred to as Alternative A, which contemplates a scenario where the proposed project is not approved or adopted. Under Alternative A, both new and existing residential fan-type central furnaces, mobile home furnaces, and 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 would need to comply with the September 2004 version of Rule 1121. Currently, all furnaces subject to Rule 1111 meet the NOx emission limit of 14 nanograms per Joule (ng/J), except for mobile home furnaces which have a mitigation fee alternative

compliance option that will end on 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 NOx emission limit of 40 ng/J.

Under Alternative A, while existing furnaces and water heaters would continue to comply with these older, less stringent NOx emission standards, the failure to adopt PAR 1111 and PAR 1121 would prevent achieving NOx emission reductions that are required by the 2022 AQMP in order to reach attainment with the National Ambient Air Quality Standards for ozone, for which NOx is a precursor. The continuation of the existing NOx emission levels would prevent making any progress toward achieving the federal air quality standards. Alternative A 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-NOx and low-NOx emission technologies.

In terms of air quality, the No Project Alternative would not result in any reductions of NOx emissions from residential water heaters. These water heaters, which continue to rely on natural gas combustion, would continue to generate NOx emissions that contribute to air pollution. The NOx emission reductions from the proposed project would not occur, and the associated co-benefits related to greenhouse gas (GHG) reductions would also be lost. This would mean that current adverse air quality impacts would persist, with no reductions in combustion emissions.

Furthermore, under Alternative A, no additional construction-related air quality impacts would occur since no new installations of zero-NOx emission technologies would be required. As a result, the air quality impacts associated with construction under the proposed project, such as emissions from construction equipment, would be avoided. However, the existing, long-term adverse air quality impacts would remain unchanged and ongoing, as the continued use of gas-fired space and water heaters would not lead to the desired improvements in air quality.

Regarding energy use, the No Project Alternative would result in the continuation of existing energy consumption patterns. The current use of gas-fired space and water heaters would persist, meaning no reduction in natural gas consumption would occur over the long term. The implementation of zero-NOx and low-NOx emission technologies in the proposed project would have led to energy savings and a shift away from a dominant reliance on natural gas use in residential settings. In contrast, under Alternative A, the demand for energy, particularly natural gas, would remain the same, as would the associated GHG emissions from these energy sources.

Additionally, the No Project Alternative would not contribute to meeting California's energy efficiency goals or the objectives of the 2022 AQMP, which seeks to transition to zero-emission technologies and reduce reliance on fossil fuels. The continuation of the use of gas-fired heaters would delay the achievement of the state's air quality and energy efficiency goals, particularly those related to NOx emissions and the reduction of GHGs.

Furthermore, the No Project Alternative is infeasible because it neither meets the objectives of the proposed project nor takes into consideration the 2022 AQMP's objective to meet

the 2015 federal ozone standard through further NO_x emission reductions by transitioning to zero-emission technologies wherever feasible. In comparison to the Proposed Project, Alternative A would not achieve any of the projected NO_x emission reductions, which are anticipated to be up to 6.12 tpd by 2061. The No Project Alternative would also fail to reduce electricity and natural gas demand as proposed, which would result in a missed opportunity to transition to cleaner energy sources and improve energy efficiency. Hence, Alternative A would also not meet the objectives of transitioning to zero-NO_x or low-NO_x emission technologies as outlined in the proposed project.

Based on proceeding discussion, Alternative A is not environmentally superior to the proposed project. Because Alternative A is not environmentally superior to PAR 1111 and PAR 112 and does not achieve the basic project objectives, the Governing Board finds that the No Project Alternative is infeasible. [Public Resources Code 21081(a)(3); *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 1000- 1001 (upholding finding of infeasibility where agency determined alternative failed to achieve the project objectives)].

B. Alternative B: More Stringent Than The Proposed Project

Finding and Explanation:

1. The Final SEA analyzes Alternative B, which is more stringent than PAR 1111 and PAR 1121. 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 NO_x 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-NO_x emission equipment a year sooner and existing buildings would feature zero-NO_x 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.

Alternative B proposes earlier effective dates for installation of zero-NO_x 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-NO_x emission heater replacement. Alternative B is anticipated to achieve substantial NO_x 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. Under Alternative B 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-NO_x 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.

Of the alternatives analyzed, Alternative B will achieve greater NOx emission reductions sooner since all equipment in existing buildings would be required to be replaced by the compliance dates specified per category. Thus, Alternative B was chosen as the lowest toxic alternative. In addition, 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, substantial 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.

The Governing Board finds that there are no feasible mitigation measures that would eliminate or reduce the project-level or cumulative significant adverse construction air quality impacts and increase in energy demands for electricity and natural gas to less than significant levels, if Alternative B is implemented. As such, the Governing Board finds that Alternative B will not avoid or substantially lessen the significant construction air quality impacts and increase in energy demands for electricity and natural gas as identified in the Final SEA. [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)]. However, Alternative B will achieve greater NOx emission reductions sooner since all equipment in existing buildings would be required to be replaced by the compliance dates specified per category.

C. Alternative C: Less Stringent Than The Proposed Project

Finding and Explanation:

Alternative C proposes a less stringent approach compared to the proposed project by adjusting the requirements in PAR 1111 and PAR 1121, increasing allowable NOx emission limits, and offering more flexibility for compliance. Under this alternative, equipment installed in new buildings would still meet the NOx emission limits as outlined in the proposed project. However, for existing buildings, equipment replacement would include both zero-NOx emission heaters and low-NOx heaters, with 50 percent of replacements being zero-NOx emission and 50 percent low-NOx. This approach aligns with assumptions in the 2022 AQMP and is expected to reduce NOx emissions to a lesser extent than Alternatives B and D, which mandate only zero-NOx emission technologies.

Regarding air quality impacts, Alternative C may result in fewer NOx emission reductions compared to the proposed project and Alternatives B and D, which mandate only zero-NOx emission technologies. However, it will still provide co-benefits by reducing operational GHG emissions, though to a lesser extent. Since Alternative C does not introduce additional construction activities beyond those in the proposed project, construction-related air quality impacts are expected to remain significant, similar to those of the proposed project.

Under Alternative C, energy demand is expected to increase, but to a lesser extent than the proposed project, as most low-NOx technologies predominantly rely on natural gas, though they are more efficient than the equipment being replaced. The shift to zero-NOx emission technologies will be smaller, resulting in a less consumption of natural gas and electricity when consumption compared to the proposed project and Alternative B. While this alternative allows for some reduction in NOx emissions, the slower transition to zero-NOx emission technologies limits the long-term benefits in energy savings. The mix of low-NOx and zero-NOx emission technologies means that the potential for energy efficiency improvements will not be fully realized. Additionally, the increased reliance on low-NOx appliances will result in continued demand for natural gas, although at a reduced level. While Alternative C will increase electricity demand for the portion of equipment replaced by zero-NOx emission technologies, but the overall impact on energy usage will be less pronounced than for the proposed project due to the continued use of low-NOx appliances alongside zero-NOx emission technologies. Nonetheless, significant impacts on operational electricity demand are anticipated, and since Alternative C does not alter the compliance deadlines, it will also have substantial impacts on the demand for electricity and natural gas needed to generate electricity until renewable energy resources are available to meet the demand.

While Alternative C offers a reduction in NOx emissions, the slower transition to zero-NOx emission technologies, combined with the continued reliance on low-NOx appliances, limits the full potential for achieving long-term improvements in air quality and energy efficiency when compared to the proposed project. This alternative does not align with the state's targets for reducing GHG emissions and the reliance on fossil fuels, as outlined in the 2022 AQMP. Additionally, the continued use of gas-fired appliances in many existing buildings would delay the transition to zero-NOx emission technologies, thereby hindering progress toward meeting federal air quality standards. Furthermore, the mixed approach of combining low-NOx with zero-NOx emission technologies does not achieve the same level of energy savings or NOx emission reductions as the proposed project, making it less effective in addressing the urgent need for comprehensive air quality improvements and a shift to cleaner energy sources.

The Governing Board finds that there are no feasible mitigation measures that would eliminate or reduce the project-level or cumulative significant adverse construction air quality impacts and increase in energy demands for electricity and natural gas, if Alternative C is implemented. As such, the Governing Board finds that Alternative C will not avoid or substantially lessen the significant construction air quality impacts and increase in energy demands for electricity and natural gas as identified in the Final SEA. [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

D. Alternative D: Additional Incentive Funding

Finding and Explanation:

Alternative D proposes the same compliance deadlines for the installation of zero-NOx emission technologies as the proposed project (PAR 1111 and PAR 1121) but introduces additional incentive funding. This 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.

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

The incentive funding will have the potential to increase the rate of replacing equipment with zero-NO_x emission technologies earlier than the 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-NO_x 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-NO_x 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 gas demand.

Furthermore, the acceleration of installations in the short-term could create substantial impacts on both energy demand and construction-related air quality impacts, which would not be fully mitigated by the incentive funding. The increase in energy demand during this accelerated transition may further strain existing infrastructure, particularly if renewable energy sources are not yet available in sufficient quantities to meet the growing electricity demand. Additionally, the existing air quality setting could be exacerbated by increased emissions from additional construction activities that would result from the faster replacement of units, further compounding the overall adverse air quality impacts.

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

5.2 Conclusion of Findings

The Governing Board makes the following findings:

- 1) The feasible mitigation measures identified to minimize the potentially significant adverse impacts related to the environmental topics of air quality during construction (e.g., mitigation measures AQ-1 through AQ-26) and energy due to increase in electricity (e.g., mitigation measures E-1 to E-4 and E-7) and natural gas demand (e.g., mitigation measures E-8 and E-9), which were adopted by the South Coast AQMD Governing Board at its December 2, 2022, public hearing for the project analyzed in the Final Program EIR for the 2022 AQMP, also apply to PAR 1111 and PAR 1121 as analyzed in the Final SEA. Thus, mitigation measures AQ-1 through AQ-26, E-1 to E-4, and E-7 to E-9 and the corresponding Mitigation, Monitoring and Reporting Plan for the 2022 AQMP will remain in effect and enforceable. [CEQA Guidelines Section 15168 (c)(3)].
- 2) No additional feasible mitigation measures have been identified in the Final SEA that would eliminate or reduce the project-level or cumulative significant adverse air quality impacts during construction, and energy impacts due to increase in electricity and natural gas demand. However, 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.
- 3) Alternative A, the No Project alternative, is infeasible because it would continue to contribute to the health risks associated with NO_x emissions, neither meeting the objectives of the proposed project nor aligning with the 2022 AQMP's goals of transitioning to zero-emission technologies. Because Alternative A is not environmentally superior to PAR 1111 and PAR 1121 and does not achieve the basic project objectives, the Governing Board finds that the No Project Alternative is infeasible. [Public Resources Code 21081(a)(3); *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 1000-1001 (upholding finding of infeasibility where agency determined alternative failed to achieve project objectives)].
- 4) For Alternatives C and D, the Governing Board finds that there are no feasible mitigation measures that would eliminate or reduce the project-level or cumulative significant adverse air quality impacts during construction, and energy due to increase in electricity and natural gas demand to less than significant levels. As such, the Governing Board finds that neither Alternative C nor Alternative D will avoid or substantially lessen the significant air quality during construction and energy due to increase in electricity and natural gas demand impacts as identified in the Final SEA. [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].
- 5) Alternative B was identified in the Final SEA as the environmentally superior alternative. However, the Governing Board finds that there are no feasible mitigation measures that would eliminate or reduce the project-level or cumulative significant adverse air quality impacts during construction, and energy due to increase in electricity and natural gas demand to less than significant levels when meeting the proposed NO_x emission limits. Therefore, Alternative B will not avoid or substantially lessen the significant air quality impacts during construction, and energy impacts due to increase in electricity and natural

gas demand identified in the Final SEA. [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." [Public Resources Code Section 21061.1].

The Governing Board further finds that the Final SEA considered alternatives pursuant to CEQA Guidelines Section 15126.6, but there is no alternative to the proposed project that would reduce to insignificant levels the significant impacts to the topics of air quality during construction, and energy due to increased electricity and natural gas demand identified for PAR 1111 and PAR 1121.

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

6.0 Statement of Overriding Considerations

If significant adverse impacts of a proposed project remain after incorporating mitigation measures, or no measures or alternatives to mitigate the adverse impacts are identified, the lead agency must make a determination that the benefits of the project outweigh the unavoidable adverse environmental effects if it is to approve the project. CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve the project. [CEQA Guidelines Section 15093(a)]. If the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable" [CEQA Guidelines Section 15093(a)]. Accordingly, a Statement of Overriding Considerations regarding potentially significant adverse impacts to air quality during construction, and energy impacts due to increased electricity and natural gas demands resulting from PAR 1111 and PAR 1121 has been prepared. This Statement of Overriding Considerations is included as part of the record of the project approval for PAR 1111 and PAR 1121. Pursuant to CEQA Guidelines Section 15093(c), the Statement of Overriding Considerations will also be noted in the Notice of Decision for PAR 1111 and PAR 1121.

Despite the inability to incorporate changes into PAR 1111 and PAR 1121 that will mitigate potentially significant adverse impacts to air quality during construction, and energy impacts due to increase electricity and natural gas demands to a level of insignificance when meeting the proposed NO_x emission limits, the South Coast AQMD Governing Board finds that the following benefits and considerations outweigh the significant unavoidable adverse environmental impacts:

1. The analysis of potential adverse environmental impacts incorporates a "worst-case" approach. This entails the premise that whenever the analysis requires that assumptions be made, those assumptions that result in the greatest adverse impacts are typically chosen. This method likely overestimates the actual adverse environmental impacts from PAR 1111 and PAR 1121.

2. The 2022 AQMP identifies ambient air pollutant levels relative to federal and state ambient air quality standards (AAQS), establishes baseline and future emissions, and develops control measures to ensure attainment of the AAQS. Construction is a continuous activity within South Coast AQMD's jurisdiction which has been previously addressed in the 2022 AQMP. Thus, any changes in air quality as a result of construction emissions from the proposed project are accounted for in the 2022 AQMP and would not be expected to interfere with the attainment demonstrations.
3. The proposed project supports the implementation of 2022 AQMP control measure R-CMB-01 – Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Water Heating, and R-CMB-02– Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Space Heating, committed to: 1) developing rules to require zero-NOx emission heating units for installations in both new and existing residential buildings; 2) allowing low-NOx technologies as a transitional alternative when installing a zero-NOx emission unit is determined to be infeasible; and 3) providing incentive funds to facilitate the transition to zero-NOx emission technologies and promote further NOx emission reductions earlier than required.
4. The Final SEA considered alternatives pursuant to CEQA Guidelines Section 15126.6, but there is no alternative to the proposed project, other than Alternative A: No Project Alternative, that would reduce the significant impacts of environmental topic areas of air quality during construction, and energy due to increase in electricity and natural gas demand to less than significant levels. However, Alternative A is not a legally viable alternative and was rejected as infeasible because it continues to maintain existing adverse air quality impacts and fails to meet the goals of the 2022 AQMP. [Public Resources Code 21081(a)(3) and CEQA Guidelines Section 15091(a)(3); *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 1000- 1001 (upholding finding of infeasibility where agency determined alternative failed to achieve project objectives)].
5. Alternatives B, C and D were crafted to have varying parameters when compared to the proposed project in an attempt to lessen or eliminate the potentially significant impacts to air quality during construction, and energy from increased demand for electricity and natural gas while satisfying the project objectives. Nonetheless, the analysis in the Final SEA concluded that Alternatives B, C and D would not be able to avoid or substantially lessen the significant air quality during construction and energy due to increase in electricity and natural gas demand impacts even after the project parameters were modified.
6. Although the proposed project will not incrementally achieve NOx emission reductions the quickest as compared to the more stringent alternative, it is considered to provide the best balance between achieving NOx emission reductions, the practicability and reasonableness of implementation, and the adverse air quality impacts due to construction and energy impacts due to electricity and natural gas demand while meeting the overall project objectives.
7. Implementing the proposed project will result in an overall net reduction of NOx emissions by 4.05 tons per day for PAR 1111 and by 2.07 tons per day for PAR 1121 by 2061.

Therefore, cumulative air quality impacts from the proposed project and all other AQMP control measures when considered together, are not expected to be significant because implementation of all AQMP control measures, and in particular, this project, is expected to result in net NO_x emission reductions and overall air quality improvement over the long-term.

The South Coast AQMD Governing Board finds that the above-described considerations outweigh the unavoidable significant effects to the environment as a result of PAR 1111 and PAR 1121.

7.0 Mitigation

For PAR 1111 and PAR 1121, significant adverse impacts were identified such that alternatives and mitigation measures are required for project approval as set forth in CEQA Guidelines Section 15252(a)(2)(A). However, specific feasible mitigation measures in the previously adopted Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP have been identified in the Final SEA as being applicable to PAR 1111 and PAR 1121. In particular, feasible mitigation measures were identified to minimize the potentially significant adverse impacts related to the environmental topics of air quality during construction (e.g., mitigation measures AQ-1 through AQ-26) and energy due to increase in electricity (e.g., mitigation measures E-1 to E-4 and E-7) and natural gas demand (e.g., mitigation measures E-8 and E-9). These aforementioned mitigation measures, as adopted by the South Coast AQMD Governing Board at its December 2, 2022, public hearing for the project analyzed in the Final Program EIR for the 2022 AQMP, also apply to PAR 1111 and PAR 1121 as analyzed in the Final SEA. Thus, mitigation measures AQ-1 through AQ-26, E-1 to E-4, and E-7 to E-9 and the corresponding components of the Mitigation, Monitoring and Reporting Plan for the 2022 AQMP applicable to these aforementioned mitigation measures will remain in effect and enforceable. [CEQA Guidelines Section 15168 (c)(3)].

In addition, no new feasible mitigation measures have been identified that would reduce or eliminate the significant adverse impacts to less than significant levels beyond the specified mitigation measures adopted in the Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP that were identified as being applicable to PAR 1111 and PAR 1121. Thus, the previously adopted Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP and these specified mitigation measures remain in effect and enforceable for PAR 1111 and PAR 1121 such that no new Mitigation, Monitoring, and Reporting Plan for PAR 1111 and PAR 1121 has been prepared or is required. The Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP is incorporated by reference and included in Appendix A of this document.

8.0 Record of Proceedings

For purposes of CEQA, including the Findings and Statement of Overriding Considerations for PAR 1111 and PAR 1121, and the Mitigation, Monitoring and Reporting Plan for the 2022 AQMP, the Record of Proceedings for the proposed project consists of the following documents and other evidence, at a minimum:

- The Final SEA for PAR 1111 and PAR 1121, including appendices and technical studies included or referenced in the Final SEA, and all other public notices issued by South Coast AQMD for the Final SEA.

- The Draft SEA for the proposed project including appendices and technical studies included or referenced in the Draft SEA, and all other public notices issued by South Coast AQMD for the Draft SEA.
- The Preliminary Draft, Draft and Final versions of the rule language and associated staff report.
- The Draft and Final versions of the Socioeconomic Impact Assessment.
- All written and verbal public testimony presented during a noticed public hearing for PAR 1111 and PAR 1121.
- All documents, studies, CEQA documents including but not limited to the the Final Program EIR for the 2022 AQMP and the Mitigation, Monitoring and Reporting Plan for the 2022 AQMP, or other materials incorporated by reference and tiered-off in the Draft SEA and Final SEA.
- The Resolution adopted by South Coast AQMD in connection with the proposed project, and all documents incorporated by reference therein, including comments received after the close of the public review and comment period and responses thereto.
- Matters of common knowledge to South Coast AQMD, including but not limited to federal, state, and local laws and regulations.
- Any documents expressly cited in the Findings and Statement of Overriding Considerations.
- Any other relevant materials required to be in the record of proceedings by Public Resources Code Section 21167.6(e).
- The Notice of Decision, prepared in compliance with Public Resources Code Section 21080.5(d)(2)(E), CEQA Guidelines Section 15252(b), and South Coast AQMD Rule 110(f), if the Governing Board certifies the Final SEA and approves PAR 1111 and PAR 1121.

To comply with CEQA Guidelines Section 15091(e), the South Coast AQMD specifies the Deputy Executive Officer of the Planning, Rule Development, and Implementation Division as the custodian of the administrative record for PAR 1111 and PAR 1121, which includes the documents or other materials which constitute the record of proceedings upon which the South Coast AQMD's actions related to the proposed project is based, and which are located at the South Coast AQMD headquarters, 21865 Copley Drive, Diamond Bar, California 91765. Copies of these documents, which constitute the record of proceedings, are and at all relevant times have been and will be available upon request. This information is provided in accordance with Public Resources Code Section 21081.6(a)(2) and CEQA Guidelines Section 15091(e).

APPENDIX A

FINDINGS, STATEMENT OF OVERRIDING CONSIDERATIONS, AND MITIGATION, MONITORING, AND REPORTING PLAN FOR 2022 AQMP

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

**Attachment 1 to the Governing Board Resolution for:
Final Program Environmental Impact Report (EIR) for the 2022 Air Quality
Management Plan (AQMP)**

**Findings, Statement of Overriding Considerations, and Mitigation,
Monitoring, and Reporting Plan**

State Clearinghouse No: 2022050287

November 2022

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**ATTACHMENT 1 TO THE GOVERNING BOARD RESOLUTION FOR:
FINAL PROGRAM ENVIRONMENTAL IMPACT REPORT (EIR) FOR
THE 2022 AIR QUALITY MANAGEMENT PLAN (AQMP)**

**FINDINGS, STATEMENT OF OVERRIDING CONSIDERATIONS, AND
MITIGATION, MONITORING, AND REPORTING PLAN**

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Statement of Overriding Considerations

Mitigation, Monitoring, and Reporting Plan

Record of Proceedings

1.0 INTRODUCTION

The 2022 Air Quality Management Plan (AQMP) is considered a “project” as defined by the California Environmental Quality Act (CEQA). [Public Resources Code Section 21000 et seq.]. Specifically, CEQA requires: 1) the potential adverse environmental impacts of proposed projects to be evaluated; and 2) feasible methods to reduce or avoid any identified significant adverse environmental impacts of these projects to also be evaluated. CEQA Guidelines Section 15364 defines “feasible” as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.”

The 2022 AQMP is the planning document that sets forth policies and measures to achieve federal and state air quality standards in the region. Specifically, the 2022 AQMP is comprised of an assortment of control measures and strategies designed to bring the region into attainment with the federal 2015 8-hour ozone standard of 70 parts per billion (ppb) by 2037 for the South Coast Air Basin (Basin) and the Coachella Valley. The 2022 AQMP control measures and strategies were developed to achieve this National Ambient Air Quality Standard (NAAQS) by focusing on reducing emissions of nitrogen oxides (NOx) and volatile organic compounds (VOC), which are precursors to the formation of ozone, and other air pollutants. The 2022 AQMP is comprised of control measures which address stationary point and area sources and mobile sources. As such, the South Coast Air Quality Management District (South Coast AQMD) has the greatest responsibility for carrying out or approving the project as a whole, which may have a significant effect upon the environment, and is the most appropriate public agency to act as lead agency. [Public Resources Code Section 21067 and CEQA Guidelines Section 15051(b)].¹

To fulfill the purpose and intent of CEQA, the South Coast AQMD, as lead agency, has prepared a Program Environmental Impact Report (EIR) to address the potential environmental impacts associated with the proposed 2022 AQMP. The purpose of the Program EIR is to describe the proposed project and to identify, analyze, and evaluate any potentially significant adverse environmental impacts that may result from adopting and implementing the proposed 2022 AQMP.

The proposed project is estimated to reduce NOx emissions by approximately 124 tons per day beyond implementation of existing regulations. The analysis in the Draft Program EIR concluded that impacts to the following environmental topic areas would be significant: 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 or liquified natural gas; 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. No other significant adverse impacts were identified. Where feasible, mitigation measures were identified to mitigate or lessen to the maximum extent feasible the potentially significant adverse impacts. However, even after all feasible mitigation measures are implemented, impacts to all of these environmental topic areas would remain significant and unavoidable.

¹ CEQA Guidelines refers to California Code of Regulations, Title 14, Section 15000 et seq.

The Draft Program EIR was circulated for a 46-day public review and comment period from September 16, 2022 to November 1, 2022 and six comment letters were received. None of the comment letters identified other potentially significant adverse impacts from the proposed project that should be analyzed and mitigated in the Program EIR. The comments and responses relative to the Draft Program EIR are included in Appendix C of the Final Program EIR.

In addition to incorporating the comment letters and the responses to comments, some modifications have been made to the Draft Program EIR to make it a Final EIR. South Coast AQMD staff evaluated the modifications made to the proposed project after the release of the Draft Program EIR for public review and comment and concluded that none of the revisions constitute significant new information, because: 1) no new significant environmental impacts would result from the proposed project; 2) there is no substantial increase in the severity of an environmental impact; 3) no other feasible project alternative or mitigation measure was identified that would clearly lessen the environmental impacts of the project and was considerably different from others previously analyzed; and 4) the Draft Program EIR did not deprive the public from meaningful review and comment. In addition, revisions to the proposed project and analysis in response to verbal or written comments during the plan development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft Program EIR pursuant to CEQA Guidelines Section 15088.5. Therefore, the Draft Program EIR has been revised to include the aforementioned modifications such that it is now the Final Program EIR. The Final Program EIR will be presented to the Governing Board prior to its December 2, 2022 public hearing (see Attachment E of the Governing Board package).

When considering for approval a proposed project that has one or more significant adverse environmental effects, a public agency must make one or more written findings for each significant adverse effect, accompanied by a brief rationale for each finding. [Public Resources Code Section 21081 and CEQA Guidelines Sections 15065 and 15091].

In addition, for a proposed project with significant adverse environmental impacts, CEQA requires the lead agency to balance the economic, legal, social, technological, or other benefits of a proposed project against its significant unavoidable environmental impacts when determining whether to approve the proposed project. Under CEQA Guidelines Section 15093(a), “If the specific economic, legal, social, technological, or other benefits of a project outweigh the unavoidable significant adverse environmental effects, the adverse environmental effects may be considered ‘acceptable.’” Thus, in addition to making Findings, the lead agency must also adopt a “Statement of Overriding Considerations” to approve a proposed project with significant adverse environmental effects.

When a lead agency adopts measures to mitigate or avoid significant adverse environmental effects, a mitigation, monitoring, and reporting plan is required pursuant to CEQA Guidelines Section 15097 and Public Resources Code Section 21081.6. The Final Program EIR identified CEQA mitigation measures within the authority of South Coast AQMD or other agencies and utilities, as applicable to adopt or implement.

In light of these aforementioned CEQA requirements, this document includes Findings, a Statement of Overriding Considerations, and a Mitigation, Monitoring, and Reporting Plan.

2.0 CALIFORNIA ENVIRONMENTAL QUALITY ACT PROVISIONS REGARDING FINDINGS

CEQA generally requires agencies to make certain written findings before approving a proposed project with significant environmental impacts. Relative to making Findings, CEQA Guidelines Section 15091 provides:

- (a) No public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. The possible findings are:
 - 1. Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.
 - 2. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
 - 3. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.
- (b) The findings required by subsection (a) shall be supported by substantial evidence in the record.
- (c) The finding in subdivision (a)(2) shall not be made if the agency making the finding has concurrent jurisdiction with another agency to deal with identified feasible mitigation measures or alternatives. The finding in subsection (a)(3) shall describe the specific reasons for rejecting identified mitigation measures and project alternatives.
- (d) When making the findings required in subdivision (a)(1), the agency shall also adopt a program for reporting on or monitoring the changes which it has either required in the project or made a condition of approval to avoid or substantially lessen significant environmental effects. These measures must be fully enforceable through permit conditions, agreements, or other measures.
- (e) The public agency shall specify the location and custodian of the documents or other material which constitute the record of the proceedings upon which its decision is based.
- (f) A statement made pursuant to Section 15093 does not substitute for the findings required by this section.

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

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

3.0 SUMMARY OF THE PROPOSED PROJECT

Implementation of the 2022 AQMP control strategies requires a cooperative partnership of governmental agencies at the federal, state, regional, and local level. At the federal level, the United States Environmental Protection Agency (U.S. EPA) is charged with regulating on-road motor vehicle standards; trains, airplanes, and ships; and certain non-road engines. At the state level, the California Air Resources Board (CARB) oversees on-road emission standards, fuel specifications, some off-road sources, and consumer product standards. At the regional level, the South Coast AQMD is responsible for regulating stationary sources and some mobile sources as well as indirect sources. In addition, South Coast AQMD has lead responsibility for the development of the 2022 AQMP. Furthermore, at the local level, the Southern California Association of Governments (SCAG) has a dual role of leader and coordinator. In their leadership role, they, in cooperation with local jurisdictions and sub-regional associations, develop strategies for these jurisdictions to implement. As a coordinator, they facilitate the implementation of these strategies (i.e., transportation control measures).

In 2015, the U.S. EPA strengthened the 8-hour NAAQS for ground-level ozone by lowering the primary and secondary ozone standard levels to 70 ppb. The Basin is classified as an “extreme” nonattainment area and the Coachella Valley is classified as a “severe-15” nonattainment area for the 2015 ozone NAAQS. The South Coast AQMD is requesting a voluntary reclassification of the Coachella Valley Portion of the Salton Sea Air Basin from “severe-15” to “extreme” nonattainment for the 2015 8-hour ozone standard, with an extension of the ozone attainment date from August 3, 2033 to August 3, 2038. The Coachella Valley is also pending a voluntary reclassification from “severe” to “extreme” nonattainment for the 2008 8-hour ozone standard which was approved by the South Coast AQMD Governing Board at the November 4, 2022 public hearing. The 2022 AQMP focuses on attaining the 2015 8-hour ozone NAAQS by 2037, and addressing the state Clean Air Act requirements.

The 2022 AQMP is designed to reduce emissions from existing emission sources and to promote the use of the cleanest available new emission sources. The proposed control measures in the 2022 AQMP focus on maximizing the implementation of existing zero emission and low NOx technologies. It also recognizes that new low NOx and zero emitting technologies and ultra-low NOx technologies may still need to be invented or may not yet be commercially available to achieve the necessary reductions in order to achieve the ambient air quality standards for ozone (e.g., 70 ppb for both the federal and state standards). Because NOx emissions are a precursor to

the formation of ozone and a key component to reduce ozone levels low enough to meet the standard, the 2022 AQMP primarily focuses on achieving NO_x emission reductions in order to attain the ozone standard. Preliminary analyses indicate that in order to achieve the ozone standards by 2037, approximately 67 percent of additional NO_x emission reductions will be needed, above and beyond the previously adopted measures in the 2016 AQMP.

VOC emissions are also a precursor to the formation of ozone such that achieving emission reductions of VOCs can help contribute to the overall goal of attaining the ozone standard and reduce exposure to harmful air pollutants. As such, some of the proposed control measures in the 2022 AQMP focus on achieving VOC emission reductions. However, VOC emission reductions are much less effective at reducing ozone at the low NO_x levels needed for attainment.

Traditional air quality planning relies on a combination of controlling emissions at the tailpipe or exhaust stack, new engine technologies, and improvements to existing fuels. These traditional approaches are effective to an extent but since most affected sources are already equipped with NO_x control equipment, traditional approaches are not expected to be able to achieve the additional 67 percent reduction needed to achieve the ozone standard. Under the 2022 AQMP, the proposed control measures would:

- accelerate the replacement of high-emitting mobile sources with zero emission or low NO_x technologies;
- encourage the use of lower-emitting alternative fuels;
- affect stationary sources at existing 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 detection and procedures; and
- establish educational and outreach programs.

In order to attain the ozone standards, the majority of NO_x emission reductions must come from mobile sources, including ships, aircraft, and locomotive engines, all of which are primarily regulated by federal and international laws, depending on the applicable jurisdiction, with limited authority by CARB at the state level and the South Coast AQMD at the local level. Attainment is not possible without significant reductions from these sources. The South Coast AQMD will continue to work closely with CARB in their efforts to further control mobile source emissions where federal or state actions do not meet regional needs.

The overall control strategy for the 2022 AQMP is designed to assist in the attainment of the 2015 federal 8-hour ozone standard (70 ppb) via reductions in emissions of NO_x and VOC. The 2022 AQMP control measures consist of three main components: 1) the stationary and mobile source control measures that would be implemented by the South Coast AQMD; 2) CARB-developed control measures and strategies from CARB's 2022 Strategy for the SIP which include state and

federal mobile source control measures; and 3) SCAG-developed TCMs from SCAG's 2020 RTP/SCS (also called Connect SoCal).

A control measure is an emission reduction program based on specific technologies and methods identified for potential implementation to achieve reductions in air pollutant emissions to attain an air quality standard. The proposed stationary source ozone measures are designed to assist to attain the 2015 8-hour ozone standard (70 ppb) via reductions in emissions of NO_x and VOC. These measures target a number of source categories, including Combustion Sources (CMB), Energy and Climate Change Programs (ECC), Petroleum Operations and Fugitive VOC Emissions (FUG), Coatings and Solvents (CTS), Compliance Flexibility Programs and Public Outreach (FLX), Multiple Component Sources (MCS), and Biogenic Sources (BIO). Combustion Sources are further divided into Residential Combustion Sources (R-CMB), Commercial Combustion Sources (C-CMB), and Large Combustion Sources (L-CMB). Each control measure may rely on several control methods. For the 2022 AQMP, the South Coast AQMD proposed a total of 48 control measures. Out of the 48 proposed control measures, 30 target reductions from stationary sources with the majority anticipated to be developed in the next several years and implemented prior to 2037.

4.0 POTENTIALLY SIGNIFICANT IMPACTS WHICH CANNOT BE REDUCED BELOW A SIGNIFICANT LEVEL

The Final Program EIR for the 2022 AQMP concluded that the following environmental topic areas would have significant and unavoidable adverse impacts, after feasible mitigation measures are applied: 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, or liquified natural gas via on-road truck; 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 analysis in the Final Program EIR is conservative as it makes the significance determinations assuming that almost all activities that will be undertaken to implement the various control measures and strategies will overlap, which may be unlikely once individual rules are developed and adopted with varying implementation schedules. Thus, the analysis in the Final Program EIR likely overestimates the potentially significant adverse impacts that cannot be reduced below a significant level for the following environmental topic areas.

A. Air Quality Impacts During Construction

Implementation of control measures in the 2022 AQMP is expected to result in emission reductions of 124 tons per day of NO_x, a direct air quality benefit. However, implementation may also require construction activities involving: 1) the demolition or removal of components from existing buildings, or structures, such as equipment, mechanical systems, cooking devices, clothes dryers, water and/or space heating systems, and pool heaters; 2) the installation of new energy efficient equipment, mechanical systems, cooking devices, clothes dryers, water and/or space heating systems; and pool heaters; 3) the construction of additional infrastructure to produce more alternative fuels to support alternative-fueled vehicles (e.g., electric, hydrogen, natural gas); 4) the construction of additional infrastructure to produce more electricity to support electric

vehicles and the electrification of new sources (e.g., additional on-road vehicles and marine vessels, “wayside” electric power such as catenary lines); 5) the construction of air pollution control equipment at stationary sources (e.g., SCRs), the retrofit of existing equipment with low NOx technology (e.g., low or ultra-low NOx burners) or the use of cleaner stationary sources (e.g., Tier 4 engines and newer boilers); and 6) construction for the replacement of higher emitting combustion equipment with low NOx equipment. Analysis concluded that the emissions generated during construction activities would exceed the air quality significance thresholds for construction.

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 SCAG’s Connect SoCal Plan and CARB’s Proposed 2022 State SIP Strategy, would contribute to cumulatively considerable impacts to air quality related to criteria pollutant emissions during construction, a significant adverse and unavoidable cumulative impact.

Air quality mitigation measures for project-specific construction impacts are identified in the Mitigation Monitoring and Reporting Plan Section of this document (e.g., AQ-1 through AQ-26). While implementation of these air quality mitigation measures would reduce construction emissions to the maximum extent feasible, none will neither avoid the significant air quality impacts during construction nor reduce the construction-related air quality impacts to less than significant levels. No other feasible mitigation measures have been identified to reduce project-specific or cumulative construction air quality impacts to less than significant levels. Therefore, the 2022 AQMP is considered to have significant and unavoidable project-specific and cumulative air quality impacts during construction, after mitigation is applied.

B. Energy Impacts Due to Increased Electricity, Natural Gas, and Hydrogen Demand

Implementation of control measures in the 2022 AQMP could increase the electricity demand up to an estimated 11 percent by year 2037 due to an increased penetration of near-zero and zero emission technologies into market, combined with operating new air pollution control equipment. Because the projected increase in electricity demand would be expected to exceed the baseline by more than one percent of supply, the electricity demand impacts were concluded to have significant energy impacts. Feasible mitigation measures for reducing impacts related to potential electricity demand are required and have been identified in the 2022 AQMP Program EIR as E-1 through E-7.

Relative to the demand for natural gas, natural gas is generally widely available and supplies are not expected to be limited if the proposed project is implemented. Further, the combined increase in natural gas demand needed for producing electricity and hydrogen and for fueling vehicles may 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 is expected to increase, and the proposed project may result in significant adverse energy impacts relating to natural gas demand. Natural gas demand impacts would remain significant after mitigation. Feasible mitigation

measures for reducing impacts related to potential natural gas demand are required and have been identified in the 2022 AQMP Program EIR as E-8 through E-9.

Also, implementation of control measures in the 2022 AQMP could result in an increase in hydrogen demand and use that cannot be currently met by existing producers. In the short-term, hydrogen production would be expected to be produced through steam methane reforming of natural gas, resulting in potentially significant impacts on natural gas demand. Little excess hydrogen capacity is available to meet the increase in hydrogen demand and additional hydrogen production facilities will be necessary. Thus, the increased demand impacts for hydrogen fuel are expected to be significant. Feasible mitigation measures for reducing impacts related to potential hydrogen demand are required and have been identified in the 2022 AQMP Program EIR as E-10 through E-12.

Implementation of the 2022 AQMP control measures, the TCMs in SCAG's Connect SoCal Plan, CARB's Proposed 2022 State SIP Strategy, and other state policies, when combined with other past, present, and reasonably foreseeable activities, would result in a significant increase in electricity, natural gas, and hydrogen demand which may not currently be available and would contribute to cumulatively considerable impacts. As electricity, natural gas, and hydrogen are expected to be used instead of petroleum fuels and other alternative fuels, the use of these alternative fuels is expected to decrease and impacts on these energy resources would be less than significant. The same feasible mitigation measures that were identified to reduce significant adverse energy impacts from electricity, natural gas, and hydrogen demand at the project level were also concluded to reduce the significant and cumulatively considerable energy impacts.

Energy mitigation measures for project-specific impacts are identified in the Mitigation Monitoring and Reporting Plan Section of this document (e.g., E-1 through E-7 for electricity demand, E-8 through E-9 for natural gas demand, and E-10 through E-12 for hydrogen demand). However, while implementation of mitigation measures E-1 through E-12 would reduce the identified energy impacts, the overall energy impacts after mitigation are expected to remain significant. No other feasible mitigation measures have been identified that would reduce project-specific or cumulative energy impacts to less than significant levels. Therefore, the proposed project is considered to have significant and unavoidable project-specific and cumulatively considerable energy impacts, after mitigation is applied.

C. Hazards and Hazardous Materials Impacts Due to Accidental Release of Ammonia, Natural Gas via Pipeline, or Liquefied Natural Gas (LNG) via On-Road Trucks; and Reformulation of Coatings, Solvents, Adhesives and Lubricants

Implementation of control measures in the 2022 AQMP could result in increased use of ammonia in some air pollution control equipment such as selective catalytic reduction (SCR) technology. Use of SCR technology would require each affected facility to have deliveries and storage of ammonia at their site. There is potential for accidental release during routine transport of ammonia and through tank rupture from ammonia storage. Because sensitive receptors have the potential to be located within the toxic endpoint from both scenarios, potential hazards and hazardous materials impacts from accidental release

of ammonia are concluded to be significant. Feasible mitigation measures for reducing impacts related to potential hazards and hazardous materials impacts from accidental release of ammonia are required and have been identified in the 2022 AQMP Program EIR as HZ-1 through HZ-6.

Implementation of control measures in the 2022 AQMP could result in increased transmission of natural gas for hydrogen production, and the transport and use of LNG as an alternative fuel. It is expected that natural gas is transmitted for hydrogen production via new or existing pipeline and LNG by tanker truck via public roads. With a new natural gas pipeline as well as during the routine transport of LNG, there is a potential for an accidental release, and because sensitive receptors have the potential to be located within the toxic endpoint of such an event, potential hazards and hazardous materials impacts from accidental release of natural gas via pipeline or LNG via tanker truck are concluded to be significant. While mitigation measures for reducing impacts related to potential hazards and hazardous materials impacts from accidental release of natural gas via pipeline or LNG via tanker truck are required, no feasible mitigation measures have been identified in the 2022 AQMP Program EIR for this environmental impact area beyond the extensive state and federal requirements applicable to new and existing natural gas pipelines and LNG transport.

Implementation of control measures in the 2022 AQMP could result in the reformulation of coatings, solvents, adhesives, and lubricants with less toxic, but more flammable solvents. Without knowing how many facilities currently using water-based products would switch to using reformulated solvent-based products, significant impacts on fire hazards associated with some reformulated coatings, solvents, adhesives, and lubricants could potentially occur if the products are reformulated with more flammable materials. Therefore, hazards and hazardous materials impacts associated with increased flammability of potential replacement solvents are concluded to be significant. However, feasible mitigation measures for reducing impacts related to potential hazards and hazardous materials impacts from flammable reformulations, if any, are required and have been identified in the 2022 AQMP Program EIR as HZ-7 through HZ-8. After applying these mitigation measures, the potential hazards and hazardous materials impacts from flammable reformulations would be reduced to less than significant levels.

Implementation of the 2022 AQMP control measures, the TCMs in SCAG's Connect SoCal Plan, CARB's Proposed 2022 State SIP Strategy, and other state policies, when combined with other past, present, and reasonably foreseeable activities, would result in a significant increase in the use of hazards and hazardous materials. Feasible mitigation measures have been developed to reduce the significant hazard impacts. No additional feasible mitigation measures have been identified to further reduce the cumulative hazard impacts to less than significant levels. Therefore, cumulative impacts to hazards and hazardous materials would remain significant and unavoidable.

Six mitigation measures are identified in the Mitigation Monitoring and Reporting Plan Section of this document (e.g., HZ-1 through HZ-6) to address the transportation and storage impacts associated with ammonia. However, none of these mitigation measures

will reduce all the significant hazard and hazardous materials impacts relating to ammonia transportation and storage to less than significant levels.

Relative to potential hazards and hazardous materials impacts from accidental release of natural gas via pipeline or LNG via tanker truck, no feasible mitigation measures have been identified in the 2022 AQMP Program EIR for this environmental impact area that would reduce the significant impacts beyond the extensive state and federal requirements applicable to new and existing natural gas pipelines and LNG transport.

Relative to potential fire hazards that may be associated with using reformulated products that may have increased flammability, two mitigation measures are identified in the Mitigation Monitoring and Reporting Plan Section of this document (e.g., HZ-7 and HZ-8). They were crafted to require the to-be-developed rule language to inform consumers about any potential for increased flammability and they were identified as effective at informing consumers about the potential fire hazards associated with reformulated coatings, solvents, adhesives and lubricants. Thus, after mitigation, no remaining significant impacts on fire hazards would be expected from reformulated products. Therefore, after implementation of mitigation measures HZ-7 through HZ-8, no remaining significant impacts on fire hazards relating to reformulated products are expected.

Therefore, the proposed project is considered to have significant and unavoidable project-specific and cumulatively considerable hazards and hazardous materials impacts, after mitigation is applied.

D. Hydrology (Water Demand and Water Supply) and Water Quality Impacts

Implementation of control measures in the 2022 AQMP could result in the increased use of water during operational activities. For control measures where water demand can be estimated, the increase in daily water demand would exceed the 262,820 gallons per day significance threshold for potable water. Additional water use is required for construction activities and also may be required for the manufacture of alternative fuels. Due to the extreme drought conditions and uncertainty about future water supplies, implementation of the control measures in the 2022 AQMP as a whole may have a significant impact on both water demand and water supplies. Feasible mitigation measures for reducing water demand and water supply impacts are required and have been identified in the 2022 AQMP Program EIR as HWQ-1 through HWQ-4. While generally the mitigation measures could help minimize some of the water demand and water supply impacts on an individual facility-basis, the availability of water supplies varies throughout the region. Thus, not all mitigation measures will be applied in all situations. For this reason, the mitigation measures are not expected to fully eliminate the significant water demand and water supply impacts. Therefore, water demand and water supply impacts that may result from the proposed project are expected to remain significant and unavoidable.

Relative to the topic of water quality, in the absence of facility-specific information regarding the potential increased amounts of wastewater that could be generated in order to determine whether a revision to an Industrial Waste Discharge Permit and/or a NPDES permit would be needed, and whether a relocation or construction of new or expanded

wastewater or storm water treatment facility would be needed; out of an abundance of caution, the analysis in the Program EIR concludes that implementation of the 2022 AQMP has the potential to require or result in the relocation or construction of new or expanded wastewater treatment or storm water drainage facilities. Thus, the proposed project could result in significant adverse wastewater impacts associated with the quantity of effluent to be treated and discharged, and the potential lack of existing capacity in the existing wastewater and stormwater treatment systems to handle the potential increases. Therefore, significant water quality impacts due to the potential for increased discharges of wastewater are expected. One feasible mitigation measure for reducing wastewater discharge has been identified in the 2022 AQMP Program EIR as HWQ-5. While the issuance of facility-specific industrial wastewater permits or NPDES permits, by their regulatory nature, would likely minimize the water quality impacts to fullest extent possible, this mitigation measure is not expected to fully eliminate the significant water quality impacts. Therefore, water quality impacts that may result from the proposed project are expected to remain significant and unavoidable, after mitigation is applied.

Implementation of the 2022 AQMP control measures, the TCMs in SCAG's Connect SoCal Plan, CARB's Proposed 2022 State SIP Strategy, and other state policies, when combined with other past, present, and reasonably foreseeable activities, are expected to result in additional pollutant loading over the wastewater that is currently discharged. Because of permit limits, physical modifications to wastewater treatment and stormwater collection systems may be needed and therefore, would be expected to contribute to cumulative water quality impacts.

California has been hit with extreme drought conditions and a Tier 2 water shortage has been declared for the Colorado River and surrounding states. Therefore, the measures that are currently being taken by agencies involved with developing measures to comply with the 70 ppb 8-hour ozone standard, along with the population growth identified in SCAG's Connect SoCal Plan, are expected to result in cumulatively considerable water demand and water supply impacts. No additional feasible mitigation measures have been identified to further reduce cumulative water demand, water supply, and water quality impacts. Therefore, cumulative impacts to water demand, water supply, and water quality would remain significant and unavoidable.

Four mitigation measures are identified in the Mitigation Monitoring and Reporting Plan Section of this document (e.g., HWQ-1 through HWQ-4) to address the project-specific water demand impacts. While these mitigation measures could help minimize some of the water demand on an individual facility-basis, the availability of water supplies varies throughout the region; thus, all mitigation measures may not be applied in all situations. However, none of these mitigation measures will fully eliminate the water demand and water supply impacts or reduce these impacts to less than significant levels. One mitigation measure was identified to reduce water quality impacts (HWQ-5). No other feasible mitigation measures have been identified that would avoid or reduce the project-specific or cumulative water demand, water supply, and water quality impacts to less than significant levels. Therefore, even after implementation of mitigation measures HWQ-1 through HWQ-5, the 2022 AQMP is considered to have significant and unavoidable

project-specific and cumulatively considerable hydrology (water demand and water supply) and water quality impacts.

E. Noise and Vibration Impacts During Construction of Roadway Infrastructure

Implementation of control measures in the 2022 AQMP is expected to require construction activities that include: 1) installation of new equipment or devices; 2) removal of older equipment or devices; 3) modification or retrofit of existing equipment and facilities; and 4) modification of existing roadways to install new equipment and roadway infrastructure. The potential noise impact of construction activities would vary depending on the existing noise levels in the environment and the location of sensitive receptors (e.g., residences, hotels, hospitals, etc.) with respect to construction activities. While some of the control measures could result in minor construction activities that could create minimal noise, the construction of roadway infrastructure would result in additional construction noise sources near transportation corridors, and it is not uncommon for residences and other sensitive receptors to be located within several hundred feet of the existing roadways. Therefore, the noise and vibration impacts during construction activities are considered significant. Feasible mitigation measures for reducing the construction noise and vibration impacts are required and have been identified in the 2022 AQMP Program EIR as NS-1 through NS-14. However, none of these mitigation measures will reduce all the construction noise and vibration impacts to less than significant levels. Therefore, construction noise and vibration impacts that may result from the proposed project are expected to remain significant and unavoidable after mitigation is applied.

Implementation of the 2022 AQMP control measures, the TCMs in SCAG's Connect SoCal Plan, CARB's Proposed 2022 State SIP Strategy, and other state policies, when combined with other past, present, and reasonably foreseeable activities, would result in additional potentially significant noise and vibration impacts associated with construction activities, and would contribute to cumulatively considerable impacts to noise and vibration.

14 mitigation measures are identified in the Mitigation Monitoring and Reporting Plan Section of this document (e.g., NS-1 through NS-14) to address construction noise and vibration impacts. While these mitigation measures could minimize some of the noise and vibration impacts during construction activities, the South Coast AQMD cannot predict how a lead agency or responsible agency might choose to mitigate the significant construction noise and vibration impacts for a future project. Further, none of these mitigation measures will avoid the construction noise and vibration impacts or reduce these impacts to less than significant levels. No other feasible mitigation measures have been identified that would reduce the project-specific or cumulative construction noise and vibration impacts to less than significant levels. Therefore, even after implementation of mitigation measures NS-1 through NS-14, the 2022 AQMP is considered to have significant and unavoidable project-specific and cumulatively considerable noise and vibration impacts during construction.

F. Solid and Hazardous Waste Impacts from Construction and Early Retirement of Equipment

Installation of air pollution control equipment (e.g., low NO_x burners, SCR systems, electrification of sources); replacement of existing equipment; installation of roadway infrastructure (wayside power and catenary lines or other similar technologies); installation of battery charging infrastructure; and installation of alternative fuel infrastructure are expected to generate solid and hazardous waste associated with construction activities. The extent of solid and hazardous waste impacts from early retirement of equipment is difficult to quantify, but concluded to generate significant adverse impacts because available landfill space is limited to approximately 100,000 tons per day with only four solid waste landfills in Southern California having capacity past 2039. Feasible mitigation measures for reducing the solid and hazardous waste impacts are required and have been identified in the 2022 AQMP Program EIR as SHW-1 through SHW-3. However, because it is difficult to quantify the construction and demolition waste, and waste from early retirement of equipment generated by implementing control measures from the 2022 AQMP, solid and hazardous waste impacts from construction are concluded to remain significant after mitigation is applied.

Implementation of the 2022 AQMP control measures, the TCMs in SCAG's Connect SoCal Plan, CARB's Proposed 2022 State SIP Strategy, and other state policies, when combined with other past, present, and reasonably foreseeable activities, would result in a significant increase in solid and hazardous waste, and would contribute to cumulatively considerable impacts to solid and hazardous waste. Feasible mitigation measures to reduce significant adverse cumulative solid waste impacts were identified in the Program EIR for SCAG's Connect SoCal Plan. No other feasible mitigation measures have been identified that would reduce the project-specific or cumulatively considerable solid and hazardous waste impacts to less than significant levels. Therefore, the 2022 AQMP is considered to have significant and unavoidable project-specific and cumulatively considerable solid and hazardous waste impacts from construction and early retirement of equipment.

5.0 FINDINGS REGARDING POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

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

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

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

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

As identified in the Final Program EIR and summarized in Section 4.0 of this document, the 2022 AQMP has the potential to create significant adverse impacts for the following environmental topic areas: air quality during construction; energy due to increased electricity, natural gas, and hydrogen demand; hazards and hazardous materials due to accidental release of ammonia, natural gas via pipeline, or liquified natural gas via on-road truck, and potential fire hazard from reformulated coatings, solvents, adhesives and lubricants; hydrology (water demand and water supply) and water quality; construction noise and vibration at roadways; and solid and hazardous waste from construction and early retirement of equipment. The South Coast AQMD Governing Board, therefore, makes the following findings regarding the 2022 AQMP. The findings are supported by substantial evidence in the record as explained in each finding. These findings will be included in the record of project approval and will also be noted in the Notice of Determination. The findings made by the South Coast AQMD Governing Board are based on the following significant adverse impacts identified in the Final Program EIR:

A. Potential construction air quality impacts exceed the South Coast AQMD’s applicable significance air quality thresholds and cannot be mitigated to less than significant levels.

Findings and Explanation:

Implementation of control measures in the 2022 AQMP may require construction activities such as: 1) the demolition or removal of components from existing buildings, or structures, such as equipment, mechanical systems, cooking devices, clothes dryers, water and/or space heating systems, and pool heaters; 2) the installation of new energy efficient equipment, mechanical systems, cooking devices, clothes dryers, water and/or space heating systems; and pool heaters; 3) the construction of additional infrastructure to produce more alternative fuels to support alternative-fueled vehicles (e.g., electric, hydrogen, natural gas); 4) the construction of additional infrastructure to produce more electricity to support electric vehicles and the electrification of new sources (e.g., additional on-road vehicles and marine vessels, “wayside” electric power such as catenary lines); 5) the construction of air pollution control equipment at stationary sources (e.g., SCRs), the retrofit of existing equipment with low NOx technology (e.g., low or ultra-low NOx burners) or the use of cleaner stationary sources (e.g., Tier 4 engines and newer boilers); and 6) construction for the replacement of higher emitting combustion equipment with low NOx equipment. On an individual facility basis, the construction activities may not be expected to have emissions that exceed the South Coast AQMD’s air quality significance thresholds for construction. However, over the extended timeline of implementing the 2022 AQMP, on any given day, it is possible for multiple facilities to have construction activities concurrently occur. Based on the size of any single project, or if more than one facility

undergoes construction on any given day, the emissions could exceed the South Coast AQMD's air quality significance construction threshold for NO_x, VOC and particulate matter (PM), including diesel PM. Therefore, construction emissions are considered potentially significant.

Due to the potential for significant adverse air quality impacts during construction, feasible mitigation measures that can substantially lessen the impacts were required and are included in the Final Program EIR. However, none of the identified feasible mitigation measures are capable of avoiding or reducing the significant adverse construction air quality impacts to less than significant levels. **Thus, Finding 1 is applicable to the significant adverse air quality impacts during construction.**

The Governing Board finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the project-level and cumulative significant adverse construction air quality impacts identified in the Final Program EIR, though the impacts will ultimately remain significant and unavoidable. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

Implementation of all of the mitigation measures for construction air quality which are identified in the Final Program EIR may be within the authority of either the South Coast AQMD or other public agencies, as applicable if air permits are not required, to adopt or implement, depending on the individual facility projects that will occur in the future. **Thus, Finding 2 is applicable to the construction air quality mitigation measures.**

The Governing Board finds that, for project-level activities that do not require air permits from the South Coast AQMD, changes or alterations which avoid or substantially lessen the significant construction air quality impacts as identified in the Final Program EIR are within the responsibility and jurisdiction of another public agency and not South Coast AQMD. Such changes, if feasible, can and should be adopted by such other agency as details of project-level actions become known. [Public Resources Code Section 21081(a)(2) and CEQA Guidelines Section 15091(a)(2)].

The construction air quality mitigation measures identified in the Final Program EIR are feasible. As such, there are no specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures identified in the Final Program EIR. **Thus, Finding 3 is not applicable to the construction air quality mitigation measures.** [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

- B. Potential energy impacts from increased electricity demand exceed the South Coast AQMD significance threshold for electricity; impacts from increased natural gas demand are expected to be significant in the short-term; impacts from increased hydrogen demand would be unable to be met by existing capacity; and energy impacts from increased electricity, natural gas, and hydrogen demand cannot be mitigated to less than significant levels.**

Findings and Explanation:

The majority of the control measures in the 2022 AQMP predominantly rely on electric-powered technologies for both stationary and mobile sources to be utilized in residential, commercial, and industrial settings. The analysis in the Final Program EIR concluded that implementation of some control measures could increase the electricity demand by approximately 11 percent over 2020 consumption (greater than the South Coast AQMD significance threshold of 1%) and this amount does 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. Natural gas is generally widely available through existing infrastructure and expected to be used for producing electricity and hydrogen. Short-term natural gas demand is expected to be significant, although offset by long-term decrease in demand for natural gas appliances in commercial and residential setting. Hydrogen fuel cells are proven technology, but more work is needed to make them cost-effective for use in cars, trucks, homes, or businesses. Existing hydrogen plants currently operate at full capacity, largely to produce petroleum fuels. With little excess hydrogen capacity available to meet the increase in hydrogen demand, additional hydrogen production facilities will be necessary. Therefore, increases in electricity, natural gas, and hydrogen demand were concluded in the Final Program EIR to have potentially significant adverse energy impacts.

Due to the potential for significant adverse energy impacts, feasible mitigation measures that can substantially lessen the impacts were required and are included in the Final Program EIR. However, none of the identified feasible mitigation measures are capable of avoiding or reducing the significant adverse energy impacts to less than significant levels. **Thus, Finding 1 is applicable to the significant adverse energy impacts.**

The Governing Board finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the project-level and cumulative significant adverse energy impacts identified in the Final Program EIR, though the impacts will ultimately remain significant and unavoidable. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

Implementation of all of the mitigation measures for energy which are identified in the Final Program EIR may be within the authority of either the South Coast AQMD or other public agencies, as applicable if air permits are not required, to adopt or implement, depending on the individual facility projects that will occur in the future. **Thus, Finding 2 is applicable to the energy mitigation measures.**

The Governing Board finds that changes or alterations which avoid or substantially lessen the significant energy impacts as identified in the Final Program EIR are within the responsibility and jurisdiction of another public agency and not South Coast AQMD. Such changes, if feasible, can and should be adopted by such other agency as details of project-level actions become known. [Public Resources Code Section 21081(a)(2) and CEQA Guidelines Section 15091(a)(2)].

The energy mitigation measures identified in the Final Program EIR are feasible. As such, there are no specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures identified in the Final Program EIR. **Thus, Finding 3 is not applicable to the energy mitigation measures.** [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

C. 1. Potential hazards and hazardous materials impacts due to accidental release of ammonia could affect sensitive receptors within their respective toxic endpoint distances and cannot be mitigated to less than significant levels.

Findings and Explanation:

Implementation of the control measures in the 2022 AQMP could result in the use of SCR technology to reduce NO_x emissions from commercial and industrial combustion sources. Operation of SCR requires the transport, storage, and use of ammonia. Three accidental release scenarios for ammonia were evaluated for: 1) routine transport; 2) use at non-RECLAIM facilities; and 3) use at RECLAIM facilities. Each scenario was concluded to generate significant adverse hazards and hazardous materials impacts (sensitive receptors potentially located within 0.4 mile of a transport release, or 0.1 mile of a facility release).

Due to the potential for significant adverse hazards and hazardous materials impacts pertaining to accidental release of ammonia, feasible mitigation measures that can substantially lessen the impacts were required and are included in the Final Program EIR. However, none of the identified feasible mitigation measures are capable of avoiding or reducing the for significant adverse hazards and hazardous materials impacts pertaining to the accidental release of ammonia to less than significant levels. **Thus, Finding 1 is applicable to the significant adverse hazards and hazardous materials impacts pertaining to the accidental release of ammonia.**

The Governing Board finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the project-level and cumulative significant adverse hazards and hazardous materials impacts pertaining to the accidental release of ammonia as identified in the Final Program EIR, though the impacts will ultimately remain significant and unavoidable. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

Implementation of all of the mitigation measures for hazards and hazardous materials impacts pertaining to the accidental release of ammonia which are identified in the Final Program EIR are within the authority of the South Coast AQMD to adopt or implement, depending on the individual facility projects that will occur in the future. **Thus, Finding 2 is not applicable to the mitigation measures for hazards and hazardous materials impacts pertaining to the accidental release of ammonia.** [Public Resources Code Section 21081(a)(2) and CEQA Guidelines Section 15091(a)(2)].

The mitigation measures identified for hazards and hazardous materials impacts pertaining to the accidental release of ammonia in the Final Program EIR are feasible. As such, there are no specific economic, legal, social, technological, or other considerations make

infeasible the mitigation measures identified in the Final Program EIR. **Thus, Finding 3 is not applicable to the mitigation measures for hazards and hazardous materials impacts pertaining to the accidental release of ammonia.** [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

C. 2. Potential hazards and hazardous materials impacts due to the accidental release of natural gas via pipeline and/or LNG via on-road trucks could affect sensitive receptors within their respective toxic endpoint distances and cannot be mitigated to less than significant levels.

Findings and Explanation:

Implementation of the control measures in the 2022 AQMP may result in need to construct additional hydrogen production facilities and new pipelines to deliver natural gas for the purpose of hydrogen production. Natural gas pipelines pose a potential torch fire risk to surroundings located within 183 feet of a release, and sensitive receptors may be located within this radius. Extensive state and federal requirements on new and existing natural gas pipelines are expected to be implemented and enforced; no mitigation measures have been identified.

In addition, implementation of control measures in the 2022 AQMP could result in increased transmission of natural gas for hydrogen production and the transport and use of LNG as an alternative fuel. It is expected that natural gas is transmitted for hydrogen production via new or existing pipeline, and LNG by tanker truck via public roads. For a new natural gas pipeline or during the routine transport of LNG, there is a potential for an accidental release, and because sensitive receptors have the potential to be located within the toxic endpoint of such an event, potential hazards and hazardous materials impacts from accidental release of natural gas via pipeline or LNG via tanker truck are concluded to be significant. Four transport release scenarios were considered, and the furthest adverse impact distance was calculated to be 0.3 mile from point of release. Sensitive receptors may be located within this radius. While mitigation measures for reducing impacts related to potential hazards and hazardous materials impacts from accidental release of natural gas via pipeline or LNG via tanker truck are required, no feasible mitigation measures have been identified in the 2022 AQMP Program EIR for this environmental impact area beyond the extensive state and federal requirements applicable to new and existing natural gas pipelines and LNG transport. **Thus, Finding 1 is not applicable to the significant adverse hazards and hazardous materials impacts pertaining to the accidental release of natural gas or LNG.**

The Governing Board finds that there are no mitigation measures specific to the accidental release of natural gas or LNG that would avoid or substantially lessen the project-level and cumulative significant adverse hazards and hazardous materials impacts pertaining to the accidental release of natural gas or LNG to less than significant levels. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

Since there are no feasible mitigation measures for hazards and hazardous materials impacts pertaining to the accidental release of natural gas or LNG identified in the Final Program EIR, **Findings 2 and 3 are not applicable to the hazards and hazardous materials impacts pertaining to the accidental release of natural gas or LNG.** [Public Resources Code Section 21081(a)(2)-(a)(3) and CEQA Guidelines Section 15091(a)(2)-(a)(3)].

C. 3. Potentially significant hazards and hazardous materials impacts due to the increased risk of fire hazard from reformulating coatings, solvents, adhesives, and lubricants can be mitigated to less than significant levels.

Findings and Explanation:

Implementation of Control Measure CTS-01 would remove the VOC exemption status for parachlorobenzotrifluoride (PCBTF) and tert-butyl acetate (tBAc) to address toxicity concerns and could require reformulation of certain coatings, adhesives, and lubricants to meet lower future VOC content limits. The reformulations could have widely varying flammability and health effects depending on the chemical characteristics of the replacement solvents chosen. Without knowing how many facilities currently using water-based products would switch to using reformulated solvent-based products as a result of implementing the 2022 AQMP control measures, significant impacts on fire hazards associated with reformulated coatings, solvents, and consumer products could occur.

Feasible mitigation measures were required in the Final Program EIR to minimize the significant adverse hazards and hazardous materials impacts due to reformulation of coatings, solvents, adhesives, and lubricants. Implementation of these mitigation measures is expected to reduce the significant adverse impacts to less than significant levels. **Thus, Finding 1 is applicable to the significant adverse hazards and hazardous materials impacts pertaining to the increased risk of fire hazard from reformulating coatings, solvents, adhesives, and lubricants.**

The Governing Board finds that changes or alterations have been required in, or incorporated into, the project specific to reformulating coatings, solvents, adhesives, and lubricants that would avoid or substantially lessen the project-level and cumulative significant adverse fire hazard impacts as identified in the Final Program EIR to less than significant levels. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

Implementation of the mitigation measures for hazards and hazardous materials impacts pertaining to the increased risk of fire hazard from reformulating coatings, solvents, adhesives, and lubricants which are identified in the Final Program EIR are within the authority of the South Coast AQMD to adopt or implement. **Thus, Finding 2 is not applicable to the mitigation measures for hazards and hazardous materials impacts pertaining to the increased risk of fire hazard from reformulating coatings, solvents, adhesives, and lubricants.** [Public Resources Code Section 21081(a)(2) and CEQA Guidelines Section 15091(a)(2)].

The mitigation measures identified for hazards and hazardous materials impacts pertaining to the increased risk of fire hazard from reformulating coatings, solvents, adhesives, and lubricants in the Final Program EIR are feasible. As such, there are no specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures identified in the Final Program EIR. **Thus, Finding 3 is not applicable to the mitigation measures for hazards and hazardous materials impacts pertaining to fire hazard.** [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

D. 1. Potential hydrology (water demand and water supply) impacts exceed the South Coast AQMD significance threshold for potable water and cannot be mitigated to less than significant levels.

Findings and Explanation:

Implementation of the control measures in the 2022 AQMP is expected to increase operational water demand from 338,137 to 438,137 gallons per day. Additional water use is required for construction activities and also may be required for the manufacture of alternative fuels. This increased water demand does not exceed the South Coast AQMD significance threshold of 5,000,000 gallons per day of total water (comprised of potable, recycled and groundwater) demand, but it exceeds the 262,820 gallons per day significance threshold for potable water.

Due to the potential for significant adverse hydrology (water demand and water supply) impacts, feasible mitigation measures that can substantially lessen the impacts were required in the Final Program EIR. However, none of the identified feasible mitigation measures are capable of avoiding or reducing the significant adverse hydrology impacts pertaining to water demand and water supply to less than significant levels. **Thus, Finding 1 is applicable to the significant adverse hydrology impacts for hydrology (water demand and water supply).**

The Governing Board finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the project-level and cumulative significant adverse hydrology impacts pertaining to hydrology (water demand and water supply) as identified in the Final Program EIR, though the impacts will ultimately remain significant and unavoidable. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

Implementation of all of the mitigation measures for hydrology impacts pertaining to water demand and water supply which are identified in the Final Program EIR may be within the authority of other public agencies, as applicable, to adopt or implement, depending on the individual facility projects that will occur in the future. **Thus, Finding 2 is applicable to the hydrology (water demand and water supply) mitigation measures.**

The Governing Board finds that changes or alterations which avoid or substantially lessen the significant hydrology impacts due to hydrology (water demand and water supply) as identified in the Final Program EIR are within the responsibility and

jurisdiction of another public agency and not South Coast AQMD. Such changes, if feasible, can and should be adopted by such other agency as details of project-level actions become known. [Public Resources Code Section 21081(a)(2) and CEQA Guidelines Section 15091(a)(2)].

The hydrology (water demand and water supply) mitigation measures identified in the Final Program EIR are feasible. As such, there are no specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures identified in the Final Program EIR. **Thus, Finding 3 is not applicable to the hydrology mitigation measures.** [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

D. 2. Potential water quality impacts may require revision to an Industrial Waste Discharge Permit and/or a National Pollutant Discharge Elimination System (NPDES) permit, and cannot be mitigated to less than significant levels.

Findings and Explanation:

In general, for industrial operations, a 25 percent increase in wastewater discharged above an individual facility's industrial discharge permit limit would trigger a permit revision, and this would be considered a significant adverse wastewater impact. In the absence of facility-specific information regarding the potential increased amounts of wastewater that could be generated, the analysis in this Program EIR concludes that implementation of the 2022 AQMP has the potential for one or more facilities to increase the amount of wastewater to be discharged by 25 percent above the current discharge permit limit such that permit revision would be necessary.

Due to the potential for significant adverse water quality impacts, a feasible mitigation measure can substantially lessen the impacts was required in the Final Program EIR. However, the identified feasible mitigation measure is not capable of avoiding or reducing the significant adverse water quality impacts to less than significant levels. **Thus, Finding 1 is applicable to the significant adverse water quality impacts.**

The Governing Board finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the project-level and cumulative significant adverse water quality impacts as identified in the Final Program EIR, though the impacts will ultimately remain significant and unavoidable. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

Implementation of the mitigation measure for water quality which is identified in the Final Program EIR may be within the authority of other public agencies, as applicable, to adopt or implement, depending on the individual facility projects that will occur in the future. **Thus, Finding 2 is applicable to the water quality mitigation measure.**

The Governing Board finds that changes or alterations which avoid or substantially lessen the significant water quality impacts as identified in the Final Program EIR are within the responsibility and jurisdiction of another public agency and not South

Coast AQMD. Such changes, if feasible, can and should be adopted by such other agency as details of project-level actions become known. [Public Resources Code Section 21081(a)(2) and CEQA Guidelines Section 15091(a)(2)].

The water quality mitigation measure identified in the Final Program EIR is feasible. As such, there are no specific economic, legal, social, technological, or other considerations make infeasible the mitigation measure identified in the Final Program EIR. **Thus, Finding 3 is not applicable to the water quality mitigation measure.** [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

E. Potential construction noise impacts at roadways exceed three decibels above the existing noise level; vibration impacts at roadways exceed Federal Transit Administration threshold; and construction noise and vibration impacts at roadways cannot be mitigated to less than significant levels.

Findings and Explanation:

Implementation of Control Measures MOB-01, MOB-02A, and MOB-02B could require the installation of roadway infrastructure within or adjacent to existing roadways, streets, freeways, and/or transportation corridors. As specific construction projects are not currently proposed, the types and quantities of construction equipment necessary to implement these proposed control measures are not currently known. Construction equipment noise sources range from 76 decibels (dBA) to over 100 dBA; a typical construction site would be expected to generate noise levels of about 85 dBA at 50 feet from the center of construction activity, decreasing to about 61 dBA at about 800 feet from construction activities. It is not uncommon for residences and other sensitive receptors to be located within several hundred feet of the existing roadways so noise levels associated with construction activities could be in the range of 65-75 dBA, which could result in noise increases of three dBA or greater and generate potentially significant noise impacts, although temporary. Using the Federal Transit Administration quantitative construction vibration analysis methodology, predicted vibration during construction activities can be compared to the significance threshold of 72 vibration decibels. Vibration from construction activities could exceed the threshold for structures and sensitive receptors within 200 feet of construction activities if certain types of construction equipment are used.

Due to the potential for significant adverse construction noise and vibration impacts, feasible mitigation measures that can substantially lessen the impacts were required and are included in the Final Program EIR. However, none of the identified feasible mitigation measures are capable of avoiding or reducing the significant adverse construction noise and vibration impacts to less than significant levels **Thus, Finding 1 is applicable to the significant adverse construction noise and vibration impacts.**

The Governing Board finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the project-level and cumulative significant adverse construction noise and vibration impacts identified in the Final Program EIR, though the impacts will ultimately remain significant and

unavoidable. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

Implementation of all of the mitigation measures for construction noise and vibration which are identified in the Final Program EIR may be within the authority of other public agencies, as applicable, to adopt or implement, depending on the individual facility projects that will occur in the future. **Thus, Finding 2 is applicable to the construction noise and vibration mitigation measures.**

The Governing Board finds that changes or alterations which avoid or substantially lessen the significant construction noise and vibration impacts as identified in the Final Program EIR are within the responsibility and jurisdiction of another public agency and not South Coast AQMD. Such changes, if feasible, can and should be adopted by such other agency as details of project-level actions become known. [Public Resources Code Section 21081(a)(2) and CEQA Guidelines Section 15091(a)(2)].

The construction noise and vibration mitigation measures identified in the Final Program EIR are feasible. As such, there are no specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures identified in the Final Program EIR. **Thus, Finding 3 is not applicable to the construction noise and vibration mitigation measures.** [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

- F. Potential solid and hazardous waste impacts from construction and early retirement of equipment are significant because Southern California landfill capacity is limited, and solid and hazardous waste impacts from construction and early retirement of equipment cannot be mitigated to less than significant levels.**

Findings and Explanation:

Implementation of the control measures in the 2022 AQMP is expected to involve the installation of air pollution control equipment (e.g., low NO_x/ultra-low NO_x burners and SCR systems), the electrification of existing sources, and the replacement of existing equipment with construction activities generating solid waste due to demolition and site preparation, grading, and excavating. Solid and hazardous waste impacts from early retirement of equipment are difficult to quantify, but concluded to generate significant adverse impacts because available landfill space is limited to approximately 100,000 tons per day with only four solid waste landfills in Southern California having the capacity to accept waste after 2039.

Due to the potential for significant adverse solid and hazardous waste impacts from construction and early retirement of equipment, feasible mitigation measures that can substantially lessen the impacts were required and are included in the Final Program EIR. However, none of the identified feasible mitigation measures are capable of avoiding or reducing the significant adverse solid and hazardous waste impacts to less than significant levels **Thus, Finding 1 is applicable to the significant adverse solid and hazardous waste impacts.**

The Governing Board finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the project-level and cumulative significant adverse solid and hazardous waste impacts identified in the Final Program EIR, though the impacts will ultimately remain significant and unavoidable. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

Implementation of all of the mitigation measures for solid and hazardous waste which are identified in the Final Program EIR may be within the authority of other public agencies, as applicable, to adopt or implement, depending on the individual facility projects that will occur in the future. **Thus, Finding 2 is applicable to the solid and hazardous waste mitigation measures.**

The Governing Board finds that changes or alterations which avoid or substantially lessen the significant adverse solid and hazardous waste impacts as identified in the Final Program EIR are within the responsibility and jurisdiction of another public agency and not South Coast AQMD. Such changes, if feasible, can and should be adopted by such other agency as details of project-level actions become known. [Public Resources Code Section 21081(a)(2) and CEQA Guidelines Section 15091(a)(2)].

The solid and hazardous waste mitigation measures identified in the Final Program EIR are feasible. As such, there are no specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures identified in the Final Program EIR. **Thus, Finding 3 is not applicable to the solid and hazardous waste mitigation measures.** [Public Resources Code Section 21081(a)(3) and CEQA Guidelines Section 15091(a)(3)].

5.1 FINDINGS FOR ALTERNATIVES TO THE PROPOSED PROJECT

A. Alternative 1: No Project Alternative

Finding and Explanation:

The Final Program EIR analyzes a No Project Alternative, referred to as Alternative 1, which consists of what would occur if the proposed project is not approved; in this case, not adopting the 2022 AQMP with continued implementation of the 2016 AQMP. The 2016 AQMP was adopted by the South Coast AQMD Governing Board in March 2017 and submitted to U.S. EPA in April 2017. The ozone portion and the 24-hour PM_{2.5} standard elements of the 2016 AQMP have been approved by the U.S. EPA into the SIP. Although Alternative 1 would not generate any additional significant adverse impacts to any environmental topic areas beyond those identified for the 2016 AQMP, neither would Alternative 1 provide any of the air quality benefits, or meet any project objectives, including the primary project objective of complying with the 2015 federal 8-hour ozone standard (70 ppb). All remaining necessary emission reductions to demonstrate attainment would be obtained through implementing CAA Section 182(e)(5), the methods of which are currently unknown.

The federal and state Clean Air Acts require the South Coast AQMD to revise the AQMP and implement the 2022 AQMP in order to attain the applicable ozone national ambient air quality standards. Continued implementation of the 2016 AQMP without additional reduction measures would not be a feasible alternative because the South Coast AQMD is required to submit to U.S. EPA an AQMP that demonstrates attainment of the 8-hour ozone NAAQS by 2037.

Because Alternative 1 does not achieve the primary project objectives, **Finding 3 is applicable to Alternative 1. Therefore, the Governing Board finds that the No Project Alternative is infeasible.** [Public Resources Code 21081(a)(3) and CEQA Guidelines Section 15091(a)(3); California Native Plant Society v. City of Santa Cruz (2009) 177 Cal.App.4th 957, 1000- 1001 (upholding finding of infeasibility where agency determined alternative failed to achieve project objective)].

B. Alternative 2: Mobile Source Reductions Only

Finding and Explanation:

The Final Program EIR analyzes Alternative 2, which consists of implementing mobile source control measures proposed by both CARB and the South Coast AQMD, but no stationary source control measures. The analysis of potential impacts from each of the project alternatives concludes that Alternative 2 is the environmentally superior alternative. When not considering the environmental benefits, this conclusion is based on the fact that removing the stationary source control measures would reduce the potentially significant hazard impacts associated with the storage and transportation of ammonia and eliminate further hazards from reformulated coatings and products. Other impacts would be less than the proposed project, although still significant, including construction emissions, short-term GHG emissions, construction noise, and solid and hazardous waste impacts associated with construction debris and the early retirement of equipment. Alternative 2 would achieve over 90 tons per day of NOx emission reductions, but additional emission reductions through implementing federal CAA Section 182(e)(5) measures (an estimated 37 pounds to achieve the carrying capacity of the Basin) would be needed to comply with the federal 8-hour ozone standard (70 ppb). Alternative 2 would meet some of the project objectives with the exception that it would not attain the 2015 federal 8-hour ozone standard unless other control measures are implemented; and would not achieve widespread adoption of zero emission and low NOx technologies across all stationary sources.

The federal and state CAAs require the South Coast AQMD to revise the AQMP in order to attain the applicable ozone national ambient air quality standards. Alternative 2 would not be feasible because the South Coast AQMD is required to submit to U.S. EPA an AQMP that demonstrates attainment of the 8-hour ozone NAAQS by 2037.

Because Alternative 2 does not achieve the primary project objectives, **Finding 3 is applicable to Alternative 2. Therefore, the Governing Board finds that Alternative 2 is infeasible.** [Public Resources Code 21081(a)(3) and CEQA Guidelines Section 15091(a)(3); California Native Plant Society v. City of Santa Cruz (2009) 177 Cal.App.4th

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

C. Alternative 3: Early Implementation of Control Measures

Finding and Explanation:

The Final Program EIR analyzes Alternative 3, in which the proposed control measures identified in the project description would be unchanged, but the timeframe for implementing the proposed control measures would occur three years earlier so that all measures would be fully implemented by 2034. Alternative 3 would achieve all of the project objectives, including attainment of the 2015 federal 8-hour ozone standard (70 ppb) and would reduce ozone and its precursors on the faster implementation schedule.

Early implementation of Alternative 3 means that construction activities, including the removal and replacement of equipment (e.g., installation of new appliances and fleet turnovers) would occur over a shorter period of time. Alternative 3 would be expected to generate equivalent impacts to the proposed project in all environmental topic areas because it would implement the same control measures in a faster manner. Air quality, noise, and solid waste impacts could be greater under Alternative 3 as they would be more concentrated in time. Alternative 3 would provide greater air quality and health benefits by complying with the federal 8-hour ozone standard three years sooner than the proposed project or other alternatives and would achieve all of the project objectives. For the environmental topic areas that are identified in Alternative 3 as having potentially significant impacts, the same mitigation measures as the proposed project would also apply to Alternative 3.

Except for the feasible mitigation measures identified for the potentially significant hazards and hazardous materials impacts due to the increased risk of fire hazard from reformulating coatings, solvents, adhesives, and lubricants which can be mitigated to less than significant levels, no feasible mitigation measures were identified that would eliminate or reduce the project-level and cumulative significant adverse environmental impacts to less than significant levels if Alternative 3 is implemented 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, or liquified natural gas via on-road truck; 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.

Because Alternative 3 will have greater significant impacts over a shorter-period of time without reducing the potentially significant impacts to less than significant levels, the Governing Board finds that Alternative 3, if implemented in lieu of the proposed project, will not avoid or substantially lessen the significant environmental effects. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

D. Alternative 4: All Regulatory/Non-Incentive AlternativeFinding and Explanation:

The Final Program EIR analyzes Alternative 4, which consists of implementing only control measures that could be directly implemented by the South Coast AQMD or CARB, and for which the South Coast AQMD has the authority to regulate or for which CARB has the authority to regulate; incentive measures would be eliminated. Omitting these incentive measures from Alternative 4 would mean that 6.8 tons per day of additional emission reductions would need to be achieved through other control measures in order to attain the 70 ppb 8-hour ozone standard. The additional emission reductions needed to compensate for the omitted incentive measures could come from any of the stationary source measures through implementing federal CAA Section 182(e)(5) measures, which are currently unknown. The emission reduction goals from any or all of the stationary source measures would need to be increased in order to compensate for the loss of the emission reductions from the incentive measures. Because Alternative 4 would not include incentive funding, this alternative would achieve most of the other project objectives with the exception of: “seeking substantial funding for incentives to implement early deployment and commercialization of low NOx and zero emission and technologies,” and “prioritizing distribution of incentive funding to environmental justice areas.”

The federal and state CAAs require the South Coast AQMD to revise the AQMP in order to attain the applicable ozone national ambient air quality standards. Alternative 4 would not be feasible because the South Coast AQMD is required to submit to U.S. EPA an AQMP that demonstrates attainment of the 8-hour ozone NAAQS by 2037.

Because Alternative 4 does not achieve the primary project objectives, **Finding 3 is applicable to Alternative 4. Therefore, the Governing Board finds that Alternative 4 is infeasible.** [Public Resources Code 21081(a)(3) and CEQA Guidelines Section 15091(a)(3); California Native Plant Society v. City of Santa Cruz (2009) 177 Cal.App.4th 957, 1000- 1001 (upholding finding of infeasibility where agency determined alternative failed to achieve project objective)].

5.2 FINDINGS CONCLUSION

The following contains a summary of the findings:

- 1) Feasible mitigation measures have been identified in the Final Program EIR to help minimize potentially significant adverse impacts but no feasible mitigation measures have been identified that would eliminate or reduce the significant adverse environmental impacts to less than significant levels for the following environmental topic areas of: 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, or liquified natural gas via on-road truck; 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.

- 2) Feasible mitigation measures have been identified in the Final Program EIR that would reduce the significant adverse hazards and hazardous materials impacts due to reformulation of coatings, solvents, adhesives, and lubricants to less than significant levels.
- 3) The Final Program EIR considered alternatives pursuant to CEQA Guidelines Section 15126.6, but there is no alternative to the proposed project, other than Alternative 1: No Project Alternative, that would reduce the significant impacts to less than significant levels for all of the aforementioned environmental topic areas. Alternative 1 is not a legally viable alternative and was rejected as infeasible because it does not achieve the basic project objective that South Coast AQMD is required to submit to U.S. EPA an AQMP that demonstrates attainment of the 8-hour ozone NAAQS by 2037. [Public Resources Code 21081(a)(3) and CEQA Guidelines Section 15091(a)(3); *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 1000- 1001 (upholding finding of infeasibility where agency determined alternative failed to achieve project objective)].
- 4) Alternative 2: Mobile Source Reductions Only and Alternative 4: All Regulatory/Non-Incentive Alternative do not achieve the basic project objectives that South Coast AQMD submit to U.S. EPA an AQMP that demonstrate attainment of the 8-hour ozone NAAQS by 2037. Alternatives 2 and 4 remove some proposed control measures which eliminate emission reductions necessary to demonstrate attainment through implementing CAA Section 182(e)(5), the methods of which are currently unknown. Therefore Alternatives 2 and 4 were rejected due to infeasibility. [Public Resources Code 21081(a)(3) and CEQA Guidelines Section 15091(a)(3); *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 1000- 1001 (upholding finding of infeasibility where agency determined alternative failed to achieve project objective)].
- 5) Alternative 3: Early Implementation of Control Measures would be expected to generate equivalent benefits but more intense significant adverse impacts over a shorter period of time when compared to the proposed project for all environmental topic areas. However, Alternative 3 will not avoid or substantially lessen the significant environmental effects as identified in the Final Program EIR. [Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1)].

The Governing Board further finds that a Mitigation, Monitoring, and Reporting Plan pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097 needs to be prepared and is included herein (see Section 7.0 of this document) because feasible mitigation measures were identified for the topics of: air quality during construction; energy; hazards and hazardous materials; hydrology (water demand and water supply) and water quality; noise and vibration; and solid and hazardous waste.

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

6.0 STATEMENT OF OVERRIDING CONSIDERATIONS

If significant adverse impacts of a proposed project remain after incorporating mitigation measures, or no measures or alternatives to mitigate the adverse impacts are identified, the lead agency must make a determination that the benefits of the project outweigh the unavoidable adverse environmental effects if it is to approve the project. CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve the project. [CEQA Guidelines Section 15093(a)]. If the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered “acceptable” [CEQA Guidelines Section 15093(a)]. Accordingly, a Statement of Overriding Considerations regarding potentially significant adverse impacts to 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, or liquified natural gas via on-road truck; 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 that may result from the proposed project has been prepared. This Statement of Overriding Considerations is included as part of the record of the project approval for the proposed project. Pursuant to CEQA Guidelines Section 15093(c), the Statement of Overriding Considerations will also be noted in the Notice of Determination for the proposed project.

Having reduced the potential effects of the 2022 AQMP through all feasible mitigation measures as described previously in this attachment, and balancing the benefits of the proposed project against its potential unavoidable adverse impacts on 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, or liquified natural gas via on-road truck; 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 South Coast AQMD finds that the following legal requirements and benefits of the 2022 AQMP outweigh the potentially significant and unavoidable impacts for the following reasons:

1. Failure to submit an AQMP, comply with required AQMP provisions, or implement an approved AQMP to meet health-based standards within the required timeframes could result in sanctions from the federal government including restrictions on funds granted for transportation/highway projects, increased offset ratio, and a Federal Implementation Plan pursuant to the CAA Section 179.
2. Failure to attain the 2015 federal 8-hour ozone standard (70 ppb) could result in stationary sources paying a fee as a penalty pursuant to federal CAA Section 185.
3. The analysis of potential adverse environmental impacts incorporates a “worst-case” approach. This entails the premise that whenever the analysis requires that assumptions be made, those assumptions that result in the greatest adverse impacts are typically chosen. This method likely overestimates the actual significant adverse environmental impacts from the proposed project.

4. The proposed project would reduce ozone to attain the 2015 8-hour ozone standard by reducing its precursors, including NO_x emissions by 124 tons per day, on an expeditious implementation schedule, which would result in a public health benefit.
5. The proposed project demonstrates attainment of the 2015 federal 8-hour ozone standard (70 ppb) by 2037, as required by the federal CAA.
6. The proposed project would result in an overall reduction in toxic air contaminants, including a reduction in carcinogenic diesel PM emissions from engine exhaust, as well as a reduction in toxic air contaminants from gasoline such as benzene and 1,3-butadiene through the replacement of vehicles or equipment with more efficient, zero emission or alternative fuel vehicles or equipment.
7. The proposed project's 8-hour ozone attainment strategy will assist in meeting the federal and state 1-hour ozone standard, and federal 1997 and 2008 8-hour ozone standards.
8. The proposed project's NO_x control strategy will assist in reducing PM_{2.5} emissions and move towards attainment of the PM_{2.5} air quality standards.
9. The proposed project would reduce population exposure to ozone through the progress towards attaining the federal 8-hour ozone standard by 2037.
10. The proposed project includes all feasible measures and an expeditious adoption schedule.
11. The proposed project will demonstrate compliance with the federal CAA requirements such as RACM evaluation, the RFP demonstration for interim milestone and attainment year, and transportation conformity budget.
12. The proposed project would update planning assumptions and the best available information such as SCAG's 2020 Connect SoCal Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).
13. The proposed project would update emission inventories using 2018 as the base year and incorporate emission reductions achieved from all applicable rules and regulations and the latest demographic forecasts.
14. The proposed project would update any remaining control measures from the 2016 AQMP, as appropriate.
15. The proposed project would commit to demonstrate compliance with federal contingency measure requirements as soon as U.S. EPA releases guidance on the contingency measure development.
16. The proposed project would calculate and take credit for co-benefits from other planning efforts (e.g., GHG reduction targets, energy efficiency, and transportation control measures).
17. The proposed project would prioritize distribution of incentive funding in environmental justice areas and implement opportunities to focus air quality benefits on the most disadvantaged communities.
18. The proposed project would implement Mitigation Measures AQ-1 through AQ-26 which would reduce significant adverse construction air quality impacts to the maximum extent feasible, but not to less than significant levels, while also providing construction emission

reduction co-benefits because using Tier 4 construction engines would additionally provide PM, hydrocarbon, and toxic air contaminant emission reduction benefits.

19. The proposed project would implement Mitigation Measures E-1 through E-12 which would reduce significant adverse energy impacts to the maximum extent feasible, but not to less than significant levels.
20. The proposed project would implement Mitigation Measures HZ-1 through HZ-6 which would reduce significant adverse hazards and hazardous materials impacts relating to the transportation and storage of ammonia to the maximum extent feasible, but not to less than significant levels.
21. The proposed project would implement Mitigation Measures HZ-7 through HZ-8 which would reduce significant adverse hazards and hazardous materials impacts pertaining to fire hazards associated with some reformulated coatings, solvents, adhesives, and lubricants to less than significant levels.
22. The proposed project would implement Mitigation Measures HWQ-1 through HWQ-5 which would reduce significant adverse hydrology and water quality impacts to the maximum extent feasible, but not to less than significant levels.
23. The proposed project would implement Mitigation Measures NS-1 through NS-14 which would reduce significant adverse construction noise and vibration impacts to the maximum extent feasible, but not to less than significant levels.
24. The proposed project would implement Mitigation Measure SHW-1 through SHW-3 which would reduce significant adverse solid and hazardous waste impacts to the maximum extent feasible, but not to less than significant levels.

In balancing the benefits of the overall project described above with the proposed project's significant and unavoidable environmental impacts, South Coast AQMD Governing Board finds that the proposed project's benefits individually and collectively outweigh the significant and unavoidable impacts, such that these impacts are acceptable. The South Coast AQMD Governing Board further finds that substantial evidence presented in the Final Program EIR supports certifying the Final Program EIR despite the proposed project's potentially significant and unavoidable impacts.

7.0 MITIGATION, MONITORING, AND REPORTING PLAN

Pursuant to CEQA Guidelines Section 15097 and Public Resources Code Section 21081.6, when a public agency conducts an environmental review of a proposed project in conjunction with approving it, the lead agency shall adopt a program for monitoring or reporting on the measures it has imposed to mitigate or avoid significant adverse environmental effects. Public Resources Code Section 21081.6 states in part that when making the findings required by Public Resources Code Section 21081(a):

“...the public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation. For those changes which

have been required or incorporated into the project at the request of a responsible agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the lead or responsible agency, prepare and submit a proposed reporting or monitoring program.”

No responsible agencies or public agencies with jurisdiction by law over natural resources affected by the 2022 AQMP have requested changes or mitigation measures to be incorporated into the 2022 AQMP relative to the potentially significant adverse environmental impacts. Further, it should be noted that the South Coast AQMD does not construct or operate projects that may result from implementing 2022 AQMP control measures as rules or regulations. As a single purpose public agency responsible for adopting and enforcing air quality rules and regulations, where applicable and within the jurisdiction of the South Coast AQMD, enforcement of implementing mitigation measures, monitoring, and reporting requirements described in this Mitigation, Monitoring, and Reporting Plan (MMRP) is the responsibility of the South Coast AQMD as the lead agency under CEQA. However, as noted in discussions under Findings, some of the mitigation measures identified in the Final Program EIR for the 2022 AQMP may not be within the jurisdiction of the South Coast AQMD, but are within the jurisdiction of local land use agencies, project sponsors, public agencies having jurisdiction by law over natural resources affected by the project, or other CEQA lead agencies.

A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed, the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the MMRP. [CEQA Guidelines Section 15097 (a)]. As a result, this MMRP will identify other public agencies that “can and should” comply with CEQA in assessing and mitigating project-specific impacts.

Finally, the responsibility for conducting mitigation monitoring and reporting as described in this MMRP will vary depending on the location and jurisdiction of individual projects because the individual projects resulting from implementing 2022 AQMP control measures as rules or regulations may affect a wide variety of commercial, institutional, industrial, and residential emission sources located throughout the jurisdiction of the South Coast AQMD. It is expected that additional and more specific mitigation measures and monitoring requirements may be developed as specific rules are promulgated to implement the control measures in the 2022 AQMP. Similarly, additional and more specific mitigation measures and monitoring requirements may be required for individual projects required to comply with any future rules or regulations that must also undergo an environmental analysis pursuant to CEQA.

To fulfill the requirements of Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097, the South Coast AQMD has developed this MMRP for anticipated impacts resulting from implementing the 2022 AQMP. Each operator of any facility required to comply with a MMRP shall keep records onsite of applicable compliance activities to demonstrate the steps taken to assure compliance with all of the mitigation measures, as applicable.

A. Air Quality Impacts During Construction

Impacts Summary: Project-specific and cumulative construction-related emissions of criteria air pollutants, based on a “worst-case” analysis, would exceed the South Coast AQMD’s regional mass daily significance thresholds. Emission sources include worker vehicles and heavy construction equipment. The following mitigation measures are intended to minimize the emissions associated with these sources during construction activities. No feasible mitigation measures have been identified to reduce air quality during construction impacts to less than significant levels.

Mitigation Measures: The following construction air quality mitigation measures are intended to reduce potential construction emissions associated with construction-related emission sources to the maximum extent feasible and the timing of implementation would be ongoing for the life of the 2022 AQMP:

- 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 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 or near-zero emission 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 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).

If, at the time when each facility-specific project is proposed, improved emission reduction technologies become available for on- and off-road construction equipment, the construction mitigation measures will be updated accordingly as part of the CEQA evaluation for the facility-specific project.

Implementing Parties: Because the 2022 AQMP is a regional plan that can be characterized as an ongoing regulatory program, some of the 2022 AQMP construction air quality mitigation measures in this MMRP may be described as general policies, although some refer to specific actions. The South Coast AQMD finds that the party or parties responsible for implementing construction air quality mitigation measures from the Final Program EIR for the 2022 AQMP for future projects that have the potential to generate construction air quality impacts from complying with 2022 AQMP control measures promulgated as rules or regulations would be project applicants, project sponsors, or public agencies within the jurisdiction of the South Coast AQMD.

To the extent that the South Coast AQMD is the lead agency for future projects that must comply with 2022 AQMP control measures promulgated as rules or regulations, the South Coast AQMD can enforce implementation of these construction air quality mitigation

measures through its authority to impose binding permit conditions at the time applications for air permits are processed and approved. Similarly, if the South Coast AQMD is a responsible agency for such future projects, it would still have the ability to enforce 2022 AQMP mitigation measures through its authority to impose permit conditions at the time applications seeking air permits are processed and approved. If the South Coast AQMD has no approval authority over future projects that have the potential to generate construction air quality impacts from complying with 2022 AQMP control measures which will be promulgated as rules or regulations, then the public agency with primary approval authority over these future projects can and should impose these construction air quality mitigation measures through its authority to impose permit conditions at the time applications seeking permits are processed and approved or through other legally binding instruments.

Monitoring Agency: Because future projects to implement 2022 AQMP control measures promulgated as rules or regulations could be undertaken by project applicants, project sponsors, or public agencies throughout the jurisdiction of the South Coast AQMD, the monitoring agency is expected to vary and may include a variety of public agencies performing the role of lead agency. Mitigation monitoring (MM) would be accomplished by the following implementation requirements for each mitigation measure:

- MMAQ-1:** A project applicant, project sponsor, or public agency shall include in all construction contracts the requirement to develop a Construction Emission Management Plan to: limit trucks, consolidate deliveries, describe truck routes, describe entry/exit points, identify parking, outline a construction schedule, prohibit idling in excess of five consecutive minutes, and include Best Management Practices. The Construction Emission Management Plan must be approved by the South Coast AQMD or lead agency or other public agency with project oversight, as applicable, prior to commencement of construction activities and must be available onsite during the entire construction phase.
- MMAQ-2:** A project applicant, project sponsor, or public agency, in cooperation with the construction contractors, will maintain vehicle and equipment maintenance records for the construction portion of the proposed project. All construction vehicles must be maintained in compliance with the manufacturer's recommended maintenance schedule. A project applicant, project sponsor, or public agency will maintain their construction equipment and the construction contractor will be responsible for maintaining their equipment and maintenance records. All maintenance records for each facility and their construction contractor(s) will remain on-site for a period of at least two years from completion of construction.
- MMAQ-3:** A project applicant, project sponsor, or public agency and/or their construction contractor(s) will conduct a survey of the proposed project construction area(s) to assess whether the existing infrastructure can provide access to electricity, as available, within the facility or construction

site, in order to operate electric on-site mobile equipment. For example, each project applicant, project sponsor, or public agency and/or their construction contractor(s) will assess the number of electrical welding receptacles available.

Construction areas within the facility or construction site where electricity is and is not available must be clearly identified on a site plan. The use of non-electric onsite mobile equipment shall be prohibited in areas of the facility that are shown to have access to electricity. The use of electric on-site mobile equipment within these identified areas of the facility or construction site will be allowed.

A project applicant, project sponsor, or public agency shall include in all construction contracts the requirement that the use of non-electric on-site mobile equipment is prohibited in certain portions of the facility as identified on the site plan. A project applicant, project sponsor, or public agency shall maintain records that indicate the location within the facility or construction site where all electric and non-electric on-site mobile equipment are operated, if at all, for a period of at least two years from completion of construction.

MMAQ-4: A project applicant, project sponsor, or public agency and/or their construction contractor(s) shall evaluate the use of alternative fuels (renewable combustion fuels and hydrogen) for on-site mobile construction equipment prior to the commencement of construction activities, provided that suitable equipment is available for the activity. Equipment vendors shall be contacted to determine the commercial availability of alternative-fueled construction equipment. Priority should be given during the bidding process for contractors committing to use alternative-fueled construction equipment. A list of equipment that can use alternative fuels, as well as those that cannot, will be maintained as part of the Construction Emissions Management Plan.

MMAQ-5: A project applicant, project sponsor, or public agency shall include in all construction contracts the requirement that all off-road diesel-powered construction equipment greater than 50 hp shall 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. In addition, construction equipment shall incorporate, where feasible, emissions savings 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 as information becomes available. A project applicant, project sponsor, or public agency shall include a copy of each unit's certified tier specification, BACT documentation, and CARB or South Coast AQMD operating permit as part of the Construction Emission Management Plan.

A project applicant, project sponsor, or public agency shall also encourage construction contractors to apply for South Coast AQMD "SOON" funding incentives to help accelerate the clean-up of off-road diesel vehicles, such as heavy duty construction equipment.

- MMAQ-6** A project applicant, project sponsor, or public agency and/or their construction contractor(s) shall evaluate the availability of zero and near-zero emission on-road haul trucks prior to the commencement of construction activities, provided that suitable equipment is available for the activity. Equipment vendors shall be contacted to determine the commercial availability of zero and near-zero emission trucks. Priority should be given during the bidding process for contractors committing to use zero and near-zero emission trucks.
- MMAQ-7** A project applicant, project sponsor, or public agency and/or their construction contractor(s) shall evaluate the availability of zero and near-zero emission construction equipment and the availability of electrical infrastructure prior to the commencement of construction activities. Equipment vendors shall be contacted to determine the commercial availability of zero and near-zero emission construction equipment. The infrastructure should be provided to support the use of such equipment, where feasible, including appropriately sized electric vehicle/equipment charging stations. Priority should be given during the bidding process for contractors committing to use zero and near-zero emission trucks.
- MMAQ-8:** A project applicant, project sponsor, or public agency shall provide temporary traffic controls such as a flag person, during all phases of significant construction activity to maintain smooth traffic flow.
- MMAQ-9:** A project applicant, project sponsor, or public agency shall provide dedicated turn lanes for the movement of construction trucks and equipment on- and off-site, where applicable.
- MMAQ-10:** A project applicant, project sponsor, or public agency shall re-route construction trucks away from congested streets or sensitive receptor areas using trailblazer signs, where applicable. Truck routes shall be provided to all construction workers prior to the beginning of construction activities.
- MMAQ-11:** A project applicant, project sponsor, or public agency shall coordinate with their local city to improve traffic flow by signal synchronization in the area

near the construction site. The check-in point for trucks will be inside the project area and shall be identified and provided to truck drivers prior to the beginning of construction activities.

MMAQ-12: A project applicant, project sponsor, or public agency shall identify routes for on-site vehicle traffic as far away from sensitive receptor areas as possible, where applicable. On-site vehicle routes shall be provided to all construction workers prior to the beginning of construction activities.

MMAQ-13: A project applicant, project sponsor, or public agency shall coordinate with the construction contractor to site truck parking areas onsite or at some designated location off-site that avoids parking in residential or other sensitive land use areas. The parking locations shall be identified and provided to truck drivers prior to the commencement of construction activities.

MMAQ-14: A project applicant, project sponsor, or public agency shall route construction trucks away from sensitive receptor locations, including the entrances and exits to the project site, where applicable. Truck routes shall be provided to all construction workers prior to the beginning of construction activities.

MMAQ-15: A project applicant, project sponsor, or public agency shall ensure that drivers understand that traffic speeds on all unpaved roads will be limited to 15 mph or less. In addition, a project applicant, project sponsor, or public agency shall post signs on all unpaved roads indicating a speed limit of 15 mph or less.

MMAQ-16: A project applicant, project sponsor, or public agency shall enter into a contract that notifies all vendors and construction contractors that during deliveries, truck idling time will be limited to no longer than five 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. For any delivery that is expected to take longer than five minutes, each project applicant, project sponsor, or public agency will require the truck's operator to shut off the engine. A project applicant, project sponsor, or public agency will notify the vendors of these idling requirements at the time that the purchase order is issued and again when trucks enter the gates of the facility. To further ensure that drivers understand the truck idling requirement, each project applicant, project sponsor, or public agency shall post signs at each facility entry gates stating idling longer than five minutes is not permitted.

MMAQ-17: A project applicant, project sponsor, or public agency shall schedule construction activities that affect traffic flow on the arterial system to occur during off-peak hours to the greatest extent practicable.

- MMAQ-18:** If and when winds speeds exceed 25 mph, each project applicant, project sponsor, or public agency shall suspend all excavating and grading activities and shall record the date and time when the use of construction equipment associated with these construction activities are suspended. This log shall be maintained on-site for a period of at least two years from completion of construction.
- MMAQ-19:** If and when any first stage smog alert occurs, each project applicant, project sponsor, or public agency shall record the date and time of each alert, shall suspend all construction activities that generate emissions, and shall record the date and time when the use of construction equipment and construction activities are suspended. This log shall be maintained on-site for a period of at least two years from completion of construction.
- MMAQ-20:** A project applicant, project sponsor, or public agency shall coordinate with the construction contractor to site parking areas to minimize interference with roadway traffic. The parking locations shall be identified and provided to construction workers prior to the commencement of construction activities.
- MMAQ-21:** A project applicant, project sponsor, or public agency shall include in all construction contracts the requirement to cover all haul trucks delivering or hauling away dirt, sand, soil, or other loose materials.
- MMAQ-22:** A project applicant, project sponsor, or public agency shall require the construction contractor to install and use wheel washers where vehicles travel on dirt roads and enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site for each trip to prevent drag-out.
- MMAQ-23:** A project applicant, project sponsor, or public agency shall require the construction contractor to apply non-toxic soil stabilizers according to manufacturers' specifications to all inactive construction areas (e.g., previously graded areas inactive for ten days or more).
- MMAQ-24:** A project applicant, project sponsor, or public agency shall require the construction contractor to replace ground cover in disturbed areas as quickly as possible to minimize dust, where applicable.
- MMAQ-25:** A project applicant, project sponsor, or public agency shall require the construction contractor to pave road and road shoulders, where applicable.
- MMAQ-26:** A project applicant, project sponsor, or public agency shall require the construction contractor to sweep streets at the end of the day using sweepers compliant with South Coast AQMD Rules 1186 and 1186.1 if visible soil is

carried onto adjacent public paved roads. In the event that water sweepers are used, each project applicant, project sponsor, or public agency shall recommend the construction contractor to use reclaimed water.

B. Energy Impacts Due to Increased Electricity, Natural Gas, and Hydrogen Demand

Impacts Summary: The 2022 AQMP could result in an increase in electricity demand of up to 11 percent by 2037 due to an increased penetration of near-zero and zero emission technologies combined with operating new control equipment. In addition, the 2022 AQMP could result in an increase in demand for natural gas and hydrogen, beyond that which is currently available as a result of the 2022 AQMP. Because the projected increase in electricity, hydrogen, and natural gas demand would be expected to exceed baseline use, these energy impacts were determined to be significant such that mitigation measures are required. The following mitigation measures are intended to minimize the energy impacts associated with these activities. No feasible mitigation measures have been identified to reduce energy impacts to less than significant levels.

Mitigation Measures: The energy mitigation measures identified in the following paragraphs are intended energy impacts to the maximum extent feasible. The timing of implementing the energy mitigation measures would be ongoing over the life of the 2022 AQMP and includes the following mitigation measures:

- 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-5 Project sponsors should evaluate the potential for reducing peak energy demand by encouraging charging of electrical vehicles and other mobile sources during off-peak hours.
- E-6 Project sponsors should evaluate the potential for reducing peak energy demand by encouraging the use of catenary or way-side electrical systems developed for transportation systems to operate during off-peak hours.

- 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.
- 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.
- E-10 Project sponsors should pursue incentives to encourage the use of energy efficient equipment and vehicles and promote energy conservation associated with hydrogen production.
- E-11 Project sponsors should site new facilities in areas where infrastructure exists to reduce the amount of energy necessary to build new hydrogen production facilities.
- E-12 Project sponsors should pursue hydrogen production and delivery through the most energy efficient, least environmentally impactful methods, where feasible.

Implementing Parties: Because the 2022 AQMP is a regional plan that can be characterized as an ongoing regulatory program, some of the energy demand mitigation measures in this MMRP may be described as general policies, although some refer to specific actions. The South Coast AQMD finds that the party or parties responsible for implementing energy mitigation measures in the Final Program EIR for future projects with the potential to generate electricity, natural gas and hydrogen demand impacts due to complying with 2022 AQMP control measures promulgated as rules or regulations would be project applicants, project sponsors, and public agencies, including cities or counties, within South Coast AQMD's jurisdiction.

To the extent that the South Coast AQMD is the lead agency for future projects that must comply with 2022 AQMP control measures promulgated as rules or regulations, the South Coast AQMD may be able to enforce implementation of some of the energy mitigation measures through its authority to impose binding permit conditions at the time applications for air permits are processed and approved. Similarly, if the South Coast AQMD is a responsible agency for such future projects, it would still have the ability to enforce 2022 AQMP mitigation measures through its authority to impose permit conditions at the time applications seeking air permits are processed and approved. If the South Coast AQMD has no approval authority over future projects that have the potential to generate energy demand impacts from complying with 2022 AQMP control measures which will be promulgated as rules or regulations, then the public agency with primary approval authority over these future projects can and should impose 2022 AQMP Final Program EIR mitigation measures through its authority to impose permit conditions at the time

applications for permits are processed and approved or through other legally binding instruments. Similarly, to the extent allowed by state and federal regulations, electricity, natural gas, and hydrogen generating utilities located within the jurisdiction of the South Coast AQMD as the entities that provide energy resources to users may be responsible for implementing some of the 2022 AQMP Final Program EIR mitigation measures, specifically those mitigation measures that call for increased energy generating and supply capacities.

Monitoring Agency: Because future projects to implement 2022 AQMP control measures promulgated as rules or regulations could be undertaken by project applicants, project sponsors, or public agencies throughout the jurisdiction of the South Coast AQMD, the monitoring agency is expected to vary and may include a variety of public agencies performing the role of lead agency. Mitigation monitoring (MM) would be accomplished by the following implementation requirements for each mitigation measure:

- MME-1:** A project applicant, project sponsor, or public agency shall provide to the lead agency documentation for approval of incentives to encourage the use of energy efficient equipment and vehicles and promote energy conservation prior to the beginning of project operation of electricity generation.
- MME-2:** To the extent allowed by state and federal law, electricity generating utilities within the jurisdiction of the South Coast AQMD can and should increase capacity of existing transmission lines to meet forecast electricity demand that supports sustainable growth, where feasible and appropriate in coordination with local planning agencies.
- MME-3** The project applicant, project sponsor, or public agency shall submit projected electricity calculations to the local electricity provider for any project anticipated to require substantial electricity consumption. Such electricity calculations can and should be used by the local electricity provider when forecasting future electricity demand. Any infrastructure improvements necessary should be completed according to the specifications of the electricity provider.
- MME-4** The project applicant, project sponsor, or public agency shall include energy analyses in environmental documentation with the goal of conserving energy through the wise and efficient use of energy. These analyses should be provided in the applicable CEQA documents, when required.
- MME-5** The project applicant, project sponsor, or public agency shall evaluate the potential for reducing peak energy demand by encouraging charging of electrical vehicles and other mobile sources during off-peak hours.
- MME-6** The project applicant, project sponsor, or public agency shall evaluate the potential for reducing peak energy demand by encouraging the use of

catenary or way-side electrical systems developed for transportation systems to operate during off-peak hours.

- MME-7** The project applicant, project sponsor, or public agency shall evaluate the potential for reducing peak energy demand by encouraging the use of electrified stationary sources during off-peak hours (e.g., cargo handling equipment).
- MME-8** The project applicant, project sponsor, or public agency shall evaluate the potential for using renewable gas, where available and feasible, including biofuel landfill gas and gas from renewable fuels projects.
- MME-9** The project applicant, project sponsor, or public agency shall submit projected natural gas calculations to the local gas company for any project anticipated to require substantial natural gas consumption. Such natural gas calculations can and should be used by the local gas provider when forecasting future natural gas demand. Any infrastructure improvements necessary should be completed according to the specifications of the natural gas provider.
- MME-10:** A project applicant, project sponsor, or public agency shall provide to the lead agency documentation for approval of incentives to encourage the use of energy efficient equipment and vehicles and promote energy conservation prior to the beginning of project operation for hydrogen production.
- MME-11:** A project applicant, project sponsor, or public agency shall encourage projects that provide energy to located in areas where existing infrastructure (e.g., pipelines) currently exists to minimize distance required to transport energy resources and reduce energy impacts.
- MME-12:** A project applicant, project sponsor, or public agency shall provide to the lead agency documentation that the location of any new hydrogen plant is in an area where hydrogen can be delivered efficiently to the end user(s).

C. Hazards and Hazardous Materials Impacts

Impacts Summary: The fire hazard impacts from the use reformulated coatings, solvents, and consumer products would be significant because more flammable materials may be used in these materials and because the South Coast AQMD cannot predict which materials and the quantities that maybe be used at each affected facility in the future as reformulated products become available. There may be significant hazards impacts associated with a rupture or spill occurring either during the transportation or storage of LNG and ammonia.

The following mitigation measures are intended to minimize the hazards associated with these activities. No feasible mitigation measures have been identified to reduce hazards and hazardous materials impacts to less than significant levels.

Mitigation Measures: The following mitigation measures are required to reduce hazards and hazardous materials impacts for any facility that would require a new aqueous ammonia storage tank and the offsite consequence analysis indicates that sensitive receptors will be located within the toxic endpoint distance. The timing of implementing the hazards and hazardous materials mitigation measures would be ongoing over the life of the 2022 AQMP and includes the following mitigation measures:

- HZ-1 Use of aqueous ammonia at concentrations less than 19 percent by weight.
- HZ-2 Install safety devices, including but not limited to: continuous tank level monitors (e.g., high and low level), temperature and pressure monitors, leak monitoring and detection system, alarms, check valves, and emergency block valves.
- HZ-3 Install secondary containment such as dikes and/or berms to capture 110 percent of the storage tank volume in the event of a spill.
- HZ-4 Install a grating-covered trench around the perimeter of the delivery bay to passively contain potential spills from the tanker truck during the transfer of aqueous ammonia from the delivery truck to the storage tank.
- HZ-5 Equip the truck loading/unloading area with an underground gravity drain that flows to a large on-site retention basin to provide sufficient ammonia dilution to minimize the offsite hazards impacts to the maximum extent feasible in the event of an accidental release during transfer of aqueous ammonia.
- HZ-6 Install tertiary containment that is capable of evacuating 110 percent of the storage tank volume from the secondary containment area.
- HZ-7: Add consumer warning requirements for all flammable and extremely flammable products.

- HZ-8: Add requirements to conduct a public education and outreach program in joint cooperation with local fire departments regarding flammable and extremely flammable products that may be included in consumer paint thinners and multi-purpose solvents.

Implementing Parties: Because the 2022 AQMP is a regional plan that can be characterized as an ongoing regulatory program, some of the hazards and hazardous materials mitigation measures in this MMRP may be described as general policies, although some refer to specific actions. The South Coast AQMD finds that the party or parties responsible for implementing hazards and hazardous materials mitigation measures in the Final Program EIR for the 2022 AQMP for future projects that have the potential to generate hazards and hazardous materials impacts from complying with 2022 AQMP control measures promulgated as rules or regulations would be project applicants, project sponsors, and public agencies, including cities or counties, within the jurisdiction of the South Coast AQMD.

To the extent that the South Coast AQMD is the lead agency for future projects that must comply with 2022 AQMP control measures promulgated as rules or regulations, the South Coast AQMD may be able to enforce implementation of some of the hazards and hazardous materials mitigation measures through its authority to impose binding permit conditions at the time applications for air permits are processed and approved. Similarly, if the South Coast AQMD is a responsible agency for such future projects, it would still have the ability to enforce 2022 AQMP mitigation measures through its authority to impose permit conditions at the time applications seeking air permits are processed and approved. If the South Coast AQMD has no approval authority over future projects that have the potential to generate hazards and hazardous materials impacts from complying with 2022 AQMP control measures which will be promulgated as rules or regulations, then the public agency with primary approval authority over these future projects can and should impose 2022 AQMP Final Program EIR mitigation measures through its authority to impose permit conditions at the time applications for permits are processed and approved or through other legally binding instruments.

Monitoring Agency: Because future projects to implement 2022 AQMP control measures promulgated as rules or regulations could be undertaken by project applicants, project sponsors, or public agencies throughout the jurisdiction of the South Coast AQMD, the monitoring agency is expected to vary and may include a variety of public agencies performing the role of lead agency. Monitoring would be accomplished by the following implementation requirements for each mitigation measure:

- MMHZ-1** The project applicant, project sponsor, or public agency shall ensure that the aqueous ammonia used in air pollution control equipment is less than 19 percent ammonia by weight.
- MMHZ-2** The project applicant, project sponsor, or public agency shall ensure that tank level monitors, temperature and pressure monitors, leak monitoring and detection systems, alarms, check valves, and emergency block valves are installed on all applicable equipment (e.g., LNG tanks).

- MMHZ-3** The project applicant, project sponsor, or public agency shall ensure the installation of secondary containment (e.g., berms) for LNG tanks, and other tanks storing hazardous materials, as applicable.
- MMHZ-4** The project applicant, project sponsor, or public agency shall ensure the installation of a grating-covered trench or other form of secondary containment to contain potential spills from tanker trucks during the transfer of aqueous ammonia from the delivery truck to the storage tank.
- MMHZ-5** The project applicant, project sponsor, or public agency shall ensure the ammonia truck loading/unloading area is equipped with an underground gravity drain that flows to an onsite retention basin/containment area that provides sufficient ammonia dilution to minimize the potential offsite hazards impacts in the event of an accidental release during the transfer of aqueous ammonia.
- MMHZ-6** The project applicant, project sponsor, or public agency shall ensure the installation of tertiary containment that is capable of evacuating 110 percent of the storage tank volume from the secondary containment area.
- MMHZ-7** The project applicant, project sponsor, or public agency shall add consumer warning requirements for all flammable and extremely flammable products.
- MMHZ-8** The project applicant, project sponsor, or public agency shall add requirements to conduct a public education and outreach program in joint cooperation with local fire departments regarding flammable and extremely flammable products that may be included in reformulated products, especially for reformulated consumer paint thinners and multi-purpose solvents.

D. Water Demand and Water Quality Impacts

Impacts Summary: For control measures where water demand can be estimated, the increase in daily water demand would exceed the 262,820 gallons per day significance threshold for potable water. Additional water use is required for construction activities and also may be required for the manufacture of alternative fuels. Due to the extreme drought conditions and uncertainty about future water supplies, implementation of the control measures in the 2022 AQMP as a whole may have a significant impact on both water demand and water supplies. In addition, the analysis in this Program EIR concludes that implementation of the 2022 AQMP has the potential to require or result in the relocation or construction of new or expanded wastewater treatment facilities. While the issuance of facility-specific industrial wastewater permits or NPDES permits, by their regulatory nature, would likely minimize the water quality impacts to the fullest extent possible, the mitigation measures are not expected to fully eliminate the significant water quality impacts. Therefore, water quality impacts that may result from the proposed project are expected to remain significant after mitigation.

The following mitigation measures are intended to minimize the impacts associated with water supply, water demand, and water quality. No feasible mitigation measures have been identified to reduce water demand, supply, and water quality impacts to less than significant levels.

Mitigation Measures: The mitigation measures identified in the following paragraphs are intended to reduce water demand, supply, and water quality impacts to the maximum extent feasible. The timing of implementing the hydrology and water quality mitigation measures would be ongoing over the life of the 2022 AQMP and includes the following mitigation measures:

- HWQ-1: Local water agencies should continue to evaluate future water demand and establish the necessary supply and infrastructure to meet that demand, as documented in their Urban Water Management Plans.
- HWQ-2: Project sponsors should coordinate with the local water provider to ensure that existing or planned water supply and water conveyance facilities are capable of meeting water demand/pressure requirements. In accordance with California law, a Water Supply Assessment should be required for projects that meet the size requirements specified in the regulations. In coordination with the local water provider, each project sponsor will identify specific on- and off-site improvements needed to ensure that impacts related to water supply and conveyance demand/pressure requirements are addressed prior to issuance of a certificate of occupancy. Water supply and conveyance demand/pressure clearance from the local water provider will be required at the time that a water connection permit application is submitted.
- HWQ-3: Project sponsors should implement water conservation measures and use recycled or reclaimed water for appropriate end uses.
- HWQ-4: Project sponsors should consult with the local water provider to identify feasible and reasonable measures to reduce water consumption.
- HWQ-5: For any project that would increase the generation of wastewater, the facility must review diversion options for reusing the treated wastewater on-site, in lieu of discharge, where applicable and feasible.

Implementing Parties: Because the 2022 AQMP is a regional plan that can be characterized as an ongoing regulatory program, some of the water demand/supply and water quality mitigation measures in this MMRP may be described as general policies, although some refer to specific actions. The South Coast AQMD finds that the party or parties responsible for implementing mitigation measures for future projects that have the potential to generate hydrology and water quality impacts from complying with 2022 AQMP control measures promulgated as rules or regulations would be project applicants, project sponsors, public agencies, and water provider utilities within the jurisdiction of the South Coast AQMD.

To the extent that the South Coast AQMD is the lead agency for future projects that must comply with 2022 AQMP control measures promulgated as rules or regulations, the South Coast AQMD may be able to enforce implementation of some of the water demand and water quality mitigation measures through its authority to impose binding permit conditions at the time applications for air permits are processed and approved. Similarly, if the South Coast AQMD is a responsible agency for such future projects, it would still have the ability to enforce 2022 AQMP mitigation measures through its authority to impose permit conditions at the time applications seeking air permits are processed and approved. If the South Coast AQMD has no approval authority over future projects that have the potential to generate water demand and water quality impacts from complying with 2022 AQMP control measures which will be promulgated as rules or regulations, then the public agency with primary approval authority over these future projects can and should impose 2022 AQMP mitigation measures through its authority to impose permit conditions at the time applications for permits are processed and approved or through other legally binding instruments. Similarly, to the extent allowed by state and federal regulations, water provider utilities within the jurisdiction of the South Coast AQMD as the entities that provide water to users, as well as wastewater treatment providers, may be responsible for implementing some of the 2022 AQMP Final Program EIR mitigation measures.

Monitoring Agency: Because future projects to implement 2022 AQMP control measures promulgated as rules or regulations could be undertaken by project applicants, project sponsors, public agencies, water provider utilities throughout the jurisdiction of the South Coast AQMD, the monitoring agency is expected to vary and may include a variety of public agencies performing the role of lead agency. Mitigation monitoring (MM) would be accomplished by the following implementation requirements for each mitigation measure:

MMHWQ-1 The project applicant, project sponsor, or public agency shall work with local water agencies to continue to evaluate future water demand and establish the necessary supply and infrastructure to meet that demand, as documented in their Urban Water Management Plans.

MMHWQ-2 The project applicant, project sponsor, or public agency shall coordinate with the local water provider to ensure that existing or planned water supply and water conveyance facilities are capable of meeting water demand/pressure requirements. In accordance with State Law, a Water Supply Assessment shall be required for projects that meet the size requirements specified in the regulations. In coordination with the local water provider, each project sponsor shall identify specific on- and off-site improvements needed to ensure that impacts related to water supply and conveyance demand/pressure requirements are addressed prior to issuance of a certificate of occupancy. Water supply and conveyance demand/pressure clearance from the local water provider shall be required at the time that a water connection permit application is submitted.

MMHWQ-3 The project applicant, project sponsor, or public agency shall implement water conservation measures and use recycled water for appropriate end uses.

MMHWQ-4 The project applicant, project sponsor, or public agency shall consult with the local water provider to identify feasible and reasonable measures to reduce water consumption.

MMHWQ-5 The project applicant, project sponsor, or public agency shall review and evaluate the options for reusing wastewater generated on-site, in lieu of discharge, where applicable and feasible.

E. Noise and Vibration Impacts During Construction

Impacts Summary: Implementing the 2022 AQMP is expected to require construction activities that include the construction of roadway near transportation corridors, and it is not uncommon for residences and other sensitive receptors to be located within several hundred feet of the existing roadways. Therefore, the noise and vibration impacts during construction activities are considered significant. The following mitigation measures are intended to minimize the emissions associated with construction noise and vibration. No feasible mitigation measures have been identified to reduce construction noise and vibration impacts to less than significant levels.

Mitigation Measures: The mitigation measures identified in the following paragraphs are intended to reduce construction noise and vibration impacts to the maximum extent feasible. The timing of implementing the construction noise and vibration mitigation measures would be ongoing over the life of the 2022 AQMP and includes the following mitigation measures:

- NS-1 Install temporary noise barriers to protect sensitive receptors from excessive noise levels during construction.
- NS-2 Schedule construction activities consistent within the allowable hours pursuant to the applicable general plan noise element or noise ordinance. For construction activities located near sensitive receptors, ensure noise-generating construction activities (including truck deliveries, pile driving, and blasting) are limited to the least noise-sensitive times of day (e.g., weekdays during the daytime hours). Where construction activities are authorized to occur outside of the limits established by the noise element of the general plan or noise ordinance, notify affected sensitive receptors and all parties who will experience noise levels in excess of the allowable limits for the specified land use, of the anticipated level of exceedance and duration of exceedance; and provide a list of protective measures that can be undertaken by the individual, including temporary relocation or use of hearing protective devices.
- NS-3 Prohibit idling of construction equipment for extended periods of time in the vicinity of sensitive receptors.
- NS-4 Post procedures and phone numbers at the construction site for notifying the Lead Agency staff, local Police Department, and construction contractor (during regular construction hours and off-hours), along with permitted

- construction days and hours, complaint procedures, and who to notify in the event of a problem.
- NS-5 Notify neighbors and occupants within 300 feet of the project construction area at least 30 days in advance of anticipated times when noise levels are expected to exceed limits established in the noise element of the general plan or noise ordinance.
- NS-6 Hold a preconstruction meeting with job inspectors and the general contractor/onsite project manager to confirm that noise measures and practices (including construction hours, neighborhood notification, posted signs, etc.) are completed.
- NS-7 Designate an on-site construction complaint and enforcement manager for the project.
- NS-8 Ensure that construction equipment is properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds silencers, wraps). All intake and exhaust ports on power equipment shall be muffled or shielded.
- NS-9 Use hydraulically or electrically powered tools (e.g., jack hammers, pavement breakers, and rock drills) for project construction to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust should be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves should be used, if such jackets are commercially available, and this could achieve a further reduction of 5 dBA. Quieter procedures should be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.
- NS-10 Locate fixed/stationary equipment (such as generators, compressors, rock crushers, and cement mixers) as far as possible from noise-sensitive receptors.
- NS-11 Consider using flashing lights instead of audible back-up alarms on mobile equipment.
- NS-12 For construction activities that require pile driving or other techniques that result in excessive noise or vibration, such as blasting, develop site-specific noise/vibration attenuation measures under the supervision of a qualified acoustical consultant.
- NS-13 For construction activities at locations that require pile driving due to geological conditions, utilize quiet pile driving techniques such as predrilling the piles to

the maximum feasible depth, where feasible. Predrilling pile holes will reduce the number of blows required to completely seat the pile and will concentrate the pile driving activity closer to the ground where pile driving noise can be shielded more effectively by a noise barrier/curtain.

- NS-14 Monitor the effectiveness of noise reduction measures by taking noise measurements and installing adaptive mitigation measures to achieve the standards for ambient noise levels established by the noise element of the general plan or noise ordinance.

Implementing Parties: Because the 2022 AQMP is a regional plan that can be characterized as an ongoing regulatory program, some of the construction noise and vibration mitigation measures in this MMRP may be described as general policies, although some refer to specific actions. The South Coast AQMD finds that the party or parties responsible for implementing mitigation measures for future projects that have the potential to generate construction noise and vibration impacts from complying with 2022 AQMP control measures promulgated as rules or regulations would be project applicants, project sponsors, and public agencies within the jurisdiction of the South Coast AQMD.

To the extent that the South Coast AQMD is the lead agency for future projects that must comply with 2022 AQMP control measures promulgated as rules or regulations, the South Coast AQMD may be able to enforce implementation of some of the construction noise and vibration mitigation measures through its authority to impose binding permit conditions at the time applications for air permits are processed and approved. Similarly, if the South Coast AQMD is a responsible agency for such future projects, it would still have the ability to enforce 2022 AQMP mitigation measures through its authority to impose permit conditions at the time applications seeking air permits are processed and approved. If the South Coast AQMD has no approval authority over future projects that have the potential to generate construction noise and vibration impacts from complying with 2022 AQMP control measures which will be promulgated as rules or regulations, then the public agency with primary approval authority over these future projects can and should impose 2022 AQMP mitigation measures through its authority to impose permit conditions at the time applications for permits are processed and approved or through other legally binding instruments. Similarly, to the extent allowed by state and federal regulations, cities or counties within the jurisdiction of the South Coast AQMD as the entities that regulate noise sources through ordinances or general plan noise elements, may be responsible for implementing some of the 2022 AQMP Final Program EIR mitigation measures.

Monitoring Agency: Because future projects to implement 2022 AQMP control measures promulgated as rules or regulations could be undertaken by project applicants, project sponsors, or public agencies throughout the jurisdiction of the South Coast AQMD, the monitoring agency is expected to vary and may include a variety of public agencies performing the role of lead agency. Mitigation monitoring (MM) would be accomplished by the following implementation requirements for each mitigation measure:

- MMNS-1** The project applicant, project sponsor, or public agency shall install temporary noise barriers to protect sensitive receptors from excessive noise levels during construction activities, where noise impacts are determined to exceed local noise ordinances.
- MMNS-2** The project applicant, project sponsor, or public agency shall schedule construction activities consistent with the allowable hours pursuant to applicable general plan noise element or noise ordinance. Noise-generating construction activities (including truck deliveries, pile driving, and blasting) shall be limited to the least noise-sensitive times of day (e.g., weekdays during the daytime hours) for projects near sensitive receptors. Where construction activities are authorized outside the limits established by the noise element of the general plan or noise ordinance, the project applicant, project sponsor, or public agency shall notify affected sensitive noise receptors and all parties who will experience noise levels in excess of the allowable limits for the specified land use of the level of exceedance and duration of exceedance and provide a list of protective measures that can be undertaken by the individual, including temporary relocation or use of hearing protective devices.
- MMNS-3** The project applicant, project sponsor, or public agency shall prohibit idling for construction equipment to the minimum time possible near sensitive receptors, but in no case longer than five minutes per the requirements of California Code of Regulations, Title 13 Section 2485 - CARB's Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.
- MMNS-4** The project applicant, project sponsor, or public agency shall post procedures and phone numbers at the construction site for notifying the Lead Agency staff, local Police Department, and construction contractor (during regular construction hours and off-hours), along with permitted construction days and hours, complaint procedures, and who to notify in the event of a problem.
- MMNS-5** The project applicant, project sponsor, or public agency shall notify neighbors and occupants within 300 feet of the project construction area at least 30 days in advance of anticipated times when noise levels are expected to exceed limits established in the noise element of the general plan or noise ordinance.
- MMNS-6** The project applicant, project sponsor, or public agency shall hold a preconstruction meeting with the job inspectors and the general contractor/onsite project manager to confirm that noise measures and practices (including construction hours, neighborhood notification, posted signs, truck parking and idling, etc.) are completed.

- MMNS-7** The project applicant, project sponsor, or public agency shall designate an on-site construction compliance and enforcement manager for the project.
- MMNS-8** The project applicant, project sponsor, or public agency shall ensure that construction equipment are properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., mufflers, silencers, wraps). Additionally, all intake and exhaust ports on power equipment shall be muffled or shielded.
- MMNS-9** The project applicant, project sponsor, or public agency shall ensure that impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction are hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used. External jackets on the tools themselves shall be used, if such jackets are commercially available and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.
- MMNS-10** The project applicant, project sponsor, or public agency shall locate fixed/stationary equipment (such as generators, compressors, rock crushers, and cement mixers) as far as possible from noise-sensitive receptors.
- MMNS-11** The project applicant, project sponsor, or public agency shall investigate the use of flashing lights instead of audible back-up alarms on mobile equipment, so long as they can be used and still protect the safety of workers and all other persons.
- MMNS-12** For projects that require pile driving or other construction techniques that result in excessive vibration, such as blasting, the project applicant, project sponsor, or public agency shall develop site-specific noise/vibration attenuation measures under the supervision of a qualified acoustical consultant.
- MMNS-13** For construction activities at locations that require pile driving due to geological conditions, the project applicant, project sponsor, or public agency shall utilize quiet pile driving techniques such as predrilling the piles to the maximum feasible depth, where feasible. Predrilling pile holes will reduce the number of blows required to completely seat the pile and will concentrate the pile driving activity closer to the ground where pile driving noise can be shielded more effectively by a noise barrier/curtain.
- MMNS-14** The project applicant, project sponsor, or public agency shall monitor the effectiveness of noise reduction measures by taking noise measurements during construction activities and installing adaptive mitigation measures to achieve the standards for ambient noise levels established by the noise

element of the general plan or noise ordinance for the applicable jurisdiction.

F. Solid and Hazardous Waste

Impacts Summary: The potential solid and hazardous waste impacts associated with implementing the various control measures during both construction and operation activities were determined to be potentially significant due to construction waste associated with the installation of air pollution control equipment and operational waste from processing/recycling spent batteries from electric vehicles. The following mitigation measures are intended to minimize the project impacts on solid and hazardous waste. No feasible mitigation measures have been identified to reduce solid and hazardous waste impacts to less than significant levels.

Mitigation Measures: The mitigation measures identified in the following paragraphs are intended to reduce solid and hazardous waste impacts to the maximum extent feasible. The timing of implementing the solid and hazardous waste mitigation measures would be ongoing over the life of the 2022 AQMP and includes the following mitigation measures:

- SHW-1 During the planning, design, and project-level CEQA review process for individual development projects, lead agencies shall coordinate with waste management agencies and the appropriate local and regional jurisdictions to facilitate the development of measures and to encourage diversion of solid waste such as recycling and composting programs, as needed. This includes discouraging siting of new landfills unless all other waste reduction and prevention actions have been fully explored to minimize impacts to neighborhoods.
- SHW-2 The lead agency should coordinate with waste management agencies, and the appropriate local and regional jurisdictions, to develop measures to facilitate and encourage diversion of solid waste such as recycling and composting programs.
- SHW-3 In accordance with CEQA Guidelines Sections 15091(a)(2) and 15126.4(a)(1)(B), a Lead Agency for a project should consider mitigation measures to reduce the generation of solid waste, as applicable and feasible. These may include the integration of green building measures consistent with CALGreen (California Building Code Title 24) into project design including, but not limited to the following:
- 1) Reuse and minimization of construction and demolition (C&D) debris and diversion of C&D waste from landfills to recycling facilities.
 - 2) Include a waste management plan that promotes maximum C&D diversion.
 - 3) Pursue source reduction through: a) the use of materials that are more durable and easier to repair and maintain; b) design to generate less scrap material through dimensional planning; c) increased recycled content; d) the

use of reclaimed materials; and e) the use of structural materials in a dual role as finish material (e.g., stained concrete flooring, unfinished ceilings, etc.).

- 4) Reuse existing structure and shell in renovation projects.
- 5) Develop indoor recycling program and space.
- 6) Discourage the siting of new landfills unless all other waste reduction and prevention actions have been fully explored. If landfill siting or expansion is necessary, site landfills with an adequate landfill-owned, undeveloped land buffer to minimize the potential adverse impacts of the landfill in neighboring communities.
- 7) Discourage exporting locally generated waste outside of the southern California region during the construction and implementation of a project. Encourage disposal within the county where the waste originates as much as possible. Promote green technologies for long-distance transport of waste (e.g., clean engines and clean locomotives or electric rail for waste-by-rail disposal systems) and consistency with South Coast AQMD and Connect SoCal policies can and should be required.
- 8) Encourage waste reduction goals and practices and look for opportunities for voluntary actions to exceed the 80 percent waste diversion target.
- 9) Encourage the development of local markets for waste prevention, reduction, and recycling practices by supporting recycled content and green procurement policies, as well as other waste prevention, reduction and recycling practices.
- 10) Develop ordinances that promote waste prevention and recycling activities such as requiring waste prevention and recycling efforts at all large events and venues, implementing recycled content procurement programs, and developing opportunities to divert food waste away from landfills and toward food banks and composting facilities;
- 11) Develop and site composting, recycling, and conversion technology facilities that have minimum environmental and health impacts
- 12) Integrate reuse and recycling into residential industrial, institutional and commercial projects.
- 13) Provide education and publicity about reducing waste and available recycling services.
- 14) Implement or expand city or county-wide recycling and composting programs for residents and businesses. This could include extending the types of recycling services offered (e.g., to include food and green waste recycling) and providing public education and publicity about recycling services.

Implementing Parties: Because the 2022 AQMP is a regional plan that can be characterized as an ongoing regulatory program, some elements of the solid and hazardous

waste mitigation measures in this MMRP may be described as general policies, although some refer to specific actions. The South Coast AQMD finds that the party or parties responsible for implementing mitigation measures for future projects that have the potential to generate solid and hazardous waste impacts from complying with 2022 AQMP control measures promulgated as rules or regulations would be project applicants, project sponsors, and public agencies within the jurisdiction of the South Coast AQMD.

To the extent that the South Coast AQMD is the lead agency for future projects that must comply with 2022 AQMP control measures promulgated as rules or regulations, the South Coast AQMD may be able to enforce implementation of some of the solid and hazardous waste mitigation measures through its authority to impose binding permit conditions at the time applications for air permits are processed and approved. Similarly, if the South Coast AQMD is a responsible agency for such future projects, it would still have the ability to enforce 2022 AQMP mitigation measures through its authority to impose permit conditions at the time applications seeking air permits are processed and approved. If the South Coast AQMD has no approval authority over future projects that have the potential to generate significant adverse solid and hazardous waste impacts from complying with 2022 AQMP control measures which will be promulgated as rules or regulations, then the public agency with primary approval authority over these future projects can and should impose 2022 AQMP mitigation measures through its authority to impose permit conditions at the time applications for permits are processed and approved or through other legally binding instruments. Similarly, to the extent allowed by state and federal regulations, cities or counties within the jurisdiction of the South Coast AQMD as the entities that regulate solid and hazardous waste, may be responsible for implementing some of the 2022 AQMP Final Program EIR mitigation measures.

Monitoring Agency: Because future projects to implement 2022 AQMP control measures promulgated as rules or regulations could be undertaken by project applicants, project sponsors, public agencies, or local agencies, throughout the jurisdiction of the South Coast AQMD, the monitoring agency is expected to vary and may include a variety of public agencies performing the role of lead agency. Mitigation monitoring (MM) would be accomplished by the following implementation requirements for each mitigation measure:

MMSHW-1 The project applicant, project sponsor, or public agency shall coordinate with waste management agencies and the appropriate local and regional jurisdictions to facilitate the development of measures to encourage diversion of solid waste such as recycling and composting programs, as needed. This includes discouraging siting of new landfills unless all other waste reduction and prevention actions have been fully explored to minimize impacts to neighborhoods.

MMSHW-2 The project applicant, project sponsor, or public agency shall coordinate with waste management agencies and the appropriate local and regional jurisdictions to facilitate the development of measures to encourage diversion of solid waste such as recycling and composting programs, as needed.

- MMSHW-3** The project applicant, project sponsor, or public agency should consider project-specific measures to reduce the generation of waste as part of the project approval process. These may include integration of green building measures consistent with California Building Code Title 24.

7.1 MITIGATION, MONITORING, AND REPORTING PLAN CONCLUSION

To the extent that the South Coast AQMD is the lead agency with primary approval authority over projects implementing 2022 AQMP control measures, project applicants, project sponsors, or public agencies will maintain records onsite of applicable compliance activities to demonstrate the steps taken to assure compliance with imposed mitigation measures as specified in Table A. All construction logs and other records shall be made available to South Coast AQMD inspectors upon request by the project proponent. The project proponent may be required to submit quarterly (or some other specified time duration) reports to the South Coast AQMD or lead agency during the construction phase that summarize the construction progress, including all required logs, inspection reports, and monitoring reports, as well as identify any problems and corrective actions, as necessary. South Coast AQMD staff and the project proponent will evaluate the effectiveness of this monitoring program during the construction period. It is expected that, as part of the CEQA document for any future projects implementing 2022 AQMP control measures, mitigation measures identified in this MMRP would be required as necessary, along with any additional mitigation measures identified at that time by the South Coast AQMD or other responsible agencies.

8.0 RECORD OF PROCEEDINGS

For purposes of CEQA, including the Findings; Mitigation, Monitoring, and Reporting Plan; and Statement of Overriding Considerations; the Record of Proceedings for the 2022 AQMP consists of the following documents and other evidence, at a minimum:

- The Final Program EIR for Proposed 2022 AQMP, including appendices and technical studies included or referenced in the Final Program EIR, and all other public notices issued by South Coast AQMD for the Final Program EIR.
- The Draft Program EIR for the proposed project including appendices and technical studies included or referenced in the Draft Program EIR, and all other public notices issued by South Coast AQMD for the Draft Program EIR.
- The 2022 AQMP, including appendices, staff responses to public comment letters submitted on the Draft 2022 AQMP and Revised Draft 2022 AQMP, materials presented at all AQMP related public meetings, and all other public notices issued by South Coast AQMD for the 2022 AQMP.
- All written and verbal public testimony presented during a noticed public hearings for the 2022 AQMP.
- The Resolution adopted by South Coast AQMD in connection with the 2022 AQMP, and all documents incorporated by reference therein.
- Matters of common knowledge to South Coast AQMD, including but not limited to federal, state, and local laws and regulations.

- Any documents expressly cited in the Findings; Mitigation, Monitoring, and Reporting Plan; and Statement of Overriding Considerations.
- Any other relevant materials required to be in the record of proceedings by Public Resources Code Section 21167.6(e).
- The Notice of Determination, prepared in compliance with Public Resources Code 21152 and CEQA Guidelines Section 15094, if the Governing Board certifies the Final Program EIR and approves the 2022 AQMP.

To comply with CEQA Guidelines Section 15091(e), the South Coast AQMD specifies that the Deputy Executive Officer for Planning, Rule Development, and Implementation overseeing the development for the 2022 AQMP as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption and approval of the 2022 AQMP is based, and which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California 91765.

Copies of these documents, which constitute the record of proceedings upon which the adoption and approval of the 2022 AQMP is based, are and at all relevant times have been and will be available upon request. This information is provided in accordance with Public Resources Code Section 21081.6(a)(2) and CEQA Guidelines Section 15091(e).

TABLE A
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | <ol style="list-style-type: none"> 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|--|
| Construction Air Quality | | | |
| MMAQ-1: A project applicant, project sponsor, or public agency shall include in all construction contracts the requirement to develop a Construction Emission Management Plan to: limit trucks, consolidate deliveries, describe truck routes, describe entry/exit points, identify parking, outline a construction schedule, prohibit idling in excess of five consecutive minutes, and include Best Management Practices. The Construction Emission Management Plan must be approved by the South Coast AQMD or lead agency or other public agency with project oversight, as applicable, prior to commencement of construction activities and must be available onsite during the entire construction phase. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a Construction Emission Management Plan to assure compliance with the various requirements in this mitigation measure. The lead agency shall inspect site to ensure compliance. | <ol style="list-style-type: none"> 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before the start of and during construction activities. |
| MMAQ-2: A project applicant, project sponsor, or public agency, in cooperation with the construction contractors, will maintain vehicle and equipment maintenance records for the construction portion of the proposed project. All construction vehicles must be maintained in compliance with the manufacturer's recommended maintenance schedule. A project applicant, project sponsor, or public agency will maintain their construction equipment and the construction contractor will be responsible for maintaining their equipment and maintenance records. All maintenance records for each facility and their construction contractor(s) will remain on-site for a period of at least two years from completion of construction. | Project Applicant/ Project Sponsor/ Public Agency | During construction, maintain a log documenting daily equipment usage including model year. The log will be made available on-site and provided upon request to the appropriate agency. | <ol style="list-style-type: none"> 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before the start of and during construction activities. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|---|---|--|---|
| Construction Air Quality (continued) | | | |
| <p>MMAQ-3: A project applicant, project sponsor, or public agency and/or their construction contractor(s) will conduct a survey of the proposed project construction area(s) to assess whether the existing infrastructure can provide access to electricity, as available, within the facility or construction site, in order to operate electric on-site mobile equipment. For example, each project applicant, project sponsor, or public agency and/or their construction contractor(s) will assess the number of electrical welding receptacles available.</p> <p>Construction areas within the facility or construction site where electricity is and is not available must be clearly identified on a site plan. The use of non-electric onsite mobile equipment shall be prohibited in areas of the facility that are shown to have access to electricity. The use of electric on-site mobile equipment within these identified areas of the facility or construction site will be allowed.</p> <p>A project applicant, project sponsor, or public agency shall include in all construction contracts the requirement that the use of non-electric on-site mobile equipment is prohibited in certain portions of the facility as identified on the site plan. A project applicant, project sponsor, or public agency shall maintain records that indicate the location within the facility or construction site where all electric and non-electric on-site mobile equipment are operated, if at all, for a period of at least two years from completion of construction.</p> | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan that details where existing infrastructure can provide access to electricity, as available, within the facility or construction site, in order to operate electric on-site mobile equipment</p> <p>During construction, maintain a log documenting daily equipment usage. The log will be made available on-site and be provided upon request to the appropriate agency inspector/monitor.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before the start of and during construction activities.</p> |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|--|--|---|
| Construction Air Quality (continued) | | | |
| <p>MMAQ-4: A project applicant, project sponsor, or public agency and/or their construction contractor(s) shall evaluate the use of alternative fuels (renewable combustion fuels and hydrogen) for on-site mobile construction equipment prior to the commencement of construction activities, provided that suitable equipment is available for the activity. Equipment vendors shall be contacted to determine the commercial availability of alternative-fueled construction equipment. Priority should be given during the bidding process for contractors committing to use alternative-fueled construction equipment. A list of equipment that can use alternative fuels, as well as those that cannot, will be maintained as part of the Construction Emissions Management Plan.</p> | <p>Project Applicant/ Project Sponsor/ Public Agency</p> | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan that details the availability of alternative fuels and the construction equipment that can use those fuels.</p> <p>During construction, maintain a log documenting daily equipment usage of alternative fuels. The log will be made available on-site and be provided upon request to the appropriate agency inspector/monitor</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before the start of and during construction activities.</p> |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|---|
| Construction Air Quality (continued) | | | |
| <p>MMAQ-5: A project applicant, project sponsor, or public agency shall include in all construction contracts the requirement that all off-road diesel-powered construction equipment greater than 50 hp shall 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. In addition, construction equipment shall incorporate, where feasible, emissions savings 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 as information becomes available. A project applicant, project sponsor, or public agency shall include a copy of each unit's certified tier specification, BACT documentation, and CARB or South Coast AQMD operating permit as part of the Construction Emission Management Plan.</p> <p>A project applicant, project sponsor, or public agency shall also encourage construction contractors to apply for South Coast AQMD "SOON" funding incentives to help accelerate the clean-up of off-road diesel vehicles, such as heavy duty construction equipment.</p> | Project Applicant/ Project Sponsor/ Public Agency | <p>During construction, maintain a log documenting daily equipment usage including the model year and applicable emissions control equipment. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor.</p> <p>The lead agency shall be provided with documentation of South Coast AQMD "SOON" funding incentive program application. (if applicable).</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before the start of and during construction activities.</p> |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|---|---|---|---|
| Construction Air Quality (continued) | | | |
| MMAQ-6: A project applicant, project sponsor, or public agency and/or their construction contractor(s) shall evaluate the availability of zero and near-zero emission on-road haul trucks prior to the commencement of construction activities, provided that suitable equipment is available for the activity. Equipment vendors shall be contacted to determine the commercial availability of zero and near-zero emission trucks. Priority should be given during the bidding process for contractors committing to use zero and near-zero emission trucks. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan that includes the availability of zero and near-zero emissions trucks.</p> <p>During construction, maintain a log documenting daily truck usage including the model year. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |
| MMAQ-7: A project applicant, project sponsor, or public agency and/or their construction contractor(s) shall evaluate the availability of zero and near-zero emission construction equipment and the availability of electrical infrastructure prior to the commencement of construction activities. Equipment vendors shall be contacted to determine the commercial availability of zero and near-zero emission construction equipment. The infrastructure should be provided to support the use of such equipment, where feasible, including appropriately sized electric vehicle/equipment charging stations. Priority should be given during the bidding process for contractors committing to use zero and near-zero emission trucks. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan that includes the availability of zero and near-zero emissions construction equipment.</p> <p>During construction, maintain a log documenting daily equipment usage including the model year. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|---|
| Construction Air Quality (continued) | | | |
| MMAQ-8: A project applicant, project sponsor, or public agency shall provide temporary traffic controls such as a flag person, during all phases of significant construction activity to maintain smooth traffic flow. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan to ensure proper traffic management controls have been included.</p> <p>During construction, maintain a log documenting the use of traffic controls. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |
| MMAQ-9: A project applicant, project sponsor, or public agency shall provide dedicated turn lanes for the movement of construction trucks and equipment on- and off-site, where applicable. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan to ensure proper traffic management controls have been included.</p> <p>During construction, maintain a log documenting the use of traffic controls. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|---|---|--|---|
| Construction Air Quality (continued) | | | |
| MMAQ-10: A project applicant, project sponsor, or public agency shall re-route construction trucks away from congested streets or sensitive receptor areas using trailblazer signs, where applicable. Truck routes shall be provided to all construction workers prior to the beginning of construction activities. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan to ensure proper traffic management controls have been included.</p> <p>During construction, maintain a log documenting the use of traffic controls. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |
| MMAQ-11: A project applicant, project sponsor, or public agency shall coordinate with their local city to improve traffic flow by signal synchronization in the area near the construction site. The check-in point for trucks will be inside the project area and shall be identified and provided to truck drivers prior to the beginning of construction activities. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan to ensure proper traffic management controls have been included.</p> <p>During construction, maintain a log documenting the use of traffic controls. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|---|
| Construction Air Quality (continued) | | | |
| MMAQ-12: A project applicant, project sponsor, or public agency shall identify routes for on-site vehicle traffic as far away from sensitive receptor areas as possible, where applicable. On-site vehicle routes shall be provided to all construction workers prior to the beginning of construction activities. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan to ensure proper traffic management controls have been included.</p> <p>During construction, maintain a log documenting the use of traffic controls. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |
| MMAQ-13: A project applicant, project sponsor, or public agency shall coordinate with the construction contractor to site truck parking areas onsite or at some designated location off-site that avoids parking in residential or other sensitive land use areas. The parking locations shall be identified and provided to truck drivers prior to the commencement of construction activities. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan to ensure proper traffic management controls have been included.</p> <p>During construction, maintain a log documenting the use of traffic controls. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|---|--|
| Construction Air Quality (continued) | | | |
| MMAQ-14: A project applicant, project sponsor, or public agency shall route construction trucks away from sensitive receptor locations, including the entrances and exits to the project site, where applicable. Truck routes shall be provided to all construction workers prior to the beginning of construction activities. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction emission management plan to ensure proper traffic management controls have been included. During construction, maintain a log documenting the use of traffic controls. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before the start of and during construction activities. |
| MMAQ-15: A project applicant, project sponsor, or public agency shall ensure that drivers understand that traffic speeds on all unpaved roads will be limited to 15 mph or less. In addition, a project applicant, project sponsor, or public agency shall post signs on all unpaved roads indicating a speed limit of 15 mph or less. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction emission management plan to assure compliance with speed limit requirements. The lead agency shall inspect site to ensure proper signage is posted. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before the start of construction activities. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|---|--|---|---|
| Construction Air Quality (continued) | | | |
| <p>MMAQ-16: A project applicant, project sponsor, or public agency shall enter into a contract that notifies all vendors and construction contractors that during deliveries, truck idling time will be limited to no longer than five 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. For any delivery that is expected to take longer than five minutes, each project applicant, project sponsor, or public agency will require the truck's operator to shut off the engine. A project applicant, project sponsor, or public agency will notify the vendors of these idling requirements at the time that the purchase order is issued and again when trucks enter the gates of the facility. To further ensure that drivers understand the truck idling requirement, each project applicant, project sponsor, or public agency shall post signs at each facility entry gates stating idling longer than five minutes is not permitted.</p> | <p>Project Applicant/ Project Sponsor/ Public Agency</p> | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan to ensure compliance with idling requirements. The lead agency shall inspect site to ensure proper signage is posted.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before the start of and during construction activities.</p> |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|---|
| Construction Air Quality (continued) | | | |
| MMAQ-17: A project applicant, project sponsor, or public agency shall schedule construction activities that affect traffic flow on the arterial system to occur during off-peak hours to the greatest extent practicable. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan to ensure that proper traffic management controls, including scheduling of construction activities that affect traffic flow during off-peak hours, have been included.</p> <p>During construction, maintain a log documenting the use of traffic controls. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |
| MMAQ-18: If and when winds speeds exceed 25 mph, each project applicant, project sponsor, or public agency shall suspend all excavating and grading activities and shall record the date and time when the use of construction equipment associated with these construction activities are suspended. This log shall be maintained on-site for a period of at least two years from completion of construction. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan to ensure that applicable excavation and grading suspension scenarios are included.</p> <p>During construction, maintain a log detailing any suspension of construction activities. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor.</p> | <p>1. South Coast AQMD/Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|---|---|
| Construction Air Quality (continued) | | | |
| MMAQ-19: If and when any first stage smog alert occurs, each project applicant, project sponsor, or public agency shall record the date and time of each alert, shall suspend all construction activities that generate emissions, and shall record the date and time when the use of construction equipment and construction activities are suspended. This log shall be maintained on-site for a period of at least two years from completion of construction. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan to ensure that applicable construction suspension scenarios are included.</p> <p>During construction, maintain a log documenting the use of traffic controls. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |
| MMAQ-20: A project applicant, project sponsor, or public agency shall coordinate with the construction contractor to site parking areas to minimize interference with roadway traffic. The parking locations shall be identified and provided to construction workers prior to the commencement of construction activities. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve of the location of site parking areas to minimize interference with roadway traffic. | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start construction activities.</p> |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|---|---|---|---|
| Construction Air Quality (continued) | | | |
| MMAQ-21: A project applicant, project sponsor, or public agency shall include in all construction contracts the requirement to cover all haul trucks delivering or hauling away dirt, sand, soil, or other loose materials. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan that details truck covering requirements.</p> <p>During construction, maintain a log documenting the import or export of dirt, sand, soil, or other loose materials. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |
| MMAQ-22: A project applicant, project sponsor, or public agency shall require the construction contractor to install and use wheel washers where vehicles travel on dirt roads and enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site for each trip to prevent drag-out. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan that details truck entrance/exiting procedures.</p> <p>During construction, maintain a log detailing trucks entering/exiting the site. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|--|
| Construction Air Quality (continued) | | | |
| MMAQ-23: A project applicant, project sponsor, or public agency shall require the construction contractor to apply non-toxic soil stabilizers according to manufacturers' specifications to all inactive construction areas (e.g., previously graded areas inactive for ten days or more). | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan that details the usage of soil stabilizers.</p> <p>During construction, maintain a log detailing soil stabilizer application. The log will be made available on-site and provided upon request to the appropriate agency inspector/monitor</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and during construction activities.</p> |
| MMAQ-24: A project applicant, project sponsor, or public agency shall require the construction contractor to replace ground cover in disturbed areas as quickly as possible to minimize dust, where applicable. | Project Applicant/ Project Sponsor/ Public Agency | <p>Prior to the start of construction, the lead agency shall review and approve a construction emission management plan that details ground covering requirements, where applicable.</p> <p>After construction, the lead agency shall inspect the re-vegetated disturbed soil areas of the site.</p> | <p>1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight</p> <p>3. Before the start of and following construction activities.</p> |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|---|---|--|---|
| Air Quality (concluded) | | | |
| MMAQ-25: A project applicant, project sponsor, or public agency shall require the construction contractor to pave road and road shoulders, where applicable. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction emission management plan that details paving requirements, where applicable. After construction, the lead agency shall inspect the paved areas. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before the start of and following construction activities. |
| MMAQ-26: A project applicant, project sponsor, or public agency shall require the construction contractor to sweep streets at the end of the day using sweepers compliant with South Coast AQMD Rules 1186 and 1186.1 if visible soil is carried onto adjacent public paved roads. In the event that water sweepers are used, each project applicant, project sponsor, or public agency shall recommend the construction contractor to use reclaimed water. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction emission management plan that details sweeping requirements applicable. During construction, maintain a log detailing sweeping activities. The log will be made available on-site and be provided upon request to the appropriate agency inspector/monitor. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before the start of and during construction activities. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|--|
| Energy | | | |
| MME-1: A project applicant, project sponsor, or public agency shall provide to the lead agency documentation for approval of incentives to encourage the use of energy efficient equipment and vehicles and promote energy conservation prior to the beginning of project operation of electricity generation. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall approve, as appropriate and adequate, any necessary documentation of incentives to encourage energy efficiency and conservation. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and throughout implementation of the 2022 AQMP. |
| MME-2: To the extent allowed by state and federal law, electricity generating utilities within the jurisdiction of the South Coast AQMD can and should increase capacity of existing transmission lines to meet forecast electricity demand that supports sustainable growth, where feasible and appropriate in coordination with local planning agencies. | Electric Utilities | Local planning agencies shall maintain communications with electricity generating utilities to accurately forecast future electricity demand. | 1. Electricity Utilities 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight/ Electricity Utilities 3. During the environmental review process and before the start of construction. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 4. Enforcement Agency 5. Monitoring Agency 6. Monitoring Phase |
|---|---|---|---|
| Energy (continued) | | | |
| MME-3: The project applicant, project sponsor, or public agency shall submit projected electricity calculations to the local electricity provider for any project anticipated to require substantial electricity consumption. Such electricity calculations can and should be used by the local electricity provider when forecasting future electricity demand. Any infrastructure improvements necessary should be completed according to the specifications of the electricity provider. | Project Applicant/ Project Sponsor/ Public Agency Electric Utilities | When forecasting future electricity demand and/or infrastructure improvements, electricity utilities should consider the effects of local projects on future energy demand. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight/Electricity Utilities 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight/ Electricity Utilities 3. During the environmental review process and before the start of construction |
| MME-4: The project applicant, project sponsor, or public agency shall include energy analyses in environmental documentation with the goal of conserving energy through the wise and efficient use of energy. These analyses should be provided in the applicable CEQA documents, when required. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall carefully evaluate the adequacy of any required energy analyses and make a determination that all feasible energy conservation goals are identified. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|---|---|---|---|
| Energy (continued) | | | |
| MME-5: The project applicant, project sponsor, or public agency shall evaluate the potential for reducing peak energy demand by encouraging charging of electrical vehicles and other mobile sources during off-peak hours. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall carefully evaluate the adequacy of any required energy analyses that encourage charging electric vehicles and other mobile sources during off-peak hours. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process. |
| MME-6: The project applicant, project sponsor, or public agency shall evaluate the potential for reducing peak energy demand by encouraging the use of catenary or way-side electrical systems developed for transportation systems to operate during off-peak hours. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall carefully evaluate the adequacy of any required energy analyses that encourage using catenary or way-side electrical systems developed for transportation systems to operate during off-peak hours. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|---|---|--|---|
| Energy (continued) | | | |
| MME-7: The project applicant, project sponsor, or public agency shall evaluate the potential for reducing peak energy demand by encouraging the use of electrified stationary sources during off-peak hours. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall carefully evaluate the adequacy of any required energy analyses that encourage using electrified stationary sources during off-peak hours. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process. |
| MME-8: The project applicant, project sponsor, or public agency shall evaluate the potential for using renewable gas, where available and feasible, including biofuel landfill gas and gas from renewable fuels projects. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall carefully evaluate the availability of renewable gas for any project that could use natural gas. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|--|---|---|
| Energy (continued) | | | |
| MME-9: The project applicant, project sponsor, or public agency shall submit projected natural gas calculations to the local gas company for any project anticipated to require substantial natural gas consumption. Such natural gas calculations can and should be used by the local gas provider when forecasting future natural gas demand. Any infrastructure improvements necessary should be completed according to the specifications of the natural gas provider. | Project Applicant/ Project Sponsor/ Public Agency Gas Utilities | When forecasting future natural gas demand and/or infrastructure improvements, natural gas utilities should consider the effects of local projects on future energy demand. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight/Gas Utilities 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight/ Gas Utilities 3. During the environmental review process and before the start of construction |
| MME-10: A project applicant, project sponsor, or public agency shall provide to the lead agency documentation for approval of incentives to encourage the use of energy efficient equipment and vehicles and promote energy conservation prior to the beginning of project operation for hydrogen production. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall approve, as appropriate and adequate, any necessary documentation of incentives to encourage energy efficiency and conservation. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and throughout implementation of the 2022 AQMP. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|---|--|
| Energy (concluded) | | | |
| MME-11: A project applicant, project sponsor, or public agency shall encourage projects that provide energy to locate in areas where existing infrastructure (e.g., pipelines) currently exists to minimize distance required to transport energy resources and reduce energy impacts. | Project Applicant/ Project Sponsor/ Public Agency | When forecasting future energy demand and/or infrastructure improvements, utilities should consider the effects and location of local projects on future energy demand. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and before the start of construction |
| MME-12: A project applicant, project sponsor, or public agency shall provide to the lead agency documentation that the location of any new hydrogen plant is in an area where hydrogen can be delivered efficiently to the end user(s). | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall carefully evaluate the adequacy of infrastructure to support hydrogen production and distribution as part of the permitting process. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and before the start of construction |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | <ol style="list-style-type: none"> 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|---|
| Hazards and Hazardous Materials | | | |
| MMHZ-1: The project applicant, project sponsor, or public agency shall ensure that the aqueous ammonia used in air pollution control equipment is less than 19 percent ammonia by weight. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall carefully evaluate projects and require the use of aqueous ammonia used in air pollution control equipment to be 19 percent ammonia by weight or less. | <ol style="list-style-type: none"> 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before operation begins |
| MMHZ-2: The project applicant, project sponsor, or public agency shall ensure that tank level monitors, temperature and pressure monitors, leak monitoring and detection systems, alarms, check valves, and emergency block valves are installed on all applicable equipment (e.g., LNG tanks) | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall coordinate with local fire departments to ensure that tank level monitors, temperature and pressure monitors, leaking monitors, alarms, valves, and emergency block valves have been installed, if necessary, before giving final approval of the project. | <ol style="list-style-type: none"> 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before operation begins. |
| MMHZ-3: The project applicant, project sponsor, or public agency shall ensure the installation of secondary containment (e.g., berms) for LNG tanks, and other tanks storing hazardous materials, as applicable. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall coordinate with local fire departments to ensure that secondary containment has been installed before giving final approval of the project. | <ol style="list-style-type: none"> 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/Lead Agency or Other Public Agency with project oversight 3. Before operation begins |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|---|---|---|---|
| Hazards and Hazardous Materials (continued) | | | |
| MMHZ-4: The project applicant, project sponsor, or public agency shall ensure the installation of a grating-covered trench or other form of secondary containment to contain potential spills from tanker trucks during the transfer of aqueous ammonia from the delivery truck to the storage tank. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall coordinate with local fire departments to ensure that appropriate secondary containment has been installed before giving final approval of the project. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before operation begins |
| MMHZ-5: The project applicant, project sponsor, or public agency shall ensure the ammonia truck loading/unloading area is equipped with an underground gravity drain that flows to an onsite retention basin/containment area that provides sufficient ammonia dilution to minimize the potential offsite hazards impacts in the event of an accidental release during the transfer of aqueous ammonia. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall coordinate with local fire departments to ensure that appropriate secondary containment has been installed before giving final approval of the project. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before operation begins |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|--|
| Hazards and Hazardous Materials (continued) | | | |
| MMHZ-6: The project applicant, project sponsor, or public agency shall ensure the installation of tertiary containment that is capable of evacuating 110 percent of the storage tank volume from the secondary containment area. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall coordinate with local fire departments to ensure that appropriate tertiary containment has been installed before giving final approval of the project. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before operation begins |
| MMHZ-7: The project applicant, project sponsor, or public agency shall add consumer warning requirements for all flammable and extremely flammable products. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall coordinate with local fire departments or hazmat departments, as appropriate, to develop appropriate warnings and locations of warning labels. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and before consumer products are sold.. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|---|---|--|--|
| Hazards and Hazardous Materials (concluded) | | | |
| MMHZ-8: The project applicant, project sponsor, or public agency shall add requirements to conduct a public education and outreach program in joint cooperation with local fire departments regarding flammable and extremely flammable products that may be included in reformulated products, especially for reformulated consumer paint thinners and multi-purpose solvents. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall coordinate with local fire departments or school districts, as appropriate, to develop appropriate education campaigns and outreach programs regarding the flammability of consumer paint thinners and solvents. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and throughout the implementation of the 2022 AQMP. |
| Hydrology and Water Quality Impacts | | | |
| MMHWQ-1: The project applicant, project sponsor, or public agency shall work with local water agencies to continue to evaluate future water demand and establish the necessary supply and infrastructure to meet that demand, as documented in their Urban Water Management Plans. | Local Water Agencies | Local water agencies within South Coast AQMD's jurisdiction shall coordinate with local public agencies, to the extent allowed by state and federal law, with regard to forecasting future water demand and providing the necessary water supply infrastructure to meet forecast demand. | 1. Local Water Agencies 2. Local Water Agencies 3. During the environmental review process and throughout implementation of the 2022 AQMP. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|---|---|--|---|
| Hydrology and Water Quality Impacts (continued) | | | |
| MMHWQ-2: The project applicant, project sponsor, or public agency shall coordinate with the local water provider to ensure that existing or planned water supply and water conveyance facilities are capable of meeting water demand/pressure requirements. In accordance with California law, a Water Supply Assessment shall be required for projects that meet the size requirements specified in the regulations. In coordination with the local water provider, each project sponsor shall identify specific on- and off-site improvements needed to ensure that impacts related to water supply and conveyance demand/pressure requirements are addressed prior to issuance of a certificate of occupancy. Water supply and conveyance demand/pressure clearance from the local water provider shall be required at the time that a water connection permit application is submitted. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall coordinate with local water providers to ensure that existing or planned water supply and water conveyance facilities are capable of meeting water demand/pressure requirements before giving final approval of the project. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and before the start of construction |
| MMHWQ-3: The project applicant, project sponsor, or public agency shall implement water conservation measures and use recycled water for appropriate end uses. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall approve, as appropriate and adequate, any necessary documentation of incentives to encourage water conservation measures and recycled water use. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and before the start of construction. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|---|
| Hydrology and Water Quality Impacts (concluded) | | | |
| MMHWQ-4: The project applicant, project sponsor, or public agency shall consult with the local water provider to identify feasible and reasonable measures to reduce water consumption. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall carefully coordinate with local water providers to evaluate the adequacy of any required measures to reduce water consumption. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and before the start of construction. |
| MMHWQ-5: The project applicant, project sponsor, or public agency shall review and evaluate the options for reusing wastewater generated on-site, in lieu of discharge, where applicable and feasible. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall coordinate with local wastewater treatment to evaluate the availability of options for reusing and recycling wastewater. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and before the start of construction. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|---|
| Noise | | | |
| MMNS-1: The project applicant, project sponsor, or public agency shall install temporary noise barriers to protect sensitive receptors from excessive noise levels during construction activities, where noise impacts are determined to exceed local noise ordinances. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction management plan that details all applicable noise suppression requirements to be followed. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and before the start of construction. |
| MMNS-2: The project applicant, project sponsor, or public agency shall schedule construction activities consistent with the allowable hours pursuant to applicable general plan noise element or noise ordinance. Noise-generating construction activities (including truck deliveries, pile driving, and blasting) shall be limited to the least noise-sensitive times of day (e.g., weekdays during the daytime hours) for projects near sensitive receptors. Where construction activities are authorized outside the limits established by the noise element of the general plan or noise ordinance, the project applicant, project sponsor, or public agency shall notify affected sensitive noise receptors and all parties who will experience noise levels in excess of the allowable limits for the specified land use of the level of exceedance and duration of exceedance and provide a list of protective measures that can be undertaken by the individual, including temporary relocation or use of hearing protective devices. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction management plan that details all applicable noise suppression requirements to be followed. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and before the start of construction. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|---|---|---|---|
| Noise (continued) | | | |
| MMNS-3: The project applicant, project sponsor, or public agency shall prohibit idling for construction equipment to the minimum time possible near sensitive receptors, but in no case longer than five minutes per the requirements of California Code of Regulations, Title 13 Section 2485 - CARB's Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction management plan that details all applicable noise suppression requirements to be followed to minimize impacts to sensitive receptors. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and before the start of construction. |
| MMNS-4: The project applicant, project sponsor, or public agency shall post procedures and phone numbers at the construction site for notifying the Lead Agency staff, local Police Department, and construction contractor (during regular construction hours and off-hours), along with permitted construction days and hours, complaint procedures, and who to notify in the event of a problem. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction management plan that details all applicable noise suppression requirements to be followed. | 1. South Coast AQMD/Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Prior to and during construction activities. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|---|---|--|---|
| Noise (continued) | | | |
| MMNS-5: The project applicant, project sponsor, or public agency shall notify neighbors and occupants within 300 feet of the project construction area at least 30 days in advance of anticipated times when noise levels are expected to exceed limits established in the noise element of the general plan or noise ordinance. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall notify neighbors and occupants within 300 feet of the project construction area at least 30 days in advance of anticipated times when noise levels are expected to exceed limits established in the noise element of the general plan or noise ordinance. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Before the start of construction. |
| MMNS-6: The project applicant, project sponsor, or public agency shall hold a preconstruction meeting with the job inspectors and the general contractor/onsite project manager to confirm that noise measures and practices (including construction hours, neighborhood notification, posted signs, truck parking and idling, etc.) are completed. | Project Applicant/ Project Sponsor/ Public Agency | The project applicant/sponsor shall hold a preconstruction meeting with the job inspectors and the general contractor/onsite project manager to confirm that noise measures and practices (including construction hours, neighborhood notification, posted signs, etc.) are completed. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Prior to construction. |
| MMNS-7: The project applicant, project sponsor, or public agency shall designate an on-site construction compliance and enforcement manager for the project. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction management plan that designates the on-site construction complaint and enforcement manager for the project. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Prior to construction. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|---|
| Noise (continued) | | | |
| MMNS-8: The project applicant, project sponsor, or public agency shall ensure that construction equipment are properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., mufflers, silencers, wraps). Additionally, all intake and exhaust ports on power equipment shall be muffled or shielded. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction management plan that details all applicable noise suppression requirements to be followed. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Prior to and during construction. |
| MMNS-9: The project applicant, project sponsor, or public agency shall ensure that impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction are hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used. External jackets on the tools themselves shall be used, if such jackets are commercially available and could achieve a reduction of five dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction management plan that details all applicable noise suppression requirements to be followed. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Prior to and during construction. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|--|
| Noise (continued) | | | |
| MMNS-10: The project applicant, project sponsor, or public agency shall locate fixed/stationary equipment (such as generators, compressors, rock crushers, and cement mixers) as far as possible from noise-sensitive receptors. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction management plan that details all applicable noise suppression requirements to be followed. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/Lead Agency or Other Public Agency with project oversight 3. Prior to and during construction. |
| MMNS-11: The project applicant, project sponsor, or public agency shall investigate the use of flashing lights instead of audible back-up alarms on mobile equipment, so long as they can be used and still protect the safety of workers and all other persons. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction management plan that details applicable uses of flashing lights instead of audible back-up alarms on mobile equipment. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Prior to and during construction activities. |
| MMNS-12: For projects that require pile driving or other construction techniques that result in excessive vibration, such as blasting, the project applicant, project sponsor, or public agency shall develop site-specific noise/vibration attenuation measures under the supervision of a qualified acoustical consultant. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction management plan that details measures to minimize known vibrational impacts. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Prior to and during construction. |

TABLE A (continued)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|--|
| Noise (concluded) | | | |
| MMNS-13: For construction activities at locations that require pile driving due to geological conditions, the project applicant, project sponsor, or public agency shall utilize quiet pile driving techniques such as predrilling the piles to the maximum feasible depth, where feasible. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction management plan that details procedures to utilize quiet pile driving techniques, where applicable. | 1. South Coast AQMD/Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/Lead Agency or Other Public Agency with project oversight 3. Prior to and during construction. |
| MMNS-14: The project applicant, project sponsor, or public agency shall monitor the effectiveness of noise reduction measures by taking noise measurements during construction activities and installing adaptive mitigation measures to achieve the standards for ambient noise levels established by the noise element of the general plan or noise ordinance for the applicable jurisdiction. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall review and approve a construction management plan that details noise reduction measures and includes noise monitoring activities during construction activities, where applicable. | 1. South Coast AQMD/Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/Lead Agency or Other Public Agency with project oversight 3. Prior to and during construction. |

TABLE A (concluded)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|--|---|
| Solid and Hazardous Waste | | | |
| MMSHW-1: The project applicant, project sponsor, or public agency shall coordinate with waste management agencies and the appropriate local and regional jurisdictions to facilitate the development of measures to encourage diversion of solid waste such as recycling and composting programs, as needed. This includes discouraging siting of new landfills unless all other waste reduction and prevention actions have been fully explored to minimize impacts to neighborhoods. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall coordinate with local waste management companies to develop measures to encourage recycling and composting programs. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. Prior to construction activities. |
| MMSHW-2: The project applicant, project sponsor, or public agency shall coordinate with waste management agencies and the appropriate local and regional jurisdictions to facilitate the development of measures to encourage diversion of solid waste such as recycling and composting programs, as needed. | Project Applicant/ Project Sponsor/ Public Agency | The lead agency shall coordinate with local waste management companies to develop measures to encourage recycling and composting programs. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During project construction and operation. |

TABLE A (concluded)
Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP

| Implementation Requirement for Mitigation Measures | Party Responsible for Implementation | Monitoring Action | 1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase |
|--|---|---|---|
| Solid and Hazardous Waste (concluded) | | | |
| MMSHW-3: The project applicant, project sponsor, or public agency should consider project-specific measures to reduce the generation of waste as part of the project approval process. These may include integration of green building measures consistent with California Building Code Title 24. | Project Applicant/ Project Sponsor/ Public Agency | Prior to the start of construction, the lead agency shall consider measures to reduce waste generation. | 1. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 2. South Coast AQMD/ Lead Agency or Other Public Agency with project oversight 3. During the environmental review process and before the start of construction. |

ATTACHMENT G

(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 (NO_x) emissions from fan-type central 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 Furnaces used for interior space heating with a Rated Heat Input Capacity less than 175,000 British thermal units (Btu) per hour, or, for combination heating and cooling units, a cooling rate of less than 65,000 Btu per hour.

(b) 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.~~

(32) 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, and is collected and drained.

(3) Consumer Price Index (CPI) means the consumer price index for California as reported by the Department of Industrial Relations based on:

- (A) Urban population coverage (CPI-U);
- (B) California Area Coverage;
- (C) Series Title “All Items;”
- (D) Index Base Period “1982-1984=100;” and
- (E) Reference Period “Annual Average” for All Urban Consumers.
- (4) ~~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.
- (5) EXISTING BUILDING means a building that is not a New Building as defined in this rule.
- (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.~~
- (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.
- (67) FLOOR FURNACE means a self-contained, floor-mounted, NOx emitting space heater using natural gas without ducts that has a Rated Heat Input Capacity at or less than 175,000 Btu per hour.
- (78) FURNACE means any ~~Residential~~ Fan-Type Central Furnace, Wall Furnace, or Floor Furnace, as defined in this rule.

- (89) ~~HEAT INPUT means the higher heating value of the fuel to the furnace measured as BTU per hour. 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.~~
- (9) ~~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) HIGH-ALTITUDE means an elevation at or above 4,200 feet above sea level.
- (11) INFORMATIVE MATERIALS means consumer brochures and technical specification sheets for the Furnace and manufacturer's website that promotes, discusses, or lists the Furnace.
- (12) INSTALL means the action of an Installer to place a Furnace in a position ready for use.
- (13) 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.
- (14) MASTER-METERED MOBILE HOME PARK means a Mobile Home park that takes electricity through a master meter and then distributes it to park residents through the Mobile Home park's system.
- (915) MOBILE HOME means a prefabricated structure on a permanently attached chassis, structure, transportable in one or more sections, that is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities.
- (4016) MOBILE HOME FURNACE means a Residential Fan-Type Central furnace-Furnace designed specifically and solely for installation to heat a mobile home.
- (17) 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, or any subsequent version of the Building Code. For Mobile Homes, the newly constructed building includes installation of the Mobile Home onto the property of residence.

- (18) NON-CONDENSING FURNACE means a standard ~~Residential~~ Fan-Type Central Furnace that is not a Condensing Furnace, Weatherized Furnace, or Mobile Home Furnace.
- (1419) NOx EMISSIONS means the sum of ~~nitrogen~~-nitric oxide and nitrogen dioxide (~~oxides of nitrogen~~) in the flue gas collectively emitted; calculated and expressed as nitrogen dioxide.
- (1220) RATED HEAT INPUT CAPACITY means the gross ~~HEAT INPUT~~Heat Input of the combustion device, as supported by required documentation.
- (21) RESELLER means anyone who sells Furnace(s) either retail, wholesale, or on an individual basis.
- ~~(22) 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 and emits NOx, providing for circulation of heated air at pressures other than atmospheric through ducts more than 10 inches in length that has:~~
- ~~(A) A Rated Heat Input Capacity 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.~~
- (132322) 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.~~
- (152423) 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.~~
- ~~(2524) WALL FURNACE means a wall-mounted, self-contained NOx emitting space heater using natural gas without ducts that exceed 10 inches that has a Rated Heat Input Capacity less than 175,000 Btu per hour.~~

(172625) 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.

(2726) ZERO-NOx EMISSION UNIT means an appliance that provides space heating with heating capacity equivalent to, or sized to replace, Furnaces subjected to this rule and emits no more than zero nanograms of NOx per joule of Useful Heat Delivered To The Heated Space (ng/J).

(ed) 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 NO₂) per joule of useful heat delivered to the heated space; and~~

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

(41) ~~On or after October 1, 2012~~A 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 of the Furnaces listed in Table 1, unless such furnaceFurnace complies with~~is certified pursuant to subdivision (e) not to exceed 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

| <u>Equipment Category</u> | <u>NOx Emission Limit (ng/J)</u> |
|-------------------------------|-----------------------------------|
| <u>Condensing Furnace</u> | <u>14</u> |
| <u>Non-Condensing Furnace</u> | <u>14</u> |
| <u>Weatherized Furnace</u> | <u>14</u> |
| <u>Mobile Home Furnace</u> | <u>14</u> |

- (2) On and after the applicable Table 2 compliance date, a person shall only manufacture, supply, sell, resell, offer for sale, import, or Install, for use in the South Coast AQMD, a Zero-NOx Emission Unit, that emits zero ng/J of NOx, in place of a Furnace according to the Table 2 compliance schedule for each Furnace equipment category, unless the Furnace is included in the Zero-NOx emission manufacturer alternative compliance option pursuant to paragraph (f)(2) as indicated in the Informative Materials for the Furnaces pursuant to subparagraph (g)(1)(C). The applicable Table 2 compliance dates for New Building types shall be determined based on the construction or alteration completion date.

Table 2 – Zero-NOx Emission Limit Compliance Schedule

| <u>Equipment Category</u> | <u>Building Type</u> | <u>Compliance Date</u> |
|---|----------------------|------------------------|
| <u>Residential Fan-Type Central Furnace¹</u> | <u>New</u> | <u>January 1, 2027</u> |
| | <u>Existing</u> | <u>January 1, 2029</u> |
| <u>Mobile Home Furnace</u> | <u>New</u> | <u>January 1, 2027</u> |
| <u>Wall Furnace and Floor Furnace</u> | <u>New</u> | <u>January 1, 2027</u> |
| | <u>Existing</u> | <u>January 1, 2029</u> |

¹ 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

| 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.~~

~~(de)~~ Certification

- (1) The manufacturer shall have each ~~appliance~~ Furnace model that is required to be certified to meet Table 1 emission limits 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 Equation 1 or 2 shall be used to determine the nanograms of oxides of nitrogen NO_x per joule of useful heat delivered to the heated space:~~ Useful Heat Delivered to the Heated Space:

$$N = \frac{4.566 \times 10^4 \times P \times U}{H \times C \times E} \quad (\text{Eq. 1})$$

$$N = \frac{3.655 \times 10^{10} \times P}{(20.9 - Y) \times Z \times E} \quad (\text{Eq. 2})$$

Where:

- N = ~~nanograms ng/J of emitted oxides of nitrogen NO_x per joule of~~ nanograms ng/J of emitted oxides of nitrogen NO_x per joule of
useful heat.
- P = concentration (~~parts per million by ppm~~ volume) of ~~oxides of~~
nitrogen NO_x in flue gas as tested.
- U = volume percent carbon dioxide (CO₂) in water-free flue gas for
stoichiometric combustion.
- H = gross heating value of fuel, ~~BTU/cu.ft.~~ Btu/ft³ (60°F, 30-in. Hg).
- C = measured volume percent of CO₂ in water-free flue gas, assuming
complete combustion and no carbon monoxide CO present.
- E = AFUE, percent.
- Y = volume percent of oxygen O₂ in flue gas.
- Z = heating value of gas, ~~joules/cu. meter J/m³~~ J/m³ (0.0°C, 1 ATM
standard 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 NO_x 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 (e)(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).
- ~~(e) — Identification of Compliant Units~~
- ~~(1) — The manufacturer of the furnace complying with subdivisions (c) and (d) shall display the following on the shipping container label and rating plate of the furnace:~~
 - ~~(A) — Model number;~~
 - ~~(B) — Heat input capacity;~~
 - ~~(C) — Applicable NO_x emission limit in Table 1; and~~
 - ~~(D) — Date of manufacture or date code.~~
 - ~~(2) — Any non-certified 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 as not certified for use in the South Coast AQMD.~~
 - ~~(3) — Consumer Notification Requirement~~
 - ~~(A) — For the purposes of subparagraph (e)(3)(B), “Informative Materials” shall mean the following:~~
 - ~~(i) — The consumer brochure for the furnace;~~
 - ~~(ii) — The technical specification sheet for the furnace; and~~
 - ~~(iii) — The manufacturer’s website that promotes, discusses, or lists the 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), provided the alternative language is:~~

- ~~(i) Similar to the language in subparagraph (e)(3)(B);~~
- ~~(ii) Submitted to the Executive Officer by August 1, 2018; and~~
- ~~(iii) Approved by the Executive Officer no later than August 31, 2018.~~

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

(f) Alternative Compliance Options

(1) Mitigation Fee Alternative Compliance Option for Mobile Home Furnaces

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 emit 40 ng/J of NOx 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:

- (i) Until September 30, 2025, \$150 for each Mobile Home Furnace distributed or sold into or within the South Coast AQMD; and
- (ii) On and after October 1, 2025, \$100 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 each 12-month compliance period that begins on October 1st 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 Mobile Home mitigation fee compliance option signed by a Responsible Official and the 12-month alternative 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 alternative 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 alternative 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 90 days after the end of each 12-month mitigation fee alternative compliance period, that shall for the applicable 12-month alternative 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) Zero-NOx Emission Manufacturer (ZEM) Alternative Compliance Option
Any manufacturer of Furnaces, other than Mobile Home Furnaces, subject to this rule may elect to comply with the ZEM alternative compliance option in lieu of complying with paragraph (d)(2) provided:
 - (A) The manufacturer submits an alternative compliance plan, no later than November 1, 2026, or no later than 60 days prior to any sales into or within the South Coast AQMD for a new manufacturer, which is a manufacturer who does not have any sales into or within the South Coast AQMD as of October 31, 2026, that includes:

- (i) A letter with the name of the manufacturer requesting the ZEM alternative compliance option signed by a Responsible Official;
 - (ii) A complete South Coast AQMD Form 400A with company name, indicating the application is for a compliance plan (section 7 of form), indicating the request is for the “Rule 1111 ZEM alternative compliance option” (section 9 of form), and signature of the Responsible Official; and
 - (iii) Payment for the alternative compliance plan filing fee pursuant to Rule 306– Plan Fees;
- (B) The manufacturer sells, or enables distributors, retailers, Resellers, or Installers to sell, Zero-NOx Emission Units into or within the South Coast AQMD:
 - (i) At a percentage greater than or equal to the Zero-NOx Emission Unit sales target specified in Table 3 and pays the mitigation fee in subparagraph (f)(2)(F); or
 - (ii) At a percentage less than the Zero-NOx Emission Unit sales target specified in Table 3 and pays the mitigation fee in paragraph (f)(3)(A);
- (C) Zero-NOx Emission Unit sales percentage is calculated by Equation 3. For determining the number of Zero-NOx Emission Units sold in a calendar year into or within the South Coast AQMD:
 - (i) Each Zero-NOx Emission Unit that utilizes ductwork to distribute heated air through the home shall be counted as one Zero-NOx Emission Unit;
 - (ii) Each Zero-NOx Emission Unit that does not utilize ductwork to distribute heated air through the home, e.g., a mini-split, shall be counted as half of a Zero-NOx Emission Unit;
 - (iii) Each Zero-NOx Emission Unit that does not utilize ductwork to distribute heated air through the homes but is a multiple zone system with multiple indoor units for one outdoor unit, e.g., a multi-split, only the outdoor unit shall be counted as one Zero-NOx Emission Unit; and
 - (iv) A Zero-NOx emission space heating appliance that is portable or has a Rated Heat Input Capacity less than 5,500

Btu per hour shall not be counted as a Zero-NOx Emission Unit;

$$\text{Zero-NOx Emission Unit Sales Percentatge} = \frac{(Z)}{(Z + N)} \times 100$$

(Eq. 3)

Where:

Z = Number of Zero-NOx Emission Units sold in a compliance year

N= Number of Furnaces sold in a compliance year

(D) Furnace sales percentage is calculated by Equation 4;

$$\begin{aligned} &\text{Furnace Sales Percentatge} \\ &= 100 - \text{Zero-NOx Emission Unit Sales Percentage} \end{aligned}$$

(Eq. 4)

(E) The Furnaces sold under this alternative compliance option are:

- (i) ~~Residential~~ Fan-Type Central Furnaces certified to emit 14 ng/J or less of NOx; or
- (ii) Wall or Floor Furnaces;

(F) The manufacturer pays the following mitigation fee for each Furnace sold within the Furnace sales target for the applicable calendar year in Table 3:

- (i) \$100 for the calendar year 2027;
- (ii) \$100 adjusted by the CPI annual percent ~~increase~~ change for each subsequent calendar year after 2027; and
- (iii) If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year in lieu of the CPI annual percent increase;

(G) The manufacturer submits a report and mitigation fee payment pursuant to paragraph (g)(2) no later than 90 days after the end of each calendar year utilizing this alternative compliance option; and

(H) The manufacturer complies with the Informative Material requirements pursuant to paragraph (g)(1).

Table 3 – ZEM Alternative Compliance Option Targets

| <u>Compliance phase</u> | <u>Phase 1</u> | <u>Phase 2</u> | <u>Phase 3</u> | <u>Phase 4</u> |
|--|--------------------|--------------------|-------------------|-----------------------|
| <u>Calendar Years</u> | <u>2027 - 2028</u> | <u>2029 - 2032</u> | <u>2033-2035</u> | <u>2036 and after</u> |
| <u>Zero-NOx Emission Unit Sales Target</u> | <u>30 percent</u> | <u>50 percent</u> | <u>75 percent</u> | <u>90 percent</u> |
| <u>Furnace Sales Target</u> | <u>70 percent</u> | <u>50 percent</u> | <u>25 percent</u> | <u>10 percent</u> |

(3) ZEM Alternative Compliance Option Sales Target Deviation

~~Any manufacturer of Furnaces subject to this rule that elects to comply with the ZEM Alternative Compliance Option pursuant to paragraph (f)(2) that deviates from the applicable Sales Targets in Table 3 shall:~~

~~(A) — If the annual Furnaces sales percentage is greater than the applicable calendar year Furnace sales target specified in Table 3, pay the following mitigation fee for each Furnace sold above the sales target:~~

~~(i) — \$500 for the calendar year 2027;~~

~~(ii) — \$500 adjusted by the CPI annual percent increase for each subsequent calendar year after 2027; and~~

~~(iii) — If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year in lieu of the CPI annual percent increase; and~~

~~If the annual Furnaces sales percentage is greater than the applicable calendar year Furnace sales target specified in Table 3, for any manufacturer of Furnaces subject to this rule that elects to comply with the ZEM Alternative Compliance Option pursuant to paragraph (f)(2), the manufacturer shall pay the following mitigation fee for each Furnace sold above the sales target:~~

~~(A) — \$500 for the calendar year 2027;~~

~~(B) — \$500 adjusted by the CPI annual percent change for each subsequent calendar year after 2027; and~~

~~(C) — If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year in lieu of the CPI annual percent increase.~~

~~(B) If the annual Zero NO_x Emission Units sales percentage is greater than the applicable calendar year Zero NO_x Emission Unit sales target specified in Table 3, apply a discount to their annual mitigation fee required pursuant to subparagraph (f)(2)(F) according to Equation 5:~~

$$\text{Discounted Mitigation Fee} = F - F \times \frac{(P - T)}{(100 - T)}$$

(Eq. 5)

Where:

F = Annual Mitigation Fee pursuant to subparagraph (f)(2)(F)

P = Reported Percent Zero NO_x Emission Units

T = Zero NO_x Emission Unit Sales Target.

(g) Informative Materials, Labeling, Recordkeeping, and Reporting

(1) Informative Materials for Furnaces

(A) Effective [90 days after Date of Rule Adoption], for any Mobile Home Furnace that is for distribution or sale inside of the South Coast AQMD that is using an alternative compliance plan in lieu of meeting the 14 ng/J certification limit, a manufacturer shall distribute or publish Informative Materials that clearly display the following language: “If installed in South Coast AQMD only: This furnace is only allowed to be installed and used for mobile homes; subject to a mitigation fee of \$150 before September 30, 2025, and \$100 thereafter; and only allowed to be installed and used for existing mobile homes or any mobile homes in a Master-Metered Mobile Home Park on and after January 1, 2027.”;

(B) For any Furnace that is for distribution or sale inside of the South Coast AQMD for installation at High-Altitude in a downflow configuration pursuant to paragraph (h)(3) shall distribute or publish Informative Materials that clearly display the following language: “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.”;

(C) For any Furnace sold under the ZEM Alternative Compliance Option pursuant to paragraph (f)(2) in lieu of complying with paragraph (d)(2), a manufacturer shall distribute or publish Informative Materials that clearly display the following language: “If installed in South Coast AQMD only: This furnace is sold under an alternative compliance option and manufacturer is subject to compliance goals and associated mitigation fee.”; and

(D) A manufacturer may request the use of alternative language in lieu of subparagraphs (g)(1)(A), (g)(1)(B), or (g)(1)(C), provided:

(i) The alternative language is similar to the language in subparagraphs (g)(1)(A), (g)(1)(B), or (g)(1)(C); and

(ii) If the alternative language is not approved by the Executive Officer, the manufacturer shall use the language in subparagraphs (g)(1)(A), (g)(1)(B), or (g)(1)(C).

(2) Reporting and Recordkeeping Requirements for ZEM Alternative Compliance Option

The manufacturer of a Furnace supplied or offered for use within the South Coast AQMD in accordance with the ZEM alternative compliance option in paragraph (f)(2) shall:

(A) Submit a report to the Executive Officer, signed by the Responsible Official for the manufacturer pursuant to the schedule in subparagraph (f)(2)(G), that includes:

(i) For Zero-NOx Emission Units:

(A) Brand name and model numbers;

(B) For Zero-NOx Emission Units with both outdoor and indoor units, only brand name and model numbers for the outdoor units;

(C) Zero-NOx Emission Unit type described in subparagraph (f)(2)(C); and

(D) Quantity of Zero-NOx Emission Units distributed or sold into or within the South Coast AQMD for the applicable calendar year; and

(ii) For Furnaces:

(A) Brand name and model numbers;

(B) Furnace description; and

- (C) Quantity of Furnaces distributed or sold into or within South Coast AQMD for the applicable calendar year that are subject to the ZEM alternative compliance option; and
 - (B) Maintain records for at least five years, including, but not limited to, the following information and make them available to the Executive Officer upon request:
 - (i) All information specified by subparagraph (g)(2)(A);
 - (ii) Serial number of each Furnace and Zero-NOx Emission Units sold;
 - (iii) Date and number of Furnaces and Zero-NOx Emission Units sold to a distributor; and
 - (iv) Each distributor's name, address, and phone number.
- (3) Labeling and Recordkeeping Requirements for Propane Conversion Kits

If the manufacturer, distributor, Reseller, or Installer of any Furnace elects to comply pursuant to the exemption in paragraph (h)(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.
- (4) New and Existing Building Labeling Requirements

For any Furnace , except Mobile Home Furnace, that is supplied or offered for sale for use in the South Coast AQMD, and that is not electing to comply with paragraph (f)(2) for ZEM alternative compliance option during the period of January 1, 2027 to January 1, 2029, the manufacturer of the

Furnace shall clearly display on the shipping container, or the name plate of the Furnace, the following:

(A) The statement: “If Installed in South Coast AQMD: 1) After January 1, 2027, this furnace shall not be sold for installation in new buildings; and 2) After January 1, 2029, not compliant for use and installation in South Coast AQMD.”;

(B) A manufacturer may use alternative language in lieu of subparagraph (g)(4)(A), provided:

(i) The alternative language is similar to the language in subparagraph (g)(4)(A); and

(ii) If the alternative language is not approved by the Executive Officer, the manufacturer shall use the language in subparagraph (g)(4)(A).

(5) The manufacturer of any Furnace manufactured for sale in the South Coast AQMD shall clearly display on the shipping container and the name plate of the Furnace:

(A) Model number;

(B) Rated Heat Input Capacity;

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

(D) Date of manufacture or date code.

(6) Any non-certified 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 as not certified for use in 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).~~

~~(gh) 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 furnace~~ 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 ~~(e)(d)~~ and ~~(d)(e)~~, provided the manufacturer complies with the labeling and reporting requirements in paragraph (g)(3).
- (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.~~

(2) Paragraph (d)(2) shall not apply to the following Furnaces:

- (A) Mobile Home Furnaces in compliance with paragraph (d)(1) for installation in Existing Buildings;
- (B) Mobile Home Furnaces in compliance with paragraph (d)(1) for installation or use in New Buildings or Existing Buildings located in Master-Metered Mobile Home Parks; and
- (C) Furnaces in compliance with paragraph (d)(1) that will be installed or used in New Buildings with building permit issued prior to [Date of Adoption] by the appropriate enforcement agency.

~~(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.~~

(36) Effective April 1, 2022, downflow furnaces Downflow Furnace rated less than 175,000 BTU per hour in heat input capacity and condensing or non-condensing furnaces with rated heat input at or greater than 100,000 BTU per hour, either of which are installed at elevations at or above 4,200 feet

~~above sea level~~ High Altitude as a replacement for an existing furnace
Furnaces are exempt from paragraphs ~~(e)(4)(d)(1) and (d)(2)~~, provided that:

- (A) ~~The downflow furnace~~ Downflow Furnaces ~~are~~ is certified to meet the 40 ng/J NO_x 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 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) Manufacturers of the Downflow Furnaces comply with paragraph (g)(1)(B) for Informative Material requirement. ~~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 NO_x 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 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."~~

~~(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 NO_x 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).~~

~~(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).~~

(i) Severability

If any provision of this rule is held by judicial order to be unlawful or otherwise invalid, such order shall not affect the operation or implementation of the remainder of this rule. If any provision of this rule is held by judicial order to be invalid or

inapplicable to any person or circumstance, such order shall not affect the application of such provision to other persons or circumstances.

ATTACHMENT H

(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, NATURAL GAS-
FIRE WATER HEATERS

[RULE INDEX TO BE ADDED AFTER RULE ADOPTION]

(a) Purpose

The purpose of this rule is to reduce Oxides of Nitrogen (NO_x) emissions from NO_x-emitting Water Heaters as defined in this rule.

(ab) Applicability

This-The provisions of this rule applies-are applicable to manufacturers, distributors, retailers, Resellers, and installers-Installers of natural gas-fired NO_x-emitting water heaters Water Heaters, with heat input-a Rated Heat Input Capacity rates-less than 75,000 British thermal units (Btu) per hour.

(bc) 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) Consumer Price Index (CPI) means the consumer price index for California as reported by the Department of Industrial Relations based on:

(A) Urban population coverage (CPI-U);

(B) California Area Coverage;

(C) Series Title "All Items";

(D) Index Base Period "1982-1984=100"; and

(E) Reference Period "Annual Average" for All Urban Consumers.

(2) EXISTING BUILDING means a building that is not a New Building as defined in this rule.

(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_o 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) INFORMATIVE MATERIALS means consumer brochure and technical specification sheet for the Water Heater and manufacturer’s website that promotes, discusses, or lists the Water Heater.
- (7) INSTALL means the action of an Installer to place a Water Heater in a position ready for use.
- (8) 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.
- (9) MASTER-METERED MOBILE HOME PARK means a Mobile Home park that takes electricity through a master meter and then distributes it to park residents through the Mobile Home park’s system.
- ~~(810) MOBILE HOME means a structure, transportable in one or more sections, that is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities.~~
- ~~(711) 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).~~
- (12) 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, or any subsequent version of the Building Code. For Mobile Homes, the newly constructed building includes installation of the Mobile Home onto the property of residence.

- ~~(813)~~ NOx EMISSIONS means the sum of nitric oxide and nitrogen dioxide in the flue gas, collectively emitted; calculated and expressed as nitrogen dioxide.
- ~~(14)~~ 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.
- ~~(4415)~~ 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.
- ~~(1216)~~ 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.
- ~~(1317)~~ 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.
- ~~(18)~~ RESELLER means anyone who sells Water Heater(s) either retail, wholesale, or on an individual basis.
- ~~(19)~~ 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.
- (20) STANDARD CONDITIONS are as defined by Rule 102 – Definition of Terms.
- (1421) WATER HEATER means a closed vessel other than a mobile home water heater in which water is heated by combustion of combusting natural gas, which emits NO_x, 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).
- (22) ZERO-NO_x EMISSION UNITS means an appliance that provides water heating with heating capacity equivalent to, or sized to replace, Water Heaters subjected to this rule and emits no more than zero nanograms of NO_x per joule of Heat Output (ng/J).
- (ed) 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 NO_x emission level of less than or equal to:~~
- (A) ~~40 nanograms of NO_x (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).~~
- (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 NO_x emission level of less than or equal to:~~
- (A) ~~20 nanograms of NO_x (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 NO_x emission level of less than or equal to:

(A) — 10 nanograms of NO_x (calculated as NO₂) 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 NO_x emission level of less than or equal to:

(A) — 40 nanograms of NO_x (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) A person shall not manufacture, supply, sell, resell, offer for sale, import, or install, for use in the South Coast AQMD, any of the Water Heaters listed in Table 1, unless the Water Heater is certified pursuant to subdivision (e) and does not exceed the applicable Table 1 NO_x limit, expressed by nanograms of NO_x per joule of Heat Output (ng/J) or ppmv.

Table 1 – NOx Emission Limits

| <u>Equipment</u> | <u>NOx Emission Limits</u> | |
|---------------------------------|----------------------------|-------------|
| | <u>ng/J</u> | <u>ppmv</u> |
| <u>Water Heater¹</u> | <u>10</u> | <u>15</u> |
| <u>Mobile Home Water Heater</u> | <u>40</u> | <u>55</u> |

¹ Excluding Mobile Home Water Heater

- (2) On and after the applicable Table 2 compliance dates, a person shall only manufacture, supply, sell, resell, offer for sale, import, or Install, for use in the South Coast AQMD, a Zero-NOx Emission Unit, that emits zero ng/J of NOx, in place of a Water Heater according to the Table 2 compliance schedule, unless the Water Heater is included in the Zero-NOx Emission Manufacturer Alternative Compliance Option pursuant to paragraph (f)(1) as indicated in the Informative Materials for the Water Heater pursuant to subparagraph (g)(1)(B). The applicable Table 2 compliance dates for New Building types shall be determined based on the construction or alteration completion date.

Table 2 – Zero-NOx Emission Limit Compliance Schedule

| <u>Equipment Category</u> | <u>Building Type</u> | <u>Compliance Date</u> |
|---------------------------------|----------------------|------------------------|
| <u>Water Heater¹</u> | <u>New</u> | <u>January 1, 2027</u> |
| | <u>Existing</u> | <u>January 1, 2029</u> |
| <u>Mobile Home Water Heater</u> | <u>New</u> | <u>January 1, 2027</u> |

¹ Excluding Mobile Home Water Heater

(de) Certification

- (1) The manufacturer shall obtain confirmation that each model of ~~water heater~~Water Heater complies with the applicable requirements of ~~subdivision (e)~~ paragraph (d)(1) from an ~~independent testing laboratory~~Independent Testing Laboratory prior to applying for certification for a 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 (e)~~paragraph (d)(1). ~~The statement shall be signed and dated by~~with the manufacturer ~~identified 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 (e)~~ 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 (e)(2) or (e)(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 (e)(2) or (e)(3), respectively.~~
 - (5) ~~The Executive Officer shall certify a water heater model which complies with the provisions of subdivision (e) 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) Zero-Emission Manufacturer (ZEM) Alternative Compliance Option
Any manufacturer of Water Heaters, other than Mobile Home Water Heaters, subject to this rule may elect to comply with the ZEM alternative compliance option in lieu of complying with paragraph (d)(2) provided:
 - (A) The manufacturer submits an alternative compliance plan, no later than November 1, 2026, or no later than 60 days prior to any sales to the South

Coast AQMD for a new manufacturer who does not have any sales into or within the South Coast AQMD as of October 31, 2026, that includes:

- (i) A letter with the name of the manufacturer requesting the ZEM alternative compliance option signed by a Responsible Official;
- (ii) A complete South Coast AQMD Form 400A with company name, indicating the application is for a compliance plan (section 7 of form), indicating the request is for the “Rule 1121 ZEM alternative compliance option” (section 9 of form), and signature of the Responsible Official; and
- (iii) Payment for the alternative compliance plan filing fee pursuant to Rule 306– Plan Fees;

(B) The manufacturer sells, or enables distributors, retailers, Resellers, or Installers to sell, Zero-NOx Emission Units into or within the South Coast AQMD;

- (i) At a percentage greater than or equal to the Zero-NOx Emission Unit sales target specified in Table 3 and pays the mitigation fee in subparagraph (f)(1)(F); or
- (ii) At a percentage less than the Zero-NOx Emission Unit sales target specified in Table 3 and pays the mitigation fee in paragraph (f)(2)(A);

(C) Zero-NOx Emission Unit sales percentage is calculated by Equation 1. For determining the number of Zero-NOx Emission Units sold in a calendar year into or within the South Coast AQMD, portable zero-NOx emission water heating appliances shall not be counted as a Zero-NOx Emission Unit;

$$\text{Zero-NOx Emission Unit Sales Percentatge} = \frac{(Z)}{(Z + N)} \times 100$$

(Eq. 1)

Where:

Z = Number of Zero-NOx Emission Units sold in a compliance year

N= Number of Water Heaters sold in a compliance year

(D) Water Heater sales percentage is calculated by Equation 2;

Water Heater Sales Percentatge

= 100 – Zero-NOx Emission Unit Sales Percentage

(Eq. 2)

(E) The Water Heaters sold under this alternative compliance option are certified to emit 10 ng/J (or 15 ppmv) or less of NOx;

(F) The manufacturer pays the following mitigation fee for each Water Heater sold within the Water Heater sales target for the applicable calendar year in Table 3:

(i) \$50 for the calendar year 2027;

(ii) \$50 adjusted by CPI annual percent ~~increase~~change for each subsequent calendar year after 2027; and

(iii) If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year in lieu of the CPI annual percent increase;

(G) The manufacturer submits a report and mitigation fee payment pursuant to paragraph (g)(2) no later than 90 days after the end of each calendar year utilizing this alternative compliance option; and

(H) The manufacturer complies with the Informative Material requirements pursuant to paragraph (g)(1).

Table 3 – ZEM Alternative Compliance Option Targets

| <u>Compliance phase</u> | <u>Phase 1</u> | <u>Phase 2</u> | <u>Phase 3</u> | <u>Phase 4</u> |
|--|--------------------|--------------------|-------------------|-----------------------|
| <u>Calendar Years</u> | <u>2027 - 2028</u> | <u>2029 - 2032</u> | <u>2033-2035</u> | <u>2036 and after</u> |
| <u>Zero-NOx Emission Unit Sales Target</u> | <u>30 percent</u> | <u>50 percent</u> | <u>75 percent</u> | <u>90 percent</u> |
| <u>Water Heater Sales Target</u> | <u>70 percent</u> | <u>50 percent</u> | <u>25 percent</u> | <u>10 percent</u> |

(2) ZEM Alternative Compliance Option Sales Target Deviation

Any manufacturer of Water Heaters subject to this rule that elects to comply with the ZEM Alternative Compliance Option pursuant to paragraph (f)(1) that deviates from the applicable Sales Target in Table 3 shall:

- ~~(A) — If the annual Water Heaters sales percentage is greater than the applicable calendar year Water Heater sales target specified in Table 3, pay the following mitigation fee for each Water Heater sold above the sales target:~~
- ~~(i) — \$250 for the calendar year 2027;~~
 - ~~(ii) — \$250 adjusted by CPI annual percent increase for each subsequent calendar year after 2027; and~~
 - ~~(iii) — If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year in lieu of the CPI annual percent increase; and;~~

If the annual Water Heaters sales percentage is greater than the applicable calendar year Water Heater sales target specified in Table 3, any manufacturer of Water Heaters subject to this rule that elects to comply with the ZEM Alternative Compliance Option pursuant to paragraph (f)(1) the manufacturer shall pay the following mitigation fee for each Water Heater sold above the sales target:

- (A) \$250 for the calendar year 2027;
- (B) \$250 adjusted by CPI annual percent change for each subsequent calendar year after 2027; and
- (C) If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year in lieu of the CPI annual percent increase.
- (B) — If the annual Zero-NOx Emission Units sales percentage is greater than the applicable calendar year Zero-NOx Emission Unit sales target specified in Table 3, apply a discount to their annual mitigation fee required pursuant to subparagraph (f)(1)(F) according to Equation 3:

$$\text{Discounted Mitigation Fee} = F - F \times \frac{(P - T)}{(100 - T)}$$

(Eq. 3)

Where:

F = Annual Mitigation Fee pursuant to subparagraph (f)(1)(F)

P = Reported Percent Zero-NOx Emission Units

T = Zero-NOx Emission Unit Sales Target.

- (g) Informative Materials, Labeling, Recordkeeping, and Reporting
 - (1) Informative Materials for Water Heaters

- (A) Effective [90 days after Date of Rule Adoption], for any Mobile Home Water Heater certified to meet the applicable Table 1 NOx emission limit that is for distribution or sale inside of the South Coast AQMD, a manufacturer shall distribute or publish Informative Materials that clearly display the following language: “If installed in South Coast AQMD only: This water heater is only allowed to be installed and used for mobile homes; and is only allowed to be installed and used for existing mobile homes or any mobile homes in a Master-Metered Mobile Home Park on and after January 1, 2027.” ;
- (B) For any Water Heater sold under the ZEM Alternative Compliance Option pursuant to paragraph (f)(1) in lieu of complying with paragraph (d)(2), a manufacturer shall distribute or publish Informative Materials that clearly display the following language: “If installed in South Coast AQMD only: This water heater is sold under an alternative compliance option and manufacturer is subject to compliance goal and associated mitigation fee.”; and
- (C) A manufacturer may request the use of alternative language in lieu of subparagraph (g)(1)(A) or (g)(1)(B), provided:

 - (i) The alternative language is similar to the language in subparagraph (g)(1)(A) or (g)(1)(B); and
 - (ii) If the alternative language is not approved, the manufacturer shall use the language in subparagraph (g)(1)(A) or (g)(1)(B).
- (2) Reporting and Recordkeeping Requirements for ZEM Alternative Compliance Option

The manufacturer of a Water Heater supplied or offered for use within the South Coast AQMD in accordance with the ZEM alternative compliance option in paragraph (f)(1) shall:

 - (A) Submit a report to the Executive Officer-, signed by the Responsible Official for the manufacturer pursuant to the schedule in paragraph (f)(1)(G), that includes:

 - (i) For Zero-NOx Emission Units:

 - (A) Model numbers;
 - (B) Zero-NOx Emission Unit description; and
 - (C) Quantity of Zero-NOx Emission Units distributed or sold into or within the South Coast AQMD for the applicable calendar year; and

- (ii) For Water Heaters:
 - (A) Model numbers;
 - (B) Water Heater description; and
 - (C) Quantity of Water Heaters distributed or sold into or within South Coast AQMD for the applicable calendar year that are subject to the ZEM alternative compliance option; and
 - (B) Maintain records for at least five years, including the following information and any other information for compliance demonstration, and make them available to the Executive Officer upon request:
 - (i) All information specified by subparagraph (g)(2)(A);
 - (ii) Serial number of each Furnace and Zero-NOx Emission Units sold;
 - (iii) Date and number of Water Heaters and Zero-NOx-Emission Units sold to a distributor; and
 - (iv) Each distributor's name, address, and phone number.
- (3) New and Existing Building Labeling Requirements

For any Water Heater, except Mobile Home Water Heater, that is supplied or offered for sale for use in the South Coast AQMD and that is not electing to comply by paragraph (f)(1) for ZEM alternative compliance option during the period of January 1, 2027 to January 1, 2029, the manufacturer of the Water Heater shall prominently display on the shipping container, or the name plate of the Water Heater, the following:

 - (A) The statement: "If Installed in South Coast AQMD: 1) After January 1, 2027, shall not be sold for installation in new buildings; and 2) After January 1, 2029, not compliant for use and installation in South Coast AQMD."; and
 - (B) A manufacturer may use alternative language in lieu of subparagraph (g)(3)(A) provided:
 - (i) The alternative language is similar to the language in subparagraph (g)(3)(A); and
 - (ii) If the alternative language is not approved, the manufacturer shall use the language in subparagraph (g)(3)(A).
- (4) 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.

~~(e) — Mitigation Fee~~

~~Any manufacturer that elects to submit a mitigation fee to the District to meet the Nox emission level established under subparagraph (e)(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 (e)(1)(C), over the time period the mitigation fee covers as specified in subparagraph (e)(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:

$$MF = \$5,400/ton \times [(t \times n \times 190therms/yr \times (93 - 46.5lbs/billionBtu - output) \times 0.76)/(2000 \times 10,000)]$$

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 (c).~~

~~(gh) 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) Paragraph (d)(2) shall not apply to the following Water Heaters:~~

~~(A) Mobile Home Water Heaters in compliance with paragraph (d)(1) for installation in Existing Buildings;~~

~~(B) Mobile Home Water Heaters in compliance with paragraph (d)(1) for installation or use in Master-Metered Mobile Home Parks; and~~

~~(C) Water Heaters in compliance with paragraph (d)(1) that will be installed or used in New Buildings with building permits issued prior to [Date of Adoption] by the appropriate enforcement agency.~~

~~(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 NO_x emission level specified under paragraph (c)(3);~~

~~(2) — A description of the technologies used to meet the NO_x 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 NO_x~~

~~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.~~

(i) Severability

If any provision of this rule is held by judicial order to be unlawful or otherwise invalid, such order shall not affect the operation or implementation of the remainder of this rule. If any provision of this rule is held by judicial order to be invalid or inapplicable to any person or circumstance, such order shall not affect the application of such provision to other persons or circumstances.

ATTACHMENT I

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Staff Report for:

Proposed Amended Rule 1111 – Reduction of NO_x Emissions From Natural Gas-Fired Furnaces

Proposed Amended Rule 1121 – Reduction of NO_x Emissions From Residential Type, Natural Gas-Fired Water Heaters

June 2025

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EXECUTIVE SUMMARY

South Coast AQMD Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces (Rule 1111), regulates oxides of nitrogen (NO_x) 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/hour. Rule 1111 was adopted by the South Coast Air Quality Management District (South Coast AQMD) Governing Board in December 1978. The rule was amended in 2009 to lower the NO_x emissions 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 NO_x 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.

South Coast AQMD Rule 1121 – Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters (Rule 1121) regulates NO_x emissions from natural gas-fired water heaters with a rated heat input capacity of less than 75,000 Btu/hr. Rule 1121 was adopted by the South Coast AQMD Governing Board in December 1978. This rule was amended in 1999 to reduce the NO_x 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 NO_x emissions limit of 10 ng/J, except for mobile home water heaters that are subject to an emissions limit of 40 ng/J.

Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces (PAR 1111), seeks further NO_x emission reductions and implements the 2022 Air Quality Management Plan (AQMP) Control Measure R-CMB-02 – Emission Reductions from Replacement with Zero Emission or Low NO_x Appliances – Residential Space Heating (Control Measure R-CMB-02). Proposed Amended Rule 1121 – Reduction of NO_x Emissions from Residential Type, Natural Gas-Fired Water Heaters (PAR 1121), seeks further NO_x emission reductions and implements the 2022 AQMP Control Measure R-CMB-01 – Emission Reductions from Replacement with Zero Emission or Low NO_x Appliances – Residential Water Heating (R-CMB-01). Staff conducted a comprehensive BARCT assessment, which includes an analysis of the technical feasibility and cost-effectiveness of zero-NO_x emission technologies for PAR 1111 and PAR 1121.

PAR 1111 and [PAR 1121](#) establish zero-NO_x emission limits for space and water heating appliances with compliance dates differentiated for units installed in new or existing buildings. Space and water heating appliances for existing mobile homes will be exempt from the zero-NO_x emission standards, and mobile home appliances will transition to zero-NO_x emission appliances in new mobile homes or when existing mobile homes are replaced with new mobile homes. A Zero-NO_x Manufacturer (ZEM) alternative compliance option is provided that establishes compliance targets for the sale of NO_x-emitting and Zero-NO_x emission appliances. The targets change over time to transition the market to zero-NO_x emission appliances. The ZEM alternative compliance option also includes fees for the sale of all NO_x-emitting appliances, with higher fees for the NO_x-emitting appliances sold over the compliance target. The fees ~~increase~~ will be adjusted annually to reflect consumer price index. In addition, PAR 1111 and PAR 1121 have clarified and updated rule language, restructured the rule, removed obsolete language, and streamlined the labeling, recordkeeping, and reporting requirements.

PAR 1111 and PAR 1121 will each affect the manufacturers, distributors, retailers, resellers, and installers of space and water heating appliances that are used in over five million buildings, mostly residential homes. Staff estimates that upon full implementation, PAR 1111 will reduce NOx emissions by 4.05 tons per day (tpd), and PAR 1121 will reduce NOx emissions by 2.07 tpd. The public process for PAR 1111 and PAR 1121 consisted of eight working group meetings, ~~four~~^{six} presentations to the Stationary Source Committee, a public workshop, a public consultation meeting, presentations to cities and Councils of Government, and many meetings with industry stakeholders, environmental and community groups, and technology vendors to obtain feedback.

At full implementation by 2061, PAR 1111 and PAR 1121 is estimated to prevent 2,490 premature deaths, 10,200 cases of newly onset asthma, 1.17 million minor restricted activity days, and 2,484 emergency room visits. The health benefits would be monetized to about \$25.43 billion to present value with 4 percent discount rate.

CHAPTER 1:BACKGROUND

INTRODUCTION

RULE 1111 REGULATORY HISTORY

PAR 1111 AFFECTED INDUSTRIES

RULE 1121 REGULATORY HISTORY

PAR 1121 AFFECTED INDUSTRIES

PUBLIC PROCESS

INTRODUCTION

Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces reduces nitrogen oxide emissions from gas-fired fan-type space heating furnaces with a rated heat input capacity of less than 175,000 Btu/hr or, for combination heating and cooling units, with a cooling rate of less than 65,000 Btu per hour. The rule applies to manufacturers, distributors, and installers of such furnaces. Most single-family homes, many multifamily residences, and some light commercial buildings in the South Coast AQMD use this type of space heating equipment.

Rule 1121 – Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters aims to reduce NO_x emissions from natural gas-fired residential water heaters with a rated heat input capacity less than 75,000 Btu/hr. This rule applies to manufacturers, distributors, retailers, and installers of natural gas-fired units and requires water heaters to meet a 10 ng/J emission limit and mobile home water heaters to meet a 40 ng/J emission limit. This rule does not apply to water heaters used in recreational vehicles or large water heaters subject to Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters (Rule 1146.2).

Rule 1111 and Rule 1121 require manufacturers to certify that each natural gas unit model offered for sale in the South Coast AQMD complies with the emission limit using the test methods approved by the South Coast AQMD and U.S. EPA.

RULE 1111 REGULATORY HISTORY

Rule 1111 was adopted by the South Coast AQMD Governing Board in December 1978. The original rule required the applicable space heating furnaces to meet a NO_x emission limit of 40 ng/J of heat output, which equivalent to a concentration of 61 parts per million by volume (ppmv) at a reference level of 3 percent oxygen and 80 percent Annual Fuel Utilization Efficiency (AFUE), beginning January 1, 1984.

NO_x Emission Limit of 14 ng/J Established

Rule 1111 was amended in November 2009 to implement the 2007 AQMP Control Measure CMB-03. The 2009 amendment established a new lower NO_x emission limit of 14 ng/J (equivalent to 22 ppmv at a reference level of 3 percent oxygen and 80 percent AFUE) and required the three major categories of residential furnaces, condensing (high efficiency), non-condensing (standard), and weatherized furnaces to meet the new limit by October 1, 2014, October 1, 2015, and October 1, 2016, respectively. Furthermore, new mobile home heating units, which were unregulated prior to the 2009 amendment, were required to meet a NO_x limit of 40 ng/J by October 1, 2012, and 14 ng/J by October 1, 2018. To facilitate the depletion of existing inventories and to ensure a smooth transition to the new limits, Rule 1111 also provided a temporary 10-month exemption (e.g., a sell-through period) for units manufactured and delivered into the South Coast AQMD prior to the compliance date.

Mitigation Fee to Delay Compliance of 14 ng/J Furnaces

Rule 1111 was amended in September 2014 to provide an alternative compliance option. The alternative compliance option allowed original equipment manufacturers (OEM) to pay a per-unit mitigation fee for each furnace with NO_x emissions certificated at 40 ng/J distributed or sold in South Coast AQMD, in lieu of meeting the 14 ng/J NO_x emission limit.

Rule 1111 was amended six times from 2018 to 2023 to extend the mitigation fee end dates, increase mitigation fees, and allow limited exemptions for furnaces at high-altitude.

The mitigation fee end date for each type of furnaces is listed in the following table. All furnace types have transitioned to 14 ng/J, except for mobile home furnaces, which constitute about four percent residential furnace market share of the region. The mitigation fee alternative compliance option for mobile home furnaces will end by September 30, 2025, according to the current rule language.

Table 1-1: Mitigation Fee Option End Dates

| Furnace Category | Mitigation Fee Option End Date |
|------------------|--------------------------------|
| Condensing | September 30, 2019 |
| Non-condensing | September 30, 2019 |
| Weatherized | September 30, 2021 |
| Mobile Home | September 30, 2025 |

Clean Air Furnace Rebate Program

In March 2018, the South Coast AQMD developed a rebate program for consumers who purchased and installed future compliant 14 ng/J furnaces in the South Coast AQMD. The purpose of the rebate program was to help commercialize future compliant furnaces and incentivize consumers to purchase and install them. On May 4, 2018, the South Coast AQMD executed the contract with Electric & Gas Industries Association (EGIA) to administer the Clean Air Furnace Rebate Program. On June 28, 2018, the rebate website was launched. The South Coast AQMD Governing Board initially approved funding of \$3 million for the furnace rebate program, specifying a \$500 rebate for each compliant furnace. In September 2020, the Governing Board approved additional funding of \$3.5 million, modifying the program to specify a \$500 rebate for up to 600 compliant weatherized furnaces, a \$500 rebate for up to 200 high-altitude compliant condensing or non-condensing furnace installations, and a \$1,500 rebate for each all-electric heat pump for central ducted space heating. Rebates for weatherized and high-altitude condensing and non-condensing furnaces ended on September 30, 2021, when remaining funds for those categories were reallocated for all-electric heat pump systems. Rebates for all-electric heat pump systems concluded in April of 2023 when funds were exhausted. The Clean Air Furnace Rebate Program incentivized the installation of over 5,300 ultra-low NO_x furnaces for early implementation of 14 ng/J limit and over 2,400 all-electric heat pump installations after the implementation of 14 ng/J limit, with 25 percent of all-electric heat pump funds allocated to disadvantaged communities.

2022 AQMP Control Measure

In the 2022 AQMP, the Governing Board adopted control measure R-CMB-02: Emission Reductions from Replacement with Zero Emission or Low NO_x Appliances – Residential Space Heating which proposed the development of zero-emission NO_x limits for residential space heating when feasible. The 2022 AQMP Policy Brief for Residential and Commercial Building

Appliances⁽¹⁾ cited heat pumps as an energy-efficient, zero-NOx emission alternative to NOx-emitting natural gas furnaces.

PAR 1111 AFFECTED INDUSTRIES

PAR 1111 affects manufacturers, distributors, retailers, resellers, and installers of natural gas-fired furnaces for space heating with a rated heat input capacity less than 175,000 Btu/hr, or for combination heating and cooling units, a cooling rate of less than 65,000 Btu per hour. 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 buildings for space heating.

The following table shows the North American Industry Classification System (NAICS) for the industries affected by PAR 1111. Staff estimated approximately 5,200,000 units in the South Coast AQMD are regulated by PAR 1111.

Table 1-2: PAR 1111 Affected Industries

| Affected Industry | NAICS |
|---|--------|
| 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 |

RULE 1121 REGULATORY HISTORY

Rule 1121 was adopted by the South Coast AQMD's Governing Board on December 1, 1978. The objective of the rule is to reduce NOx emissions from natural gas-fired residential water heaters.

⁽¹⁾ The South Coast AQMD, Residential and Commercial Building Appliances, http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/buildings_final.pdf

Rule 1121 applies to manufacturers, distributors, retailers, and installers of residential natural gas-fired water heaters less than 75,000 Btu per hour.

Starting in 1982, Rule 1121 required that gas-fired water heaters meet a NO_x emission limit of 40 ng/J of heat output, except gas-fired mobile home water heaters, which were required to meet a NO_x emission limit of 50 ng/J of heat output.

NO_x Emission Limit of 10 ng/J Established

In December 1999, Rule 1121 was amended to reduce the NO_x emission limit. The amendment reduced the NO_x limit in two steps from 40 ng/J to 20 ng/J on July 1, 2002, and 10 ng/J on January 1, 2005. The mobile home water heater emission limit was reduced from 50 ng/J to 40 ng/J, effective on and after January 1, 2000. Alternate equivalent emission limits expressed in part per million were also added. The rule also required manufacturers to provide a report by July 1, 2003, on their progress toward meeting the final emission limit in the rule.

Rule 1121 was included in the Settlement Agreement for the 1999 AQMP amendment. The Settlement Agreement included a commitment to begin the lower emissions limits implementation by 2005, allowing up to a 1-year extension to the implementation, or additional extensions if the Governing Board makes a finding of infeasibility.

Request a Delay in the Compliance Date

Manufacturers reported their progress towards meeting the emission limits by July 2003 and requested a delay in the compliance date and exemptions for power vented and direct vented water heaters. In addition, manufacturers requested to delay residential water heaters less than 50 gallons for one year and residential water heaters greater than 50 gallons for an additional two years.

Staff submitted a report to the Governing Board in January 2004, where the January 2005 compliance date was found to be infeasible, and the Governing Board directed staff to proceed with the rule development.

Extension of Compliance Date and Mitigation Fee

The most recent amendment to Rule 1121 in September 2004 extended the emission limit of 10 ng/J by one year for conventional water heaters less than or equal to 50 gallons, two years for conventional water heaters greater than 50 gallons, and three years for direct-vent, power-vent, and power direct-vent water heaters. The mitigation fee program for the interim rule limit was extended for three years and changed from \$1.80 per water heater to \$3.00 per water heater. The rule also required manufacturers to provide a report on progress towards meeting the interim and final rule limits for direct-vent, power-vent, and power direct-vent water heaters. The mitigation fee period ended when the 10 ng/J emissions limit was implemented from 2006-2008, depending on water heater type.

2022 AQMP Control Measure

In the 2022 AQMP, the Governing Board adopted control measure R-CMB-01: Emission Reductions from Replacement with Zero Emission or Low NO_x Appliances – Residential Water Heating. The control measure proposed the development zero-NO_x emission standards for water heating appliances installed in new and existing buildings, when feasible. All-electric heat pumps were mentioned as an option for zero-emission water heating.

PAR 1121 AFFECTED INDUSTRIES

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 approximately 5,100,000 units in the South Coast AQMD are regulated by PAR 1121.

Table 1-3: PAR 1121 Affected Industries

| Affected Industry | NAICS |
|---|--------|
| 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 |

PUBLIC PROCESS

PAR 1111 and PAR 1121 were developed through a public process that began in the last quarter of 2023 and included a series of working group meetings, individual stakeholder meetings, and site visits to affected facilities. South Coast AQMD staff held eight working group meetings on October 5, 2023, November 28, 2023, January 31, 2024, April 4, 2024, June 20, 2024, August 15, 2024, December 4, 2024, and February 13, 2025. The working group is comprised of representatives from manufacturers, trade organizations, permit stakeholders, businesses, environmental groups, residents, public agencies, consultants, and other interested parties. The purpose of the working group meetings was to present and discuss staff's BARCT assessment and the development of the proposed amendments and NOx limits for PAR 1111 and PAR 1121. Staff presented initial preliminary draft rule language at the working group meeting on June 20, 2024. A public workshop was conducted on October 3, 2024. After a considerable amount of feedback on the proposed rules concept, including concerns on the affordability of zero-NOx emission appliances and lack of consumer choice with the proposed future effective zero-NOx emission standards, staff changed the rule concept. The new rule concept was discussed during Working Group Meeting #8 and detailed in a Public Consultation Meeting held on March 6, 2025. The

following table summarizes the working group meetings held throughout the development of PAR 1111 and PAR 1121 and provides a summary of the key topics discussed at each of the working group meetings.

Table 1-4: Summary of Public Process

| Date | Meeting Title | Highlights |
|-------------------|--------------------------|---|
| October 5, 2023 | Working Group Meeting #1 | <ul style="list-style-type: none"> • Rule Development Process • Control Measures for Space and Water Heating • BARCT Assessment • Technologies • Manufacturer Survey • Incentives |
| November 28, 2023 | Working Group Meeting #2 | <ul style="list-style-type: none"> • Follow-up to stakeholder comments from Working Group Meeting #1 • Presented cost-effectiveness methods, assumptions, and initial results |
| January 31, 2024 | Working Group Meeting #3 | <ul style="list-style-type: none"> • Follow-up to stakeholder comments from Working Group Meeting #2 • Analysis of requirements in mobile homes • Updates to cost-effectiveness calculations • Presented affordability analysis method, assumptions, and initial results • South Coast AQMD rebate program for zero-emission units |
| April 4, 2024 | Working Group Meeting #4 | <ul style="list-style-type: none"> • Follow-up to stakeholder comments from Working Group Meeting #3 • Summary of site visits to mobile homes • Discussion of wall and floor furnaces • Discussion of commercial space heating • Cost-effectiveness for wall and floor furnaces, and commercial furnaces • Proposed rule concepts |
| June 20, 2024 | Working Group Meeting #5 | <ul style="list-style-type: none"> • Follow-up to stakeholder comments from Working Group Meeting #4 • Summary of site visits to multifamily buildings • Rule language proposals |
| August 15, 2024 | Working Group Meeting #6 | <ul style="list-style-type: none"> • Follow up to stakeholder comments from Working Group Meeting #5 • Summary of site visit to single family home and multifamily homes • Feasibility of 120V heat pump water heaters • Tenant protections |

| Date | Meeting Title | Highlights |
|--------------------------------|---|---|
| | | <ul style="list-style-type: none"> • Updates to rule language |
| October 3, 2024 | Public Workshop | <ul style="list-style-type: none"> • Background on Rule 1111 and Rule 1121 • PAR 1111 rule language • PAR 1121 rule language |
| October 18, 2024 | Stationary Source Committee | <ul style="list-style-type: none"> • Regulatory history and background • Estimated emission reductions • Anticipated challenges and proposed solutions |
| December 4, 2024 | Working Group Meeting #7 | <ul style="list-style-type: none"> • Staff outreach efforts • Updates to cost-effectiveness • Replacement cost examples • Updates to proposed rule language • Go Zero rebate program development |
| December 20, 2024 | Stationary Source Committee | <ul style="list-style-type: none"> • Public outreach updates • Site visits • Anticipated challenges and proposed solutions • Affordability and cost examples |
| February 13, 2025 | Working Group Meeting #8 | <ul style="list-style-type: none"> • Staff outreach efforts • Summary of concerns about previous rule concepts • New rule concept proposal • Go Zero rebate program development |
| February 21, 2025 | Stationary Source Committee | <ul style="list-style-type: none"> • Updated public outreach efforts • Presented new rule concept with compliance targets and mitigation fees • Updates to emissions reductions |
| March 6, 2025 | Public Consultation Meeting | <ul style="list-style-type: none"> • Detailed the third preliminary draft PAR 1111 and PAR 1121 • Discussed updated cost effectiveness analysis |
| March 21, 2025 | Stationary Source Committee | <ul style="list-style-type: none"> • Updated committee on rule development progress • Discussed mitigation fee options |
| April 18, 2025 | Stationary Source Committee | <ul style="list-style-type: none"> • Updated committee on key issues • Discussed recent outreach on proposed rules |
| May 16, 2025 | Stationary Source Committee | <ul style="list-style-type: none"> • Updated committee on key issues • Summarized key changes to rule language |

Staff held many meetings with stakeholders who are potentially impacted by this rulemaking. In addition, staff conducted dozens of site visits with stakeholders as listed in the following table.

Table 1-5: Summary of Site Visits

| Date | Location |
|-------------------|--|
| March 15, 2023 | Southern California Edison Energy Education Center |
| June 8, 2023 | Southern California Edison Energy Education Center |
| August 29, 2023 | Rheem Manufacturing Company, Raypak |
| December 8, 2023 | Oakridge Mobile Home Park |
| January 11, 2024 | Lake Los Serranos Mobile Home Park |
| January 17, 2024 | Corona Del Rey Apartments |
| March 14, 2024 | The Fountains Mobile Home Park |
| May 2, 2024 | Jia (Multifamily) |
| May 2, 2024 | Pearl MDR (Multifamily) |
| May 22, 2024 | Ava Burbank (Multifamily) |
| May 22, 2024 | Ava Toluca (Multifamily) |
| July 18, 2024 | A Single-Family House in Mission Viejo (120V heat pump water heater) |
| August 7, 2024 | Newport Ridge Apartment Homes (Multifamily) |
| August 7, 2024 | San Paulo Apartment Homes (Multifamily) |
| August 7, 2024 | New Construction Single Family Home in Irvine |
| September 5, 2024 | Palmeras Apartments in Irvine |
| September 5, 2024 | Baywood Apartments in Newport Beach |
| October 23, 2024 | Mountain Communities Hospital |
| October 23, 2024 | Indoor Weather Shop |

| Date | Location |
|-------------------|---|
| October 23, 2024 | Spade & Spatula |
| October 23, 2024 | Dual Fuel Single-Family Residence |
| October 23, 2024 | All Electric Single-Family Residence |
| October 23, 2024 | Pali Adventure Camp |
| October 29, 2024 | Centre Club (Multifamily) |
| January 7, 2025 | University of California Irvine (UCI) All-Electric Hospital |
| February 11, 2025 | California State University Dominguez Hills |

CHAPTER 2: BARCT ASSESSMENT

INTRODUCTION OF BARCT ASSESSMENT

PAR 1111 BARCT ASSESSMENT

PAR 1121 BARCT ASSESMENT

COST-EFFECTIVENESS AND INCREMENTAL COST-EFFECTIVENESS

ADDITIONAL INFORMATION AND CHALLENGES

INTRODUCTION OF BARCT ASSESSMENT

The purpose of a BARCT assessment is to assess available pollution controls to establish emission limits for specific equipment categories consistent with state law. Under Health and Safety Code Section 40406, BARCT is defined as:

“an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.”

The BARCT assessment follows a framework through the rule development process and includes public participation. The following figure illustrates the overall BARCT assessment approach.

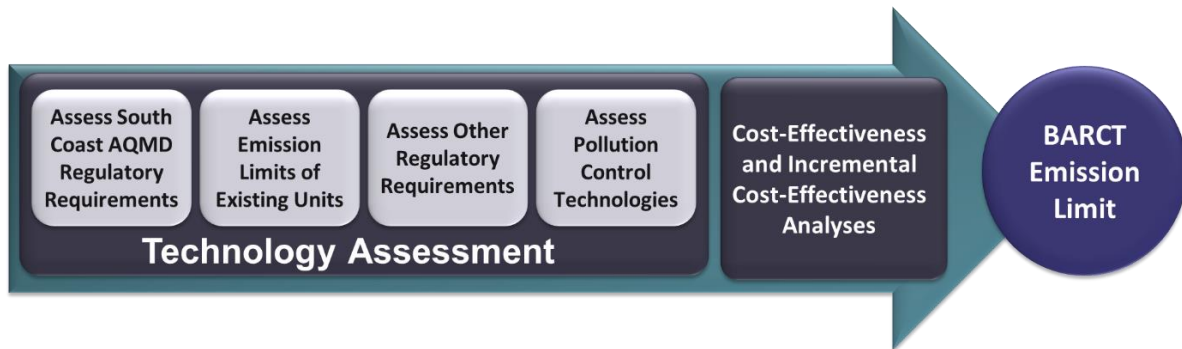


Figure 2-1. BARCT Assessment Approach

PAR 1111 BARCT ASSESSMENT

Assess South Coast AQMD Regulatory Requirements

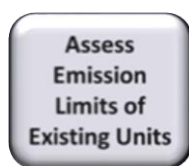
Assessment of South Coast AQMD Regulatory Requirements

Staff reviewed existing South Coast AQMD NO_x regulations for residential heating and small commercial heating. The following table summarizes the South Coast AQMD rules that staff evaluated as part of the BARCT technology assessment.

Table 2-1: South Coast AQMD Regulatory Requirements Similar to PAR 1111

| Regulation/Rule Title | Relevant Unit/Equipment Size | Current or Future Effective NOx Emission Limits in ng/J or ppmv at 3 percent O ₂ , dry |
|--|---|---|
| Rule 1146.2 – Emissions of Oxides of Nitrogen (NOx) from Large Water Heaters, Small Boilers and Process Heaters | Large Water Heaters, Small Boilers and Process Heaters (less than or equal to 2,000,000 Btu/hr rated heat input capacity, excluding tank type water heaters subject to Rule 1121) | 0 ppmv with compliance dates between 2026-2033: <ul style="list-style-type: none"> • Type 1 Units • Instantaneous Water Heaters ≤200,000 Btu/hr • Instantaneous Water Heaters >200,000 Btu/hr • Type 1 Pool Heaters • Type 2 Units • Type 1 High Temperature Units, and • Type 2 High Temperature Units |
| Rule 1147 – NOx Reductions From Miscellaneous Sources | Combustion equipment which require an AQMD permit but are not applicable to other Rules | <ul style="list-style-type: none"> • 60 ppmv for afterburners, burn-off furnaces, dryers over 1,200°F, kilns, and other units • 30 ppmv for ovens, dryers, kilns and furnaces under 1,200°F, and make-up air heaters, carpet dryers and other units |
| Rule 1121 – Control of Nitrogen Oxides from Residential-Type, Natural Gas-Fired Water Heaters | Residential-Type, Natural Gas-Fired Water Heaters (less than 75,000 Btu/hr rated heat input capacity) | <ul style="list-style-type: none"> • 10 ng/J or 15 ppmv • 40 ng/J or 55 ppmv for mobile home water heaters |

Emission Level of Existing Units



The next step of the BARCT assessment is to evaluate the emission of existing units operating within the South Coast AQMD. Condensing, non-condensing, and weatherized furnaces subject to Rule 1111 are certified to meet the 14 ng/J NOx emission limit; the applicable mobile home furnaces are meeting the 40 ng/J NOx emission limit. PAR 1111 applies to furnaces with a rated heat input capacity of up to 175,000 Btu/hr. Wall furnaces and floor furnaces, which are currently not subject to an emission limit. Staff conducted a review of currently available wall furnace and floor furnace product sheets and found several units with ultra-low NOx burners (14 ng/J) and units that do not state the NOx emission levels. Staff, therefore, assumed a NOx emission of 40 ng/J for wall and floor furnaces to account for units that do not have a stated emission level.

Other Regulatory Requirements

Assess Other Regulatory Requirements

Staff reviewed regulatory requirements from other agencies for identical or similar equipment. The purpose of this step is to determine if there are more stringent regulations in other jurisdictions that should be considered, as NOx reduction rules enforced by the South Coast AQMD cannot be less stringent.

Table 2-2: Other Regulatory Requirements Similar to PAR 1111

| Regulatory Entity | Regulation/Rule | Relevant Emission Limits |
|--|--|--|
| San Joaquin Valley Air Pollution Control District (Valley Air District)⁽²⁾ | Rule 4905 – Natural Gas-Fired, Fan-Type Central Furnaces (units with a rated heat input capacity less than 175,000 Btu/hr, and for combination heating and cooling units with a rated cooling capacity of less than 65,000 Btu/hr) – Exempts furnaces that are to be installed with a propane conversion kit | 14 ng/J (allows mobile home furnaces to meet 40 ng/J if a per unit emission fee is paid) |
| Bay Area Air Quality Management District (BAAQMD)⁽³⁾ | Rule 9-4 – Nitrogen Oxides Emissions from Natural Gas-Fired Furnaces (units with total rated heat input capacity of less than 175,000 Btu/hr) adopted in March 2023 | <ul style="list-style-type: none"> • Zero-emission limits with implementation in 2029 • Emission standards not applicable to furnaces used in mobile homes |
| California Air Resources Board (CARB)⁽⁴⁾ | 2022 State Strategy for the State Implementation Plan (adopted September 22, 2022) proposed measures for residential and commercial buildings; Anticipating Board consideration for rule adoption in 2026 | Proposed zero-emission limits (GHG, NOx) for new equipment and appliances sold for use in both residential and commercial buildings, with implementation in 2030 |

⁽²⁾ San Joaquin Valley Air Pollution Control District, Rule 4905, <https://ww2.valleyair.org/media/haajtjed/rule-4905.pdf>

⁽³⁾ Bay Area Air Quality Management District, Rule 9-4, https://www.baaqmd.gov/~media/dotgov/files/rules/reg-9-rule-4-nitrogen-oxides-from-fan-type-residential-central-furnaces/2021-amendments/documents/20230315_rg0906-pdf.pdf?rev=436fcd037324b0b8f0c981d869e684d&sc_lang=en

⁽⁴⁾ California Air Resources Board, 2022 State SIP Strategy, p. 30, https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf

Assessment of Pollution Control Technologies



The next step is to research the commercially available emission control technologies and seek information on any emerging emission control technologies. As part of this assessment, staff met with multiple manufacturers. Rule 1111 is technology and fuel neutral and is focused on achieving the maximum NO_x emission reductions possible.

Staff assessed different pollution control technologies as part of the BARCT assessment. Staff presented and discussed the pollution control technology assessment in working group meetings. The objective is to identify and evaluate control technologies, approaches, and potential emission reductions.

Zero-Emission Technology and Emerging Technology

Zero-emission technologies such as heat pumps, electric resistance, and fuel cell technologies were explored as part of the BARCT assessment, all of which are proven technologies that have been in operation for decades. Staff conducted internet searches and met with stakeholders to gather more information on zero-emission technologies and emerging technology.

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 handling 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.

PAR 1121 BARCT ASSESSMENT**Assessment of South Coast AQMD Regulatory Requirements**

Staff reviewed existing South Coast AQMD NO_x regulations for residential water heating. The following table summarizes the South Coast AQMD rules that staff evaluated as part of the BARCT technology assessment.

Table 2-3: South Coast AQMD Regulatory Requirements Similar to PAR 1121

| Regulation/Rule Title | Relevant Unit/Equipment Size | Current and Future Effective NO_x Emission Limits in ng/J or ppmv at 3 percent O₂, dry |
|--|---|---|
| Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters | Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (greater than or equal to 5,000,000 Btu/hr rated heat input capacity) | <ul style="list-style-type: none"> • 7-9 ppm for units burning gaseous fuels 5,000,000 to less than 20,000,000 Btu/hr; • 5-9 ppmv for units burning gaseous fuels greater than 20,000,000 Btu/hr and less than 75,000,000 Btu/hr; • 5 ppmv for units burning natural gas greater than or equal to 75,000,000 Btu/hr; • 12 ppmv for thermal fluid heaters burning gaseous fuels; • 40 ppmv for nongaseous fuels; • 12 ppmv for atmospheric units; • 15 ppmv for units burning digester gas; • 25 ppmv for units burning landfill gas |
| Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters | Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (greater than 2,000,000 Btu/hr and less than 5,000,000 Btu/hr rated heat input capacity) | <ul style="list-style-type: none"> • 7-9 ppmv for units greater than 2 MMBtu/hr and less than 5,000,000 Btu/hr burning natural gas; • 12 ppmv for atmospheric units; • 12 ppmv for thermal fluid heaters; • 15 ppmv for units burning digester gas; • 25 ppmv for units burning landfill gas |

| Regulation/Rule Title | Relevant Unit/Equipment Size | Current and Future Effective NO _x Emission Limits in ng/J or ppmv at 3 percent O ₂ , dry |
|---|--|---|
| Rule 1146.2 – Emissions of Oxides of Nitrogen (NO_x) from Large Water Heaters, Small Boilers and Process Heaters | Large Water Heaters, Small Boilers and Process Heaters (less than or equal to 2,000,000 Btu/hr rated heat input capacity, excluding tank type water heaters subject to Rule 1121) | 0 ppmv with compliance dates between 2026-2033: <ul style="list-style-type: none"> • Type 1 Units • Instantaneous Water Heaters ≤200,000 Btu/hr • Instantaneous Water Heaters >200,000 Btu/hr • Type 1 Pool Heaters • Type 2 Units • Type 1 High Temperature Units, and • Type 2 High Temperature Units |
| Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired Furnaces | Gas-fired fan-type space heating furnaces with a rated heat input capacity of less than 175,000 Btu/hr or, for combination heating and cooling units, with a cooling rate of less than 65,000 Btu per hour | <ul style="list-style-type: none"> • 14 ng/J • 40 ng/J before October 1, 2025 with mitigation fee alternative compliance option, and 14 ng/J on and after October 1, 2025, for mobile home furnaces |

**Assess
Emission
Limits of
Existing Units**

Emission Level of Existing Units

Currently, Rule 1121 water heaters are required to be certified at the NO_x emissions limit of 10 ng/J, whereas mobile home water heaters are required to be certified at an emissions limit of 40 ng/J. The list of units certified for use in the South Coast AQMD can be found on the South Coast AQMD website⁽⁵⁾.

**Assess Other
Regulatory
Requirements**

Other Regulatory Requirements

Staff reviewed regulatory requirements from other agencies for identical or similar equipment. The purpose of this step is to determine if there are more stringent regulations in other jurisdictions that should be considered, as rules

⁽⁵⁾ South Coast AQMD Certified and Approved Equipment, <https://www.aqmd.gov/home/programs/business/business-detail?title=certified-equipment&parent=certified-products>

enforced by the South Coast AQMD cannot be less stringent than another air district rule unless compliance is not achievable. .

Table 2-4: Other Regulatory Requirements Similar to PAR 1121

| Regulatory Entity | Regulation/Rule | Relevant Emission Limits |
|--|--|--|
| San Joaquin Valley Air Pollution Control District (Valley Air District)⁽⁶⁾ | Rule 4308 – Boilers, Steam Generators, and Process Heaters (units with a total rated heat input capacity of greater than or equal to 75,000 Btu/hr and less than 2,000,000 Btu/hr) – Exempts units installed in manufactured homes, units installed in recreational vehicles, and hot water pressure washers | 20 ppmv (except for pool heaters greater than or equal to 75,000 Btu/hr and less than or equal to 400,000 Btu/hr, which are at 55 ppmv) |
| Bay Area Air Quality Management District (BAAQMD)⁽⁷⁾ | Rule 9-6 – Nitrogen Oxides Emissions from Natural Gas-Fired Boilers and Water Heaters (units with total rated heat input capacity of 75,000 Btu/hr – 2,000,000 Btu/hr) adopted in March 2023 | Zero-emission limits with implementation in 2027 for small water heaters with rated heat input capacity greater than or equal to 75,000 Btu/hr and in 2031 for others – Exempts units installed in manufactured homes (40 ng/J limit), units installed in recreational vehicles, and pool/spa heaters with less than 400,000 Btu/hr rated heat input capacity used exclusively to heat swimming pools, hot tubs, or spas |
| California Air Resources Board (CARB)⁽⁸⁾ | 2022 State Strategy for the State Implementation Plan (adopted September 22, 2022) proposed measures for residential and commercial buildings; Anticipating Board consideration for rule adoption in 2026 | Proposed zero-emission limits (GHG, NO _x) for new equipment and appliances sold for use in both residential and commercial buildings, with implementation in 2030 |

⁽⁶⁾ San Joaquin Valley Air Pollution Control District, Rule 4308, <https://ww2.valleyair.org/media/o5pdu0oe/rule-4308.pdf>

⁽⁷⁾ Bay Area Air Quality Management District, Rule 9-6, https://www.baaqmd.gov/~media/dotgov/files/rules/reg-9-rule-4-nitrogen-oxides-from-fan-type-residential-central-furnaces/2021-amendments/documents/20230315_rg0906-pdf.pdf?rev=436fcd037324b0b8f0c981d869e684d&sc_lang=en

⁽⁸⁾ California Air Resources Board, 2022 State SIP Strategy, p. 30, https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf

Assessment of Pollution Control Technologies



The next step is to research the commercially available emission control technologies and seek information on any emerging emission control technologies. As part of this assessment, staff met with multiple manufacturers. South Coast AQMD Rule 1121 is technology and fuel neutral and is focused on achieving the maximum NO_x emission reductions possible.

Staff assessed different pollution control technologies as part of the BARCT assessment. Staff presented and discussed the pollution control technology assessment in working group meetings. The objective is to identify and evaluate control technologies, approaches, and potential emission reductions.

Zero-Emission Technology and Emerging Technology

Zero-emission technologies such as heat pumps, electric resistance, and fuel cell technologies were explored as part of the BARCT assessment, all of which are proven technologies that have been in operation for decades. Staff conducted internet searches and met with stakeholders to gather more information on zero-emission technologies and emerging technology.

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 are integrated heat pump water heaters, 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 heat pump water heaters, 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 heat pump water heaters, 240-volt (240V) and 120-volt (120V), are differentiated by the power supply required to operate. 240V heat pump water heaters 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 heat pump water heaters, 240V heat pump water heaters have a higher efficiency, but require a power supply that may not be available for all installations. 120V heat pump water heaters 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 heat pump water heaters can reduce costs and installation complexity that customers may face when retrofitting a heat pump water heater, compared to 240V heat pump water heaters. New Buildings Institute (NBI) worked closely with 120V heat pump water heater manufacturers and utilities in California on a statewide 120-volt heat pump water heater field validation program from

2021 to 2023. NBI installed 120V heat pump water heaters for 32 customers in most climate zones across California.⁽⁹⁾ Based on the study findings, they saved between \$800 and \$15,000 per household compared to 240V heat pump water heater 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 heat pump water heaters were also faster to install, making them ideal for emergency replacements. 120V heat pump water heaters were introduced to the market in 2022. Currently, there are two manufacturers (i.e., Rheem & A. O. Smith) with 120V heat pump water heaters commercially available with sizes ranging from 40 to 80 gallons. More manufacturers are expected to commercialize 120V heat pump water heaters. This type of heat pump water heater 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 heat pump water heater 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 heat pump water heater 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 SANCO₂ heat pump water heater system has been observed in use for multifamily retrofit projects including the South Coast AQMD Multifamily Affordable Housing Electrification Project.^{(10) (11)} Manufacturers are also developing 120V split system heat pump water heaters that minimize the need for electrical upgrades. EmberH2O Heat Pumps also have a 120V split system heat pump water heater⁽¹²⁾. The Hot Water Innovation Prize intends to reward manufacturers that develop innovative split system heat pump water heaters and bring the technology to market.⁽¹³⁾

Multi-function heat pumps are another emerging 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 multi-function heat pumps can utilize existing air conditioning electrical circuits without modification. For buildings that do not have air conditioning, the air-to-air multi-function water heater 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 heat pump water heater products. Harvest

⁽⁹⁾ New Buildings Institute, <https://newbuildings.org/resource/plug-in-heat-pump-water-heater-field-study-findings-market-commercialization-recommendations/>

⁽¹⁰⁾ Eco2 Systems, SANCO₂ Water Heater, <https://eco2waterheater.com/product-info/>

⁽¹¹⁾ The South Coast AQMD, Governing Board Meeting January 2019, <https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-jan4-002.pdf?sfvrsn=8>

⁽¹²⁾ Embertec, <https://embertec.com/heat-pump-water-heaters/>

⁽¹³⁾ Hot Water Solutions, Hot Water Innovation Prize, <https://partners.hotwatersolutionsnw.org/hot-water-innovation-prize>

Thermal⁽¹⁴⁾ and Villara Aqua ThermAire⁽¹⁵⁾ are market available multi-function water heater products and more developments are underway⁽¹⁶⁾.

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 heat pump water heater 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 heat pump water heater, may be required.

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

⁽¹⁴⁾ Harvest, <https://www.harvest-thermal.com/>

⁽¹⁵⁾ AquaThermAire by Villara, <https://villara.com/wp-content/uploads/2024/03/1.22-AquathermAire-One-Sheet.pdf>

⁽¹⁶⁾ CalNEXT, Residential Multi-Function Heat Pumps: Product Search, https://calnext.com/wp-content/uploads/2023/02/ET22SWE0021_Residential-Multi-Function-Heat-Pumps-Product-Search_Final-Report.pdf

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. Manufacturers are also providing heat pump water heaters that are HUD approved for mobile home installation. For example, Clayton Homes eBuilt shows a Rheem ProTerra heat pump water heater⁽¹⁷⁾. 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⁽¹⁸⁾. Most available micro-CHPs use natural gas, which is reformed into hydrogen gas and carbon dioxide (CO₂). The hydrogen is then sent to the fuel cell, which produces electricity and heat as a byproduct, producing zero NO_x. 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.

Staff from South Coast AQMD Technology Advancement Office met with representatives from SoCal Gas and fuel cell manufacturer Aisin to explore funding for a demonstration project to help bring this technology to the United States market.

Fuel cells have a broad range of applications from multi-megawatt systems to small units and continue to expand with emerging technologies⁽¹⁹⁾. 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 NO_x 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.

COST-EFFECTIVENESS AND INCREMENTAL COST-EFFECTIVENESS

Initial BARCT Emission Limit and Other Considerations

After completing the technology assessment, staff recommends an initial BARCT NO_x emission limit established using information gathered from the technology assessment. All provided emission concentration values (i.e., initial and final) in this report refer to concentration in terms of parts per million by volume (ppmv) based on a dry basis. Additionally, staff evaluates other considerations that could affect the emission limits that represent BARCT, including limits for

⁽¹⁷⁾ Clayton Homes eBuilt, <https://www.claytonbuilt.com/ebuilt>

⁽¹⁸⁾ Aisin, Energy Solutions, <https://www.aisin.com/en/product/energy/>

⁽¹⁹⁾ U.S. Department of Energy, Multi-Year Research, Development, and Demonstration Plan, https://www.energy.gov/sites/default/files/2017/05/f34/fcto_myrd_d_fuel_cells.pdf

those units operating close to the BARCT NO_x limits. Heat pump technologies are still the main technologies that can achieve in the nearer term the NO_x concentration limits proposed in PAR 1111 and PAR 1121. The summary of the BARCT assessment and staff's recommendations based on feasibility is discussed in the next section.

Method for Cost-Effectiveness and Incremental Cost-Effectiveness Analysis

The South Coast AQMD routinely conducts cost-effectiveness analyses for proposed rules and proposed amended rules and regulations that result in the reduction of criteria pollutants (NO_x, sulfur oxides, volatile organic compounds, particulate matter, and carbon monoxide). The analysis is used as a measure of the relative effectiveness of a proposal. It is generally used to compare alternative means of emissions control relating to the cost of purchasing, installing, and operating control equipment to achieve the projected emission reductions. The major components of the cost-effectiveness analysis are capital costs, annual operation and maintenance costs, emission reductions, discount rate, and equipment useful life. The cost-effectiveness for PAR 1111 and PAR 1121 was completed using the discounted cash flow method, which is explained as follows:

Discounted Cash Flow (DCF)

The DCF method converts all costs, including initial capital investments and costs expected in the present and all future years of equipment useful life, to present value. Conceptually, it is as if calculating the number of funds that would be needed at the beginning of the initial year to finance the initial capital investments and to set aside to pay off the annual costs as they occur in the future. The fund that is set aside is assumed to be invested and generates a rate of return at the discount rate chosen. The final cost-effective measure is derived by dividing the present value of total costs by the total emissions reduced over the equipment useful life. The following equation is used for calculating cost-effectiveness with DCF. Note, the "Annual O&M Costs" denoted in the equation include fuel switching costs. The equation was presented in the 2022 AQMP Socioeconomic Report Appendix 2-B (p. 2-B-3):

$$\text{Cost} - \text{effectiveness} = \frac{\text{Initial Capital Investments} + (\text{Annual O\&M Costs} \times \text{PVF})}{\text{Annual Emission Reductions} \times \text{Years of Equipment Life}}$$

Where O&M = Operation and Maintenance; and
PVF = Present Value Factor.

Equation 2-1. Discounted Cash Flow Cost-Effectiveness Equation

The PVF is calculated as follows:

$$\text{PVF} = \frac{(1 + r)^N - 1}{r * (1 + r)}$$

Where r = real interest rate (discount rate); and
N = years of equipment life.

Equation 2-2: PVF Equation

Lastly, Health and Safety Code Section 40920.6 (a)(3) states that an incremental cost-effectiveness assessment should be performed on identified potential control options that meet air quality objectives. To determine the incremental cost-effectiveness under this paragraph, South Coast

AQMD calculates the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option. Once the BARCT assessment is complete and NO_x limits are established, staff considers incrementally more stringent options to demonstrate that the NO_x limit represents the “maximum degree of reduction achievable by each class or category.” The equation for incremental cost-effectiveness is provided as follows:

$$I-CE \left(\$ / \text{tons NO}_x \text{ reduced} \right) = \frac{\text{Incremental Difference in Cost (Present Worth Value)}}{\text{Incremental Difference in Emission Reductions (Lifetime Reductions)}}$$

Where I-CE = Incremental Cost-Effectiveness

Equation 2-3: Incremental Cost-Effectiveness Equation

The 2022 AQMP’s objective is to meet the 2015 federal ozone standard through further emission reductions by transitioning to zero-emission technologies wherever feasible. For PAR 1111 and PAR 1121, staff identified technically feasible, commercially available, zero-emission control technologies for each category of equipment subject to PAR 1111 and PAR 1121. Staff did not identify less stringent control options that would meet the 2022 AQMP’s air quality objective.

For the incremental analysis, staff considered a NO_x technology that is incrementally more stringent than the current NO_x limits. South Coast AQMD funded a project (Request For Proposal #P2018-06) in 2019 – 2023 for Lantec Products to develop prototype residential furnaces with NO_x emissions lower than the current PAR 1111 Table 1 NO_x limits. However, considering those prototype furnaces currently are not commercially available, and a number of zero-emission technologies are widely commercially available, staff did not consider the prototype low-NO_x furnaces to be a feasible option that would achieve the 2022 AQMP’s objectives. In conclusion, staff did not identify multiple control technologies for PAR 1111 and PAR 1121 that can achieve the 2022 AQMP’s NO_x reduction objective other than to transition to zero-emission technologies; therefore, an incremental cost-effectiveness assessment was not conducted.

Although the BARCT assessment only identified zero-emission technologies, there are a variety of control options that one can choose to meet the zero-emission limit. As discussed in earlier sections, heat pump, electric resistance, solar, and fuel cell are the viable zero-emission technologies that are relying on various fuel sources in alignment with the South Coast AQMD fuel neutral policy. In addition, each type of those technologies has multiple features and options for various applications. For example, heat pump water heaters have product lines for 240V and 120V applications to suit different electric and space setting, split systems that separate the tanks and compressor to save indoor space, multi-function systems that combine and streamline the HVAC and water heating to minimize the need of service upgrade. Cost-effectiveness varies depending on the control option selected to meet the zero-emission limit. For example, a heat pump HVAC replacing both space heating and cooling systems is much more cost effective than replacing just a space heating system, with cost saving estimated.

Cost Assumptions

Project Costs

For the purposes of this report, project costs includes equipment, installation, and any electrical service upgrades needed for installation. In order to determine project costs for heat pumps for PAR 1111 and PAR 1121, staff utilized the data published by TECH Clean California. TECH requires contractors who receive the rebates to report a wide variety of information on the project, including cost. Staff used the public data set for December 2024, choosing the median costs in the four-county area for installations of single-family and multifamily from January 2024 to December 2024. The median costs of each county are weighted by county population to generate average project cost for the South Coast AQMD region. For the costs of the natural gas units, staff took capital costs categories by climate zone and building stock from the 2019 E3 “Residential Building Electrification in California”⁽²⁰⁾. Subsequently, staff determined the costs for each county under the specified climate zones, calculated weighted average costs based on building stock distribution for each county by 2023 Census data, generate average capital cost for the region with the county average costs, and adjusted the cost for inflation to 2024 dollars⁽²¹⁾. For homes with air conditioning (AC), combined costs of the heating and cooling systems were considered, as the proposed heat pump replacement provides both heating and cooling. To estimate the percentage of homes with AC and without AC, staff relied on the US Census American Housing Survey⁽²²⁾ which for the Los Angeles-Orange-San Bernardino-Riverside area estimates that 87 percent of homes have AC.

Estimating Fuel Switching Cost

The analysis considered the cost impacts of transitions from conventional combustion heating that uses natural gas to zero-emission technologies that use electricity as part of the cost-effectiveness assessment. For this assessment, the analysis relied on fuel price estimates derived from a combination of the California Energy Commission's (CEC) Integrated Energy Policy Reports (IEPR)⁽²³⁾ with the 2023 report for natural gas rates and the 2024 updated report for electricity rates, along with national-level forecasts from the Energy Information Administration (EIA). The current CEC forecast extends to 2040. These forecasts are extended into 2050 by applying the growth rates of forecasted electricity and natural gas prices in the EIA national level projections to the final year of forecasted CEC prices. Electricity forecasts are based on the Los Angeles Department of Water and Power (LADWP) and Southern California Edison (SCE) planning areas. Natural gas forecasts are only based on Southern California Gas Company (SoCalGas) forecasts, as SoCalGas is the primary gas utility in the region. Forecasted prices will not match observed electric and natural gas prices in any given year and may differ materially. Current prices are affected by demand and supply shocks, geopolitical factors, and other considerations which are all unforecastable. However, the CEC forecasts are created through a rigorous modeling process and

⁽²⁰⁾ Energy and Environmental Economics, Inc., <https://www.ethree.com/e3-quantifies-the-consumer-and-emissions-impacts-of-electrifying-california-homes/>

⁽²¹⁾ United States Census Bureau, American Community Survey, [https://data.census.gov/table/ACSDT1Y2022.B25034?q=B25034&g=040XX00US17\\$1600000](https://data.census.gov/table/ACSDT1Y2022.B25034?q=B25034&g=040XX00US17$1600000)

⁽²²⁾ United State Census Bureau, American Housing Survey, <https://www.census.gov/programs-surveys/ahs.html>

⁽²³⁾ California Energy Commission, Integrated Energy Policy Report (IEPR), <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report-iepr>

reflect the best available expectation for future prices in the region. CEC forecasts are released every two years.

The analysis utilizes the residential utility rate forecast. Since the forecasted prices for LADWP and SCE differ, staff calculated a weighted average price based on the population served by each utility as follows:

LADWP: $4 \text{ million} \div 17.2 \text{ million (Population served by LADWP} \div \text{regional population)} = 0.23$
 SCE: $13.2 \text{ million} \div 17.2 \text{ million} = 0.77$

Staff averaged the utility rates over the equipment lifetime, starting with the first compliance year. For PAR 1111 residential rates, staff used the cost averages for the period of 2027 – 2050, which are \$2.45 per therm for natural gas and \$0.32 per kWh for electricity. For PAR 1121, staff used the cost average for the period of 2027 – 2041, which are \$2.23 per therm for natural gas and \$0.31 per kWh for electricity.

Using the annual fuel usage for both electricity and gas and the projected utility rates, the fuel switching cost was calculated on a per-year basis using Equation 2-4.

$$\begin{aligned} \text{Fuel switching cost (\$)} \\ = \text{annual electricity cost for replacement (\$)} - \text{annual gas cost (\$)} \end{aligned}$$

annual gas cost (\$) = annual gas use (therm) * projected gas rate (\$/therm)

annual electricity cost for replacement (\$) = annual electricity use for replacement (kWh) *
 projected electricity rate (\$/kWh)

Equation 2-4: Fuel Switching Cost Equation

The fuel switching costs were calculated over the span of the useful life of the equipment and averaged.

Electrical Panel Upgrade Cost

The TECH dataset for project costs include costs for equipment, installation, any needed panel upsizing and other electrical work for the project. Some projects had panel upsizing or electrical work, while some others did not need it. Therefore, the project costs used for the cost-effectiveness are accounted for the proportion of installations that would require an electrical service upgrade. For more information regarding an analysis of the TECH dataset, please refer to Additional Analysis: Electrical Service Upgrades in a later section of this Chapter. Cost-Effectiveness Screening Threshold

The 2022 AQMP established a cost-effectiveness screening threshold of \$325,000 per ton of NO_x reduced based on 2021 dollars. The 2022 AQMP stated that this screening threshold will be adjusted based on the annual California Consumer Price Index (CPI). PAR 1111 and PAR 1121 currently considers a \$383,000 per ton of NO_x reduced cost-effectiveness screening threshold using 2024 dollars. The 2022 AQMP threshold is neither considered a starting point for control costs, nor an absolute cap.

Cost-Effectiveness Analysis

To determine cost-effectiveness for the proposed BARCT limits, cost information and estimates for the control equipment were obtained. Staff utilized the public database of the TECH Clean

California heat pump rebate program⁽²⁴⁾ to collect information on the project costs, which includes equipment, installation, and electrical service upgrade costs, for heat pumps. After cost information was obtained, a bottom-up approach evaluated each unit category subject to PAR 1111 and PAR 1121 and cost-effectiveness analysis was conducted to estimate cost per ton of NOx emissions reduced over appliance lifetime on a per equipment basis. Baseline emissions for each equipment were calculated using the assumption methodology outlined in Chapter 5.

Cost-Effectiveness Analysis for PAR 1111

Using Equation 2-1, the cost-effectiveness of Rule 1111 was calculated. For PAR 1111, the annual operating and maintenance cost is the fuel switching costs.

Project Costs for PAR 1111

Staff utilized the public database of the TECH Clean California to determine the cost of a heat pump retrofit. These costs were used for both single-family and multifamily installations. For NOx-emitting project costs, staff used E3 study and adjusted numbers to 2024 to account for inflation, as explained in an earlier section. A summary of the project costs can be found in Table 2-5.

Table 2-5: Summary of Project Costs for PAR 1111

| Property Type | Existing NOx-Emitting Appliance | Zero-NOx Emission Replacement | Zero-NOx Emission Project Cost (\$) | NOx-Emitting Unit Project Cost (\$) | Additional Project Cost for Zero-Emission Units (\$) |
|--|---------------------------------|-------------------------------|-------------------------------------|-------------------------------------|--|
| Single-Family | Furnace + AC | Heat Pump | 19,000 | 20,000 | -1,000 |
| | Furnace Only | Heat Pump | 19,000 | 11,000 | +8,000 |
| Multifamily (Cost per unit) | Furnace + AC | Heat Pump | 5,900 | 12,000 | -6,100 |
| | Furnace Only | Heat Pump | 5,900 | 7,300 | -1,400 |

Operating Costs for PAR 1111

Staff used the annual fuel use by climate zones for heat pumps and natural gas-fired furnaces in the 2019 Residential Appliance Saturation Study (RASS).⁽²⁵⁾ Five climate zones were identified for four counties in the South Coast AQMD as detailed in Table 2-6. While the South Coast AQMD encompasses more than the five climate zones, such as climate zone 15, fuel use data for other climate zones were not available and therefore excluded from this analysis. Staff calculated the average annual fuel use for each county with the fuel use of all the climate zones under the county and subsequently determined the fuel switch cost of each county. This approach aligns with

⁽²⁴⁾ TECH Clean California, Heat Pump Data, <https://techcleanca.com/public-data/>

⁽²⁵⁾ California Energy Commission, 2019 California Residential Appliance Saturation Study (RASS), <https://www.energy.ca.gov/publications/2021/2019-california-residential-appliance-saturation-study-rass>

TECH dataset that has a breakdown of project costs by county. The RASS includes information on the energy use of both electrical and natural gas appliances in Californian homes.

Table 2-6: Climate Zones and County Fuel Use

| Climate Zone | County Fuel Use |
|--------------|------------------------------|
| 6 | Los Angeles and Orange |
| 8 | |
| 9 | |
| 10 | Riverside and San Bernardino |
| 16 | |

Staff selected the tabulations for the SCE and SoCalGas as the most representative of the South Coast AQMD region. When estimating fuel use in single-family homes, staff used the fuel use tables in the RASS for single-family. Similarly, when estimating fuel use in multifamily homes, staff used tables in the RASS for multifamily.

A summary of the fuel switching costs can be found in Table 2-7. Fuel switching for furnace and AC and furnace only replacements on an annual basis are the same since the fuel switching costs are calculated based on the energy used for strictly for heating.

Table 2-7: Summary of Fuel Switching Costs for PAR 1111

| Property Type | Existing NOx-Emitting Appliance | Zero-NOx Emission Replacement | Fuel Switching Cost |
|--|---------------------------------|-------------------------------|---------------------|
| Single-Family | Furnace + AC | Heat Pump | -\$750 |
| | Furnace | Heat Pump | -\$750 |
| Multifamily (Cost per unit) | Furnace + AC | Heat Pump | -\$200 |
| | Furnace | Heat Pump | -\$200 |

Present Value Factor for PAR 1111

According to the Air Conditioning, Heating, and Refrigeration Institute (AHRI), air conditioners have an expected lifetime of 12-15 years.⁽²⁶⁾ In the Department of Energy's 2023 Energy Conservation Standards for Consumer Furnaces⁽²⁷⁾, it was assumed consumer furnaces not in the north of the country had an expected lifetime of 20.2 years, but noted replacement was likely to be

⁽²⁶⁾ AHRI, Air-Conditioning and Heat Pump Efficiency 101, <https://www.ahrinet.org/certification/cee-directory/air-conditioning-and-heat-pump-efficiency-101>

⁽²⁷⁾ Energy Conservation Program: Energy Conservation Standards for Consumer Furnaces, <https://www.federalregister.gov/documents/2023/12/18/2023-25514/energy-conservation-program-energy-conservation-standards-for-consumer-furnaces>

linked to the replacement of a central air conditioner. The California Public Utilities Commission (CPUC) proposed a 36-year expected useful lifetime for central and wall furnaces⁽²⁸⁾. The most recent amendment to Rule 1111 also assumed a 25-year equipment lifetime. Given the equipment lifetime ranges from 12 – 36 years, staff, assumed a lifetime of 25 years for residential furnaces and a four percent discount rate and thus a PVF of 15.62 as calculated per [Equation 2-2: PVF Equation](#).

Lifetime Emissions Reductions for PAR 1111

Staff evaluated the lifetime emissions reductions, using a bottom-up approach from the annual fuel use from the California RASS. The lifetime emissions reductions is approximately 0.004 tons for single-family and 0.008 for multifamily.

Residential Furnaces: Cost-Effectiveness for PAR 1111

Staff estimated cost-effectiveness for using heat pumps replacing furnaces in homes with AC and without AC.

The project costs and fuel switching costs used for the cost-effectiveness can be found in Table 2-5 and Table 2-7 respectively and are detailed in the following analysis. A summary of cost-effectiveness for zero-NOx emission heat pump replacements in single-family and multifamily housing is provided in Table 2-8.

Table 2-8: PAR 1111 Cost-Effectiveness for Zero-NOx Unit Replacement

| Property Type | Scenario | Cost-Effectiveness (\$/ton NOx) |
|-----------------------------------|----------------------------------|---------------------------------|
| Single-Family | Heat Pump Replacing Furnace + AC | -592,000 |
| | Heat Pump Replacing Furnace | +1,730,000 |
| Multifamily (Per Unit) | Heat Pump Replacing Furnace + AC | -785,000 |
| | Heat Pump Replacing Furnace only | -197,000 |

The cost-effectiveness is below the screening threshold for a heat pump replacing a HVAC system which includes both space heating furnace and air conditioning system; however, staff estimated high cost-effectiveness for heat pump replacing a furnace only. The incremental cost is much higher but the consumer gets the added benefit of space cooling.

The furnace only replacement scenario may be low within the South Coast AQMD as 87 percent of homes in the region have AC. There may also be instances where homes have newer ACs, and the homeowners opt to only replace the furnace, which would be a costly upgrade. Electric resistance furnaces are another option for replacing a NOx-emitting furnace. The upfront cost for NOx-emitting and electric resistance furnaces is similar; however, the cost to operate an electric resistance furnace is high because they are not as efficient as a heat pump. Electric resistance

⁽²⁸⁾ Residential HVAC and DHW Measure Effective Useful Life Study Final Report, https://www.calmac.org/publications/CPUC_Group_A_2023_Res_HVAC_and_DHW_EUL_Study_Final_Report.pdf

furnaces could be solution for furnace only replacement with low fuel use (e.g., coastal communities).

The 2022 AQMP states “if a proposed BARCT emission standard has a cost-effectiveness that is above the screening threshold, staff will hold a public meeting to discuss other options at or below the proposed screening threshold.” Staff presented the ZEM Manufacturer Alternative Compliance Option at Working Group Meeting #8, the Public Consultation held on March 6, 2025, and Stationary Source Committee Meetings held in February 2025 and March 2025. To address the high cost scenario, PAR 1111 is proposing to include the ZEM Alternative Compliance Option that set manufacturer compliance targets for selling both NO_x-emitting and zero-NO_x emission space heating appliances. For scenarios with high cost-effectiveness to install a zero-NO_x emission unit, consumers would likely make the choice to install a NO_x-emitting furnace, as the ZEM alternative compliance option allows. There will be circumstances when a consumer does opt to replace their furnace with a heat pump, likely for the added benefit of space cooling, which is becoming more of a necessity as temperature increase in the region. While the furnace only to heat pump scenario is over the cost-effectiveness threshold, the ZEM alternative compliance option addresses the high cost and allows the consumer to choose to install a NO_x-emitting appliance in cases where there is a high upfront cost for zero-NO_x emission space heating appliances.

Cost-Effectiveness for the ZEM Alternative Compliance Option

Staff estimated the weighted average cost-effectiveness for implementing the ZEM alternative compliance option. For this estimation, staff assumed a range of 10 to 20 percent of consumers would choose to replace their furnace with a heat pump resulting with a range of weighted cost-effectiveness. For any scenario that staff estimated to have cost savings, staff assumed zero cost impact.

A summary of weighed cost-effectiveness for each implementation phase with the proposed ZEM compliance targets is provided in Table 2-9. More details on the estimation for each phase with 10 or 20 percent of furnace only replacement by heat pumps are provided in Table 2-10. Weighted cost-effectiveness for the rule by ZEM alternative compliance option varies depending on what product consumers would choose but is estimated to be lower than the screening threshold using reasonable assumptions on consumer behavior.

Table 2-9: PAR 1111 Cost-Effectiveness for ZEM Alternative Compliance Option

| Dates Phase | 2027 - 2028 Phase I | 2029 - 2032 Phase II | 2033 - 2035 Phase III | 2036 and after Phase IV |
|--|---|---|---|---|
| Targets | 70% NO- Emitting 30% Zero-NO _x | 50% NO- Emitting 50% Zero-NO _x | 25% NO- Emitting 75% Zero-NO _x | 10% NO- Emitting 90% Zero-NO _x |
| Weighed Cost- Effectiveness (\$/Ton NO_x) | \$35,000 – \$69,000 | \$69,000 – \$140,000 | \$110,000 – \$220,000 | \$140,000 - \$280,000 |

Table 2-10: PAR 1111 Cost-Effectiveness for ZEM Alternative Compliance Option

| Phase 1 | | | | | | |
|-------------|------------------|--------------------|----------------|--------------|-------------------|-------------------|
| Target Goal | Action | Cost Impact | Percent Impact | Overall | Number of Units | Weighted C/E |
| 70% | Gas Unit Install | \$0 | 100% | 96.0 - 98.0% | 192,000 - 196,000 | 0 |
| 10% | New builds | \$0 | 100% | | | |
| 20% | HVAC to HP | \$0 | 80 - 90% | | | |
| | HP to HP | \$0 | | | | |
| | | Furnace only to HP | \$1,730,000 | 10 - 20 % | 2.0 - 4.0% | 4,000 - 8,000 |
| Totals | | | | | 200,000 | 34,600 69,200 |
| Phase II: | | | | | | |
| Target Goal | Action | Cost Impact | Percent Impact | Overall | Number of Units | Weighted C/E |
| 50% | Gas Unit Install | \$0 | 100% | 92.0 - 96.0% | 184,000 - 192,000 | 0 |
| 10% | New builds | \$0 | 100% | | | |
| 40% | HVAC to HP | \$0 | 80 - 90% | | | |
| | HP to HP | \$0 | | | | |
| | | Furnace only to HP | \$1,730,000 | 10 - 20% | 4.0 - 8.0% | 8,000 - 16,000 |
| Totals | | | | | 200,000 | 69,200 - 138,400 |
| Phase III: | | | | | | |
| Target Goal | Action | Cost Impact | Percent Impact | Overall | Number of Units | Weighted C/E |
| 25% | Gas Unit Install | \$0 | 100% | 87.0 - 93.5% | 174,000 - 187,000 | 0 |
| 10% | New builds | \$0 | 100% | | | |
| 65% | HVAC to HP | \$0 | 80 - 90% | | | |
| | HP to HP | \$0 | | | | |
| | | Furnace only to HP | \$1,730,000 | 10 - 20% | 6.5 - 13.0% | 13,000 - 26,000 |
| Totals | | | | | 200,000 | 112,450 - 224,900 |

| Phase IV: | | | | | | |
|-------------|--------------------|-------------|----------------|--------------|-------------------|-------------------|
| Target Goal | Action | Cost Impact | Percent Impact | Overall | Number of Units | Weighted C/E |
| 10% | Gas Unit Install | \$0 | 100% | 84.0 - 92.0% | 168,000 - 184,000 | 0 |
| 10% | New builds | \$0 | 100% | | | |
| 80% | HVAC to HP | \$0 | 80 - 90% | | | |
| | HP to HP | \$0 | | | | |
| | Furnace only to HP | \$1,730,000 | 10 - 20% | 8.0 - 16.0% | 16,000 - 32,000 | 138,400 - 276,800 |
| Totals | | | | | 200,000 | 138,400 – 276,800 |

Cost-Effectiveness Analysis for PAR 1121

The cost-effectiveness of PAR 1121 was calculated Using Equation 2-1 and Equation 2-4, as described in an earlier section.

Project Costs for PAR 1121

Staff utilized the public database of the TECH Clean California to determine the cost of a heat pump retrofit. Since insufficient data was available for all four counties for multifamily, these costs were used for both single-family and multifamily installations. For NOx-emitting project costs, staff used E3 study and adjusted numbers to 2024 to account for inflation, as explained in an earlier section. A summary of the project costs can be found in Table 2-11 below.

Table 2-11: Summary of Project Costs for PAR 1121

| Property Type | Zero-NOx Emission Project Cost (\$) <u>NOx-Emitting Project Cost</u> | NOx-Emitting Project Cost <u>Zero-NOx Emission Project Cost (\$)</u> | Additional Project Cost for Zero-Emission Units (\$) |
|---------------|--|--|--|
| Single-Family | 3,300 | 5,400 | +2,100 |
| Multifamily | 3,300 | 5,400 | +2,100 |

Operating Costs for Rule 1121

While the RASS included information on energy use for natural gas water heaters, no information was provided on electricity use of heat pump water heaters. Therefore, staff relied on annual

electricity use estimates provided by EnergyStar⁽²⁹⁾ for certified products. Using an average of five different heat pump water heaters ranging from 55 gallons to 65 gallons, an average annual electricity usage was calculated to be 1036 kWh. An annual use of 188 therms/year and 192 therms/year were found from EnergyStar for 45- and 55-gallon water heaters respectively; staff used the average equating to 190 therms/year annual gas usage. Staff did not analyze fuel use costs based on climate zones for PAR 1121. Unlike space heating appliances, water heating fuel use is not significantly impacted by climate zone, and residential type water heater costs for single-family and multifamily are expected to be similar. A summary of the fuel switch costs can be found in Table 2-12.

Table 2-12: Summary of Fuel Switching Costs for PAR 1121

| Property Type | Existing NOx-Emitting Appliance | Zero-NOx Emission Replacement | Fuel Switching Cost |
|--|---------------------------------|-------------------------------|---------------------|
| Single-Family | Water Heater | Heat Pump | -\$1,100 |
| Multifamily (Cost Per Unit) | Water Heater | Heat Pump | -\$1,100 |

Present Value Factor for PAR 1121

For storage water heaters, U.S. DOE estimates a useful life of 10 to 15 years.⁽³⁰⁾ For the 2024 amendment of Rule 1146.2, Type 1 storage water heaters were assumed to have a 15-year useful life. For this reason, analysis assumes residential water heaters have a 15-year useful life and four percent discount rate and thus a PVF of 11.118 as calculated per [Equation 2-2: PVF](#)

Lifetime Emissions Reductions for PAR 1121

Using the annual fuel use for water heating, staff used a bottom-up approach to calculate the lifetime emissions reductions. The lifetime emissions reductions for both single-family and multifamily is approximately 0.0025 tons.

Single Family and Multifamily Water Heaters: Cost-Effectiveness

Since hot water demand is closely correlated to the number of residents in a household, staff assumed the costs of single-family and multifamily replacements would be the same⁽³¹⁾.

The analysis considered the replacement of a NOx-emitting residential water heater less than 75,000 Btu/hr with a heat pump. The project costs and fuel switching costs used for the cost-effectiveness can be found in Table 2-11 and Table 2-12 respectively.

A summary of cost-effectiveness for zero-NOx emission heat pump replacements in single-family and multifamily housing is provided in Table 2-13.

⁽²⁹⁾ Energy Star, Heat Pump Water Heaters, <https://www.energystar.gov/productfinder/product/certified-heat-pump-water-heaters/results>

⁽³⁰⁾ U.S. Department of Energy, Tankless or Demand-Type Water Heaters, <https://www.energy.gov/energysaver/tankless-or-demand-type-water-heaters>

⁽³¹⁾ U.S. Department of Energy, Sizing a New Water Heater, <https://www.energy.gov/energysaver/sizing-new-water-heater>

Table 2-13: PAR 1121 Cost-Effectiveness for Zero-NOx Unit Replacement

| Property Type | Scenario | Cost-Effectiveness (\$/ton NOx) |
|-----------------------------------|--|------------------------------------|
| Single-Family | Heat Pump Water Heater Replacing NOx-Emitting Gas Water Heater | 405,000 |
| Multifamily (Per Unit) | Heat Pump Water Heater Replacing NOx-Emitting Gas Water Heater | 405,000 |

Cost-effectiveness for a replacement of a NOx-emitting water heater with a heat pump water heater is \$405,000, which is over the cost-effectiveness screening threshold. To address the high cost-effectiveness, PAR 1121 proposes to include a ZEM alternative compliance option that sets manufacturer compliance targets for selling both NOx-emitting and zero-NOx emission water heating appliances. For installations with high cost to install a zero-NOx emission unit, consumers would likely choose to install a NOx-emitting water heater, as the ZEM alternative compliance option allows. New technologies, such as the 120-V heat pump water heaters and incentives, such as the Go Zero program, will help lower upfront costs.

Cost-Effectiveness for the ZEM Alternative Compliance Option

Staff estimated the weighted average cost-effectiveness for implementing the ZEM alternative compliance option. For this estimation, staff assumed zero-cost impacts for new buildings transitioning to zero-NOx emission units and zero-impact for the installation of NOx-emitting unit.

A summary of weighted cost-effectiveness for each implementation phase with proposed manufacturer compliance target is provided in Table 2-14. More details on the estimation for each phase are provided in Table 2-15. Weighted cost-effectiveness for the rule by ZEM alternative compliance option varies depending on what product consumers would choose but is estimated to be lower than the screening threshold using reasonable assumptions.

Table 2-14: PAR 1121 Cost-Effectiveness for Manufacturer Alternative Compliance Option

| Dates Phase | 2027 - 2028 Phase I | 2029 - 2032 Phase II | 2033 - 2035 Phase III | 2036 and after Phase IV |
|--|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Targets | 70% NO-Emitting 30% Zero-NOx | 50% NO-Emitting 50% Zero-NOx | 25% NO-Emitting 75% Zero-NOx | 10% NO-Emitting 90% Zero-NOx |
| Weighed Cost-Effectiveness (\$/Ton NOx) | \$81,000 | \$160,000 | \$260,000 | \$320,000 |

Table 2-15: PAR 1121 Cost-Effectiveness for the ZEM Alternative Compliance Option

| Phase I: | | | | | |
|--------------|------------------|-------------|----------------|-----------------|--------------|
| Target Goal | Action | Cost Impact | Percent Impact | Number of Units | Weighted C/E |
| 70% | Gas Unit Install | \$0 | 70% | 233,333 | 0 |
| 10% | New builds | \$0 | 10% | 33,333 | 0 |
| 20% | Existing to HP | \$405,000 | 20% | 66,667 | 81,000 |
| Total | | | | 333,333 | 81,000 |
| Phase II: | | | | | |
| Target Goal | Action | Cost Impact | Percent Impact | Number of Units | Weighted C/E |
| 50% | Gas Unit Install | \$0 | 50% | 166,667 | 0 |
| 10% | New builds | \$0 | 10% | 33,333 | 0 |
| 40% | Existing to HP | \$405,000 | 40% | 133,333 | 162,000 |
| Total | | | | 333,333 | 162,000 |
| Phase III: | | | | | |
| Target Goal | Action | Cost Impact | Percent Impact | Number of Units | Weighted C/E |
| 25% | Gas Unit Install | \$0 | 25% | 83,333 | 0 |
| 10% | New builds | \$0 | 10% | 33,333 | 0 |
| 65% | Existing to HP | \$405,000 | 65% | 216,667 | 263,250 |
| Total | | | | 333,333 | 263,250 |
| Phase IV: | | | | | |
| Target Goal | Action | Cost Impact | Percent Impact | Number of Units | Weighted C/E |
| 10% | Gas Unit Install | \$0 | 10% | 33,333 | 0 |
| 10% | New builds | \$0 | 10% | 33,333 | 0 |
| 80% | Existing to HP | \$405,000 | 80% | 266,667 | 324,000 |
| Total | | | | 333,333 | 324,000 |

PROPOSED BARCT EMISSIONS LIMIT



Health and Safety Code Section Sections 40920.6(a)(1) and 40920.6(a)(2) require that prior to adopting rules to meet the requirement of BARCT, one or more potential control options which achieve the emission reduction objectives of the rule must be identified, and the cost-effectiveness assessment of the potential control option(s) must be conducted. The final proposed BARCT emission limit for each class and category is the emission limit that achieves the maximum degree of emission reductions and is determined to be cost-effective. The following tables summarize the proposed NO_x emission limits that represent BARCT for each equipment category.

Table 2-16: PAR 1111 BARCT NO_x Emission Limits and Compliance Schedule

| Equipment Category | NO _x Emission Limit (ng/J) | Building Type | Compliance Date |
|---------------------------------------|---------------------------------------|---------------|-----------------|
| Residential Fan-Type Central Furnace* | 0 | New | January 1, 2027 |
| | | Existing | January 1, 2029 |
| Mobile Home Furnace | 0 | New | January 1, 2027 |
| Wall Furnaces and Floor Furnaces | 0 | New | January 1, 2027 |
| | | Existing | January 1, 2029 |

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

Table 2-17: PAR 1121 BARCT NO_x Emission Limits and Compliance Schedule

| Equipment Category | NO _x limit (ng/J) | Building Type | Compliance Date |
|---------------------------------|------------------------------|---------------|-----------------|
| Water Heater* | 0 | New | January 1, 2027 |
| | 0 | Existing | January 1, 2029 |
| Mobile Home Water Heater | 0 | New | January 1, 2027 |

* Excluding Mobile Home Water Heater

Future implementation dates will allow for an increase in the supply of zero-emission technology in the market. Manufacturers are currently producing heat pumps for both HVAC and water heating and might modify their business strategies in response to policy changes and market dynamics. It is anticipated that the supply chain will adapt to evolving market conditions.

According to the 2022 AQMP, the established cost-effectiveness screening threshold is considered neither a starting point for control costs, nor an absolute cap. During the rulemaking process, if a proposed emission standard has a cost-effectiveness that is above the threshold, staff will hold a public meeting to discuss other emission standards with a cost-effectiveness at or below the proposed screening threshold and/or compliance or implementation options to address an emission standard that is above the proposed screening threshold.

Staff recognized that cost-effectiveness for implementing zero-NOx emission limit is over the ~~2033-2035~~ screening threshold for furnace only and water heater replacements. At the Working Group Meeting #8 on February 13, 2024, staff introduced the ZEM alternative compliance option with compliance targets (see Table 2-18) that will allow the sales of both zero-emission electric units and NOx-emitting natural gas-fired units. The discussion of the ZEM alternative compliance option has been conducted in every public meeting since February 13, 2024, including Public Consultation meetings on March 6, 2025, the Stationary Source Committee Meetings held ~~in~~since February 2025 ~~and March 2025~~, and outreach presentations in public meetings of many cities and various organizations. This alternative compliance option satisfies the direction set forth by 2022 AQMP for rule amendments that exceed the cost-effectiveness screening threshold.

Table 2-18: ZEM Alternative Compliance Option with Compliance Targets

| Target Dates | 2027-2028 | 2029-2032 | 2033-2035 | 2036 and after |
|--------------------------------|-----------|-----------|-----------|----------------|
| NOx Emitting Units | 70% | 50% | 25% | 10% |
| Zero-NOx Emission Units | 30% | 50% | 75% | 90% |

The ZEM compliance option also includes a mitigation fee for the sale of all NOx-emitting appliances, with higher over-target mitigation fees for the NOx-emitting appliances sold over the compliance target. The fees will ~~increase~~ be adjusted by the CPI for each year past the initial ZEM phase in the 2027 calendar year. The mitigation fees, including the over-target mitigation fees, are less than the cost difference between the NOx-emitting units and zero-NOx emissions units with cost-effectiveness above the threshold, e.g., the fees do not exceed the reasonable cost of providing the benefit of not having to sell a zero-emission unit. The ZEM alternative compliance option is detailed in Chapter 3 and Chapter 4.

ADDITIONAL INFORMATION AND CHALLENGES

Additional Analysis: Electrical Service Upgrades

Staff analyzed TECH Clean California data to further understand the frequency of electrical service upgrades needed for retrofit installations. Electrical service upgrade, as defined by the TECH dataset, is “whether the contractor upgraded the amperage capacity of the home's electrical panel as part of the installation.”⁽³²⁾ Staff also evaluated the percentage of installations in disadvantaged communities, which is defined as, “whether a project occurred in a Census Tract

⁽³²⁾ TECH Clean California, Working Data Set, https://techcleanca.com/documents/5564/Data_Dictionary_-_TECH_Working_Data_Set_Single_Family_z3GmSQV.xlsx

labeled as a Disadvantaged Community per CalEnviroScreen 4.0.”⁽³²⁾ For this analysis, staff evaluated installations from January 2024 to December 2024 in Los Angeles, Orange, Riverside, and San Bernardino counties.

For single-family space heating, there was a total of 3,074 installations in the [South Coast](#) AQMD with 3.7 percent needing an electrical service upgrade and 13.6 percent installed in a disadvantaged community.

For multifamily space heating, staff evaluated data from January 2023 to December 2024 since the 2024 dataset did not have installation data from all counties. There were a total of 1,060 installations across 839 properties with 6.7 percent requiring an electrical service upgrade and 25 percent installed in a disadvantaged community. Multifamily space heating had a higher percentage of installations requiring an electrical service upgrade and higher percentage of installations in a disadvantaged community.

For single-family water heating, there were a total of 1,212 installations with 15.8 percent requiring electrical service upgrades and 46.7 percent installed in a disadvantaged community. Since the percentage requiring electrical service upgrades is higher than space heating, staff further evaluated the types of equipment installed. Of the 1,212 installations, 1,006 installations were 240V heat pump water heaters, where 18.6 percent of the 240V installations required an electrical service upgrade. On the other hand, 206 of the 1,212 installations were 120V heat pump water heaters with 2.4 percent requiring an electrical service upgrade. 120V heat pump water heaters offer a solution for an array of installation types, due to its ease of installation only requiring a 120V outlet. Because of this, installation of 120V heat pump water heater may not need an electrical service upgrade as frequently as a 240V heat pump water heater because of the lower electrical demand. Adoption of 120V heat pump water heaters may increase over time since this technology was introduced into the market in 2022, thus making it relatively new compared to 240V heat pump water heaters. Increased market adoption will also likely lead to costs decreasing.

Due to insufficient data for the AQMD for multifamily water heating, staff relied upon the single-family data for this analysis.

Grid Reliability

2023 Integrated Energy Policy Report (IEPR) projects a peak demand increase of 18,000 MW by 2040 due to transport electrification and building electrification. Meanwhile, the Tracking Energy Development (TED) Taskforce, which is comprised of CEC, CPUC, CAISO, and Governor’s Office, is tracking⁽³³⁾ 18,000 MW of new energy procurements which will be available by 2028.

In 2021, renewable generation accounted for 33.6 percent of the total California Power Mix, not including solar photovoltaic systems installed on residential and commercial buildings that are less than one megawatt (MW) as they are typically considered distributed generation and not required to report to CEC.⁽³⁴⁾ The California Power Mix is the percentage of specified fuel types derived from the California Energy Mix, and the California Energy Mix is the total in-state electric generation plus energy imports. There is expected to be more renewables adoption by states in the future, and California Senate Bill 100 called for a Renewables Portfolio Standard of 60 percent by

⁽³³⁾ CPUC, Tracking Energy Development, <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/summer-2021-reliability/tracking-energy-development>

⁽³⁴⁾ CEC, 2021 Total System Electric Generation, <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2021-total-system-electric-generation>

2030. Electricity imports account for approximately 30 percent of total system electric generation, with other states pursuing Renewable Portfolio Standards and state energy goals.

The CEC, CPUC, and CARB are working to coordinate across efforts, identify issues not covered by ongoing efforts, and assess needed actions to better align the energy system with the state's climate targets. Related initiatives include the CPUC's proceeding to support decarbonizing buildings in California (R.19-01-011), which eliminated gas line extension subsidies for new gas hookups to homes and commercial buildings effective July 1, 2023.⁽³⁵⁾ In February 2023, the CPUC ordered load serving entities to procure an additional 4,000 MW of Net Qualifying Capacity for 2026 and 2027, in addition to the mid-term reliability procurement requirements ordered in 2021 (11,500 MW, enough to power approximately 2.5 million homes). The CPUC also approved four energy storage contracts totaling 372 MW for SCE and recommended an electric resource portfolio for use in the California Independent System Operator's (CAISO) 2023-24 Transmission Planning Process. The recommended portfolio includes over 85 gigawatts (GW) of new resources by 2045, including 54,000 MW of renewable resources; over 28,000 MW of batteries; 2,000 MW of long-duration storage; and 1,100 MW of demand response.

The CEC adopts IEPR every two years and an update every other year. The 2022 IEPR has recognized the proposed zero-emission requirements for residential and commercial buildings in California and included recommendations and updates to the energy demand forecast.⁽³⁶⁾ The IEPR update released on January 1, 2024, provided forecasts for future natural gas and electricity rates, which staff utilized in the cost-effectiveness analysis. Staff used the cost averages for the period of 2024 – 2050, which are \$1.71 per therm or 5.84 cents/kWh for natural gas and 24.81 cents/kWh for electricity commercial rates. For residential rates, staff used the cost averages for the period of 2024 – 2050, which are \$2.31 per therm or 7.88 cents/kWh for natural gas and 29.85 cents/kWh for electricity.

Under Assembly Bill 3232 (Friedman, Chapter 373, Statutes of 2018), the CEC must assess the feasibility of reducing greenhouse gas emissions in residential and commercial buildings to 40 percent below 1990 levels by January 1, 2030. Statewide electricity consumption was over 280,000 GWh in 2021 and is forecasted to be 358,738 GWh in 2035. The 2022 Planning Scenario peak forecast for CAISO, which manages roughly 80 percent of California's load, reaches 55,117 MW by 2035. CAISO is planning \$11 billion in transmission capacity projects over the next 20 years, which covers 80 percent of the entire state service area. The 20-Year Transmission Outlook document from May 2022 considers transmission needs to meet load and renewable energy growth aligned with state policy. The plan describes \$11 billion in upgrades to the existing CAISO transmission footprint.⁽³⁷⁾ In addition, solar photovoltaic generation continues to increase as shown in the following figure.⁽³⁸⁾ Between 2022 and 2035, behind-the-meter photovoltaic generation is expected to grow on average by about six percent, reaching annual photovoltaic generation of 55,740 GWh by 2035.

⁽³⁵⁾ CPUC, Press Release, <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M496/K979/496979465.PDF>

⁽³⁶⁾ CEC, 2022 Integrated Energy Policy Report Update, <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2022-integrated-energy-policy-report-update>

⁽³⁷⁾ California ISO, 20-Year Transmission Outlook, <http://www.caiso.com/InitiativeDocuments/20-YearTransmissionOutlook-May2022.pdf>

⁽³⁸⁾ CEC, 2022 Electric Generation and Capacity, <https://www.energy.ca.gov/media/3757>

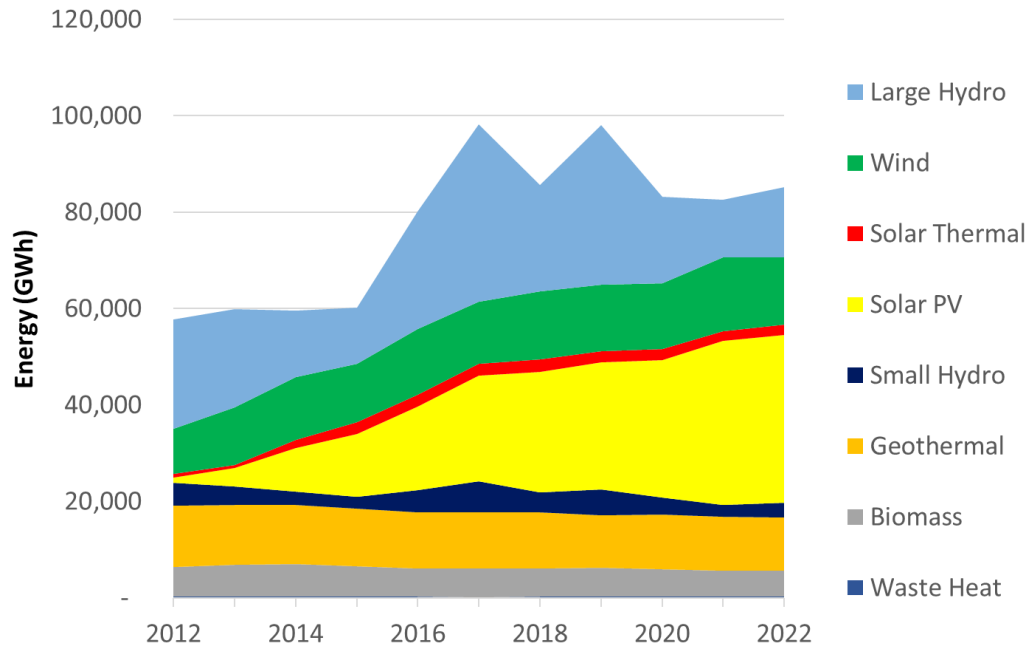


Figure 2-2: In-State Electric Generation – Select Fuel Types, Sourced from CEC Quarterly Fuels and Energy Reporting Regulations

According to SCE’s 2021 Sustainability Report, SCE is expected to invest over \$5 billion annually in the electric grid, with approximately 3,400 MW of energy storage installed or contracted. In 2021, SCE procured 530 MW of energy storage through three new contracts from third parties and in the same year, entered an engineering, procurement, and construction agreement to construct approximately 535 MW of utility-owned storage. SCE also expected increases in Distributed Energy Resources such as residential solar.⁽³⁹⁾ In the Pathway to 2045 document, 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. SCE noted that the grid will still be summer peaking due to air conditioning.⁽⁴⁰⁾

Staff recognizes the importance of electric grid reliability for electric units, but also for natural gas units, which often require electricity to operate. 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.⁽⁴¹⁾ 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.⁽⁴²⁾ Staff recognizes that there are externalities for both electric and natural gas production and distribution. Staff also recognizes the need for regulation of emissions from electricity generation. South Coast AQMD

⁽³⁹⁾ SCE, Sustainability Report, <https://www.edison.com/sustainability/sustainability-report>

⁽⁴⁰⁾ SCE, Pathway 2045, <https://www.edison.com/our-perspective/pathway-2045>

⁽⁴¹⁾ 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>

⁽⁴²⁾ 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>

Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities, is a rule that aims to lower emissions from electricity generation.⁽⁴³⁾ Regarding the natural gas system, natural gas leaks into the atmosphere from natural gas wells, storage tanks, pipelines, and processing plants. In 2020, methane emissions from natural gas and petroleum systems and from abandoned oil and natural gas wells were source of approximately 33 percent of U.S. methane emissions and approximately four percent of U.S. greenhouse gas emissions. In the South Coast AQMD region, there have been examples of large leaks such as Aliso Canyon, where 109,000 metric tons of methane emissions were released between October 2015 and February 2016.

For this rulemaking, staff did not conduct lifecycle analyses related to the BARCT assessment for either the electricity or natural gas systems as a lifecycle analysis is not required by Health and Safety Code Section 40406 for a BARCT assessment. However, other organizations have conducted lifecycle analyses which show overall NOx reductions when moving to zero-emissions. A 2021 Northeast States for Coordinated Air Use Management (NESCAUM) study estimating NOx reductions for residential scenarios where fossil fuel-burning furnaces are replaced with heat pumps found significant reductions in NOx along with sulfur dioxide and carbon dioxide.⁽⁴⁴⁾ A 2023 NESCAUM study also found emission reductions for different scenarios.⁽⁴⁵⁾ A 2022 Energy Innovation Policy & Technology study found that switching to heat pumps for industrial processes reduces NOx emissions.⁽⁴⁶⁾

Senate Bill 410: Powering Up Californians Act

Senate Bill 410 (SB 410) was approved on October 7, 2023, and requires the Public Utilities Commission to set targets for how quickly new customers should be connected to the electric grid and create a process for reporting delays. The requirements of SB 410 are effective starting on or before September 30, 2024. Additionally, utility companies must report their current and future staffing needs, including how staff will be trained, to project how future electrical demands will be met. Utility companies may also request cost recovery for cost associated with connecting new customers to the grid with oversight from an independent auditor. SB 410 aims to ensure that the electrical grid is ready for future demand and growth by reducing the time required to connect to the grid, increasing the number of staff and staff training, and allowing for a cost safety net for the utility companies.

Rent Stabilization and Tenant Protections

One of the concerns of stakeholders regarding the adoption of zero-emission technology is that the incremental costs for landlords and property owners to install and operate zero-emission technologies can result in pass-through costs absorbed by tenants. Pass-through costs are fees in addition to base rent, including utilities, property improvements, or renovations. Other agencies have discussed these concerns and solutions regarding rental units, and this is an ongoing topic for

⁽⁴³⁾ South Coast AQMD, Rule 1135, <http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1135.pdf>

⁽⁴⁴⁾ NESCAUM, Estimating the Emissions Benefits of Switching to Heat Pumps for Residential Heating, <https://otcair.org/upload/Documents/Reports/nescaum-otc-emission-reduction-analysis-for-residential-heating-202106.pdf>

⁽⁴⁵⁾ NESCAUM and OTC, Residential Building Electrification in the Northeast and Mid-Atlantic, <https://otcair.org/upload/Documents/Reports/Residential%20Building%20Electrification%20Final%20Report%20August%202023.pdf>

⁽⁴⁶⁾ Energy Innovation Policy & Technology LLC, <https://energyinnovation.org/wp-content/uploads/2022/10/Decarbonizing-Low-Temperature-Industrial-Heat-In-The-U.S.-Report-2.pdf>

state and local agencies. According to the U.S. Census, the percentage of renter-occupied households range from 30 to 55 percent in the South Coast AQMD jurisdiction (54 percent in Los Angeles County; 45 percent in Orange County; 28 percent in San Bernardino County; 32 percent in Riverside County).

There are state laws for rent stabilization and tenant protection, such as:

- Costa-Hawkins Rental Housing Act, effective January 1, 1996, which prohibits rent control over certain kinds of residential units (e.g., single-family dwellings and condominiums, and newly constructed apartment units);
- AB 1482 – California Tenant Protection Act of 2019, effective January 1, 2020, which limits annual rent increases to no more than five percent plus local inflation, or 10 percent, whichever is lower; applies to apartments and other multifamily (two units or more) buildings constructed more than 15 years ago; and does not apply to housing regulated by local rent control ordinances;
- SB 567 – Termination of Tenancy, effective April 1, 2024, which requires an owner who displaces a tenant to substantially remodel to provide the tenant with written notice with information regarding description of remodel, expected completion date, and copy of permits required to remodel.

Challenges with state laws involve the ability for landlords to evict tenants to renovate a unit or building for substantial remodels (any modification that requires a permit or abatement of hazardous materials that cannot be safely accomplished within 30 days); the cost of obtaining permits may not deter landlords as costs can be recovered by evictions and relisting with increased rent; and owners can reset rents to market rate at vacancy and then resume conforming to the annual cap of five percent plus inflation.

There are also local regulations for rent stabilization and tenant protection. According to Tenants Together, 39 out of 482 cities in California have “strong” tenant protections.⁽⁴⁷⁾ ~~At~~ At least 13 cities in the South Coast AQMD jurisdiction have rent control, with at least 11 of these cities in Los Angeles County. The maximum allowable increase generally ranges from 2.5 to 5 percent. For the most part, cities in Orange, San Bernardino, and Riverside Counties do not have local rent control ordinances. Some cities that have local regulations include rent control in Santa Ana (Orange County) and Palm Springs (Riverside County). On the local level, some cities might have rent control but no rent board, while other cities might have both. Cities without more stringent rent controls are subject to state laws for rental stabilization and tenant protection.

With building appliances rules by CARB on the state level and rules by local air districts, there is the concern that landlord or property owners may use building appliance upgrades as justification for substantial remodels; utility upgrades could potentially trigger no-fault cause evictions. No-fault causes include: the intent to demolish or substantially remodel the property; compliance with a local ordinance or order issued by a governmental agency. Another concern is that most local and state laws do not directly protect tenants from pass-through expenses; the base cost of rent is controlled, and the allowance of pass-through costs (i.e. costs in addition to base rent) differ across cities.

⁽⁴⁷⁾ Tenants Together, Rent Control by City, <https://www.tenantsaltogether.org/resources/list-rent-control-ordinances-city>

CARB is considering these state-wide challenges and potential solutions to mitigate the impact of building appliance rules on rental properties. They hired third-party contractor, Strategic Actions for a Just Economy (SAJE), who made the following recommendations^(48,49):

- Prohibit evictions for home modifications that objectively improve quality of housing or help advance climate goals, such as replacing appliances;
- Amend AB 1482 to adjust rent caps to no more than 3 percent, close the substantial remodel loophole, and remove no-fault evictions;
- Amend California Health and Safety code to state heating and cooling must operate with electric (after 2030);
- Provide financial assistance to small landlords in exchange for stronger rent protections (e.g. through the Equitable Building Decarbonization Program);
- Support city-level policy to:
 - Include penalties for illegal construction;
 - Adopt proactive inspection programs;
 - Verify appliance compliance via habitability inspections.

Local agencies can also contribute to solutions for rental protection:

- Support updates to AB 1482 to explicitly limit pass-throughs for decarbonization and zero-NOx retrofits
 - Clarify if upgrading to zero-NOx appliances triggers “substantial repair” clauses in laws;
- Support local agencies (i.e. “rent boards”) to consider policies to prohibit or limit pass-through costs for zero-NOx upgrades, especially for low-income tenants;
- Expand education on renter protection laws and resources providing low-cost/free legal support;
- Support local governments to clarify that end-of-life equipment replacements for services already provided (i.e. heat and hot water) qualify as regular operations & maintenance costs, not capital improvements;
- Perform a risk assessment (data-based estimate of the likelihood that impact will occur) to better inform policy and incentive program changes in the long term.
- Rental protection challenges and solutions cannot be addressed in the PAR 1111 and 1121 language or requirements, and staff will continue to meet with different local and state agencies to work on solutions and conduct outreach and education on rent stabilization and tenant protection as part of building appliances rule implementation and Go Zero outreach.

⁽⁴⁸⁾ SAJE, Decarbonizing California Equitably, <https://www.saje.net/wp-content/uploads/2023/09/Decarbonizing-California-Equitably-Report-1.pdf>

⁽⁴⁹⁾ The South Coast AQMD, Working Group Meeting #6, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm6-august-2024.pdf?sfvrsn=18>

Mobile Homes

Mobile homes, also known as manufactured homes, must comply with federal construction and safety standards, which are different from those for traditional homes. These standards are enforced by the U.S. Department of Housing and Urban Development (HUD). California Department of Housing and Community Development (HCD) also protects families and individuals who live in mobile homes by inspecting mobile home parks for health and safety violations in areas where the local government has not assumed enforcement. HCD further protects consumers by enforcing regulations for those who build and sell manufactured homes. Mobile home manufacturers also need to meet the energy efficiency standards by the Department of Energy. A manufactured home may be installed under the provisions of Health and Safety Code Section 18551 or the California Code of Regulations, Title 25.

On April 24, 2020, the CPUC approved the Mobile Home Park Utility Conversion Program⁽⁵⁰⁾. This program allows mobile home park and manufactured housing communities the opportunity to replace privately owned, master-metered/sub-metered or non-sub metered electric and gas distribution systems with direct service for mobile home residents. Applications for the new program began January 1, 2021, and will continue through 2030 with a goal to convert total of 50 percent of mobile home park spaces in each utility territory to direct gas and/or electric utility service. SCE is targeting 3,300 mobile home conversions per year from list of 72,000 mobile homes. This program will benefit many mobile home residents by providing safer and more reliable utility services.

Mobile home units are currently designed to be certified at 40 ng/J NO_x. Mobile home furnaces comply with the 14 ng/J standard by the existing mitigation fee alternative compliance option. Manufacturers have zero-NO_x emission units commercially available and installed in new mobile homes.

There are unique challenges to implementing zero-NO_x emission appliances for mobile homes. In addition to the issues on special design, additional regulations, and technology readiness for existing mobile homes, stakeholders also expressed the concerns that mobile homeowners may have lower incomes.

Mobile home units for existing buildings will continue to comply with current standard, and the exiting mitigation fee alternative compliance option for mobile home furnaces will continue to be provided. Mobile home units for new buildings, not including new buildings in master-metered park, will start to transition to zero-NO_x emission appliances effective in a future date. PAR 1111 and 1121 propose to exempt new and existing mobile homes located in master-metered parks from the zero-NO_x emission standards due to the limited electricity available. Mobile homes will be required to transition to zero-NO_x appliances once the mobile home parks are converted to direct utility service.

Refrigerants

Another concern highlighted by stakeholders is increasing the number of heat pumps will necessarily increase the amount of refrigerant escaping into the atmosphere. The EPA has updated technologies that may no longer use high global warming potential (GWP) hydrofluorocarbons

⁽⁵⁰⁾ CPUC Mobile Home Park Utility Conversion Program, <https://www.cpuc.ca.gov/regulatory-services/safety/mhp/mobilehome-park-utility-upgrade-program>

(HFCs) or HFC blends, which will be effective beginning January 1, 2025⁽⁵¹⁾. Many refrigerants currently in use, such as R-410A and R-134A, GWP thousands of times higher than CO₂. While the refrigerant circuit in a heat pump is sealed, leaks in the system can result in the refrigerant escaping. When evaluating greenhouse gas emissions from these leaks, it is important to recognize that natural gas fired equipment emit greenhouse gases as a result of normal operations. The E3 Building Electrification in California Study analyzed potential emissions from heat pumps and concluded overall greenhouse gas emissions would be lower for heat pumps than combustion equipment. Furthermore, in 2020 the American Innovation and Manufacturing Act granted the EPA the authority to phasedown production of high GWP refrigerants, encouraging the adoption of lower GWP refrigerants. Several of these low GWP refrigerants also have the co-benefit of increased performance, with R-290 (propane) and R-744 (CO₂) able to operate at much lower temperatures than other refrigerants currently in use.

Table 2-19: Common Refrigerants

| Refrigerant | GWP | Notes |
|-----------------|-------|--|
| R-134a | 1,430 | Part of EPA phasedown |
| R-410a | 2,087 | Part of EPA phasedown |
| R-32 | 675 | Part of EPA phasedown |
| R-1234ze | <10 | |
| R-744 | 1 | CO ₂ , low temperature applications |
| R-290 | 3 | Propane, low temperature applications |

⁽⁵¹⁾ EPA, Technology Transitions HFC Restrictions by Sector, <https://www.epa.gov/climate-hfcs-reduction/technology-transitions-hfc-restrictions-sector>

CHAPTER 3: PROPOSED AMENDED RULE 1111

INTRODUCTION

PROPOSED AMENDED RULE 1111

INTRODUCTION

The main objective of PAR 1111 is to propose NO_x limits that represent BARCT for the applicable equipment. PAR 1111 also removes obsolete language, reorganizes the rule structure to reflect recently amended and adopted rules, and includes an alternative compliance subdivision.

PROPOSED AMENDED RULE 1111

PAR 1111 reorganizes the rule structure to reflect recently amended and adopted rules and includes new subdivisions. Table 3-1 summarizes the changes to the subdivisions to PAR 1111 from Rule 1111.

Table 3-1: 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 | Alternative Compliance Options |
| (g) | Exemptions | Informative Materials, Labeling, Recordkeeping, and Reporting |
| (h) | (N/A) | Exemptions |
| <u>(i)</u> | <u>(N/A)</u> | <u>Severability</u> |

PAR 1111 (a) - Purpose

The purpose of PAR 1111 is to reduce NO_x emissions from NO_x-emitting 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 NO_x-emitting furnaces with a rated heat input capacity less than 175,000 Btu/hr used for comfort heating or a cooling rate of 65,000 Btu/hr for combination heating and cooling units. The applicability is expanded from fan-type central furnaces to include floor and wall furnaces.

The provisions of the rule are 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:

- Consumer Price Index (CPI)
- Existing Building
- Floor Furnace
- Furnace
- High-Altitude
- Informative Materials
- Install
- Installer
- Master-Metered Mobile Home Park
- New Building
- Non-Condensing Furnace
- Reseller
- ~~Residential Fan Type Central Furnace~~
- Wall Furnace
- Zero-NOx Emission Unit

Install, installer, and reseller are defined to clarify who is subject to the rule. Furnace is defined to include residential fan-type central furnace, floor 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 term for high-altitude is defined to accommodate the revision and streamlining of the existing high-altitude provisions. Informative materials is defined to clarify the information needed in subdivision (d)g. Master-metered mobile home parks are defined as installations in master-metered mobile home parks are exempted from Zero-NOx emission standards. Zero-NOx emission unit is defined to clarify what appliances for space heating have zero-NOx emissions, which will be used in the new provision for the manufacturer alternative compliance option. Consumer Price Index (CPI) is defined, and the California annual average increase is used for mitigation fee adjustment as specified in the rule. The definition for Residential Fan Type Central Furnace was initially added using the existing definition for Fan Type Central Furnace, to differentiate from commercial furnaces. It was essentially a name revision without definition content change. Since the revised rule proposal will not expand rule applicability to commercial furnaces, the name for Residential Fan Type Central Furnace was reverted to Fan Type Central Furnace.

The following definitions have been revised in PAR 1111:

- Condensing Furnace
- Downflow Furnace
- Heat Input
- Mobile Home
- 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. Heat input, NOx emissions, and rated heat input capacity are revised to align with amended Rule 1146.2 (Adopted June 7, 2024). Mobile home definition is revised to align with the definitions by California Energy Commission and Federal Department of Housing and Urban Development.

The following definitions have been removed from Rule 1111, as they are obsolete or unnecessary 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 (f) 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 for residential fan-type furnaces for each equipment category in PAR 1111 Table 1 (presented in this Staff Report as Table 3-2).

PAR 1111 Table 1 limits are applicable prior to PAR 1111 Table 2 zero-NOx emission limit compliance date, except for mobile home furnaces in existing buildings. PAR 1111 does not propose zero-emission limit for mobile home furnaces in existing buildings, which will remain subject to their Table 1 limit.

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 ~~-following~~ 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 3-2: PAR 1111 Table 1 Residential Fan-Type Central Furnace NOx Limits

| Equipment Category | NOx Emission Limit (ng/J) |
|------------------------|---------------------------|
| Condensing Furnace | 14 |
| Non-Condensing Furnace | 14 |
| Weatherized Furnace | 14 |
| Mobile Home Furnace | 14 |

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 this staff report as Table 3-3). This paragraph states that a person shall only manufacture, supply, sell, resell, offer for sale, import, or install, for use in the South Coast AQMD, a zero-NOx emission unit by the Table 2 compliance dates, unless the NOx-emitting Furnace is included in the ZEM manufacturer alternative compliance option pursuant to paragraph (f)(2) as indicated in the informative materials for the water heater pursuant to subparagraph (g)(1)(C). The applicable Table 2 compliance dates for new buildings shall be determined based on the construction or alteration completion date. The construction or alteration completion means finishing all the installation to ensure the functionality and aesthetics of the space as specified in the approved building permit. Mobile home furnaces for installation in existing buildings are not subject to zero-NOx emission limit. [Staff intends the zero-NOx emission limit to allow near zero technologies that emit less than 1 ng/J of NOx that rounds down to zero \(e.g. 0.4 ng/J\).](#)

Table 3-3: PAR 1111 Table 2 Zero-NOx Emission Limit Compliance Schedule

| Equipment Category | Building Type | Compliance Date |
|---|---------------|-----------------|
| Residential Fan-Type Central Furnace¹ | New | January 1, 2027 |
| | Existing | January 1, 2029 |
| Mobile Home Furnace | New | January 1, 2027 |
| Wall Furnace and Floor Furnace | New | January 1, 2027 |
| | Existing | January 1, 2029 |

¹ Includes Condensing, Non-Condensing, and Weatherized Furnaces.

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⁽⁵²⁾.

Paragraph (e)(2) – Determining NO_x Emissions

Paragraph (e)(2) was edited to clarify the equations to be used to determine the nanograms of NO_x per joule of useful heat to the delivered space. Other edits made are to clarify nomenclature.

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)(3) no more than 180 days after the date of source test identified in subparagraph (e)(3)(D). This was added to align with the certification requirements of Rule 1121.

Former PAR 1111 (e) – Identification of Compliant Units

Staff relocated the requirements in existing subdivision (e) and included them in subdivision (g) – Informative Materials, Labeling, Recordkeeping, and Reporting, because the provision were all for labeling requirements.

PAR 1111 (f) – Alternative Compliance Options

Subdivision (f) is a new subdivision to address alternative compliance options that includes existing requirements regarding mitigation fees in Rule 1111 paragraph (c)(5) with revision and proposed new alternative compliance option(s).

Paragraph (f)(1) – Mitigation Fee Alternative Compliance Option for Mobile Home Furnaces

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 NO_x emission limit in lieu of the 14 ng/J NO_x emission limit. The manufacturer must comply with the following requirements:

- Pay a per unit mitigation fee of \$150 for each mobile home furnace distributed or sold into or within the South Coast AQMD until September 30, 2025;
 - On and after October 1, 2025, the per unit mitigation fee is \$100 for each mobile home furnace distributed or sold into or within the South Coast AQMD
- Submit an alternative compliance plan, no later than 60 days prior to each 12-month compliance period that begins on October 1st, during which the manufacturer elects to pay the mitigation fee in lieu of meeting the NO_x emission limit;
 - Clauses (f)(1)(B)(i) to (f)(1)(B)(iv) detail what should be included with the alternative compliance plan; and

⁽⁵²⁾ The South Coast AQMD, Protocol, https://www.aqmd.gov/docs/default-source/laboratory-procedures/methods-procedures/r1111_protocol.pdf

- Submit to the Executive Officer a report signed by the responsible official for the manufacturer no later than 90 days after the end of each 12-month mitigation fee alternate compliance period. The report shall, for the applicable 12-month alternate compliance period, identify each model number and the quantity of mobile home furnaces distributed or sold into or within South Coast AQMD; and include the payment of mitigation fees.

Paragraph (f)(2) – Zero-Emission Manufacturer (ZEM) Alternative Compliance Option

In lieu of complying with paragraph (d)(2) a manufacturer of furnaces, other than mobile home furnaces, can elect to comply with the ZEM alternative compliance option. This alternative compliance option allows for the sale of NO_x emitting furnaces, including residential fan-type central furnaces certified to emit 14ng/J of NO_x or less or wall or floor furnaces, given:

- The manufacturer submits an alternative compliance plan no later than November 1, 2026, detailing the requirements in paragraph (f)(2)(A);
- The manufacturer sells, or enables distributors, retailers, resellers, or installs to sell Zero-NO_x emission units into or within the South Coast AQMD at a percentage greater than or equal to the Zero-NO_x emission unit sales targets specified in PAR 1111 Table 3 (presented as Table 3-4 in this staff report);
- Equations are provided for calculating zero-NO_x emission unit and furnace sales percentages. Each zero-NO_x emission unit that utilizes ductwork to distribute heated air through the home or does not utilize ductwork for heat distribution but is a multiple zone system with one outdoor unit will be counted as one unit for the calculation. Each zero-NO_x emission unit that does not utilize ductwork to distribute heated air through the home (e.g., a mini-split) shall be counted as a half unit.
- The manufacturer pays a \$100 mitigation fee for each furnace sold in 2027 and adjusted by the CPI annual percent increase for each subsequent year after 2027. If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year; and
- The manufacturer submits a report and mitigation fee payment pursuant to paragraph (g)(2) no later than 90 days after the end of each calendar year utilizing this alternative compliance option.
- The manufacturer complies with the informative material requirements pursuant to paragraph (g)(1)

Table 3-4: PAR 1111 Table 3 ZEM Alternative Compliance Option Targets

| Compliance phase | Phase 1 | Phase 2 | Phase 3 | Phase 4 |
|--|-------------|-------------|------------|----------------|
| Calendar Years | 2027 - 2028 | 2029 - 2032 | 2033-2035 | 2036 and after |
| Zero-NOx Emission Unit Sales Target | 30 percent | 50 percent | 75 percent | 90 percent |
| Furnace Sales Target | 70 percent | 50 percent | 25 percent | 10 percent |

Paragraph (f)(3) – ZEM Alternative Compliance Option Sales Target Deviation

Any furnace manufacturer that elects to comply with the ZEM alternative compliance option and sells more NOx-emitting furnaces than furnace sales target in Table 3 in one calendar year must pay the per unit mitigation fee outlined in Table 3 for each unit sold above the sales target. The mitigation fee for each furnace sold over target is \$500 for the calendar year 2027 and adjusted by the CPI annual percent increase for each subsequent year after 2027. If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year.

Below are ~~two~~^{three} examples for determining the mitigation fee when a manufacturer sold more NOx-emitting furnaces than Furnace Sales Target.

Example 1:

From January 1, 2027, to December 31, 2027, a manufacturer sold 1,000 units with sales for NOx emitting furnaces and zero-NOx emission units 800 (80 percent) and 200 (20 percent) respectively.

Since the 2027 NOx-emitting furnaces sales were over the 70 percent furnace sales target, the mitigation fee should be calculated as below:

- Number of NOx-emitting furnaces within the target = $1,000 \times 70\% = 700$
- Mitigation fee for units within the target per PAR 1111 subparagraph (f)(2)(F) = $\$100 \times 700 = \$70,000$
- Mitigation fee for furnaces sold over target = $\$500 \times (800 - 700) = \$50,000$
- Total mitigation fee this manufacture should pay for 2027 = $\$70,000 + \$50,000 = \$120,000$

Example 2:

From January 1, 2028, to December 31, 2028, a manufacturer sold 1,000 units with sales for NOx emitting furnaces and zero-NOx emission units 750 (75 percent) and 250 (25 percent) respectively.

Since the 2028 NOx-emitting furnaces sales were over the furnace sales target that is 70 percent, the mitigation fee should be calculated as below:

- Number of NOx-emitting furnaces within the target = $1,000 \times 70\% = 700$

- Since it is after 2027, the mitigation fee rates should be CPI adjusted. Assuming California CPI annual percent increase for 2028 is 2.8 percent, within target mitigation fee rate is adjusted to $\$100 \times (1+2.8\%) = \102.8 ; over target mitigation fee rate is adjusted to $\$500 \times (1+2.8\%) = \514.0
- Mitigation fee for units within the target per PAR 1111 subparagraph (f)(2)(F) = $\$102.8 \times 700 = \$71,960$
- Mitigation fee for furnaces sold over target = $\$514 \times (750-700) = \$25,700$
- Total mitigation fee this manufacture should pay for 2028 = $\$71,960 + \$25,700 = \$97,660$

Example 3: From January 1, 2029, to December 31, 2029, a manufacturer sold 1,000 units with sales for NOx emitting furnaces and zero-NOx emission units 600 (60 percent) and 400 (40 percent) respectively.

Since the 2029 NOx-emitting furnaces sales were over the furnace sales target that is 50 percent, the mitigation fee should be calculated as below:

- Number of NOx-emitting furnaces within the target = $1,000 \times 50\% = 500$
- Since it is after 2027, the mitigation fee rates should be CPI adjusted. Assuming California CPI annual percent increase is 2.8 percent for 2028 and 3.5 percent for 2029, we will use 3.0 percent for 2029 CPI adjustment since it is higher than 3.0 percent. Within target mitigation fee rate is adjusted to $\$100 \times (1+2.8\%)(1+3.0\%) = \105.9 ; over target mitigation fee rate is adjusted to $\$500 \times (1+2.8\%)(1+3.0\%) = \529.4
- Mitigation fee for units within the target per PAR 1111 subparagraph (f)(2)(F) = $\$105.9 \times 500 = \$52,950$
- Mitigation fee for furnaces sold over target = $\$514 \times 529.4 \times (600-500) = \$51,400 \times 52,940$
- Total mitigation fee this manufacture should pay for 2028 = $\$52,950 + \$51,400 \times 52,940 = \$104,350 \times 105,890$

~~If the annual percentage of sales of zero NOx emission units exceeds the Zero NOx Emission Unit Sales Target in Table 3, a discounted mitigation fee for the reporting year is determined by the following equation:~~

$$\text{Discounted Mitigation Fee} = F - F \times \frac{(P - T)}{(100 - T)}$$

~~Where:~~

~~F = Annual Mitigation Fee pursuant to subparagraph (f)(2)(F)~~

~~P = Reported Percent Zero-NOx Emission Units~~

~~T = Zero-NOx Emission Unit Sales Target~~

~~**Equation 3-2: PAR 1111 Equation 5 Discounted Mitigation Fee**~~

~~Below is an example for discounted mitigation fee determination.~~

~~Example 3: From January 1, 2027, to December 31, 2027, a manufacturer sell 1,000 units with sales for zero NOx emission units and NOx emitting furnaces 400 (40 percent) and 600 (60 percent) respectively.~~

~~Since the 2027 zero NOx emission unit sales were over the target which is 30 percent, a discounted fee should be calculated as below:~~

- ~~• Annual mitigation fee pursuant to PAR 1111 subparagraph (f)(2)(F) = \$100 x 600 = \$60,000~~
- ~~• Discounted mitigation fee = \$60,000 - (\$60,000 x (40 - 30)/(100 - 30)) = \$51,429~~
- ~~• Total mitigation fee this manufacture should pay for 2027 is \$51,429~~

PAR 1111 (g) – Informative Materials, Labeling, Recordkeeping, and Reporting

Subdivision (g) is a new subdivision that details the informative materials, labeling, recordkeeping, and reporting requirements. Informative materials and 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) – Informative Materials for Furnaces

Three types of NOx-emitting furnaces are subject to this provision for informative materials, which are:

- Any mobile home furnace that is for distribution or sale inside of the South Coast AQMD that is using an alternative compliance plan in lieu of meeting the 14 ng/J certification limit;
- Any furnace that is for distribution or sale inside of the South Coast AQMD for installation at high-altitude in a downflow configuration ~~persuade~~ pursuant to paragraph (h)(3); and
- Any furnace sold under the ZEM alternative compliance option pursuant to paragraph (f)(2) in lieu of complying with paragraph (d)(2).

Those furnaces that are for distribution or sale inside of the South Coast AQMD shall distribute or publish informative materials that clearly display the language outlined in paragraph ~~(h)~~ (g)(1). Informative materials include: the consumer brochure for the furnace, technical specification sheet for the furnace, and the manufacturer's website that promotes, discusses, or lists the furnace. The manufacturer may use alternative language to the language in subparagraph (g)(1)(A), (g)(1)(B), or (g)(1)(C), provided that the language is similar and is approved.

Paragraph (g)(2) – Reporting and Recordkeeping Requirements for ZEM Alternative Compliance Option

The manufacturer of a furnace supplied or offered for use within the South Coast AQMD in accordance with the ZEM alternative compliance option shall submit to the Executive Officer a report, signed by the responsible official for the manufacturer no later than 90 days after the

end of each calendar year using the alternative compliance option. The report shall include the information specified in subparagraph (g)(2)(A) for the applicable calendar year.

The manufacturer shall also maintain records for at least five years, including, but not limited to, the information listed in subparagraph (g)(2)(B).

Paragraph (g)(3) – Labeling and Reporting for Propane Conversion Kit Furnace

This provision is an existing requirement. The manufacturer, distributor, or installer of any furnace that elects to use the exemption in paragraph (h)(1) for furnaces to be installed with a propane conversion kit 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 (g)(4) – New and Existing Building Labeling Requirements

A manufacturer can elect to comply with paragraph (d)(2) directly or through alternative compliance option by paragraph (f)(2).

This provision specifies labeling requirement for any manufacturer that is not electing to comply using alternative compliance option by paragraph (f)(2). As specified in paragraph (d)(2), the manufacturer will be subject to the zero-NOx emission compliance date for new buildings on January 1, 2027, for existing buildings on January 1, 2029, except for mobile home furnaces.

PAR 1111 proposes a labeling requirement for the period between the new building compliance date and existing building compliance date for each furnace, except for mobile home furnaces.

Subparagraph (g)(4)(A) specifies the labeling language. Subparagraph (g)(4)(B) allows manufacturers flexibility in the labeling by posting alternative language as long as the language is similar to (g)(4)(A) and approved.

Clause (g)(4)(B)(ii) requires the manufacturer to use the language in (g)(4)(A) if the alternative language is not approved.

Paragraph (g)(5) – Identification of Furnaces Complying with Subdivisions (d) and (e)

This provision is an existing requirement, as paragraph (e)(1) in Rule 1111. It requires manufacturers of NOx emitting furnaces to display the model number, heat input capacity, applicable NOx emission limit, and date of manufacturer or date code.

Paragraph (g)(6) – Identification of Non-Certified Furnaces

This provision is an existing requirement, as paragraph (e)(2) in Rule 1111. It requires any non-certified 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 as not certified for use in the South Coast AQMD.

PAR 1111 (h) – Exemptions

Subdivision (h) was previously subdivision (g) in Rule 1111. After rule structure streamlining and removal of obsolete paragraphs, subdivision (h) specifies exemptions for propane-fire furnaces, zero-NOx emission limit, and downflow furnaces for high-altitude installations.

Paragraph (h)(1) – Propane-Fired Furnaces

This is an existing exemption in Rule 1111 paragraph (g)(4). 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 reporting requirements in (g)(3) are met. Its labeling and reporting requirements under the same paragraph have been moved to PAR 1111 paragraph (g)(3) for a streamlined rule structure.

Paragraph (h)(2) – Exemption from Zero-NOx Emission Limit

Three types of NOx-emitting furnaces are subject to this provision for exemption from zero-NOx emission limit, which are:

- Mobile home furnaces in compliance with paragraph (d)(1) for installation in existing buildings;
- Mobile home furnaces in compliance with paragraph (d)(1) for installation or use in new buildings or existing buildings located 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; and
- Furnaces in compliance with paragraph (d)(1) that will be installed or used in new buildings with building permit issued prior to [Date of Adoption] by the appropriate enforcement agency.

Mobile home furnaces in existing mobile homes are exempt from zero-NOx emission requirements due to unique challenges on zero-NOx emission implementation for mobile homes as discussed in Chapter 2.

With the consideration that master-metered mobile homes may currently not have sufficient electrical service to install-emission appliances, subparagraph (h)(2)(B) provides them an exemption from zero-NOx 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.⁽⁵³⁾ When mobile homes are converted, they are no longer be exempt by this provision.

Due to potentially long timelines between building permit approval and actual installation of a furnace, subparagraph (h)(2)(C) exempts installations in new buildings if the furnace permit was granted prior to the date of rule adoption. The building permit must be issued by the appropriate enforcing agency according to the California Building Code, either city, county, or state. For example, if a building is in the process of being constructed and the building owner obtains a permit from the city to install a furnace that complies with the current Rule 1111 NOx limit of 14 ng/J, but the furnace is not installed until after the PAR 1111 zero-emission

⁽⁵³⁾ CPUC, Mobilehome Park Utility Conversion Program, <https://www.cpuc.ca.gov/regulatory-services/safety/mhp/mobilehome-park-utility-upgrade-program>

effective date of January 1, 2027, the furnace would be exempt from the zero-emission limit and allowed to be installed.

Paragraph (h)(3) – Downflow furnaces for High-Altitude

Existing Rule 111 paragraph (i)(3) provides an exemption from 14 ng/J NO_x limit for downflow furnaces rated less than 175,000 Btu/hr and condensing or non-condensing furnaces greater than 100,000 Btu/hr installed at high-altitude.

As suggested by stakeholders of high-altitude communities, staff will retain the downflow furnace exemption in PAR 1111 for high-altitude installation. Downflow furnaces certified to meet the 40 ng/J NO_x limit are exempted from 14 ng/J NO_x and zero-NO_x emission standards. Large condensing or non-condensing furnaces greater than 100,000 Btu/hr for high-altitude installation are no longer exempted, effective at the date of rule adoption.

PAR 1111 (i) – Severability

Subdivision (i) was added regarding rule implementation if a lawsuit would be filed after the rule adoption. If any provision is invalidated by a judicial order, such order will not affect the implementation of the remainder of the rule according to this rule provision.

CHAPTER 4: PROPOSED AMENDED RULE 1121

INTRODUCTION

PROPOSED AMENDED RULE 1121

INTRODUCTION

The main objective of PAR 1121 is to propose NO_x limits that represent BARCT for the applicable equipment. PAR 1121 also removes obsolete language, reorganizes the rule structure to reflect recently amended and adopted rules, and includes an alternative compliance subdivision.

PROPOSED AMENDED RULE 1121

PAR 1121 reorganizes the rule structure to reflect recently amended and adopted rules and includes new subdivisions. Table 4-1 summarizes the changes to the subdivisions in PAR 1121 from Rule 1121.

Table 4-1: 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 | Informative Materials, Labeling, Recordkeeping, and Reporting |
| (h) | Final Progress Report | Exemptions |
| (i) | Program Administration | (N/A) Severability |

PAR 1121 (a) – Purpose

The purpose of PAR 1121 is to reduce NO_x emission from NO_x-emitting 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 NO_x-emitting 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:

- Consumer Price Index (CPI)
- Existing Building
- Informative Materials
- Install
- Installer
- Master-Metered Mobile Home Parks
- Mobile Home
- New Building
- Parts Per Million by Volume
- Reseller
- Responsible Official
- Standard Conditions
- Zero-NOx Emission Units

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 term Informative materials is defined to clarify the information needed in subdivision (g). Master-metered mobile home parks are defined as installations in master-metered mobile home parks are exempted from Zero-NOx emission standards. Zero-NOx emission unit is defined to clarify what appliances for space heating have zero-NOx emissions, which will be used in the new provision for manufacturer alternative compliance option. The term responsible official is also needed for the new provision for manufacturer alternative compliance option. Consumer Price Index (CPI) is defined, and the California annual average is used for mitigation fee adjustment as specified in the rule.

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. Mobile home definition

is revised to align with the definitions by California Energy Commission and Federal Department of Housing and Urban Development.

The following definitions are considered obsolete or unnecessary 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 this Staff Report as Table 4-2)

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 4-2: PAR 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 this Staff Report as Table 4-3). This paragraph specifies that a person shall only manufacture, supply, sell, resell, offer for sale, import, or install for use in the South Coast AQMD a zero-NOx emission unit by the Table 2 compliance dates, unless the NOx-emitting Water Heater is included in the zero-NOx emission manufacturer alternative compliance option pursuant to paragraph (f)(1) as indicated in the Informative Materials for the Water Heater pursuant to paragraph (g)(2). The applicable PAR 1121 Table 2 compliance dates for New Building types shall be determined based on the construction or alteration completion date. Mobile home water heaters for installation in

existing buildings are not subject to zero-NO_x emission limit. They will continue to comply with paragraph (d)(1) Table 1 NO_x limit. [Staff intends the zero-NO_x emission limit to allow near zero technologies that emit less than 1 ng/J of NO_x that rounds down to zero \(e.g. 0.4 ng/J\).](#)

Table 4-3: PAR 1121 Table 2 Zero-Emission Limits and Compliance Schedule

| Equipment Category | Building Type | Compliance Date |
|---------------------------------|---------------|-----------------|
| Water Heater* | New | January 1, 2027 |
| | Existing | January 1, 2029 |
| Mobile Home Water Heater | New | January 1, 2027 |

* 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 to 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) – Zero-Emission Manufacturer (ZEM) Alternative Compliance Option

In lieu of complying with paragraph (d)(2) a manufacturer of water heaters, other than mobile home water heaters, can elect to comply with the ZEM alternative compliance option. This alternative compliance option allows for the sale of NO_x emitting water heaters certified to emit 10 ng/J of NO_x (or 15 ppmv) or less, given:

- The manufacturer submits an alternative compliance plan no later than November 1, 2026, detailing the requirements in paragraph (f)(1)(A);
- The manufacturer sells, or enables distributors, retailers, resellers, or installs to sell Zero-NO_x emission units into or within the South Coast AQMD at a percentage greater than or equal to the Zero-NO_x emission unit sales targets specified in PAR 1121 Table 3 (presented as Table 3-4 in this Staff Report);
- The manufacturer pays a \$50 mitigation fee for each NO_x-emitting water heater sold for the calendar year 2027 and adjusted by the CPI annual percent increase for each subsequent year after 2027. If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year; and
- The manufacturer submits a report and mitigation fee payment pursuant to paragraph (g)(2) no later than 90 days after the end of each calendar year utilizing this alternative compliance option.

Table 4-4: PAR 1111 Table 3 ZEM Alternative Compliance Option Targets

| Compliance phase | Phase 1 | Phase 2 | Phase 3 | Phase 4 |
|--|-------------|-------------|------------|----------------|
| Calendar Years | 2027 - 2028 | 2029 - 2032 | 2033-2035 | 2036 and after |
| Zero-NO_x Emission Unit Sales Target | 30 percent | 50 percent | 75 percent | 90 percent |
| NO_x-emitting Water Heater Sales Target | 70 percent | 50 percent | 25 percent | 10 percent |

Paragraph (f)(2) – ZEM Alternative Compliance Option Sales Target Deviation

Any water heater manufacturer that elects to comply with the ZEM alternative compliance option and sells more NO_x-emitting water heaters than water heater sales target in Table 3 in one calendar year must pay the per unit mitigation fee outlined in Table 3 for each unit sold above the sales target. The mitigation fee for each water heater sold over target is \$250 for the calendar year 2027 and adjusted by the CPI annual percent increase for each subsequent year

after 2027. If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year.

Below are ~~two~~^{three} examples for determining the mitigation fee when a manufacturer sold more NOx-emitting water heaters than water heater sales target.

Example 1: From January 1, 2027, to December 31, 2027, a manufacturer sold 1,000 units with sales for NOx emitting water heaters and zero-NOx emission unit and 800 (80 percent) and 200 (20 percent) respectively.

Since the 2027 NOx-emitting water heater sales were over the water heaters sales target that is 70 percent, the mitigation fee should be calculated as below:

- Number of NOx-emitting water heaters within the target = $1000 \times 70\% = 700$
- Mitigation fee per PAR 1121 subparagraph (f)(1)(F) = $\$50 \times 700 = \$35,000$
- Mitigation fee for water heaters sold over target = $\$250 \times (800 - 700) = \$25,000$
- Total mitigation fee this manufacture should pay for 2027 = $\$35,000 + \$25,000 = \$60,000$

Example 2: From January 1, 2028, to December 31, 2028, a manufacturer sold 1,000 units with sales for NOx emitting water heaters and zero-NOx emission units 750 (75 percent) and 250 (25 percent) respectively.

Since the 2028 NOx-emitting water heater sales were over the water heater sales target that is 70 percent, the mitigation fee should be calculated as below:

- Number of NOx-emitting water heaters within the target = $1,000 \times 70\% = 700$
- Since it is after 2027, the mitigation fee rates should be CPI adjusted. Assuming California CPI annual percent increase for 2028 is 2.8 percent
- Mitigation fee rate for water heaters sold within the target is adjusted to $\$50 \times (1 + 2.8\%) = \51.4 per water heater
- Mitigation fee rate for water heaters sold over the target is adjusted to $\$250 \times (1 + 2.8\%) = \257.0 per water heater
- Mitigation fee for water heaters within the target per PAR 1111 subparagraph (f)(1)(F) = $\$51.4 \times 700 = \$35,980$
- Mitigation fee for water heaters sold over target = $\$257.0 \times (750 - 700) = \$12,850$
- Total mitigation fee this manufacture should pay for 2028 = $\$35,980 + \$12,850 = \$48,830$

Example 3: From January 1, 2029, to December 31, 2029, a manufacturer sold 1,000 units with sales for NOx emitting water heaters and zero-NOx emission units 600 (60 percent) and 400 (40 percent) respectively.

Since the 2029 NOx-emitting water heater sales were over the water heater sales target that is 50 percent, the mitigation fee should be calculated as below:

- Number of NOx-emitting water heater within the target = $1,000 \times 50\% = 500$

- Since it is after 2027, the mitigation fee rates should be CPI adjusted. Assuming California CPI annual percent increase is 2.8 percent for 2028 and 3.5 percent for 2029, we will use 2.8 percent for 2028 but 3.0 percent for 2029 CPI adjustment since it is higher than 3.0 percent
- Mitigation fee rate for water heaters sold within the target is adjusted to $\$50 \times (1+2.8\%)(1+3.0\%) = \52.9 per water heater
- Mitigation fee rate for water heaters sold within the target is adjusted to $\$250 \times (1+2.8\%)(1+3.0\%) = \264.7 per water heater
- Mitigation fee for units within the target per PAR 1111 subparagraph (f)(1)(F) = $\$52.9 \times 500 = \$26,450$
- Mitigation fee for water heaters sold over target = $\$264.7 \times (600-500) = \$26,470$
- Total mitigation fee this manufacture should pay for 2028 = $\$26,450 + \$26,470 = \$52,920$

~~If the annual percentage of sales of zero NOx emission units exceeds the Zero NOx Emission Unit Sales Target in Table 3, a discounted mitigation fee for the reporting year is determined by the following equation:~~

$$\text{Discounted Mitigation Fee} = F - F \times \frac{(P - T)}{(100 - T)}$$

~~Where:~~

~~F = Annual Mitigation Fee pursuant to subparagraph (f)(1)(D)~~

~~P = Reported Percent Zero NOx Emission Units~~

~~T = Zero NOx Emission Unit Sales Target~~

~~Equation 4-2: Discounted Mitigation Fee~~

~~Below is an example for discounted mitigation fee determinization.~~

~~Example 3: From January 1, 2027, to December 31, 2027, a manufacturer's sales for zero NOx emission unit and NOx emitting water heaters were 400 (40 percent) and 600 (60 percent) respectively.~~

~~Since the 2027 zero NOx emission unit sales were over the target which is 30 percent, a discounted fee should be calculated as below:~~

- ~~Annual mitigation fee pursuant to PAR 1121 subparagraph (f)(1)(F) = $\$50 \times 600 = \$30,000$~~
- ~~Discounted mitigation fee = $\$30,000 - (\$30,000 \times (40 - 30) / (100 - 30)) = \$25,714$~~
- ~~Total mitigation fee this manufacture should pay for 2027 is $\$25,714$~~

PAR 1121 (g) – Informative Materials, Labeling, Recordkeeping, and Reporting

Subdivision (g) is a new subdivision that details the informative materials, labeling, recordkeeping, and reporting requirements. Informative materials and 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) – Informative Materials for Water Heaters

Two types of NO_x-emitting water heaters are subject to this provision for informative materials, which are:

- Any mobile home water heater that is for existing building or any mobile homes in a master metered mobile home park; and
- Any water heater sold under the ZEM alternative compliance option pursuant to paragraph (f)(1) in lieu of complying with paragraph (d)(2).

Those water heaters that are for distribution or sale inside of the South Coast AQMD shall distribute or publish informative materials that clearly display the language outlined in paragraph (g)(1). Informative materials include: the consumer brochure for the water heater, technical specification sheet for the water heater, and the manufacturer's website that promotes, discusses, or lists the water heater. The manufacturer may use alternative language to the language in subparagraph (g)(1)(A) or (g)(1)(B), provided that the language is similar and is approved.

Paragraph (g)(2) – Reporting and Recordkeeping Requirements for ZEM Alternative Compliance Option

The manufacturer of a water heater supplied or offered for use within the South Coast AQMD in accordance with the ZEM alternative compliance option shall submit to the Executive Officer a report, signed by the responsible official for the manufacturer no later than 90 days after the end of each calendar year using the alternative compliance option. The report shall include information specified in subparagraph (g)(2)(A) for the applicable calendar year.

The manufacturer shall also maintain records for at least five years, including, but not limited to, the information listed in subparagraph (g)(2)(B).

Paragraph (g)(3) – New and Existing Building Labeling Requirements

A manufacturer can elect to comply with paragraph (d)(2) directly or through alternative compliance option by paragraph (f)(1).

This provision specifies labeling requirement for any manufacturer that is not electing to comply using alternative compliance option by paragraph (f)(1). As specified in paragraph (d)(2), the manufacturer will be subject to the zero-NO_x emission compliance date for new buildings on January 1, 2027, for existing buildings on January 1, 2029, except for mobile home water heaters.

PAR ~~1111~~ 1121 proposes a labeling requirement for the period between the new building compliance date and existing building compliance date for each water heater, except for mobile water heaters.

Subparagraph (g)(3)(A) specifies the labeling language. Subparagraph (g)(3)(B) allows manufacturers flexibility in the labeling by posting alternative language as long as the language is similar to (g)(3)(A) and approved.

Subparagraph (g)(3)(~~EB~~)(ii) requires the manufacturer to use the language in (g)(3)(A) if the alternative language is not approved.

Paragraph (g)(4) – 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.

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) .

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) – Exemption from Zero-NOx Emission Limit

Three types of NOx-emitting water heaters are subject to this provision for exemption from zero-NOx emission limit, which are:

- Mobile home water heaters in compliance with paragraph (d)(1) for installation in existing mobile homes;
- Mobile home water heaters in compliance with paragraph (d)(1) for installation or use in new buildings or existing buildings located 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; and
- Water heaters in compliance with paragraph (d)(1) that will be installed or used in new buildings with building permit issued prior to [Date of Adoption] by the appropriate enforcement agency.

Mobile home water heaters in existing mobile homes are exempt from zero-NOx emission requirements due to unique challenges on zero-NOx emission implementation for mobile homes as discussed in Chapter 2.

With the consideration that master-metered mobile homes may currently not have sufficient electrical service to install-emission appliances, subparagraph (h)(3)(B) provides them an exemption from zero-NOx 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.⁽⁵⁴⁾ When mobile homes are converted, they are no longer be exempt by this provision.

Due to potentially long timelines between building permit approval and actual installation of a water heater, subparagraph (h)(3)(C) exempts installations in new buildings if the water heater permit was granted prior to the date of rule adoption. The building permit must be issued by the appropriate enforcing agency according to the California Building Code, either city,

⁽⁵⁴⁾ <https://www.cpuc.ca.gov/regulatory-services/safety/mhp/mobilehome-park-utility-upgrade-program>

county, or state. For example, if a building is in the process of being constructed and the building owner obtains a permit from the city to install a water heater that complies with the current Rule 1121 Table 1 NOx emission limit, but the water heater is not installed until after the PAR 1121 zero-emission effective date of January 1, 2027, the water heater would be exempt from the zero-emission limit and allowed to be installed.

PAR 1121 (i) – Severability

Subdivision (i) was added regarding rule implementation if a lawsuit would be filed after the rule adoption. If any provision is invalidated by a judicial order, such order will not affect the implementation of the remainder of the rule according to this rule provision.

CHAPTER 5: IMPACT ASSESSMENT

INTRODUCTION

EMISSIONS INVENTORY AND EMISSION REDUCTIONS

COST-EFFECTIVENESS AND INCREMENTAL COST-EFFECTIVENESS

SOCIOECONOMIC IMPACT ASSESSMENT

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) ANALYSIS

DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE

COMPARATIVE ANALYSIS

INTRODUCTION

Both PAR 1111 and PAR 1121 are each expected to impact over 5 million units located in the South Coast AQMD region, for a total of 10 million units.

EMISSIONS INVENTORY AND EMISSION REDUCTIONS

PAR 1111 total NO_x emissions inventory is estimated to be 4.5 tpd and the PAR 1121 NO_x emissions inventory is estimated to be 2.3 tpd. The 2022 AQMP indicated a total of 351 tpd of NO_x emitted from all sources in the region in 2018, the base-year of the emissions inventory and modeling analysis in the plan. Appliances used in residential and commercial buildings, which primarily include space and water heaters, cooking devices, and some other appliances combusting natural gas, emit about 26.8 tpd of NO_x⁽⁵⁵⁾. Given these data, PAR 1111 and PAR 1121 account for 25.4 percent of NO_x emissions from appliances used in residential and commercial buildings.

Estimated Number of Units

PAR 1111 will impact 5,217,000 units, the applicable ~~residential~~ fan-type central furnaces, mobile home furnaces, wall furnaces and floor furnaces. PAR 1121 will impact 5,128,000 units, the applicable small tank type water heaters. To estimate the baseline emissions for both PAR 1111 and PAR 1121, staff evaluated the following information:

- Baseline emissions factor in pounds per million Btu (lbs/MMBtu) from current rule emission limit
- Estimated annual fuel use
- Estimated universe by category
- Useful life (years)

Estimated Emissions Inventory

For all categories, the following equation was used to calculate the emission inventory in tpd:

$$\begin{aligned}
 & \text{Emission Inventory (tpd)} \\
 &= \text{Baseline Emissions Factor (lbs/MMBtu)} \\
 & \quad * \text{Annual fuel use (MMBtu/(year * unit))} * \text{Estimated Universe (units)} \\
 & \quad * \frac{1 \text{ ton}}{2000 \text{ lbs}} * \frac{1 \text{ year}}{365 \text{ days}}
 \end{aligned}$$

Equation 5-1: Baseline Emissions Calculation

The baseline emissions factor was calculated, using the current NO_x emission limits. For PAR 1111, an emission limit of 40 ng/J for wall, and floor furnaces was used and 14 ng/J for ~~residential~~ fan-type central furnaces was used. Similarly, the baseline emissions factor for 1121 was calculated, using the current emission limit of 10 ng/J. An efficiency factor of 75 percent was used, as the efficiency of gas-fired furnaces and water heaters range from 60-95 percent.

⁽⁵⁵⁾ <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/appendix-iii.pdf>

The CEC's RASS in 2019⁽⁵⁶⁾ was used for the average annual gas unit energy consumption for primary heat for homes with SoCalGas as a provider, which include resident fan-type central furnaces, wall furnaces, and floor furnaces. For high-altitude homes, fuel use for Climate Zone 16 was used instead. Annual fuel use for residential water heating was taken from EnergyStar.

The total estimated universe for PAR 1111 ~~residential~~ fan-type central furnaces, wall, and floor furnaces was estimated using the American Housing Survey. PAR 1121 estimated universe was also extrapolated from the American Housing Survey. For the total number of commercial units, the CBECS microdata for the Pacific Census Division was used. The number of estimated units and baseline emissions are detailed in Table 5-1: PAR 1111 and PAR 1121 Baseline Emissions Estimate ~~Error! Reference source not found.~~. By the ZEM alternative compliance option that sets zero-NOx emission target at 90 percent by 2036, at the full implementation in 2061 the NOx emission reductions would be 6.12 tons per day.

Table 5-1: PAR 1111 and PAR 1121 Baseline Emissions Estimate

| Rule | Equipment Category | Estimated Universe | Baseline Emissions (tpd) |
|-----------------|---|--------------------|--------------------------|
| PAR 1111 | Residential Fan-Type Central Furnace | 4,200,000 | 3.99 |
| | Wall Furnaces and Floor Furnaces | 1,037,000 | 0.52 |
| PAR 1121 | Water Heaters | 5,128,000 | 2.32 |
| Total | | 10,365,000 | 6.83 |

COST-EFFECTIVENESS

Health and Safety Code Section 40920.6 requires a cost-effectiveness analysis when establishing BARCT requirements. The cost-effectiveness of a control technology is measured in terms of the control cost in dollars per ton of air pollutant reduced for each class and category of equipment. The costs for the control technology include purchasing, installation, operating, and maintaining the control technology.

As detailed in chapter two, the South Coast AQMD typically relies on the DCF method which converts all costs, including initial capital investments and costs expected in the present and all future years of unit useful age, to a present value.

The following tables summarize the cost-effectiveness estimates for each category of PAR 1111 and PAR 1121, for both zero-NOx emission units replacement and using ZEM alternative compliance option.

⁽⁵⁶⁾ California Energy Commission, 2019 California Residential Appliance Saturation Study (RASS), <https://www.energy.ca.gov/publications/2021/2019-california-residential-appliance-saturation-study-rass>

Table 5-2: PAR 1111 Cost-Effectiveness for Zero-NOx Unit Replacement

| Property Type | Scenario | Cost-Effectiveness (\$/ton NOx) |
|-----------------------------------|----------------------------------|---------------------------------|
| Single-Family | Heat Pump Replacing Furnace + AC | -592,000 |
| | Heat Pump Replacing Furnace | +1,730,000 |
| Multifamily (Per Unit) | Heat Pump Replacing Furnace + AC | -785,000 |
| | Heat Pump Replacing Furnace only | -197,000 |

Table 5-3: PAR 1111 Cost-Effectiveness for ZEM Alternative Compliance Option

| Dates Phase | 2027 - 2028 Phase I ₁ | 2029 - 2032 Phase H ₂ | 2033 - 2035 Phase HH ₃ | 2036 and after Phase IV ₄ |
|--|--|--|---|--|
| Targets | 70% NO-Emitting 30% Zero-NOx | 50% NO-Emitting 50% Zero-NOx | 25% NO-Emitting 75% Zero-NOx | 10% NO-Emitting 90% Zero-NOx |
| Weighed Cost-Effectiveness (\$/Ton NOx) | \$35,000 – \$69,000 | \$69,000 – \$140,000 | \$110,000 – \$220,000 | \$140,000 - \$280,000 |

Table 5-4: PAR 1121 Cost-Effectiveness for Zero-NOx Unit Replacement

| Property Type | Scenario | Cost-Effectiveness (\$/ton NOx) |
|-----------------------------------|--|---------------------------------|
| Single-Family | Heat Pump Water Heater Replacing NOx-Emitting Gas Water Heater | 405,000 |
| Multifamily (Per Unit) | Heat Pump Water Heater Replacing NOx-Emitting Gas Water Heater | 405,000 |

Table 5-5: PAR 1121 Cost-Effectiveness for ZEM Alternative Compliance Option

| Dates Phase | 2027 - 2028 Phase I ₁ | 2029 - 2032 Phase II ₂ | 2033 - 2035 Phase III ₃ | 2036 and after Phase IV ₄ |
|--|--|---|--|--|
| Targets | 70% NO-Emitting 30% Zero-NOx | 50% NO-Emitting 50% Zero-NOx | 25% NO-Emitting 75% Zero-NOx | 10% NO-Emitting 90% Zero-NOx |
| Weighed Cost-Effectiveness (\$/Ton NOx) | \$80,000 | \$160,000 | \$260,000 | \$320,000 |

The proposed BARCT emission limits will take effect in future years for installations in new buildings and at the end of the equipment life in existing buildings, and the full implementation will be achieved 25 years for PAR 1111 and 15 years for PAR 1121 after their latest compliance date. The future effective compliance dates, implementation at equipment natural turnover, and the ZEM alternative compliance option will allow for market growth for emerging technologies that typically includes a price decrease.

SOCIOECONOMIC IMPACT ASSESSMENT

~~A socioeconomic impact assessment has been conducted and released for public review and comment as a separate document at least 30 days prior to the South Coast AQMD Governing Board Hearing for PAR 1111 and PAR 1121, which is scheduled for May 2, 2025 (subject to change).~~ [A Draft Socioeconomic Impact Assessment for PAR 1111 and PAR 1121 was released for public review and comment on March 31, 2025. The Final Socioeconomic Impact Assessment is available in the June 6, 2025 Governing Board Package.](#)

California Environmental Quality Act (CEQA) Analysis

Pursuant to the California Environmental Quality Act (CEQA) and South Coast AQMD's certified regulatory program (Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110), the South Coast AQMD, as lead agency for PAR 1111 and PAR 1121, prepared a Subsequent Environmental Assessment (SEA) for the proposed project. The SEA is a substitute CEQA document prepared pursuant to CEQA Guidelines Section 15252 and in lieu of a Subsequent Environmental Impact Report (EIR). The SEA tiers off of the Final Program EIR for the 2022 AQMP, as allowed by CEQA Guidelines Sections 15152, 15162, and 15385. The Draft SEA was released for a 46-day public review and comment period to provide public agencies and the public an opportunity to obtain, review, and comment on the environmental analysis. The South Coast AQMD received three comment letters relative to the analysis in the Draft SEA and responses to the comments ~~have~~will ~~been~~ included in the Final SEA, [which is available in the June 6, 2025 Governing Board Package.](#)

Requirements to Make Findings

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

Necessity

PAR 1111 and PAR 1121 are needed to establish BARCT requirements and achieve emission reductions proposed by 2022 AQMP Control Measure R-CMB-02 and R-CMB-01 in order to meet the National Ambient Air Quality Standards for ozone.

Authority

The South Coast AQMD Governing Board has authority to adopt amendments to Rule 1111 and Rule 1121 pursuant to the Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728.5, and 41508.

Clarity

PAR 1111 and PAR 1121 are written or displayed so that their meanings can be easily understood by the persons directly affected by them.

Consistency

PAR 1111 and PAR 1121 are in harmony with and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

Non-Duplication

PAR 1111 and PAR 1121 will not impose the same requirements as any existing state or federal regulations. The proposed amended rules are necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference

In amending Rule 1111 and Rule 1121, the following statutes which the South Coast AQMD hereby implements, interprets or makes specific are referenced: Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728.5, and 41508.

Comparative Analysis

Under Health and Safety Code Section 40727.2, the South Coast AQMD is required to perform a comparative analysis when adopting, amending, or repealing a rule or regulation. The comparative analysis is relative to existing federal requirements, existing or proposed South Coast AQMD rules and air pollution control requirements and guidelines which are applicable to combustion equipment subject to PAR 1111 and PAR 1121. A comparative analysis has been prepared and is included in the table below.

Table 5-6. Comparative Analysis for PAR 1111

| Rule Element | PAR 1111 | Bay Area AQMD Rule 9-4 | CARB 2022 State Sip Strategy | CARB In-Progress Rulemaking |
|---|---|--|--|---|
| Unit Applicability | Natural gas-fired Furnaces less than 175 kBtu/hr used for interior space heating | Natural gas-fired furnace | New equipment and appliances sold for use in both residential and commercial buildings | TBD: In an effort to align with PAR 1111 and Bar Area AQMD Rule 9-4 |
| Requirements (All parts per million (ppmv) emission limits are referenced at three percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes) | NOx limits: Proposed future limit: 0 ppmv (zero-emission) with a ZEM alternative compliance option that set compliance targets and allows for NOx-emitting furnace sales | NOx limits: Natural gas: 0.0 ppmv (zero-emission) | Zero-emission standards implemented in 2030 for space and water heating | TBD: Anticipated zero-emission (GHG, NOx) |
| Labeling or Informative Materials | Required for units that use mitigation fee option, propane kits, and alternative compliance options and for units during a specified period that can be installed in existing buildings but not new buildings | | | |
| Reporting | Reports for units sold using the ZEM alternative compliance option, for mobile home furnace sales | N/A | To be determined in rulemaking | TBD |

| Rule Element | PAR 1111 | Bay Area AQMD Rule 9-4 | CARB 2022 State Sip Strategy | CARB In-Progress Rulemaking |
|----------------------|---|--|-----------------------------------|--------------------------------|
| | by mitigation fee option and for quantity of propane conversion kits sold for furnaces distributed or sold for use into South Coast AQMD | | | |
| Monitoring | Certification test for non- zero-emission standards | Certification test for units that combust liquid fuels | To be determined in rulemaking | TBD |
| Recordkeeping | Records for using alternative compliance options and temporary exemptions | N/A | To be determined in rulemaking | TBD |

Table 5-7. Comparative Analysis for PAR 1121

| Rule Element | PAR 1121 | Rule 1146.2 | Rule 1146.1 | Rule 1146 | Bay Area AQMD Rule 9-6 | CARB 2022 State Sip Strategy | CARB In-Progress Rulemaking |
|--|--|---|--|---|---|--|---|
| Unit Applicability | Natural gas-fired water heaters with heat input rates less than 75 kBtu/hr | Large water heaters, small boilers and process heaters less than or equal to 2 MMBtu/hr | Boilers, steam generators, and process heaters with maximum rated heat input capacities greater than 2 MMBtu/hr and less than 5 MMBtu/hr | Boilers, steam generators, and process heaters with maximum rated heat input capacities greater than or equal to 5 MMBtu/hr | Natural gas-fired water heater, rated heat input capacity 75 kBtu/hr – 2 MMBtu/hr | New equipment and appliances sold for use in both residential and commercial buildings | TBD: In an effort to align with PAR 1121 and Bar Area AQMD Rule 9-6 |
| Requirements (All parts per million (ppmv) emission limits are referenced at three percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes) | NOx limits: Proposed future limit: 0 ppmv (zero-emission) with a ZEM alternative compliance option that set compliance targets and allows for NOx-emitting furnace sales. | NOx and CO limits: Natural gas: 0 ppmv (zero-emission) | NOx limits: Digester gas: 15 ppmv Landfill gas: 25 ppmv Natural gas: 7 or 9 ppmv, 12 ppmv for atmospheric, and 12 ppmv for thermal fluid heaters All others: 30 ppmv CO limit: 400 ppmv | NOx limits: Digester gas: 15 ppmv Landfill gas: 25 ppmv Natural gas: 5 ppmv for ≥ 75 MMBtu/hr, 7 or 9 ppmv for 20–75 MMBtu/hr, 12 ppmv for atmospheric, and 12 ppmv for thermal fluid heaters | NOx limits: Natural gas: 0 ppmv (zero-emission) | zero-emission standards implemented in 2030 for space and water heating | TBD: Anticipated zero-emission (GHG, NOx) |

| Rule Element | PAR 1121 | Rule 1146.2 | Rule 1146.1 | Rule 1146 | Bay Area AQMD Rule 9-6 | CARB 2022 State Sip Strategy | CARB In- Progress Rulemaking |
|--|--|--|-------------|---|------------------------------|--------------------------------------|------------------------------------|
| | | | | For other types of fuels: 30 ppmv for other gaseous fuels; 40 ppmv for nongaseous fuels CO limit: 400 ppmv | | | |
| Labeling or Informative Materials | Required for units that use alternative compliance options and for units during a specified period that can be installed in existing buildings but not new buildings | | | | | | |
| Reporting | Annual reporting requirement for units sold | Manufacturers every year after Table 3 compliance | N/A | Every 6 months for units greater than or equal | N/A | To be determined in rulemaking | TBD |

| Rule Element | PAR 1121 | Rule 1146.2 | Rule 1146.1 | Rule 1146 | Bay Area AQMD Rule 9-6 | CARB 2022 State Sip Strategy | CARB In-Progress Rulemaking |
|-------------------|--|---|-----------------------------------|--|------------------------|--------------------------------|-----------------------------|
| | using the ZEM alternative compliance option | dates – product models, unit number, rated heat input capacity, applicable equipment category | | to 40 MMBtu/hr and an annual heat input greater than 200 x 10 ⁹ Btu per year (Rule 218) | | | |
| Monitoring | Certification test for non-zero-emission units | Source test report Requirements by alternative compliance options | Source testing once every 5 years | A continuous in-stack NO _x monitor for units greater than or equal to 40 MMBtu/hr and an annual heat input greater than 200 x 10 ⁹ Btu per year Source testing once every 3 – 5 years for other units | N/A | To be determined in rulemaking | TBD |

| Rule Element | PAR 1121 | Rule 1146.2 | Rule 1146.1 | Rule 1146 | Bay Area AQMD Rule 9-6 | CARB 2022 State Sip Strategy | CARB In-Progress Rulemaking |
|----------------------|---|---|--|---|------------------------|--------------------------------|-----------------------------|
| Recordkeeping | Records for using alternative compliance options and temporary exemptions | Maintenance records = 3 years Rated heat input capacity & modification documentation | Source test records = 2 years (5 years if Title V) Monitoring data = 2 years (5 years if Title V) | Source test records Maintenance & emission records = 2 years Monitoring data = 2 years (5 years if Title V) | N/A | To be determined in rulemaking | TBD |

APPENDICES: RESPONSES TO COMMENTS

APPENDIX A GENERAL RESPONSE TO COMMENTS

**APPENDIX B RESPONSE TO COMMENTS RECEIVED AFTER
PUBLIC CONSULTATION MEETING
(NEW RULE CONCEPT)**

**APPENDIX C RESPONSE TO COMMENTS RECEIVED AFTER
PUBLIC WORKSHOP
(ORIGINAL RULE CONCEPT)**

**APPENDIX D RESPONSE TO COMMENTS SENT TO BOARD AND
COMMITTEE MEMBERS**

**APPENDIX E COMMENT LETTERS RECEIVED AFTER CLOSE OF
COMMENT PERIOD**

Throughout the development of PAR 1111 and PAR 1121, staff shared rule concepts and preliminary draft rule language through public meetings such as Working Group Meetings, Public Consultations, and a Public Workshop. Staff shared the preliminary draft PAR 1111 and PAR 1121 with the original rule proposal at the Public Workshop on October 3, 2024. Based on stakeholder comments, staff revised the original rule proposal and proposed a new rule concept in the Working Group Meeting #8 presentation released on February 7, 2025.

Staff has received over ~~12,000~~14,000 written comments and many verbal comments since the Public Workshop on October 3, 2024, including over ~~9,800~~10,000 comments on the original rule concept and the remaining comments on the new rule concept.

The “Responses to Comments” document consists of five appendices. Appendix A includes general responses to similar comments that were raised by multiple letters. Appendix B includes verbal comments received at the Public Consultation Meeting and written comments received during the public comment period for the new rule concept from February 8, 2025, to March 20, 2025. Appendix C includes verbal comments received at the Public Workshop and written comments received on the original rule concept from October 3, 2024, to February 7, 2025. Appendix D includes all comment letters that were addressed to the South Coast AQMD Governing Board and Stationary Source Committee members by March 20, 2025. Appendix E includes comment letters received after March 20, 2025, till May 16, 2025, after the close of the public comment period for the new rule concept, ~~for which no response is provided~~.

Table APP-0-1: Comments Received on the Original and New Concepts

| Appendix | Comments | Start Date | End Date | Number of Comments | Comment Number |
|-------------------|---|------------------|--|---|---|
| Appendix A | General responses to similar comments | October 3, 2024 | March 20, 2025 (End of the new comment period after Public Consultation) | Eleven general comments | GC-1 to GC-11 |
| Appendix B | Comments addressed to staff after release of new rule concept; many comments still on original rule concept | February 8, 2025 | March 20, 2025 (End of the new comment period after Public Consultation) | 48 written comments and 39 verbal comments at Public Consultation | 1 – 48; and PC-01 – PC-39 |
| Appendix C | Comments addressed to staff on original rule concept | October 3, 2024 | February 7, 2025 | 108 written comments and 16 verbal comments at Public Workshop | 1-108; and PW-1 – PW-16 |
| Appendix D | Comments addressed to the Board within comment period | October 3, 2024 | March 20, 2025 (End of the new comment period after Public Consultation) | 11,773 written comments | Table Appendix D-1 1-48; Table Appendix D-2 1-63 |
| Appendix E | Comments received beyond comment period | March 21, 2025 | March 28 May 16, 2025 | 122 2,253 written comments | 1- 89 5 |

APPENDIX A TO ATTACHMENT I: FINAL STAFF REPORT

APPENDIX A: GENERAL RESPONSE TO COMMENTS

GENERAL RESPONSES

There are eleven general responses included in this chapter. They are:

- 1) Consumer Choice
- 2) Cost and Affordability of Zero-Emission Residential Space Heating and Water Heating Appliances
- 3) Electricity Demand and Grid Sustainability
- 4) Zero-Emission Technology Readiness
- 5) Outreach
- 6) Cost-Effectiveness Method
- 7) Emergency Replacement
- 8) High Altitudes
- 9) EPCA
- 10) Need for Rule Amendments
- 11) Need for Incentives

General Comment 1: Consumer Choice

Commenters expressed concerns about the original rule proposal on limiting consumer choice. Specifically, commenters would like to have the choice of installing natural gas units.

Response to General Comment 1

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

With the new rule concept, consumers will be able to choose either zero-emission appliance options or conventional natural gas-fired appliance options in the market. The new rule concept provides more options for consumers to choose from, whether it be a zero-emission unit or conventional natural-gas fired unit. For both PAR 1111 and PAR 1121, manufacturers can choose to enroll in the Zero-Emission Manufacturer program, which specifies the compliance target for zero-NOx emission units and NOx-emitting units that progresses over time. For each phase, the compliance target seeks an increasingly higher percentage of zero-NOx emission units, but manufacturers can continue to offer NOx-emitting units and meet consumer demand. Sales of NOx-emitting units above the goals will be subject to a higher mitigation fee. Manufacturers already supply zero-NOx emission units in the current market, and staff estimates that 20 percent to 30 percent of residential-type space and water heating units are already zero-NOx emission units in the South Coast AQMD region⁽¹⁾. The new rule concept provides a pathway for more zero-NOx emission options in the market over time.

When consumers elect to install zero-NOx emission units, there are also many products they can choose. For instance, there are multiple air source heat pump original equipment manufacturers for residential space and water heating use. AHRI directory shows over 2,000,000 air-source heat

⁽¹⁾ <https://www.eia.gov/consumption/residential/data/2020/>

pumps being certified by over 600 brands, providing many options to consumers⁽²⁾. Many manufacturers and suppliers have committed to creating the capacity to achieve California's goal for heat pump market adoption⁽³⁾.

General Comment 2: Cost and Affordability of Zero-Emission Residential Space Heating and Water Heating Appliances

This section addresses public comments on the costs of adopting zero-NOx emission technologies in buildings, particularly in residential buildings, that may cause an affordability issue, especially for low-income consumers.

Response to General Comment 2:

The new rule concept for Proposed Amended Rules 1111 and 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will further address the cost concern for zero-NOx emission units. The new rule proposal allows the sale of both zero-NOx emission units and NOx-emitting natural gas-fired units, allowing consumers to make individual decisions on the type of unit to install.

Staff summarized the cost examples on the clearinghouse webpage⁽⁴⁾. The estimated project costs for zero-NOx emission units shown on this page were compiled based on real-world heat pump installations by TECH Clean California from January 2024 to December 2024 in the four-county region of the South Coast AQMD that include unit cost, installation cost, and any electrical service upgrade costs. Comparing conventional unit project costs derived from the Energy and Environmental Economics (E3) study, staff estimates no additional cost for implementing PAR 1111 in a typical HVAC replacement (i.e., replacing both furnace and air conditioning system) for single-family homes, but does anticipate additional cost of up to \$8,000 for furnace only replacement in homes without an existing air conditioning system but the heat pump includes the added value of space cooling. Staff estimates additional cost of \$700 to \$4,000 varied by counties, or about \$2,100 for the region weighed by each county's population for a water heater replacement.

Local and state incentive programs are available to offset some of the upfront costs for implementing zero-NOx emission standards, including the upcoming South Coast AQMD Go Zero incentive program. The Go Zero pilot phase, funded with \$21 million, will provide \$1,000 to \$4,000 in incentives for each installation which can be stacked with incentives from other programs. The Go Zero incentive program pilot phase will be launched in early 2025 and is estimated to expand by five-fold for future phases with current funding sources. Further, should the new rule concept be adopted, the manufacturer alternative compliance mitigation fee will provide a future revenue stream to keep that program viable in the future.

With regard to electric upgrade and utility costs for consumers who choose zero-NOx emission units, the project cost examples listed on the clearinghouse website include electric upgrade costs, which is also included in staff analysis of cost-effectiveness under Chapter 2 of the staff report.

⁽²⁾ <https://ahridirectory.org/>

⁽³⁾ <https://www.gov.ca.gov/2022/07/22/governor-newsom-calls-for-bold-actions-to-move-faster-toward-climate-goals/>

⁽⁴⁾ <https://www.aqmd.gov/home/rules-compliance/residential-and-commercial-building-appliances/cost>

Given that 87 percent of homes in the South Coast AQMD region have air conditioning systems, most of the homes would not require electrical upgrades to install zero-NOx emission units. In addition, there are various zero-NOx emission options that do not need electrical upgrades, such as portable heat pumps for space heating and cooling and 120V plug-in heat pump water heaters. While an electrical upgrade may be needed in some cases, some planners such as Redwood Energy⁽⁵⁾ believe it can be avoided, even with all electric appliances in a home. Staff gathered cost data for various types of furnaces and water heaters for the cost-effectiveness analysis described in Chapter 2 of this report. Electrical upgrades are considered in the costs to retrofit a zero-NOx emission appliance. Further, Chapter 2 provides discussion on new and emerging technologies that are less likely to require a panel upgrade such as 120V plug-in heat pump water heaters, portable heat pumps for space heating/cooling, and multi-functional heat pumps for water heating and space heating/cooling. Commercial and multifamily properties that already rely on AC for cooling are not anticipated to need electrical upgrades if they pursue zero-NOx emission options. If the electrical system can supply sufficient power to operate an AC, it can also support a heat pump system that both cools and heats. The addition of zero-NOx emission water heaters will add to the demand; however, 120V units designed for building retrofits are available and can be plugged into a standard outlet.

With regards to utility costs, staff considered the cost difference of operating a zero-NOx emission heat pump appliance versus a NOx-emitting natural gas fired appliance. While electricity rates in California are higher than natural gas rates, that does not mean operating costs for heat pumps will be higher than their gas counterparts because the utility rate is not the only determining factor for operational costs. When the efficiency of heat pumps is factored in, staff projects there will be lifetime utility cost savings because heat pumps can be over three times more efficient than NOx-emitting natural gas appliances used for water heating, space heating, and cooling. Chapter 2 of the staff report provides a summary of fuel switching cost for PAR 1111 and PAR 1121, which shows lifetime utility cost savings ranging between \$200 and \$1,100 depending on the equipment category.

With regards to consumers choosing zero-NOx emission options for the health of their communities, staff understands the costs associated with retrofitting zero-NOx emission appliances and anticipates that the new proposed amended rules will address concerns, while also sending a market signal to manufacturers, which will, in turn, drive down overall costs of zero-NOx emission units. Additionally, federal, state, and local incentives, including the upcoming South Coast AQMD Go Zero incentive program, will help alleviate the financial burden for those who pursue zero-NOx emission options.

For lower income consumers who choose to pursue zero-NOx emission units, with regards to mitigating the costs of more electrical appliances in households, the state legislature's Assembly Bill 205 creates a flat rate for electric bills, resulting in lower per kilowatt-hour charges. The IEPR forecast projects increasing natural gas prices, while electricity rates will go up more slowly. Lower annual operational costs are anticipated based on the fuel price estimates which are based on a combination of CEC's 2023 Integrated Energy Policy Report and Energy Information

⁽⁵⁾ <https://www.redwoodenergy.net/watt-diet-calculator>

Administration national level forecasts. Overall, staff expects consumers to save money on operating costs when switching to zero-NOx emission units.

Staff conducted a socioeconomic impact assessment for the proposed amended rules. PAR 1111 and PAR 1121 are expected to yield an overall savings, mainly due to a savings from reduced energy bill costs over the equipment lifetime. For some equipment categories, upfront incremental costs associated with purchasing and installing zero-emission units will be incurred, but these upfront costs will be offset by an energy-cost savings over time, resulting in an overall savings. The present value cost savings over the forecast period (i.e., 2027 to 2060) is estimated to be \$5.14 billion and \$2.68 billion, for a discount rate of 1 percent and 4 percent, respectively. The annual average savings are estimated to be \$250.34 million and \$191.25 million, for a 1 percent and 4 percent real interest rate, respectively.

Staff recognizes the need to pursue emission reductions with an earlier timeframe to address the air quality needs of the South Coast AQMD and is committed to monitoring rule implementation after rule adoption.

General Comment 3: Electricity Demand and Grid Sustainability

Many commenters expressed concerns regarding power supply and grid sustainability if a zero-NOx emission standard would be required for all sales. Commenters also urged staff to work with utility providers for those concerns. Most of those comments were received on the original rule proposal before staff revised the rule concept.

Response to General Comment 3:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Consumers will have the choice to purchase conventional NOx-emitting units when an appliance needs to be replaced at end of unit life. The new rule concept means a slower transition to zero-emission by phased approach for compliance target and allowing NOx-emitting units and more time to enhance the grid and plan for electricity demand. The image below shows the proposed phased transition approach.

| Target Dates | 2027-2028 | 2029-2032 | 2033-2035 | 2036 and after |
|-------------------------------|-----------|-----------|-----------|----------------|
| NOx Emitting Units (e.g. gas) | 70% | 50% | 25% | 10% |
| Zero-NOx Emission Units | 30% | 50% | 75% | 90% |

Staff recognizes the importance of electric grid reliability for electric units, but also for NOx-emitting natural gas-fired units, which often require electricity to operate. Agencies and organizations throughout the state that are involved in energy distribution such as CEC, CPUC,

and local utilities such as Southern California Edison, are aware of the challenges ahead in terms of energy and infrastructure availability and are actively engaged in planning to anticipate future demand as the state moves toward a zero-emission future. The CEC, CPUC, and CARB are working to coordinate efforts, identify issues not covered by ongoing efforts, and assess needed actions to better align the energy system with the state's climate targets. The CEC adopts an IEPR every two years and an update every other year, and the 2022 IEPR has recognized the proposed zero-emission requirements for residential and commercial buildings in California and included recommendations and updates to the energy demand forecast. Furthermore, CAISO is planning billions of dollars in transmission capacity projects over the next 20 years, and the 20-Year Transmission Outlook document from May 2022 considers transmission needs to meet load and renewable energy growth aligned with state policy. 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. Per Senate Bill 350 (De León, 2015), the CPUC developed an integrated resource planning process to ensure California's electric sector meets its greenhouse gas reduction goals while maintaining reliability at the lowest possible costs.

Staff is also in regular contact with utility providers within the South Coast AQMD, such as Los Angeles Department of Water and Power, Clean Power Alliance (CPA; electricity provider for communities), and California Community Choice Association (CalCCA). SCE, one of the major local utilities, supports the proposed rule amendments and timelines in the rule. On the utility level, according to SCE's 2021 Sustainability Report, SCE is expected to invest significantly in the electric grid, including energy storage and increases in Distributed Energy Resources such as solar. In a current new study by E3⁽⁶⁾ (contracted by SCE) on building electrification infrastructure impacts, SCE is estimating the required amount of energy demand and power generation, transmission, and distribution capacity, in preparation for the upcoming zero-emission building appliance rule implementation. SCE participated in the rule development for PAR 1111 and 1121 and submitted a comment letter (Comment Letter #21 in Appendix C) in support of the original rule proposals, which included a faster transition to zero-NOx emission building appliances.

Sustainable electricity supply is essential for both zero-NOx emission and NOx-emitting units. Many natural gas appliances also rely on electricity to operate. For example, all gas-fired fan-type central furnaces currently regulated by Rule 1111 require electricity to operate and therefore cannot operate during a power outage. Some older model water heaters may not need electricity to operate; however, newer features on modern water heaters require electricity to operate. Further, for tank type water heaters, the water in the tank will stay warm for several hours in the event of a power outage.

In addition to zero-NOx emission electric technology options, fuel cells and possibly other new technologies can be used to support the transition to a zero-NOx emission future. South Coast AQMD will continue working with developers and other agencies to deploy other types of clean energy such as fuel cells. Early planning and collaborative problem solving involving all stakeholders will be necessary to ensure grid readiness and infrastructure availability.

⁽⁶⁾ <https://etcc-ca.com/reports/grid-impacts-south-coast-aqmd-proposed-zero-nox-standards>

General Comment 4: Zero-NOx Emission Technology Readiness

Many commenters expressed concerns about the readiness of zero-NOx emission technologies. Most of those comments were received on the original rule proposal before staff revised the rule concept.

Response to General Comment 4:

The new rule concept for Proposed Amended Rules 1111 and 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Consumers will have the choice to purchase conventional NOx-emitting units when an appliance needs to be replaced at end of unit life. This proposal means a slower transition to zero-emission and more time for zero-NOx emission technologies to develop and mature.

The 2022 AQMP's objective is to transition to zero-emission technologies, wherever feasible, and staff identified technically feasible zero-NOx emission control options for equipment subject to Rules 1111 and 1121. Staff identified various zero-NOx emission technologies that have been long-proven and are commercially available. As discussed in Chapter 2, South Coast AQMD is technology-neutral and fuel-neutral, and various technologies could achieve zero-NOx emission. Heat pumps may currently be a predominant zero-NOx emission technology in the market, and modern heat pumps can reach 300 to 400 percent efficiency or even higher efficiencies when operated in mild climates such as in the South Coast AQMD.

Heat pumps are a mature technology that have had great market adoption in the United States and other countries. According to the U.S. Energy Information Administration 2020 Residential Energy Consumption Survey, about 15 percent of existing U.S. homes and one-third of existing homes in southern states of the U.S. currently use electric heat pumps. The Air Conditioning, Heating, & Refrigeration Institute (AHRI) monthly shipment report indicates that more heat pumps have been sold in the U.S. for space heating than gas furnaces since 2021, and electric water heaters have made up the majority of both residential and commercial water heater shipments. To comply with federal energy efficiency standards⁽⁷⁾, starting in 2029, most electric water heaters would require heat pump technology, further enhancing heat pump market adoption. Heat pumps have even higher adoption rates in Asian countries than in North America. About 90 percent of households in Japan have heat pumps for heating and cooling⁽⁸⁾. China has the largest number of new heat pump installations in the world with over 12 million residential air-source heat pumps installed by 2021⁽⁹⁾. Around 10 percent of space heating needs globally were met by heat pumps in 2021, but the pace of installation is growing rapidly⁽¹⁰⁾.

⁽⁷⁾ <https://www.energy.gov/articles/doe-finalizes-efficiency-standards-water-heaters-save-americans-over-7-billion-household>

⁽⁸⁾ [hpe-all.pdf](#)

⁽⁹⁾ [China leads the world on heat-pump adoption - Chinadaily.com.cn](#)

⁽¹⁰⁾ [Executive Summary – The Future of Heat Pumps – Analysis - IEA](#)

Meanwhile, technologies such as fuel cells may be applicable in some cases. Other technologies are developing and emerging in the U.S. and abroad, with wider adoption and lower costs expected over time.

Manufacturers have suggested that a clear policy direction of future effective zero-NOx emission standards is needed to justify further product development. PAR 1111 and PAR 1121 will provide regulatory certainty for the manufacturers to further advance zero-NOx emission technologies and provide more products to the market.

General Comment 5: Outreach

Commenters expressed the need to increase the amount of outreach on the proposed rules. Commenters suggested expanding the types of outreach channels and increasing the number of contacts.

Response to General Comment 5:

The new rule concept for Proposed Amended Rules 1111 and 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. The concern about outreach was largely driven to inform consumers of the originally proposed mandate to transition to zero-NOx emission appliances so they could weigh in on the proposed changes to the rules and be better able to plan ahead and make any potential upgrades prior to appliance replacement. With the current proposal, consumers will have the choice to purchase conventional either NOx-emitting units or zero-NOx emission units when an appliance needs to be replaced at end of unit life, making outreach of the upcoming changes less critical.

PAR 1111 and PAR 1121 were developed through a public process that began in the last quarter of 2023 and included a series of Working Group Meetings, a Public Workshop, individual stakeholder meetings, and site visits to affected facilities. The working group is comprised of representatives from manufacturers, trade organizations, permit stakeholders, businesses, environmental groups, public agencies, consultants, and other interested parties. Notices of this rulemaking (e.g., Notice of Public Workshop and Notice of Public Hearing for the initial hearing date and the delayed hearing date) were also posted in five newspapers of four counties and announced via e-newsletters in September 2024, October 2024, and March 2025, respectively.

To address the comments, staff enhanced public outreach for the rule development, increased the email notification distribution list by four times, sent notifications to social media followers, developed additional outreach materials, and reached out to many organizations (e.g., Councils of Government, industries, trade, and community organizations) to present the rule proposal. Staff has received over ~~12,000~~14,500 comment letters as of the release of the draft staff report, far exceeding the number of comment letters typically received on an amendment to a South Coast AQMD rule, which demonstrates the impact of the enhanced outreach. Each person who submitted a comment was added to the subscribers list if an email address was provided and now the subscribers list has over ~~16,000~~17,000 email addresses. Staff sends all rule updates and outreach to that list of over ~~16,000~~17,000 subscribers.

While staff has worked hard to ensure stakeholders are aware of the current rulemaking, we recognize that public outreach and education should be ongoing and in a format that is easily understandable by members of the public. Staff is committed to conducting a rigorous outreach campaign if the proposed rules are adopted to ensure the public is aware of the future appliance regulations, available incentive funding, and the benefits of installing modern, clean, efficient zero-NOx emission technologies, such as heat pumps. The outreach portion of the upcoming Go Zero incentive program is intended not only to educate consumers about the rebates and heat pump appliances but also the Proposed Amended Rules 1111 and 1121. The Go Zero incentive program has also allocated funding for installer training sessions, which will not only teach contractors how to install zero-NOx emission appliances and related processes but also provide education on the rules that contractors can share with consumers. The anticipated launch of the Go Zero incentive program is 2025.

Finally, staff has redesigned the Residential Building Appliance Clearinghouse Webpage (<https://www.aqmd.gov/home/rules-compliance/residential-and-commercial-building-appliances>). This Clearinghouse webpage is a central source of all information related to PAR 1111 and PAR 1121, including proposed rule language, cost information, outreach efforts and materials, upcoming meetings, comments, the Go Zero incentive program, and other resources such as similar rulemakings by other agencies.

General Comment 6: Cost-Effectiveness Method

Many commenters asked for clarification on the cost-effectiveness method and analysis.

Response to General Comment 6:

The major components of the cost-effectiveness analysis included capital costs, emission reductions, discount rate, and equipment useful life. Staff revised the cost effectiveness write-up in the staff report and a detailed explanation be found in Chapter 2. Further, discussions and examples of the cost-effectiveness calculation can be found in the presentations for Working Group Meetings 2, 3, 4, 6, and 7⁽¹¹⁾.

According to the 2022 AQMP, the established cost-effectiveness screening threshold is considered neither a starting point for control costs, nor an absolute cap. During the rulemaking process, if a proposed emission standard has a cost-effectiveness that is above the threshold, staff will hold a public meeting to discuss other emission standards with a cost-effectiveness at or below the proposed screening threshold and/or compliance or implementation options to address an emission standard that is above the proposed screening threshold.

Staff recognized that zero-NOx emission limits are above the cost-effectiveness screening threshold for some categories. This is addressed with the ZEM manufacturer alternative compliance option that allows the sales of both zero-NOx emission appliances and NOx-emitting natural gas-fired appliances. Staff estimated the weighted average cost-effectiveness for implementing the manufacturer ZEM alternative compliance option, which is lower than the screening threshold using reasonable assumptions on consumer behavior, as explained in Chapter

⁽¹¹⁾ <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1111-and-rule-1121>

2. This alternative compliance option satisfies the direction set forth by the 2022 AQMP for cost-effectiveness analysis. The alternative will address affordability as well as the higher cost-effective categories as NOx-emitting units will be allowed for sale. Staff discussed the cost-effectiveness and the ZEM alternative compliance option in several public meetings including Working Group Meeting #8, the Public Consultation held on March 6, 2025, and Stationary Source Committee Meetings held in February 2025 and March 2025.

In addition to the cost-effectiveness analysis detailed in Chapter 2, staff has prepared a Socioeconomic Impact Assessment that will be made available at least 30 days prior to the Public Hearing. The analysis considers the range of probable costs or savings, impact to small businesses, and impact on employment and the regional economy.

General Comment 7: Emergency Replacement

Stakeholders commented on the challenge of emergency replacement with zero-NOx emission units and the feasibility of an emergency replacement provision that allows short-term rental units. Some commenters also mentioned that the permitting process for installation of zero-NOx emission units could cause delay and add to the concerns for emergency replacement.

Response to General Comment 7:

Staff agrees with commenters on the challenge of implementing the initially proposed emergency replacement provision and thus removed it from the proposed amended rules. Staff has revised the original rule proposal and added a new rule concept for PAR 1111 and PAR 1121 that was released on February 7, 2025. The new rule concept includes zero-NOx emission sales targets for manufacturers and will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Consumers will have the choice to purchase conventional NOx-emitting units or zero-NOx emission units when an appliance needs to be replaced at end of unit life, which can address the emergency replacement concern.

For owners and operators who choose to install zero-NOx emission units at emergency replacement, many homes are ready for common zero-NOx emission space heating units such as 240V heat pump HVAC systems that can replace existing conventional HVAC systems with no need for complex construction or electrical upgrade. For homes that are not as ready, the owners and operators have the option to install plug-in units (e.g., 120V heat pump water heaters or portable heat pumps) that require minimum additional installation work. For permanent installations meeting zero-NOx emission limits, the upcoming South Coast AQMD Go Zero incentive program along with many other local, state, and federal-level incentives provide financial help to offset some of the upfront costs.

To further expedite the process of installing efficient, clean, heat pumps, SB 282 (Wiener), the Heat Pump Act, was introduced on February 5, 2025, and proposes to require automated permitting for standard heat pump water heater and HVAC installations, streamlining the permitting process for a key climate technology. While this is only a proposal, it demonstrates action being taken to try to reduce hurdles and costs when transitioning to zero-NOx emission appliances.

General Comment 8: High-Altitudes

Stakeholders from mountain communities expressed concerns about zero-NOx emission technologies and considerations for high altitudes. Most of those comments were received on the original rule proposal before staff shared the new rule concept.

Response to General Comment 8:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Consumers will have the choice to purchase conventional NOx-emitting units when an appliance needs to be replaced at end of unit life. This manufacturer alternative compliance option will provide flexibility, including for high-altitude installations.

Staff understands that the mountain communities have colder climates compared with the other areas of South Coast AQMD; however, as discussed in Chapter 2, zero-NOx emission technologies have been adopted in many cold climate regions. 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. For example, 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. Heat pump technology that operates in cold climates can be found through the Northeast Efficiency Partnerships website⁽¹²⁾, which lists heat pumps that can operate down to negative 25 degrees Fahrenheit. Staff understands the importance of space heating in mountain communities. Gas furnaces regulated by Rule 1111 also require electricity to operate, and it would be detrimental to lose power for a prolonged period with or without the zero-emission standards. Chapter 2 provides some discussion on grid reliability, and further discussion can be found in Response to General Comment 3. Recent technology development includes various zero-NOx emission options that minimize building or electrical upgrades during installation and thus reduce the cost. An example is a portable heat pump that works in cold climates, can be installed by two individuals, and can be plugged into a wall outlet⁽¹³⁾. Staff recognizes that cooling by AC systems is less common and necessary at high altitudes. While heat pumps provide both heating and cooling, there is a higher incremental cost to replace only a furnace versus a furnace and an AC at the same time.

The original rule proposal provided alternative compliance options for high-altitude areas allowing delayed implementation for some categories. Staff later proposed a new concept for a manufacturer alternative compliance option that allows sales of both zero-NOx emission units and NOx-emitting natural gas-fired units. Further, based on stakeholder comments, PAR 1111 is retaining the exemption of downflow furnaces for high-altitude installation. Staff will re-assess the available technologies and costs before key rule implementation dates to assess if costs decrease as zero-NOx emission technologies gain more market adoption. For consumers who choose zero-NOx

⁽¹²⁾ <https://neep.org/heating-electrification/ccashp-specification-product-list>

⁽¹³⁾ <https://www.gradientcomfort.com/products/gradient-all-weather-120v-window-heat-pump>

emission options for clean air, staff acknowledges the higher upfront costs to retrofit some units; however, operating heat pumps can result in cost savings due to their high efficiency. Costs associated with retrofitting heat pumps can be offset using state and local rebates including South Coast AQMD's Go Zero incentive program is also expected to help reduce costs.

General Comment 9: EPCA

Commenters raised a concern regarding the Energy Policy and Conservation Act (EPCA) for the original rule concept. EPCA preempts State and local regulations concerning the energy use of many natural gas appliances.

Response to General Comment 9:

The new rule concept for Proposed Amended Rules 1111 and 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting units to be sold and installed for use. Consumers will have the choice to purchase conventional NOx-emitting units when an appliance needs to be replaced at end of unit life.

PAR 1111 and PAR 1121 are not preempted by EPCA. EPCA expressly preempts regulations concerning the energy efficiency or energy use of products for which a federal energy efficiency standard is in place. 42 U.S.C. § 6297(c). The Ninth Circuit Court of Appeals recently issued a “very narrow” holding in *California Restaurant Association v. City of Berkeley*, 89 F.4th 1094, 1101, 1106 (9th Cir. 2024), that EPCA preempted a local building code prohibiting the installation of natural gas infrastructure in new buildings. The court in *Berkeley* reasoned that the building code concerned the energy use of covered appliances by regulating the quantity of natural gas they could use. *Id.* at 1101-02. The court repeatedly emphasized that its holding was “limited” only to building codes that regulate the gas usage of certain consumer appliances. *Id.* at 1101, 1103, 1106. Indeed, as Judge Baker explained in his concurrence, “EPCA preemption is unlikely to reach a host of state and local regulations that incidentally impact ‘the quantity of natural gas’ directly consumed by a [covered] product at point of use.” *Id.* at 1117.

Further, in a recent federal district court ruling, a city gas ban was upheld ⁽¹⁴⁾. A judge in the Southern District of New York ruled that New York City's local gas ban in new buildings was not preempted by EPCA and therefore dismissed a challenge by unions, builders, and trade groups.

Unlike Berkeley and New York City's regulations, PARs 1111 and 1121 are health- and safety-based emission limits on appliances, issued consistent with Congress's direction to the states to attain the National Ambient Air Quality Standards in section 110 of the Clean Air Act by regulating emission sources other than mobile sources. The rules are not building codes, and they do not ban natural gas or otherwise regulate the amount of natural gas used by covered equipment. PARs 1111 and 1121 are technology- and fuel-neutral and are focused on achieving the maximum NOx emission reductions possible. Equipment that meets the NOx emission limits, regardless of the energy source, is permitted under PARs 1111 and 1121.

⁽¹⁴⁾ <https://www.publichealthlawcenter.org/sites/default/files/case/NYC-Plumbers-Memorandum-Opinion-and-Order.pdf?source=email>

General Comment 10: Need for Rule Amendments

Many comments were on the need for rule amendments, with divided opinions. Some commenters suggested to delay or cancel the rule development, while other commenters urged no delay for the adoption of PAR 1111 and PAR 1121. Most of the opposition comments were received on the previous rule concept prior to the new rule concept and many conflated the need for the rule amendment with global climate change instead of regional air quality.

Response to General Comment 10

PAR 1111 and PAR 1121 are needed to address local air quality by reducing NOx emissions. South Coast Air Basin has been classified as “extreme” nonattainment for the 2015 federal ozone standard. Ozone is formed when NOx and VOC react in the presence of sunlight. While both NOx and VOC contribute to ozone formation, the key to attaining the ozone standard in the Basin is to reduce NOx. Staff is required to consider emission reduction for all categories and set future effective dates to reduce emissions as early as feasible. NOx emissions need to be reduced by over 67 percent for all sources in order for this region to meet federal air quality standards by the 2037 deadline. PAR 1111 and PAR 1121 will cover over 10 million units emitting an estimated 6.8 tpd NOx emissions. Comparatively for NOx emission, by 2037, staff estimates all utilities emit 2 to 3 tpd, all refineries emit about 4 tpd, and all passenger vehicles emit about 7 tpd. PAR 1111 and PAR 1121 will also be considered as a control strategy to attain the 2012 annual PM 2.5 national ambient air quality standard because NOx are also precursors to PM 2.5 formation.

The health benefit from the rules will be significant. The 2022 AQMP Final Socioeconomic Report calculated incidences of avoided deaths per ton of NOx emission reductions (incidence per ton, or IPT). The IPT method provides a robust and reasonable estimate of the magnitude of the projected health benefits and is consistent with previous analyses conducted by South Coast AQMD. The IPT method is also utilized by the U.S. Environmental Protection Agency and the California Air Resources Board for their regulatory analyses. Staff is preparing a Draft Socioeconomic Impact Assessment (SIA) for PAR 1111 and PAR 1121 which will include a detailed description of the methods, procedures, and results of the health benefits analysis. The Draft SIA will be released for public review, at least 30 days before the public hearing for PAR 1111 and PAR 1121.

The South Coast AQMD standards cannot be less stringent than the state-wide standard, which will be set by CARB during its ongoing rulemaking process. CARB’s current rulemaking for potential statewide appliance standards would be focused on GHG emissions, while also quantifying the air quality co-benefits of reducing criteria pollutants such as smog-forming NOx, CO, and toxic air contaminant emissions.

General Comment 11: Need for Incentives

Many comments stated that incentive funding is needed to assist with the transition to zero-NOx emission appliances.

Response to General Comment 11

Staff agrees that incentives will help with the transition to zero-NOx emission appliances. There are many local and state incentive programs that can provide financial help to offset some of the upfront costs for implementing zero-NOx emission standards, including the upcoming South Coast

AQMD Go Zero incentive program. The Go Zero incentive program pilot phase will be launched in early 2025 and is estimated to expand by five-fold for future phases with current funding sources. Further, should the new rule concept be adopted, the ZEM alternative compliance mitigation fee will provide a future revenue stream to keep that program viable in the future.

APPENDIX B TO ATTACHMENT I: FINAL STAFF REPORT

APPENDIX B:

RESPONSE TO COMMENTS RECEIVED AFTER PUBLIC CONSULTATION MEETING (NEW RULE CONCEPT)

**Comments Received between February 7, 2025, and
March 20, 2025**

PREFACE

On February 7, 2025, staff shared the new rule concept, the ZEM alternative compliance option, in a presentation announced by email notification and posted on the South Coast AQMD webpage. Staff held Working Group Meeting #8 on February 13, 2025, and explained the new rule concept. Staff held the Public Consultation on March 6, 2025, to provide a summary of the third preliminary draft PAR 1111 and PAR 1121 rule language, which includes the ZEM alternative compliance option. Staff also updated the cost-effectiveness analysis. The public comment period for the new rule concept started after staff introduced the new concept on February 7, 2025, and ended two weeks after the Public Consultation meeting on March 20, 2025.

This appendix includes all verbal comments received at the Public Consultation Meeting and written comments received between February 7, 2025, and March 20, 2025.

About 200 people participated in the Public Consultation Meeting, which lasted over 4 hours, and 39 comments were expressed verbally. Many stakeholders expressed support to adopt the rules, some highlighted the need for more community outreach, and some raised concerns on the mitigation fees and sales target percentages, with many urging to increase the mitigation fees and sales targets and some suggesting to lower them.

There were 47 written comment letters received between February 7, 2025, and March 20, 2025, and they are listed in the table below.

Table Appendix B-1: Comments Received between February 7, 2025, and March 20, 2025

| Comment Letter | Commentor Name | Representing | Date Received |
|----------------|----------------------|--|---------------|
| 1 | Dorian Corliss | Self | 2/14/2025 |
| 2 | Jean Woo | Self | 2/15/2025 |
| 3 | N/A | Southern California Building Electrification Coalition | 2/19/2025 |
| 4 | Nancy Burke | Self | 2/27/2025 |
| 5 | Christopher Mercurio | Self | 2/26/2025 |
| 6 | HollyJo Reynolds | Self | 2/27/2025 |
| 7 | Marta Wall | Self | 2/26/2025 |
| 8 | Michael Howard | Self | 2/25/2025 |
| 9 | Pamela Buck | Self | 2/25/2025 |
| 10 | Shaun Uhls | Self | 2/25/2025 |
| 11 | Amir Baum | Self | 3/3/2025 |

| Comment Letter | Commentor Name | Representing | Date Received |
|----------------|---|---|---------------|
| 12 | Bud Reveley | Self | 3/3/2025 |
| 13 | Carmen Rawson | Self | 3/1/2025 |
| 14 | Carol Kerr | Self | 3/2/2025 |
| 15 | Melina Ershaghi | Self | 3/3/2025 |
| 16 | Rose Perez Jessen | Self | 3/3/2025 |
| 17 | Tristan Miller | Self | 3/3/2025 |
| 18 | Vicki Chamberlain | Self | 3/3/2025 |
| 19 | Nestande, Pradetto, Quintanilla, Trubee, and Harnik | City of Palm Desert | 3/4/2025 |
| 20 | Ruth Brissenden | Self | 3/5/2025 |
| 21 | Lenora DeMars | Self | 3/5/2025 |
| 22 | Kislev Joy Ang | Self | 3/5/2025 |
| 23 | James Elder | Self | 3/5/2025 |
| 24 | Brenda Dennstedt | Western Riverside Council of Governments | 3/6/2025 |
| 25 | Wynn Tucker | Green & Healthy Homes Initiative | 3/6/2025 |
| 26 | Vinod Ghai | Self | 3/7/2025 |
| 27 | Virginia Anders-Ellmore | Self | 3/11/2025 |
| 28 | John Anderson | Self | 3/12/2025 |
| 29 | Fernando Gaytan, Matt Vespa, Adrian Martinez, Lauren Weston, Wesley Reutimann, Gracya Mohabir, Christopher Chavez, Tony Sirna, Ruth Ann Norton, Kevin Ma, Charles Miller, Andrea Vidaurre, | Earthjustice, Acterra: Action for a Healthy Planet, Active San Gabriel Valley, California Environmental Voters, Coalition for Clean Air, Evergreen Action, Green and Healthy Home Initiative, | 3/12/2025 |

| Comment Letter | Commentor Name | Representing | Date Received |
|----------------|---|--|---------------|
| | Sven Thesen, Sean Armstrong, Jack Hanson, Kimberly Orbe, Anne Pernick | Green Sanctuary Unitarian Universalist Church of Palo Alto, Los Angeles Climate Reality Project, People's Collective for Environmental Justice, Project Green Home, Redwood Energy, Run On Climate, Sierra Club Angeles Chapter, Stand.earth, Vector Green Power, LLC) | |
| 30 | Chad Chantaracharat | Self | 3/17/2025 |
| 31 | David Kramer | Self | 3/17/2025 |
| 32 | Gary Dufour | Self | 3/17/2025 |
| 33 | James Flesher | Self | 3/17/2025 |
| 34 | Jamie Ross | Self | 3/12/2025 |
| 35 | Norma Bertagna | Self | 3/12/2025 |
| 36 | Mark Terry | City of Canyon Lake | 3/18/2025 |
| 37 | C.C. Song | Clean Power Alliance | 3/18/2025 |
| 38 | Mike Selna | Self | 3/19/2025 |
| 39 | Kenneth Ortiz | Self | 3/19/2025 |
| 40 | Lisa Baca | Self | 3/18/2025 |
| 41 | Mary Ann Railey | Self | 3/19/2025 |
| 42 | Marc D. Neufcourt | Rinnai America Corporation | 3/20/2025 |
| 43 | Nicole Colantonio | Air-Conditioning, Heating, and Refrigeration Institute (AHRI) | 3/20/2025 |
| 44 | James Phillips | Rheem Manufacturing Company | 3/20/2025 |
| 45 | Chris M. Forth, David Stephens | Johnson Controls | 3/20/2025 |

| Comment Letter | Commentor Name | Representing | Date Received |
|----------------|----------------|----------------------------|---------------|
| 46 | Randy Oshiro | Noritz America Corporation | 3/20/2025 |
| 47 | John Carser | Self | 3/6/2025 |
| 48 | David Price | Self | 3/13/2025 |

Comment PC-1: Mike (M&M Mechanical)

Request to retain the high-altitude exemption from 14 ng/J NO_x and zero-NO_x emission standards, especially for down-flow furnaces.

Response to Comment PC-1:

Staff agrees and will retain the downflow furnace exemption in PAR 1111 for high-altitude installation that was previously proposed to be removed.

Comment PC-2: Vanessa Villanueva (Resident of Colton)

Support Proposed Amended Rules 1111 and 1121.

Response to Comment PC-2:

Staff appreciates the support.

Comment PC-3: Adrian Martinez (Earthjustice)

Support for the proposed amended rules has increased since the new rule concept release. Increase sales targets for both rules. Recommend no further delay to the rules.

Response to Comment PC-3:

Staff appreciates the support and recognizes that there are many zero-emission units already in the market. Staff will continue to provide updates as needed to the Governing Board or Committee before major rule milestones. The ZEM alternative compliance option includes annual sales reporting requirements on the manufacturers, which will indicate if the target are being achieved and show market trends. Staff will assess zero-NO_x emission unit market adoption after each annual reporting cycle from the ZEM alternative compliance option; the annual reporting can be used to determine if any of the targets should be modified.

Comment PC-4: Matt Vespa (Earthjustice)

Concerns on mitigation fees. Connect the fees with the emissions mitigation. Increase fees for NO_x-emitting sales that are above the sales target.

Response to Comment PC-4:

The fees were set to strike a balance while incentivizing zero-emission units. Staff will continue to provide updates as needed to the Governing Board or Committee before major rule milestones. Staff will assess zero-NO_x emission unit market adoption after each annual reporting cycle from the ZEM alternative compliance option; the annual reporting can be used to determine if any fees should be increased.

Comment PC-5: Sydney (Resident)

Support Proposed Amended Rules 1111 and 1121. Concerns about the climate crisis and big polluters.

Response to Comment PC-5:

Staff appreciates the support.

Comment PC-6: Michael Corbett (Bradford White Corporation)

Asked for the basis for determining the proposed mitigation fees. Response to Comment PC-6:

The proposed fee is less than the amount that would be necessary to equalize the costs of zero-NOx emission appliances and NOx emitting appliances and thus would be less than the likely cost of fully mitigating the emissions from the NOx emitting appliances. Further, previous fees for Rule 1111 ranged between \$150 - \$450, and the fees for Rule 1121 were set a couple decades ago in a different emission reduction context that only considered mitigating two years-worth of NOx emissions. The current emission reduction need requires an incentive for zero-NOx emission units while also considering affordability concerns. Staff understands that environmental groups support a much higher fee increase such as over \$1,000 to bridge the emission gap and cost of NOx-emitting units versus zero-NOx emission units, and meanwhile, manufacturers and distributors oppose any fee. The fees in the new rule concept strike a balance while incentivizing zero-NOx emission units. Staff will continue to provide updates, if needed, to the Governing Board or Committee before major rule milestones. Staff will assess zero-NOx emission unit market adoption after each annual reporting cycle from the ZEM alternative compliance option; the annual reporting can be used to determine if any fees should be increased.

Comment PC-7: Al Sattler (Earthjustice)

Support Proposed Amended Rules 1111 and 1121. Recommend no further delay to the rules.

Response to Comment PC-7:

Staff appreciates the support.

Comment PC-8: Erica Pezold (Councilmember of Laguna Hills)

Issues with hybrid gas water heater and electrical supply. Freedom of choice is important.

Response to Comment PC-8:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

Comment PC-9: Fernando Gaytan (Earthjustice)

Update the sales targets and increase mitigation fees.

Response to Comment PC-9:

Staff appreciates the support. Please refer to Response to Comment PC-4.

Comment PC-10: Pete Marsh (Resident of Long Beach)

Increase mitigation fee, link fees to the degree of non-compliance, and increase sales targets. Heat pump technology is ready and the sales have been higher than NOx-emitting sales.

Response to Comment PC-10:

Staff recognizes that heat pump technology has been in the market for a long time, especially heat pumps for space heating and cooling, and that sales of heat pumps have

been higher than sales of NO_x-emitting furnaces. Please refer to Response to Comment PC-3 and Response to Comment PC-4.

Comment PC-11: Kris Murray (Association of California Cities, Orange County)

Asked for clarification on staff analysis on energy use and emission reductions. Incentives and rebates may not help with affordability for overburdened residents.

Response to Comment PC-11:

Staff analysis for project costs, fuel use, fuel switch cost, and emission reductions are detailed in Chapter 2 of the staff report.

Incentives provide funding for upfront costs, and other state, local, and utility incentives may be stacked together in many cases. South Coast AQMD's upcoming Go Zero program will also provide additional funding for overburdened communities which may be stacked with other incentives. For discussion on cost and affordability, please refer to Response to General Comment 2. For discussion on incentives, please refer to Response to General Comment 11.

Comment PC-12: Todd Titus (Director of Regulatory Affairs of Heating, Air-conditioning and Refrigeration Distributors International, HARDI)

Opposition of the mitigation fee for manufacturers since it will increase the product costs for the end user. HARDI supports the new rule concept to address consumer choice, but does not support the mitigation fee.

Response to Comment PC-12:

Please refer to Response to Comment PC-6.

Comment PC-13: Bob Helbing (AirTro)

PAR 1111 and PAR 1121 will not reduce ozone in the South Coast AQMD.

Response to Comment PC-13:

For discussion on the need for rule amendment, please refer to Response to General Comment 10. For discussion on NO_x and ozone, please refer to the 2022 Air Quality Management Plan.

Comment PC-14: Jed Holtzman (RMI)

Suggest increasing the mitigation fee and basing it on cost-effectiveness screening threshold.

Response to Comment PC-14:

Please refer to Response to Comment PC-4.

Comment PC-15: Joe Hower (Resident)

Rental properties have central furnaces that would make heat pumps a reasonable retrofit. Flexibility in the rule is needed for other installations. Definition of heat input in PAR 1121 should be revised.

Response to Comment PC-15:

Staff agrees with commenter on the need of flexibility. Please see Response to General Comment 1 for consumer choice and Response to General Comment 4 for zero-NOx emission technology readiness. Definition of heat input has been removed from PAR 1121 because it is not used in the rule language.

Comment PC-16: Xico Manarolla (Clean Power Alliance)

Expressed support for Proposed Amended Rules 1111 and 1121 and the increased outreach. Asked for clarification for PAR 1111 not expanding to commercial furnaces and the future funding outlook for the Go Zero program.

Response to Comment PC-16:

Staff appreciates the support. Furnaces sized 175,000 Btu/hr and above will be addressed in a future rule development process with further outreach efforts. There is a potential for five-fold increase in funding for the Go Zero program. If PARs 1111 and 1121 are adopted with the proposed mitigation fee options, funds collected through the ZEM alternative mitigation option will provide a revenue stream for future Go Zero funding.

Comment PC-17: Jessi Davis (SoCal Gas)

The ZEM alternative compliance option with mitigation fee may not be cost effective. Concern on customer affordability.

Response to Comment PC-17:

Chapter 2 of this staff report provides analysis on cost-effectiveness for implementing the ZEM alternative compliance option, which shows the weighed cost-effectiveness by ZEM alternative compliance option that is estimated to be lower than the screening threshold, using reasonable assumptions on consumer behavior. A mitigation fee will be required to sell NOx-emitting space and water heating appliances and will not add to the cost of zero-NOx emission units. Further, mitigation fees collected will fund the Go Zero incentive program and the monies will go back to the market for consumers purchasing zero-NOx emission units to lower the costs. The proposed mitigation fee for the units sold under the target only represent around one percent of the total costs of the units, which will not have a significant impact on the affordability of the NOx-emitting appliances. The proposed mitigation fees are designed to incentivize the transition to zero-NOx emission appliances by making the NOx-emitting appliances a little more costly while collecting fees to fund the Go Zero incentive program to make the zero-NOx emission appliances more affordable. For cost and affordability, please refer to Response to General Comment 2.

Comment PC-18: Michael Rochmes (LA Climate Reality)

The space and water heating market is primed for growth and on the path to increase quickly, targets should be set at higher levels.

Response to Comment PC-18:

Please refer to Response to Comment PC-3.

Comment PC-19: Nihal Shrinath (Sierra Club)

Strengthen rules to correlate mitigation fees with emissions reductions foregone.

Response to Comment PC-19:

Please refer to Response to Comment PC-4.

Comment PC-20: Jennifer Cardenas (Fontana Resident)

Support for Proposed Amended Rules 1111 and 1121. Suggest an increase in the mitigation fee.

Response to Comment PC-20:

Staff appreciates the support. Please refer to Response to Comment PC-4.

Comment PC-21: Dylan Plummer (Sierra Club)

Support Proposed Amended Rules 1111 and 1121. New rule proposals result in less emissions reductions. Increase mitigation fee to reflect the emissions reductions foregone and increase sales target. There is growing support for PARs 1111 and 1121, including from LA City Council.

Response to Comment PC-21:

Staff appreciates the support. Please refer to Response to Comment PC-3 and Response to Comment PC-4.

Comment PC-22: Peter Whittingham (LA BizFed)

Suggested to exempt installations from zero-NOx emission standards that has building permits under review before the date of rule adoption. Suggest staff analysis consider large old apartment buildings, for example using multifamily data provided by LA BizFed for cost-effectiveness.

Response to Comment PC-22:

PAR 1111 and PAR 1121 provide an exemption of zero-NOx emission standards for installations in new buildings with building permit issued prior to [Date of Adoption], which is an enforceable allowance. Permits under review likely can and will change and staff believes it is feasible to include zero-NOx emission appliances in the plan or revised plan. Staff recommends maintaining the current allowance for buildings with permits issued.

Staff's analysis on cost-effectiveness for multifamily was based on real-world cost data as explained in Chapter 2 of the staff report. For exceptional cases when costs are high, consumers may choose to install NOx-emitting units as allowed by the ZEM alternative compliance option. Finally, many large apartment buildings use boilers and large water heaters that are not subject to PAR 1111 and PAR 1121. Some multifamily data shared by LA BizFed are for replacement of units with capability beyond PAR 1111 and PAR 1121 applicability.

Comment PC-23: Ayn Craciun (Climate Action Campaign)

Support Proposed Amended Rules 1111 and 1121. Orange County resident with zero-NOx emission appliances.

Response to Comment PC-23:

Staff appreciates the support.

Comment PC-24: David Martinez (Climate Action Campaign)

Increase mitigation fee and sales targets.

Response to Comment PC-24:

Please refer to Response to Comment PC-3 and Response to Comment PC-4.

Comment PC-25: Marven Norman (CCA EJ)

Support Proposed Amended Rules 1111 and 1121. San Bernardino resident. There are many opportunities to address cost issues.

Response to Comment PC-25:

Staff appreciates the support.

Comment PC-26: Carmen Rawson (Resident in Newport Beach)

Limited space for heat pump retrofits in resident's current triplex. SCE infrastructure is insufficient and costs to update may be passed on to residents.

Response to Comment PC-26:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on technology readiness, please refer to Response to General Comment 4.

Comment PC-27: Lisa Hart (LA Neighborhood Council Sustainability Alliance)

Support Proposed Amended Rules 1111 and 1121.

Response to Comment PC-27:

Staff appreciates the support.

Comment PC-28: James Elder (Resident of Huntington Beach)

Support new concept in Proposed Amended Rules 1111 and 1121, support previous rule concept as well.

Response to Comment PC-27:

Staff appreciates the support.

Comment PC-29: Crystal Miles (Councilwoman in Orange County)

Concerns about mitigation fees as a punitive measure and costs transferred to the consumer. Concerns on townhomes and duplexes replacement on equipment turnover. Cut emissions at source of electricity generation. Gas is a more reliable energy source.

Response to Comment PC-27:

Please refer to Response to Comment PC-6.

Staff analysis included assessment on replacement in multifamily buildings which include townhomes and duplexes. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold

and installed for use. Both electricity and natural gas will continue to be the energy sources for space and water heating. The South Coast AQMD has multiple rules and regulations (e.g., Rule 1134, Rule 1135, and Regulation XX) for emission reduction at sources of electricity generation. Energy generation at our local energy generating facilities total around 2 – 3 tpd of NO_x, while residential-sized building appliances account for almost 7 tpd.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on technology readiness, please refer to Response to General Comment 4.

Comment PC-30: David Stephens (Johnson Controls)

Oppose the proposed amended rules as written. Need more time to fully comprehend the rule proposal.

Response to Comment PC-28:

Staff has been working with stakeholders for almost two years. Rule amendments are an iterative process with staff making changes based on discussion with stakeholders and feedback received. The concept in the current version of proposed amended rules is a response to stakeholder feedback and was shared in early February 2025. The concept was also discussed in individual meetings with each manufacturer in addition to public meetings. Staff will monitor rule implementation which includes assessing the zero-NO_x emission unit market adoption and mitigation fee impact for each annual reporting cycle after rule adoption by the ZEM alternative compliance option.

Comment PC-31: Kory Griggs (Indoor Weather)

Retain the high-altitude exemption from 14 ng/J NO_x and zero-NO_x emission standards for down-flow furnaces. Proposed mitigation fee is too high. Regulate propane so installers would not circumvent the rule for natural gas furnace that can installed for propane use.

Response to Comment PC-29:

Staff is proposing to retain the downflow furnace exemption in PAR 1111 for high-altitude installation that was previously proposed to be removed.

Please refer to Response to Comment PC-6 regarding the proposed mitigation fee.

PAR 1111 has a provision requiring manufacturers to report the sales of propane conversion kits for cases where natural gas furnaces would be installed for propane use. In addition, emissions from propane combustions are identified and accounted for in the 2022 AQMP. Staff will review the number of propane conversion kits being reported as sold into the South Coast AQMD in comparison to estimated households that rely on propane for fuel to consider if the exemption is being abused and explore regulatory mechanisms to address potential rule circumvention.

Comment PC-32: Chris Chavez (Coalition for Clean Air)

Need to pursue more emissions reductions. Support previous rule concept.

Response to Comment PC-30:

Staff will continue to provide updates as needed to the Governing Board or Committee before major rule milestones. The ZEM alternative compliance option includes annual sales reporting requirements on the manufacturers, which will indicate if the target are being achieved and show market trends. Staff will assess zero-NOx emission unit market adoption after each annual reporting cycle from the ZEM alternative compliance option; the annual reporting can be used to determine if any of the targets should be strengthened.

Comment PC-33: Saeedeh (Government of British Columbia, Ministry of Energy and Climate Solutions)

Asked for clarification on zero-NOx emission technologies and high-altitude installations. Concern on mitigation fee being passed down to consumers.

Response to Comment PC-31:

Please see Response to General Comment 4 for zero-NOx emission technology readiness and Response to General Comment 8 for high-altitude.

The proposed mitigation fees are set to strike a balance while incentivizing zero-NOx emission units. The mitigation fee collected will fund the Go Zero incentive program and the monies will go back to the market as incentives to consumers installing zero-NOx emission units. Staff will assess zero-NOx emission unit market adoption after each annual reporting cycle from the ZEM alternative compliance option. The annual reporting can be used to determine if the fees should be adjusted.

Comment PC-34: Anne Pernick (Stand.earth)

Support Proposed Amended Rules 1111 and 1121. Increase mitigation fee and sales target percentage.

Response to Comment PC-32:

Staff appreciates the support. Please refer to Response to Comment PC-3 and Response to Comment PC-4.

Comment PC-35: Catalina (Resident of Los Angeles County)

Support Proposed Amended Rules 1111 and 1121. Support Public Hearing in May.

Response to Comment PC-33:

Staff appreciates the support.

Comment PC-36: Joe Citizen (Resident of Huntington Beach)

Support Proposed Amended Rules 1111 and 1121. Cost for heat pump installation for individual is cheaper than the costs in the presentation.

Response to Comment PC-34:

Staff appreciates the support.

Comment PC-37: Jennifer Cardenas (Sierra Club)

Support Proposed Amended Rules 1111 and 1121. Support previous rule concept.

Response to Comment PC-35:

Staff appreciates the support.

Comment PC-38: Angela Oakley (Resident in Claremont)

Health impacts should be included in the cost-effectiveness calculation.

Response to Comment PC-36:

Health impacts are considered in cost-effectiveness evaluation by comparing the calculated cost-effectiveness with the 2022 AQMP cost-effectiveness screening threshold, which is health benefit based. In addition, health impacts are analyzed in socioeconomic impact assessment to be released 30 days prior to the public hearing for the rules.

Comment PC-39: Bill LaMarr (California Alliance of Small Business Associations)

Concerns on manufacturers not meeting sales targets and that consumer cannot afford zero-NOx emission units or use electric units during power outage.

Response to Comment PC-37:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. The sales targets are not a hard cap. Manufacturers may sell more NOx-emitting units with a higher mitigation fee for those units beyond the targets.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3. Sustainable electricity supply is essential for both zero-NOx emission and NOx-emitting units. Many natural gas appliances also rely on electricity to operate. For example, all gas-fired fan-type central furnaces currently regulated by Rule 1111 require electricity to operate and therefore cannot operate during a power outage.

COMMENT LETTER #1: DORIAN CORLISS

From: C Corliss <[REDACTED]>
Sent: Friday, February 14, 2025 7:18 AM
To: Heather Farr <[REDACTED]>; Yanrong Zhu <[REDACTED]>
Subject: [EXTERNAL] Request for Exemption from Proposed Rule 1111 for Solar-Invested Homeowners

Ms. Farr,

I hope this message finds you well. I'm reaching out regarding the proposed updates to Rule 1111 and would like to present a case for a limited exemption on behalf of homeowners who have made significant investments in solar energy.

As a homeowner who has installed a solar system that supplies over 75% of my annual power consumption, I've committed considerable resources toward renewable energy and reducing my environmental footprint. The requirement to replace residential furnaces under the new rule poses an additional financial burden that could impede the return on investment from my solar installation.

1-1

Proposal for Exemption:

- 15-Year Exemption for homeowners whose solar installations provide more than 75% of their annual energy needs from the furnace replacement mandate under Rule 1111.

Justifications:

1. Financial Recovery of Solar Investment:
 - The upfront costs of installing substantial solar systems are significant. An exemption period allows homeowners to recoup these investments before incurring additional expenses associated with furnace replacement.
2. Alignment with Environmental Goals:
 - By relying predominantly on solar energy, these homeowners have already significantly reduced their reliance on fossil fuels, contributing to lower overall emissions in line with the district's air quality objectives.
3. Encouraging Renewable Adoption:
 - Granting exemptions serves as an incentive for more residents to adopt solar energy solutions, amplifying environmental benefits across our community.
4. Minimal Furnace Usage:
 - With the majority of energy needs met by solar power, the usage—and therefore emissions—of existing furnaces is considerably less compared to average households.

Conclusion:

I genuinely believe that offering this exemption balances the district's mission to improve air quality with the need to support homeowners who have proactively invested in sustainable energy solutions. It acknowledges our efforts and encourages continued participation in renewable initiatives.

I welcome the opportunity to discuss this proposal further or provide any additional information that might be helpful.

Thank you for your time and thoughtful consideration.

Sincerely,

Dorian Cortiss



Murrieta CA 92563

Response to Comment Letter #1

Response to Comment 1-1:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For consumers interested in zero-NOx emission units, there are opportunities to apply various incentives for the upfront capital cost, and operational cost savings are expected in many cases. For further discussion on cost, please refer to Response to General Comment 2.

For discussion on the need for rule amendment, please refer to Response to General Comment 10.

COMMENT LETTER #2: JEAN WOO

From: Jean Woo <[REDACTED]>
Sent: Saturday, February 15, 2025 4:02 PM
To: Jennifer Vinh <[REDACTED]>
Subject: [EXTERNAL] Support proposed Rule 1111 and 1121

Hello,

My name is Jean Woo and I live in Berkeley, CA. As a firm supporter of decarbonization and as a person with asthma, I request the Air Quality Board support restricting airborne pollutants as in Proposed Rule 1111 and 1121. We have seen massive wildfires and industry flaring from refineries pollute the air for entire regions and extended periods of time. Let's get homes and businesses to transition to heat pumps, heat pump water heaters, electric vehicles and induction stoves. Given the outsized utility profits, they should put an amount equal to that given to shareholders, into a Resilience and Climate Fund to help fund low-cost loans and on-bill financing to assist customers make these changes. This in addition to federal rebates and incentives. We needed to make these changes years ago, not hold over gas appliances when the homes are or renovated, or when the older one dies.

Please support Proposed Rules 1111 and 1121 , and all further rules/regulations to decarbonize and electrify homes, businesses, hospitals, schools and universities!

Sincerely,

Jean

Jean Woo
[REDACTED]
Berkeley, CA 94709

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2-1

Response to Comment Letter #2*Response to Comment 2-1:*

Staff appreciates the support for the rules. Efforts for building appliances rules and the Go Zero incentive program aim to reduce emissions, wherever feasible, and further incentivize the market for zero-NOx emission technologies.

COMMENT LETTER #3: SOUTHERN CALIFORNIA BUILDING ELECTRIFICATION COALITION

To: South Coast AQMD

From: Southern California Building Electrification Coalition

Date: 2/1/2025

Re: Proposed Amended Rules 1111 and 1121 Improvements

We must convey our profound disappointment regarding the delays in passing the proposed rules 1111 and 1121. Amendments to Rules 1111 and 1121 are essential to reducing criteria pollution in the region and achieving greater deployment of zero-NOx furnaces and water heaters. **We urge you to stay the course and adopt these long overdue rule amendments at your May Governing Board meeting without any further delay.**

3-1

It is particularly disheartening, however, to witness opposition continue their calculated 11th hour effort to further weaken these essential regulations during a time when we can least afford to backtrack on our commitment to emissions reduction. The current rule proposals already reflect significant concessions that ultimately bring the emissions reductions from these rules below the commitments made in the 2022 AQMP to reduce pollution from these sources. We cannot afford to weaken these amendments any further.

Just this past July, the Board Chair championed these amendments as a pivotal component of our emissions reduction strategy. Unfortunately, due to the regulatory offramps being offered and extended timelines, what was once heralded as the most impactful rule in three decades for NOx emissions—projecting a reduction of 10 tons per day—has already been diminished by 40%. We urge you to resist industry special interests calling for even greater concessions.

We believe this rule can still maintain its strength with targeted improvements to modestly accelerate compliance timelines and establish more robust mitigation fees. Our air quality and our community's health depend on it.

There are two areas of improvement to the current rule proposals that will ensure greater emissions reductions and increased regulatory compliance, and we ask Board Members to request these commonsense alterations.

- a. **Mitigation Fees Must be Higher and Reflect Emissions Impact:** A mitigation fee should be tethered to the emissions impacts of the targeted activity, however the current proposal includes fees that are far too small to mitigate impacts – \$50–100 per unit sold. Applying the District's screening threshold value for NOx emissions, the cost of the lifetime NOx emissions from a new gas water heater is roughly \$865, and roughly \$3,035 for a new gas furnace.¹ While the District may not want the mitigation fee to reflect the full cost of the of the resulting pollution, a mitigation fee that more closely reflects the cost of the resulting emissions is both consistent with

3-2

¹ Using baseline daily emissions, estimated number of units, and useful life figures from the [Preliminary Draft Staff Report](#) on the rules (pgs. 2-18, 2-20, and 5-2 [Table 5-1]).

the purpose of a mitigation fee and provides more funds to support deployment of heat pumps for low- and moderate-income individuals—thus helping to ensure equitable and affordable implementation of the rules.

3-2

- b. **Stronger Manufacturer Requirements:** The final rule should accelerate compliance percentage targets for manufacturers. We ask that staff look at more ambitious percentages across the board so that more zero-emission appliances are made available sooner, which will help bring down unit costs. For example, the proposal could skip the initial 70% NOx-emitting sales cap and move directly to the 50% NOx-emitting sales target for both space and water heating in 2027. In the case of space heating, because baseline sales of NOx emitting units in 2027 will already be at 64 percent according to an RMI analysis, a 70 percent cap will not accomplish anything. A 50 percent target is necessary to achieve meaningful progress and continue to move the market toward zero-emission options. In the case of water heating, because zero-emission units have more predictable installation costs and are available in 120V models to avoid the potential need for electric upgrades, these units can be readily deployed with the right regulatory signal.

3-3

With these two adjustments, we support the current structure of the rule and believe it offers the greatest flexibility while still having the potential to achieve significant NOx reductions. It is imperative that we finalize these rules, however. Passing them in May will send a strong message that the SCAQMD is committed to meeting its NOx reduction obligations and will send a strong signal to encourage the market; that the South Coast is ready for zero-pollution appliances.

Response to Comment Letter #3

Response to Comment 3-1:

Staff appreciates the support.

Response to Comment 3-2:

Please refer to Response to Comment PC-4.

Response to Comment 3-3:

Please refer to Response to Comment PC-3

COMMENT LETTER #4: NANCY BURKE

From: nancy burke <[REDACTED]>
Sent: Thursday, February 27, 2025 3:46 PM
To: Jennifer Vinh <[REDACTED]>
Subject: [EXTERNAL] OPPOSED to Proposed Amendment Rules 1111 and 1121 REQUIRING ALL ELECTRIC APPLIANCES AND HEATERS

Please do not pass these proposals 1111 and 1121. I am opposed to your 1111 and 1121 Proposals to outlaw gas water heaters, furnaces and gas stoves. Without gas, during the constant Inland Empire power shutoffs, we would not be able to take a warm shower, warm food, or heat the house. Much less drive an electric car. The Inland Empire now shuts off electricity every time the wind blows. My gas bill is \$50. My electric bill is \$400 to \$790, keeping my 1500 sq. foot house at 82 degrees

For you to tell us what to do and how to do it is unacceptable. What happened to freedom of choice?

The cost to change from gas to electric is out of reach for both young and old homeowners. I don't want an electric furnace, water heater or stove. Didn't your mom teach you not to put all your marbles in one basket?

Please do not pass this proposal. I already have to choose between electricity and food.

Sincerely, Nancy Lamb

Jurupa Valley CA

The Old people home was without power for a week. No hot water, no cooking, no elevators.....

4-1

Response to Comment Letter #4*Response to Comment 4-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

COMMENT LETTER# 5: CHRISTOPHER MERCURIO**Jennifer Vinh**

From: [REDACTED]
Sent: Wednesday, February 26, 2025 3:14 PM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name: Christopher Mercurio****Email:** [REDACTED]**Phone:** [REDACTED]**Message:**

I am against restricting use of natural gas appliances. The numbers positioned as ‘preventable deaths’ for NOx emissions is based on pseudo-science. This will only add more costs to already an expensive living area, and has little to zero benefit. I like my water and air hot, there’s a reason they call it ‘cool heat’! This is an abuse of power and must be stopped!

5-1

Response to Comment Letter #5*Response to Comment 5-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the need for rule amendment, please refer to Response to General Comment 10.

COMMENT LETTER #6: HOLLYJO REYNOLDS**Jennifer Vinh**

From: [REDACTED]
Sent: Thursday, February 27, 2025 10:43 AM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name:** HollyJo Reynolds**Email:** [REDACTED]**Phone:** [REDACTED]**Message:**

While converting to electric is a wonderful long term goal, have you considered that many older mobile homes, even with a panel upgrade cannot support full electrification? My sister resides in a 1974 mobile home and I have investigated converting her to all electric. One problem is there are no companies performing electrification in mobile homes claiming there are no mobile home approved appliances. We had Electrify America out and was told there are not electric tankless water heaters available for older mobile homes. What about costs involved in updating the electrical system? It is costing \$18,000 to upgrade the meter, pedestal and one of two electrical panels in my sister's mobile to accommodate an electric vehicle charger! There are some rebates and incentives but most senior citizens on fixed incomes

6-1

cannot afford these costs. And most are unaware of rebates and incentives. We all want a clean environment, but must be realistic in what citizens can afford and our electrical grid can support!

6-1

Response to Comment Letter #6*Response to Comment 6-1:*

Staff appreciates the comments and understands there are unique technical challenges for upgrading space and water heating appliance in mobile homes. PAR 1111 and PAR 1121 have been amended to remove the zero-NOx emission standard for space and water heating appliance installations in existing mobile homes. PARs 1111 and 1121 will require appliances in mobile homes to transition to zero-NOx emission appliances after January 1, 2027, but only when the *mobile home itself* is replaced. The proposed rules also includes exemption for any (new or existing) mobile home located in a master-metered park due to the limited electricity available for each mobile home.

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For further discussion on cost, please refer to Response to General Comment 2.

COMMENT LETTER #7: MARTA WALL**Jennifer Vinh**

From: [REDACTED]
Sent: Wednesday, February 26, 2025 1:28 PM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name:** Marta Wall**Email:** [REDACTED]**Phone:** [REDACTED]**Message:**

I live in Hesperia, CA in an ALL ELECTRIC MOBILEHOME, and my MONTHLY ELECTRIC BILL FOR 2 PEOPLE, 1097 SQ FT. HOME IS OVER 450.00 A MONTH!

7-1

Response to Comment Letter #7*Response to Comment 7-1:*

An all-electric, zero-NOx mobile home complies with all the future provisions of PARs 1111 and 1121. Once your existing appliances reach the end of the useful life and need replacement, consider installing energy efficient heat pump technologies for space and water heating. If the electric appliances in your mobile home rely on electric resistance, transitioning to heat pump technologies could save on utility bills.

For further discussion on cost, please refer to Response to General Comment 2.

COMMENT LETTER #8: MICHAEL HOWARD**Jennifer Vinh**

From: [REDACTED]
Sent: Tuesday, February 25, 2025 5:54 PM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name: Michael Howard****Email:** [REDACTED]**Phone:** [REDACTED]**Message:**

the Rule change Rules 1111 and 1121 Fact Sheet (English) is illegal voided by President Trumps banning of the Green New Deal and supporting regulations. There is no emergency requiring the rule notice all Republican representative state wide and congressional asking for an injunctive action

8-1

Response to Comment Letter #8*Response to Comment 8-1:*

These rules are being proposed to address regional air quality. The South Coast AQMD has the worst air quality in the nation and the NOx emission reductions that can be achieved from these rule amendments will improve the air quality for people who live and work in our region. With regard to the President's Executive Orders, those orders do not prohibit local rules such as PAR 1111 and PAR 1121.

For discussion on the need for rule amendment, please refer to Response to General Comment 10.

COMMENT LETTER #9: PAMELA BUCK**Jennifer Vinh**

From: [REDACTED]
Sent: Tuesday, February 25, 2025 4:55 PM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name: Pamela Buck****Email:** [REDACTED]**Phone:** [REDACTED]**Message:**

In response to the proposed ban on gas-powered furnaces and water heaters, to be replaced by electric-powered furnaces and water heaters, where does the AQMD propose California is going to find sufficient electricity to power these as well as all of the electric cars that will also need to draw on our poor electrical supply? Additionally, electric furnaces are very expensive to operate and I would surmise that the same is true for electric water heaters. This proposal makes no sense at all. What are the proposals for citizens when massive power failures happen?

9-1

Response to Comment Letter #9*Response to Comment 9-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on technology readiness, please refer to Response to General Comment 4.

COMMENT LETTER #10: SHAUN UHLS**Jennifer Vinh**

From: [REDACTED]
Sent: Tuesday, February 25, 2025 4:31 PM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name: Shaun Uhls****Email:** [REDACTED]**Phone:****Message:**

Why should we switch to all electric for every appliance. We already have black outs and you're turning off power for days on end because it's a "safety issue" during fires. So everyone switches to electric appliances and when power is shut off then nobody can cook, have heat, or hot water for bathing. Not to mention how much everyone's bill is going to be. Gas is a cheaper utility. My average gas bill is \$35 per month while Edison is \$400 a month. Now I'm going to pay over \$1,000 in the summer for Edison. No thank you. Do not make this a new requirement.

10-1

Response to Comment Letter #10*Response to Comment 10-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on cost, including utility costs, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on technology readiness, please refer to Response to General Comment 4.

COMMENT LETTER# 11: AMIR BAUM**Jennifer Vinh**

From: Amir Baum <[REDACTED]>
Sent: Monday, March 3, 2025 4:25 PM
To: Jennifer Vinh
Subject: [EXTERNAL] Letter in Urgent Support of Rules 1111 1121

Dear Ms. Vinh,

I am writing in strong support of the proposed amendments to Rules 1111 and 1121. I applaud AQMD's work to reduce NOX emissions, thereby reducing new asthma cases, hospital visits and premature deaths. Our air quality has vastly improved because of your historic efforts, but we still have some of the worst air quality in the nation.

In the long run, these rules will save money and reduce emissions that impact our environment and our health. There is evidence to back this up, and the urgency for action cannot be greater when action at the federal level is falling apart to protect our air and our environment. Therefore it is contingent on you as an elected SCAQMD board member to listen to the community concerns and to take them into consideration to place health over profit to make the right decisions for our health and safety.

Thank you for your efforts in providing better living conditions in our region.

Sincerely,
Amir Baum

11-1

Response to Comment Letter #11***Response to Comment 11-1:***

Staff appreciates the support.

COMMENT LETTER #12: BUD REVELEY**Jennifer Vinh**

From: Bud Reveley <[REDACTED]>
Sent: Monday, March 3, 2025 1:51 PM
To: Jennifer Vinh
Subject: [EXTERNAL] Natural gas use

As a Southern California's homeowner and resident I strongly oppose the SCAQMD proposed amendments to Rule 1111 (Space Heating) and Rule 1121 (Water Heating) as these rules will force me to remodel my home at great cost causing a hardship to my family.

12-1

Response to Comment Letter #12*Response to Comment 12-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on technology readiness, please refer to Response to General Comment 4.

COMMENT LETTER #13: CARMEN RAWSON**Jennifer Vinh**

From: Carmen Rawson <[REDACTED]>
Sent: Saturday, March 1, 2025 2:28 PM
To: Clerk of Board; Jennifer Vinh
Subject: [EXTERNAL] Public Comment - Opposition to SCAQMD Proposed Amendments to Rules 1111 and 1121

To Whom It May Concern,

13-1

As a Southern California's homeowner and resident **I strongly oppose the SCAQMD proposed amendments to Rule 1111 (Space Heating) and Rule 1121 (Water Heating)** as these rules will force me to remodel my home at great cost causing a hardship to my family.

These amendments basically eliminate the use of natural gas furnaces and water heaters not only for new buildings but also for existing buildings.

For new buildings the installation of an electric heat pump (for space heating) and an electric water heater could be accommodated as part of the new building's design and construction. However, to make such a change for existing buildings can become a severe/insurmountable financial hardship, especially for multi units/condos buildings with individual space and water heating systems for each unit.

Furthermore, in some dense residential areas there may be not enough space between buildings to install the heat pump system's outdoor units. And most existing units do not have a 240V electrical outlet where the current gas water heaters are installed.

This burden will affect not only homeowners but also the many renters we have in Southern California as, upon failure of the existing gas furnaces and/or existing gas water heaters, landlords will have to obtain city permits and hire contractors to modify their buildings to replace the existing gas units with electric units. This takes a lot of time and, during this process, renters will not have a way to heat the unit or the water in the rental unit.

Even further, our electrical grid is already strain so converting residential appliances from natural gas to electric units will further strain the grid. We already have planned/mandated power outages so additional electrical consumption/demand will further deteriorate the grid reliability. Additionally, the operating cost of electrical appliances is much higher than the operating cost of natural gas appliances so this will be a significant burden for renters - especially for low income renters who may be displaced when paying for electricity becomes out of their reach.

Water heaters and furnaces are not luxury items; they are essential. The proposed amendments will further worsen the housing affordability crisis we have in our state.

I am in support of efforts to improve our air quality but the proposed amendments are not the answer. SCAQMD's heart may be in the right place but the focus is definitely in the wrong place. Rather than banning natural gas furnaces and water heaters the focus should be in improvements and incentives - working with manufacturers to further reduce the NOx emissions of their products.

Where the focus should be:

Wildfires produce nitrogen oxides (NOx) and are a very substantial contributor to air pollution with NOx being considered one of the main pollutants emitted from large-scale wildfires alongside particulate matter and carbon monoxide; essentially, burning biomass during a wildfire releases nitrogen oxides into the atmosphere. Wildfires are a main contributor to global warming.

Rather than focusing on banning natural gas appliances the main focus should be in preventing wildfires by developing better early/advance detection/monitoring systems that would result in a faster wildfire fighting response potentially limiting the size of the wildfire and its related NOx emissions.

Additionally, the focus should be working with So Cal Edison to improve their distribution system so sparks do not start wildfires, etc.

In conclusion, I am requesting herein for SCAQMD to not approve/implement the proposed amendments to Rule 1111 and Rule 1121.

Sincerely,
Carmen Rawson

13-1

Response to Comment Letter #13

Response to Comment 13-1:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on technology readiness, please refer to Response to General Comment 4.

For discussion on the cost-effectiveness analysis, please refer to Response to General Comment 6.

For discussion on emergency replacement, please refer to Response to General Comment 7.

For discussion on the need for rule amendment, please refer to Response to General Comment 10.

Regarding the air impact of wildfires, wildfires are exceptional events that adversely affect region air quality. Wildfire emissions are a concern to South Coast AQMD but are outside the scope of PAR 1111 and PAR 1121. The primary concern is particulate matter emissions (PM2.5 and PM10). Rule development for Proposed Rule 444.1 – PM Reductions from Forest Waste for Wildfire Prevention will be initiated, information on that rulemaking will be posted here: <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-404-and-444-1>. South Coast AQMD is supporting ongoing federal, state, and local efforts in response to the recent devastating Los Angeles wildfires. More information for wildfire response can be found here: <https://www.aqmd.gov/2025-wildfire-response>.

COMMENT LETTER #14: CAROL KERR**Jennifer Vinh**

From: Carol Kerr <[REDACTED]>
Sent: Sunday, March 2, 2025 9:29 AM
To: Jennifer Vinh
Subject: [EXTERNAL] Oppose SCAQMD Amendments to Rule 1111 & 1121

14-1

As a Southern California homeowner and resident, I strongly oppose the SCAQMD proposed amendments to Rule 1111 (Space Heating) and Rule 1121 (Water Heating) as these rules will force me to remodel my home at great cost causing a hardship to my family.

These amendments basically eliminate the use of natural gas furnaces and water heaters not only for new buildings but also for existing buildings.

For new buildings the installation of an electric heat pump (for space heating) and an electric water heater could be accommodated as part of the new building's design and construction. However, to make such a change for existing buildings can become a severe/ insurmountable financial hardship, especially for multi units/ condos buildings with individual space and water heating systems for each unit.

Furthermore, in some dense residential areas there may be not enough space between buildings to install the heat pump system's outdoor units. And most existing units do not have a 240V electrical outlet where the current gas water heaters are installed.

This burden will affect not only homeowners but also the many renters we have in Southern California as, upon failure of the existing gas furnaces and/or existing gas water heaters, landlords will have to obtain city permits and hire contractors to modify their buildings to replace the existing gas units with electric units. This takes a lot of time and, during this process, renters will not have a way to heat the unit or the water in the rental unit.

Even further, our electrical grid is already strain so converting residential appliances from natural gas to electric units will further strain the grid. We already have planned/ mandated power outages so additional electrical consumption/ demand will further deteriorate the grid reliability.

Additionally, the operating cost of electrical appliances is much higher than the operating cost of natural gas appliances so this will be a significant burden for renters - especially for low income renters who may be displaced when paying for electricity becomes out of their reach.

Water heaters and furnaces are not luxury items; they are essential. The proposed amendments will further worsen the housing affordability crisis we have in our state.

I am in support of efforts to improve our air quality but the proposed amendments are not the answer. SCAQMD's heart may be in the right place but the focus is definitely in the wrong place. Rather than banning natural gas furnaces and water heaters, the focus should be in improvements and incentives - working with manufacturers to further reduce the NOx emissions of their products.

Where the focus should be:

Wildfires (possibly caused by old electric wiring malfunctions) produce nitrogen oxides (NOx) and are a very substantial contributor to air pollution with NOx being considered one of the main pollutants emitted from large-scale wildfires alongside particulate matter and carbon monoxide; essentially, burning biomass during a wildfire releases nitrogen oxides into the atmosphere. Wildfires are a main contributor to global warming.

Rather than focusing on banning natural gas appliances the main focus should be in preventing wildfires by developing better early/ advance detection/ monitoring systems that would result in a faster wildfire fighting response potentially limiting the size of the wildfire and its related NOx emissions.

Additionally, the focus should be working with So Cal Edison to improve their distribution system so sparks do not start wildfires, etc.

In conclusion, I am requesting herein for SCAQMD to not approve or implement the proposed amendments to Rule 1111 and Rule 1121.

Sent from my iPhone

Response to Comment Letter #14

Response to Comment 14-1:

Please see Appendix B Response to Comment 13-1.

14-1

COMMENT LETTER #15: MELINA ERSHAGHI**Jennifer Vinh**

From: Melina Ershaghi <[REDACTED]>
Sent: Monday, March 3, 2025 7:31 PM
To: Clerk of Board; Jennifer Vinh
Subject: [EXTERNAL] NOT approve/implement the proposed amendments to Rule 1111 and Rule 1121.

15-1

To Whom It May Concern, As a Southern California's homeowner and resident I strongly oppose the SCAQMD proposed amendments to Rule 1111 (Space Heating) and Rule 1121 (Water Heating) as these rules will force me to remodel by home at great cost causing a hardship to my family. These amendments basically eliminate the use of natural gas furnaces and water heaters not only for new buildings but also for existing buildings. For new buildings the installation of an electric heat pump (for space heating) and an electric water heater could be accommodated as part of the new building's design and construction. However, to make such a change for existing buildings can become a severe/insurmountable financial hardship, especially for multi units/condos buildings with individual space and water heating systems for each unit. Furthermore, in some dense residential areas there may be not enough space between buildings to install the heat pump system's outdoor units. And most existing units do not have a 240V electrical outlet where the current gas water heaters are installed. This burden will affect not only homeowners but also the many renters we have in Southern California as, upon failure of the existing gas furnaces and/or existing gas water heaters, landlords will have to obtain city permits and hire contractors to modify their buildings to replace the existing gas units with electric units. This takes a lot of time and, during this process, renters will not have a way to heat the unit or the water in the rental unit. Even further, our electrical grid is already strain so converting residential appliances from natural gas to electric units will further strain the grid. We already have planned/mandated power outages so additional electrical consumption/demand will further deteriorate the grid reliability. Additionally, the operating cost of electrical appliances is much higher than the operating cost of natural gas appliances so this will be a significant burden for renters - especially for low income renters who may be displaced when paying for electricity becomes out of their reach. Water heaters and furnaces are not luxury items; they are essential. The proposed amendments will further worsen the housing affordability crisis we have in our state. I am in support of efforts to improve our air quality but the proposed amendments are not the answer. SCAQMD's heart may be in the right place but the focus is definitely in the wrong place. Rather than banning natural gas furnaces and water heaters the focus should be in improvements and incentives - working with manufacturers to further reduce the NOx emissions of their products. Where the focus should be: Wildfires produce nitrogen oxides (NOx) and are a very substantial contributor to air pollution with NOx being considered one of the main pollutants emitted from large-scale wildfires alongside particulate matter and carbon monoxide; essentially, burning biomass during a wildfire releases nitrogen oxides into the atmosphere. Wildfires are a main contributor to global warming. Rather than focusing on banning natural gas appliances the main focus should be in preventing wildfires by developing better early/advance detection/monitoring systems that would result in a faster wildfire fighting response potentially limiting the size of the wildfire and its related NOx emissions. Additionally, the focus should be working with So Cal Edison to improve their distribution system so sparks do not start wildfires, etc. In conclusion, I am requesting herein for SCAQMD to not approve/implement the proposed amendments to Rule 1111 and Rule 1121.

Response to Comment Letter #15***Response to Comment 15-1:***

Please see Appendix B Response to Comment 13-1.

COMMENT LETTER #16: ROSE PEREZ JESSEN**Jennifer Vinh**

From: [REDACTED]
Sent: Monday, March 3, 2025 1:25 PM
To: Clerk of Board; Jennifer Vinh
Subject: [EXTERNAL] SCAQMD 06Mar25 Zoom Mtg - Amendments to Rule 1111 (Space Heating) and Rule 1121

To Whom It May Concern,

16-1

As a Southern California's homeowner and resident I strongly oppose the SCAQMD proposed amendments to Rule 1111 (Space Heating) and Rule 1121 (Water Heating) as these rules will force me to remodel my home at great cost causing a hardship to me and my family.

These amendments basically eliminate the use of natural gas furnaces and water heaters not only for new buildings but also for existing buildings.

For new buildings the installation of an electric heat pump (for space heating) and an electric water heater could be accommodated as part of the new building's design and construction. However, to make such a change for existing buildings can become a severe/insurmountable financial hardship, especially for multi units/condos buildings with individual space and water heating systems for each unit.

Furthermore, in some dense residential areas there may be not enough space between buildings to install the heat pump system's outdoor units. And most existing units do not have a 240V electrical outlet where the current gas water heaters are installed.

This burden will affect not only homeowners but also the many renters we have in Southern California as, upon failure of the existing gas furnaces and/or existing gas water heaters, landlords will have to obtain city permits and hire contractors to modify their buildings to replace the existing gas units with electric units. This takes a lot of time and, during this process, renters will not have a way to heat the unit or the water in the rental unit.

Even further, our electrical grid is already strain so converting residential appliances from natural gas to electric units will further strain the grid. We already have planned/mandated power outages so additional electrical consumption/demand will further deteriorate the grid reliability. Additionally, the operating cost of electrical appliances is much higher than the operating cost of natural gas appliances so this will be a significant burden for renters - especially for low income renters who may be displaced when paying for electricity becomes out of their reach.

Water heaters and furnaces are not luxury items; they are essential. The proposed amendments will further worsen the housing affordability crisis we have in our state.

I am in support of efforts to improve our air quality but the proposed amendments are not the answer. SCAQMD's heart may be in the right place but the focus is definitely in the wrong place. Rather than banning natural gas furnaces and water heaters the focus should be in improvements and incentives - working with manufacturers to further reduce the NOx emissions of their products.

Where the focus should be:

Wildfires produce nitrogen oxides (NOx) and are a very substantial contributor to air pollution with NOx being considered one of the main pollutants emitted from large-scale wildfires alongside particulate matter and carbon monoxide; essentially, burning biomass during a wildfire releases nitrogen oxides into the atmosphere. Wildfires are a main contributor to global warming.

Rather than focusing on banning natural gas appliances the main focus should be in preventing wildfires by developing better early/advance detection/monitoring systems that would result in a faster wildfire fighting response potentially limiting the size of the wildfire and its related NOx emissions.

Additionally, the focus should be working with So Cal Edison to improve their distribution system so sparks do not start wildfires, etc.

In conclusion, I am requesting herein for SCAQMD to not approve/implement the proposed amendments to Rule 1111 and Rule 1121.

Rose Perez Jessen
Newport Beach, CA 90292

16-1



Response to Comment Letter #16

Response to Comment 16-1:

Please see Appendix B Response to Comment 13-1.

COMMENT LETTER #17: TRISTAN MILLER**Jennifer Vinh**

From: Tristan Miller [REDACTED] >
Sent: Monday, March 3, 2025 10:29 AM
To: Jennifer Vinh
Subject: [EXTERNAL] support Rule 1111 and 1211

Hi Jen,

As a Californian and business owner, we support 1111 and 1211.

It saves lives, improves our health, and makes our homes/businesses more comfortable and more efficient.

Our family of 5 and business supports this!

Tristan Miller
Superior Avenue, Newport Beach, CA

The information transmitted is intended only for the person or entity to which it is addressed and may contain CONFIDENTIAL material. If you receive this material/information in error, please contact the sender and delete or destroy the material/information.

17-1

**Response to Comment Letter #17**

Response to Comment 17-1:

Staff appreciates the support.

COMMENT LETTER #18 VICKI CHAMBERLAIN**Jennifer Vinh**

From: Vicki Chamberlain <[REDACTED]>
Sent: Monday, March 3, 2025 5:27 PM
To: Clerk of Board; Jennifer Vinh
Subject: [EXTERNAL] Please oppose

18-1

To Whom it may concern,

As a resident of CA and homeowner of 2 homes and several rental properties, I strongly oppose the SCAQMD proposed amendments to Rule 1111, Space Heating and Rule 1121, Water Heating as these rules will force me to remodel and become a costly construction bill. This will in return become a financial hardship.

These amendments basically eliminate the use of natural gas furnaces and water heaters. For new buildings the installation of an Electric heat pump for space heating and an electric water heater could become part of a new design however, I am an existing home(s). With close proximity of some properties, some residential areas may not accommodate between buildings for the system's outside units! Most existing units do not have 240V electrical outlets where the current gas water heaters are installed.

Besides the fact the timelines, cost, etc. this amendment will disrupt existing tenants waiting on permits, contractors and how will they have heat?

We already have a taxed electrical grid in Southern Ca as it is, We have scheduled and planned outages so additional consumption will just further increase these outages. Electrical appliances are at an operating cost higher than natural gas, so again a significant burden to those of us struggling financially in this state already.

We are not talking about luxury items, these are a necessity for living!

I support efforts to improve our air quality but not at the expense of these proposed amendments.

Please I am requesting to VETO these amendments, Rule 1111 and Rule 1121

Respectfully Submitted,
Vicki M. Chamberlain

Response to Comment Letter #18*Response to Comment 18-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on technology readiness, please refer to Response to General Comment 4.

For discussion on the cost-effectiveness analysis, please refer to Response to General Comment 6.

For discussion on emergency replacement, please refer to Response to General Comment 7.

For discussion on the need for rule amendment, please refer to Response to General Comment 10.

COMMENT LETTER #19: CITY OF PALM DESERT

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RESOLUTION NO. 2025-013

19-1

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PALM DESERT, CALIFORNIA, EXPRESSING CONCERN REGARDING THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT'S PROPOSED AMENDMENTS TO RULES 1111 AND 1121, PHASING OUT GAS WATER HEATERS AND FURNACES

WHEREAS, The South Coast Air Quality District (SCAQMD) is a regional air pollution control agency representing Los Angeles, Orange, Riverside, and San Bernardino counties with responsibility for regulating stationary sources of air pollution; and

WHEREAS, The SCAQMD is considering two rules that would have a significant impact on up to 17 million South Coast homeowners, renters and businesses: Rule 1111 would regulate air emissions from gas-powered central furnaces; and Rule 1121 would regulate air emissions from residential-type, natural gas-powered water heaters; and

WHEREAS, Rules 1111 and 1121 would impose additional costs to consumers and while incentives exist, homeowners and renters may still face significant out-of-pocket expenses when transitioning to electric appliances; and

WHEREAS, Housing affordability throughout California is and will remain a top public policy priority for the City of Palm Desert for the foreseeable future. Local governments are being pressured to build more housing – specifically, housing that people can afford. Any regulations that increase these costs deserve careful scrutiny to ensure that the increased costs are met with an equal or greater amount of benefit to the consumer; and

WHEREAS, The SCAQMD's water heater and furnace mandates will impose a significant increase in electricity demand on California's electric grid. Transitioning to all-electric water heaters and furnaces means an increased demand on an electric grid that has not proven capable of consistently meeting existing demand. Water heaters and furnaces are essential elements in any house, apartment, or business. Millions of new electric water heaters and furnaces would draw power from the grid and raise the risk of power brownouts or outages; and

WHEREAS, The incentive and rebate programs require easier access and use for homeowners and renters, greater coordination with cities is needed to have homeowners/renters access these incentives and rebates, and the proposed amendments need to be softened and relaxed to lessen the impact to homeowners and renters.

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Resolution No. 2025-013

Page 2

19-1

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Palm Desert, California, as follows:

SECTION 1. Rules 1111 and 1121 will have a negative impact as proposed and impose significant costs on millions of Southern California homeowners, renters, and businesses who are already struggling with rising costs.

SECTION 2. The City of Palm Desert opposes Proposed Amended Rules 1111 and 1121 and urges the SCAQMD to delay consideration until the proposed amendments lessen the impact on properties and allow for streamlined eligibility of incentives and rebates before deciding to enact these amendments.

ADOPTED ON FEBRUARY 27, 2025.

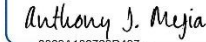
Signed by:



DC37D0D2CC44D4
JAN HARNIK
MAYOR

ATTEST:

Signed by:



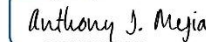
8063A189723D437
ANTHONY J. MEJIA
CITY CLERK

I, Anthony J. Mejia, City Clerk of the City of Palm Desert, hereby certify that Resolution No. 2025-013 is a full, true, and correct copy, and was duly adopted at a regular meeting of the City Council of the City of Palm Desert on February 27, 2025, by the following vote:

AYES: NESTANDE, PRADETTO, QUINTANILLA, TRUBEE, AND HARNIK
NOES: NONE
ABSENT: NONE
ABSTAIN: NONE
RECUSED: NONE

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the City of Palm Desert, California, on 3/3/2025.

Signed by:



8063A189723D437
ANTHONY J. MEJIA
CITY CLERK

Response to Comment Letter #19*Response to Comment 19-1:*

Regarding the zero-NOx emission mandate, the new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on affordability and cost, which could impact concerns on the housing crisis, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on the need for rule amendment, please refer to Response to General Comment 10.

Staff looks forward to working with our local cities as we launch our Go Zero incentive program and will strive to make the process to access those funds as easy as possible for consumers.

COMMENT LETTER #20: RUTH BRISSENDEN

From: Ruth Brissenden <[REDACTED]>
Sent: Wednesday, March 5, 2025 7:54 AM
To: Jennifer Vinh <[REDACTED]>
Subject: [EXTERNAL] Proposed Amended Rules 1111 and 1121

To Whom It May Concern:

20-1

I believe replacing gas water heaters and furnaces with heat pump technology is a good idea for the environment, however, as many commenters have pointed out, the additional cost will likely be an immense hardship for many people.

My own research into heat pumps shows that the cost is approximately twice that of existing gas appliances. Possibly more if electric work is required. This presents a huge problem for those unable to afford such lavish upgrades. The rules MUST be promulgated in such a way so as not burden those in lower or fixed income brackets.

Additionally, because most folks are not familiar with how heat pumps work, information regarding this subject should be included and easily accessible on the Proposed Amended Rules webpages.

Sincerely,

Ruth Brissenden, J.D.

Response to Comment Letter #20*Response to Comment 20-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on technology readiness, please refer to Response to General Comment 4.

For discussion on outreach, please refer to Response to General Comment 5.

Several presentations included on the proposed rules page have discussions on the benefits of heat pumps and how they work including slides 32 – 36 in the first working group meeting [presentation](#) from October 5, 2023.

As staff develops more outreach materials for the upcoming Go Zero incentive program, more user friendly, plain language materials will be developed to better inform the public about incentive funding, upcoming regulatory requirements, and the benefits and advantages of installing clean and efficient heat pump appliances.

COMMENT LETTER #21: LENORA DEMARS

-----Original Message-----

From: Lenora DeMars <[REDACTED]>

Sent: Wednesday, March 5, 2025 11:46 AM

To: Jennifer Vinh <[REDACTED]>

Subject: [EXTERNAL] Proposed rules 1111 and 1121

Dear South Coast AQMD,

I am writing in support of the proposed amendments to rules 1111 and 1121. I applaud AQMD's work to reduce NOX emissions, thereby reducing new asthma cases, hospital visits and premature deaths. Our air quality has vastly improved because of your historic efforts, but we still have some of the worst air quality in the nation.

In the long run, these rules will save money and reduce emissions that impact our environment and our health.

Thank you for your efforts in providing better living conditions in our region.

Sincerely,

Lenora DeMars

Response to Comment Letter #21

Response to Comment 21-1:

Staff appreciates the support.

21-1

COMMENT LETTER #22: KISLEV JOY ANG

Marissa Poon

From: Jennifer Vinh
Sent: Thursday, March 6, 2025 10:36 AM
To: [REDACTED]
Subject: FW: [EXTERNAL] Re: SCAQMD Rule 1111 and 1121

From: Kislev Joy Ang <[REDACTED]>
Sent: Wednesday, March 5, 2025 9:08 AM
To: jvinh@scaqmd.ca.gov; jafshar@scaqmd.ca.gov; jvinh@aqmd.ca.gov; jafshar@aqmd.ca.gov; eyen@aqmd.ca.gov; Jennifer Vinh <jvinh@aqmd.gov>; Jivar Afshar <jafshar@aqmd.gov>; Emily Yen <eyen@aqmd.gov>; Yanrong Zhu <yzhu1@aqmd.gov>
Subject: [EXTERNAL] Re: SCAQMD Rule 1111 and 1121

Good morning.

I am submitting the following comments as a resident living in SCAQMD jurisdiction and not as a representative of the City of LA:

Kislev

On Tue, Mar 4, 2025 at 12:14 PM Kislev Joy Ang <[REDACTED]> wrote:

Good afternoon.

FYI, the email addresses listed in [this notice](#) are incorrect.

<https://www.aqmd.gov/docs/default-source/public-notices/public-workshops-and-consultations/nopc-par1111andpar1121-030625.pdf?sfvrsn=6>

I am submitting the following comments as a resident of SCAQMD and not as a representative of the City of LA:

- **Emissions and evaporative standards on equipment manufactured will be a better pathway for certification, implementation and enforcement.**
- The proposed amendment to SCAQMD Rules 1111 and 1121 will transition applicability from the **manufacturers to private citizens.**
- Wealthier people are those most likely to take advantage of the proposed offered incentives as they will be the ones with the disposable income and will be able to convert their equipment prior to need.
- Most of the residents that "need" to replace one equipment will likely, due to limited resources, replace only the equipment that need replacing, not both equipments that SCAQMD is proposing to replace (2-in-1).
- Like other incentives in the past (e.g. electric vehicle purchase), by the time a person absolutely needs to replace the equipment (when no amount of repair can fix the it), the incentive program has ended and there is no available funds left.

22-1

Thank you for your consideration.

--

----- Forwarded message -----

From: **Kislev Joy Ang** <[REDACTED]>
Date: Tue, Mar 4, 2025 at 10:43 AM
Subject: SCAQMD Rule 1111 and 1121
To: <jvinh@aqmd.ca.gov>, <jafshar@aqmd.ca.gov>

I am submitting the following comments as a resident of SCAQMD and not as a representative of the City of LA:

- **Emissions and evaporative standards on equipment manufactured will be a better pathway for certification, implementation and enforcement.**
- The proposed amendment to SCAQMD Rules 1111 and 1121 will transition applicability from the **manufacturers to private citizens.**
- Wealthier people are those most likely to take advantage of the proposed offered incentives as they will be the ones with the disposable income and will be able to convert their equipment prior to need.
- Most of the residents that "need" to replace one equipment will likely, due to limited resources, replace only the equipment that need replacing, not both equipments that SCAQMD is proposing to replace (2-in-1).
- Like other incentives in the past (e.g. electric vehicle purchase), by the time a person absolutely needs to replace the equipment (when no amount of repair can fix the it), the incentive program has ended and there is no available funds left.

--

Kislev Ang, MS, REHS
Environmental Supervisor
External Affairs Division | LA Sanitation and Environment
Dept. of Public Works | City of Los Angeles
Phone | [REDACTED]
Email | [REDACTED]
Web | www.lacitysan.org



Response to Comment Letter #22*Response to Comment 22-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

The rule is applicable to the supply chain such as manufacturers, distributors, and installers. By the new rule concept, consumers have the choice of both zero-NOx emission units and NOx-emitting natural gas-fired units.

For discussion on consumer choice, please refer to Response to General Comment 1.

Regarding the incentive funding, if this rule concept is adopted by the South Coast AQMD Governing Board, the mitigation funds will provide an ongoing revenue source to fund the Go Zero incentive program for zero-NOx emissions appliances. While Go Zero will not collect enough funds to provide everyone in our jurisdiction with a rebate, we will focus on getting rebates to those in the most overburdened regions. Further, as time goes on and these technologies become more commonplace, costs are likely to decrease. Upfront costs for NOx-emitting HVAC systems and heat pumps are already equivalent and nationwide sales show heat pumps to be outselling gas furnaces. These efficient, clean appliances can also result in lower utility bills for homeowners providing a financial benefit for the homeowner and improving the region air quality. For discussion on cost, please refer to Response to General Comment 2.

A heat pump HVAC provides both heating and cooling functions in one unit. For discussion on technology readiness, please refer to Response to General Comment 4.

For discussion on emergency replacement, please refer to Response to General Comment 7.

For discussion on incentives, please refer to Response to General Comment 11.

COMMENT LETTER #23: JAMES ELDER**Marissa Poon**

From: Jennifer Vinh
Sent: Thursday, March 6, 2025 8:20 AM
To: [REDACTED]
Subject: FW: [EXTERNAL] Proposed Rules 1111 and 1121

From: James Elder <[REDACTED]>
Sent: Wednesday, March 5, 2025 6:43 PM
To: Jennifer Vinh <JVinh@aqmd.gov>
Cc: [REDACTED]
Subject: [EXTERNAL] Proposed Rules 1111 and 1121

Dear South Coast AQMD,

I am writing to strongly support the proposed amendments to Rules 1111 and 1121. I applaud your work to reduce emissions and keep the people of our district safe and healthy.

Last night, the Huntington Beach City Council voted to write a letter opposing the amendments, but I want you to know the people of Huntington Beach support South Coast AQMD and your decision to protect us and the environment.

Thank you for your hard work and dedication.

Warm regards,
James

Huntington Beach Resident

Response to Comment Letter #23

Response to Comment 23-1:

Staff appreciates the support.

23-1

COMMENT LETTER #24: WESTERN RIVERSIDE COUNCIL OF GOVERNMENTS**Western Riverside Council of Governments**

County of Riverside • City of Banning • City of Beaumont • City of Calimesa • City of Canyon Lake • City of Corona • City of Eastvale
 City of Hemet • City of Jurupa Valley • City of Lake Elsinore • City of Menifee • City of Moreno Valley • City of Murrieta • City of Norco
 City of Perris • City of Riverside • City of San Jacinto • City of Temecula • City of Wildomar • Eastern Municipal Water District
 Western Municipal Water District • Riverside County Superintendent of Schools

RESOLUTION NUMBER 01-25

**A RESOLUTION OF THE EXECUTIVE COMMITTEE OF THE
 WESTERN RIVERSIDE COUNCIL OF GOVERNMENTS
 OPPOSING THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT'S
 PROPOSED AMENDED RULES 1111 AND 1121**

24-1

WHEREAS, the Western Riverside Council of Governments ("WRCOG") is a joint powers authority consisting of the County of Riverside and 18 cities, the Eastern Municipal Water District, the Western Municipal Water District, and the Riverside County Superintendent of Schools, situated in Western Riverside County; and

WHEREAS, the South Coast Air Quality Management District (SCAQMD) has proposed amendments to Rules 1111 and 1121 to require a transition to zero-emission residential furnaces and water heaters in an effort to reduce nitrogen oxide (NOx) emissions; and

WHEREAS, WRCOG recognizes the importance of improving air quality and reducing emissions to meet state and federal environmental goals; and

WHEREAS, the proposed amendments would place significant financial burdens on homeowners, businesses, and local governments due to the high costs of new appliances, infrastructure upgrades, and installation requirements; and

WHEREAS, there are concerns regarding the technological readiness of zero-emission heating appliances, particularly in existing housing stock where retrofitting may be costly or infeasible; and

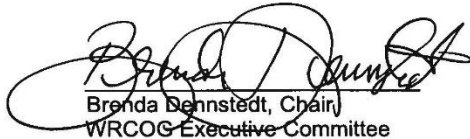
WHEREAS, the proposed implementation timeline may not allow sufficient time for communities, manufacturers, and contractors to transition effectively, potentially leading to supply chain challenges and increased costs; and

WHEREAS, several cities, councils of governments, and industry stakeholders have expressed opposition to the proposed amendments due to their economic and logistical challenges; and

WHEREAS, WRCOG supports a more measured approach that balances air quality improvements with economic feasibility, technological advancements, and equitable implementation strategies.

NOW THEREFORE, BE IT RESOLVED that the Executive Committee of the Western Riverside Council of Governments hereby opposes SCAQMD's Proposed Amended Rules 1111 and 1121 in their current form and urges SCAQMD to consider alternative approaches that minimize negative impacts on local governments, businesses, and residents.

PASSED AND ADOPTED by the Executive Committee of the Western Riverside Council of Governments on March 3, 2025.

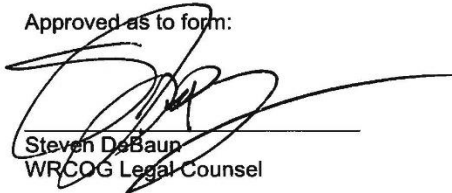


Brenda Dennstedt, Chair
WRCOG Executive Committee



Dr. Kurt Wilson, Secretary
WRCOG Executive Committee

Approved as to form:



Steven DeBaun
WRCOG Legal Counsel

AYES: 20

NAYS: 0

ABSENT: 4

ABSTAIN: 0

Response to Comment Letter #24

Response to Comment 24-1:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes an alternative compliance option with zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

The proposed standards and alternative compliance option have future effective dates with a phased approach which will allow a gradual transition.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on technology readiness, please refer to Response to General Comment 4.

For discussion on outreach, please refer to Response to General Comment 5.

For discussion on the need for rule amendment, please refer to Response to General Comment 10.

COMMENT LETTER #25: GREEN & HEALTHY HOMES INITIATIVE

2714 Hudson Street
Baltimore, MD 21224-4716
P: 410-534-6447
F: 410-534-6475
www.ghhi.org

March 6, 2025

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Proposed Amended Rules 1111 and 1121

Dear SCAQMD Staff,

Thank you for the opportunity to provide further comments on the Proposed Amended Rules (PARs) 1111 and 1121. The Green & Healthy Homes Initiative (GHHI) continues to support the transition to zero-emission appliances as a critical measure to reduce harmful pollutants and improve public health in the South Coast Air Quality Management District.

We appreciate your continued work in developing PARs 1111 and 1121 to reduce NO_x emissions and achieve clean air goals. We also appreciate your thorough public presentations and receptiveness to public comments regarding the latest revisions to the rules.

As stated in our previous comments, we support PARs 1111 and 1121 on the basis that improved air quality will translate into significant health and environmental benefits for residents in the SCAQMD region. NO_x emissions are associated with a range of harmful health impacts for those exposed to elevated concentrations, including aggravation of respiratory diseases that can cause acute medical episodes (such as asthma-related hospitalizations and emergency room visits) for short term exposures and increased risk of the development of asthma and susceptibility to respiratory infections for long term exposures.¹ Studies across the country have found disproportionate exposure among communities of color to NO_x emissions as well as other air pollutants.^{2,3} Studies show consistent associations between higher pollution levels and

25-1

¹ Orellano, P., Reynoso, J., Quaranta, N., Bardach, A., & Ciapponi, A. (2020). Short-term exposure to particulate matter (PM₁₀ and PM_{2.5}), nitrogen dioxide (NO₂), and ozone (O₃) and all-cause and cause-specific mortality: Systematic review and meta-analysis. *Environment international*, 142, 105876.

<https://doi.org/10.1016/j.envint.2020.105876>;

Huangfu, P., & Atkinson, R. (2020). Long-term exposure to NO₂ and O₃ and all-cause and respiratory mortality: A systematic review and meta-analysis. *Environment international*, 144, 105998.

<https://doi.org/10.1016/j.envint.2020.105998>

² Gallagher, C. L., & Holloway, T. (2022). US decarbonization impacts on air quality and environmental justice. *Environmental Research Letters*, 17(11), 114018.

³ Tessum, C. W., Paolella, D. A., Chambliss, S. E., Apte, J. S., Hill, J. D., & Marshall, J. D. (2021). PM_{2.5} pollutants disproportionately and systemically affect people of color in the United States. *Science advances*, 7(18), eabf4491. <https://doi.org/10.1126/sciadv.abf4491>

detrimental respiratory effects in children from exposure to pollutants, including worse lung function for children with asthma.⁴

Within the framework of the revised rules, we believe there are amendments that can help achieve NOx reductions closer to the levels projected in the initial proposal. Specifically, we recommend the following:

1. Determine the Mitigation Fee for Noncompliance based on Health and Social Costs:

- As mentioned in the public consultation, it would be helpful to have more transparency on the methodology for determination of the mitigation fee. We feel that the fee should be directly tied to the health and social costs that marginal NOx emissions impose on the region.
- A more substantial fee for manufacturers who fail to meet sales targets will create a stronger incentive for compliance and accelerate the transition to zero-emission appliances.

2. Accelerate the Ramp-Up of Sales Targets:

- The current phase-in schedule should be accelerated to achieve faster NOx reductions and protect public health more effectively. The revised schedule essentially maintains business-as-usual until 2029. With a more ambitious schedule, SCAQMD can achieve greater air quality and health improvements, and more closely meet the original air quality and climate intent of these proposed rules.
- We believe a timeline of 50% zero emissions technology sales by 2027 and 75% by 2030 would strike a balance between climate and health benefits and the affordability and consumer choice concerns raised during the rulemaking process.

We emphasize that the health of vulnerable populations, particularly children, the elderly, and those with respiratory conditions, depends on swift and decisive action to reduce air pollution. Since frontline communities bear a disproportionate burden of air pollution, they also have the greatest opportunity for health benefits as air pollution is relieved.

We present these recommendations for amendments to PARs 1111 and 1121 in the hopes that the rules may be amended quickly and passed as scheduled in May. By doing so, SCAQMD will not only be achieving critical improvements in air quality, but also improving health outcomes for all residents in the district.

⁴ Belova, A., Dagli, R., Economu, N., Hartley, S., Holder, C., & Hubbard, H. (2022). Literature review on the impacts of residential combustion final report. https://www.lung.org/getmedia/2786f983-d971-43ad-962b-8370c950cbd6/ICF_Impacts-of-Residential-Combustion_FINAL_071022.pdf

Thank you again for your continued efforts to develop effective and equitable appliance rules in the South Coast region.

Sincerely,

Wynn Tucker

Director, Policy & Innovation

Green & Healthy Homes Initiative

Response to Comment Letter #25

Response to Comment 25-1:

Staff appreciates the support. Please refer to Response to Comment PC-3 and Response to Comment PC-4 for discussion on sales targets and mitigation fees. Future check-ins will consider adjustments to targets and fees.

COMMENT LETTER #26: VINOD GHAI**Jennifer Vinh**

From: [REDACTED]
Sent: Friday, March 7, 2025 2:29 PM
To: Jennifer Vinh
Subject: [EXTERNAL] AQMD amendment

26-1

I, Vinod Ghai, resident of Newport Beach, oppose the amendment under consideration for banning gas water heaters & furnaces. We, retired people, live on fixed income. These changes being implemented for the sake of environment are virtues signaling & would make no difference in the climate.
Please cancel these amendments or we will vote you out!!
Sent from my iPhone

Response to Comment Letter #26*Response to Comment 26-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

COMMENT LETTER #27: VIRGINIA ANDERSE-ELLMORE**Marissa Poon**

From: Jennifer Vinh
Sent: Tuesday, March 11, 2025 1:13 PM
To: [REDACTED]
Subject: FW: Please support Rules 1111&1121

Support!

From: ginluyjeff dslextreme.com <[REDACTED]>
Sent: Tuesday, March 11, 2025 12:52 PM
To: Jennifer Vinh <jvinh@aqmd.gov>
Subject: [EXTERNAL] Please support Rules 1111&1121

Jen Vinh
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765

Proposed Rules 1111 and 1121

27-1

Dear South Coast AQMD,
I am writing in support of Rules 1111 and 1121. I applaud AQMD's work to reduce NOX emissions, thereby reducing new asthma cases, hospital visits and premature deaths. Our air quality has vastly improved because of your historic efforts, but we still have some of the worst air quality in the nation. This is not a time for slowing down our effort to remove NOX.

I was a visiting nurse in the 1980, In the morning I would drive the 10 Freeway towards downtown L.A.. You would be able to see the LA downtown skyline, until 9-9:30 and then it would suddenly disappear due to smog. This all changed with the Catalytic converter. I remember all the complaints about being forced to have a catalytic converter, but in the end it was the right decision. We all benefited from this ruling. and we can see the L.A. skyline.
The transition from natural gas to heat pumps is the right decision for today. Don't delay the transition.

In the long run, these rules will save money and reduce emissions that impact our environment and our health.
Thank you for your efforts in providing better living conditions in our region and helping to slow the climb in global temperature rise.

Sincerely,
Virginia Anders-Ellmore
[REDACTED]
Newport Beach, CA 92663

Response to Comment Letter #27

Response to Comment 27-1:

Staff appreciates the support.

COMMENT LETTER #28: JOHN ANDERSON

From: John Anderson [REDACTED]
Sent: Wednesday, March 12, 2025 4:10 PM
To: Peter Campbell <pcampbell@aqmd.gov>; Emily Yen <eyen@aqmd.gov>
Subject: [EXTERNAL] comment on gas heaters and water heaters

Dear Sir/Madam,

I was informed that the South Coast Air Quality Management District is seeking comments on the proposed rules 1111 and 1121 that would eventually ban the use of natural gas for heating our homes or heating water. This email is to provide my comments.

I am a 78-year-old homeowner who has lived in the San Gabriel Valley since 1965. My house has a gas furnace and a gas on-demand water heater. About 15 years ago I replaced the then existing gas water heater with an electric water heater. The electric water heater was more expensive to purchase than a comparable gas water heater, but the costs went up from there because the electric water heater had problems with the heating elements within a year or two. Each time this happened it was a significant expense to replace them. In addition, my electric bill went up substantially. Eventually when the heating elements broke down a 3rd time, I decided it wasn't worth all the extra expense and I very happily switched back to a gas water heater.

Why I believe it isn't sound policy to implement Rule 1111 and Rule 1121.

1. Natural gas is a lot less expensive than electricity to heat our homes and to heat water.
2. It costs me a lot more for additional electricity to cool my home in the summer than it does for additional gas to heat my home in the winter.
3. There isn't enough electric generation capacity now to cover the need for air conditioning during hot periods in the summer. The added demand for electricity to replace all the furnaces and water heaters would only exacerbate an already troubled electrical grid. I've experienced more electric power outages in the past few years that I ever did in the past.
4. The added cost of electric heat pumps and electric water heaters will add to housing costs and rents.

1

5. The recent fires in the Palisades and Eaton fire zones destroyed thousands of homes and businesses. If new electric heat pumps and water heaters will be required for all the new construction (starting on January 1, 2026) it will cause a large increase in electric usage in these areas.
6. Since electricity generation requires burning natural gas or coal, these rules will not reduce CO2 production. Solar panels and wind farms don't have the capacity to generate all the electricity now. Using the electricity consumption will only worsen the situation. The cost of generating electricity by solar and wind driven power is a lot more than electricity using natural gas.
7. My wife and I are older folks and we can ill afford added expense that these rules will bring if implemented. We don't want to be driven from our home in our final years.

Sincerely,

John Anderson
Resident in Duarte, CA

Response to Comment Letter #28

Response to Comment 28-1:

PAR 1111 and PAR 1121 do not ban natural gas. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. The sales targets are not hard caps. Manufacturers may sell more NOx-emitting natural gas-fired units by paying an over-target mitigation fee.

Staff identified various zero-NOx emission technologies that are commercially available. Modern heat pump HVAC and heat pump water heaters can reach 300 to 400 percent efficiency or even higher efficiencies that could result in utility bill savings over operating NOx-emitting gas appliances. Staff is aware that other zero-NOx emitting technologies, such as electric resistance space and water heaters, do not have the same high efficiency as heat pumps; therefore, it can be more expensive to operate. Modern, efficient, and clean, heat pump space and water heating appliances are projected to save on utility bills and improve the regional air quality.

For discussion on zero-NOx emission technology readiness, please refer to Response to General Comment 4. For discussion on cost, please refer to Response to General Comment 2.

For discussion on electricity demand and grid sustainability, please refer to Response to General Comment 3.

COMMENT LETTER #29: COALITION (EARTHJUSTICE, ACTERRA: ACTION FOR A HEALTHY PLANET, ACTIVE SAN GABRIEL VALLEY, CALIFORNIA ENVIRONMENTAL VOTERS, COALITION FOR CLEAN AIR, EVERGREEN ACTION, GREEN AND HEALTHY HOMES INITIATIVE, GREEN SANCTUARY UNITARIAN UNIVERSALIST CHURCH OF PALO ALTO, LOS ANGELES CLIMATE REALITY PROJECT, PEOPLE'S COLLECTIVE FOR ENVIRONMENTAL JUSTICE, PROJECT GREEN HOME, REDWOOD ENERGY, RUN ON CLIMATE, SIERRA CLUB ANGELES CHAPTER, STAND.EARTH, VECTOR GREEN POWER, LLC)



March 12, 2025

VIA ELECTRONIC MAIL

Heather Farr
Manager
Email: hfarr@aqmd.gov

Jen Vinh
Air Quality Specialist
Email: jvinh@aqmd.gov
South Coast Air Quality Management District

Re: Comments on Proposed Amendments to Rules 1111 & 1121- Zero-NOx Standards for Residential Water Heaters and Furnaces

Dear Ms. Farr and Vinh:

We appreciate your continued focus on Rules 1111 and 1121 (Rules). It is imperative we pass rule amendments in May to ensure we are on track to achieve important regional emission reductions and move towards compliance with federal ozone and PM2.5 standards. Unfortunately, the concessions in the third preliminary draft of the proposed amendments drastically reduce the expected emission reductions by 40% compared to the previous drafts and allow for significant manufacturer noncompliance. Even achieving these smaller pollution reductions is highly uncertain as the proposed mitigation and penalty fees are likely insufficient

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to incentivize compliance with the zero-emissions sales targets. The unnecessary weakening of the Rules not only jeopardizes their intended health benefits but also poses a significant barrier to achieving a successful transition to zero-emissions equipment—a key tenet of the 2022 AQMP.

I. Summary of Recommendations

To ensure the Rules are effective in maximizing emission reductions, it is imperative that the following changes be made to the rule language:

- Accelerate the timeline for zero-emission NOx appliance targets to meet or exceed the state's commitments.
- Tier the non-compliance fee for each NOx-emitting unit sold above the sales target based on the degree of manufacturer non-compliance.
- Tie the per-unit mitigation fee for polluting appliances to the cost of health impacts from the NOx pollution emitted over its lifetime.
- Eliminate the proposed discounted mitigation fee.

These changes will ensure the agency's success by maximizing the emission reduction rules 1111 and 1121 can offer.

II. The Rule Should Accelerate the Sales Targets of Zero-NOx Units

To develop the right market signals, the rule must require manufacturers to make a greater percentage of zero-NOx units available sooner. The final rule should **accelerate compliance percentage targets to, at the very least, exceed the targets established by California Air Resources Board in the multistate agreement signed last year**,¹ ensuring more zero-emission appliances enter the market, which will help drive down costs.

The rule should skip the initial 70% NOx-emitting sales cap and move directly to a 50% cap for both space and water heating by 2027. In the case of space heating, an RMI analysis indicates that baseline sales of NOx-emitting units in 2027 will already be at 64%², meaning a 70% cap accomplishes nothing. An initial 50% cap is necessary to push the market forward.

| Target Dates | 2027-2028 | 2029-2032 | 2033-2036 | 2037 and beyond |
|-------------------------------|-----------|-----------|-----------|-----------------|
| NOx emitting units (e.g. gas) | 50% | 25% | 10% | 0% |

¹ NESCAUM, Nine States Pledge Joint Action to Accelerate Transition to Clean Buildings, (February 2024), <https://www.nescaum.org/documents/2.7.24-nescaum-mou-press-release.pdf>.

² RMI analysis of 2027 sales baseline includes business-as-usual data from the REPEAT Project's Frozen Policies Benchmark (<https://repeatproject.org/results/comparison=benchmark&state=national&page=1&limit=25>) and internal estimates of Title 24 impacts on zero-emission new construction.

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| | | | | |
|---------------------|-----|-----|-----|------|
| Zero-emission Units | 50% | 75% | 90% | 100% |
|---------------------|-----|-----|-----|------|

Zero-emission models offer more predictable installation costs for water heating systems and are available in 120V configurations, eliminating the need for expensive electrical upgrades. These units can be easily implemented with appropriate regulatory signals, further speeding up the transition. Additionally, the regulation should aim for a target of 100% zero emissions. This would align the regulation with the Governing Board's objective for these Rules. With a proposed 10-year time frame, this is more than enough time for the market to adjust.

III. **The Fees in the Rules Must Be Increased To Ensure Zero-Emission Appliance Deployments.**

29-2

The proposed amended rules create a whole new regulatory framework for the agency. The following sections outline changes to the fees needed to make that framework is successful.

A) **Tier Manufacturer Alternative Compliance Fee to the Degree of Non-Compliance**

The latest iteration of proposed amendments to Rules 1111 and 1121 includes a \$500 fee for polluting units sold over the sales target, which increases by \$100 in each subsequent compliance phase.³ Rather than incrementally increasing the non-compliance fee each year, the Final Rule should tier non-compliance fees based on the degree of non-compliance annually. These non-compliance fees should be in addition to the standard NOx-emitting mitigation fee imposed per unit. This will better deter violations, incentivize manufacturers to minimize exceedances, and, where non-compliance is significant, generate more funds to increase the deployment of non-polluting appliances for low-income customers and help meet compliance targets the following year.

| Exceedance over target (%) | Fee Per Unit (\$) |
|----------------------------|-------------------|
| 1-10% | \$500 |
| 11-20% | \$750 |
| 21% or over | \$1000 |

Accordingly, if the sale of polluting appliances should not exceed 50 percent in the first compliance period, the manufacturer would pay a \$500 non-compliance fee for each polluting unit that exceeds that target by up to ten percent. For each additional non-complaint unit that

³ See, Third Preliminary Draft Proposed Amendment Rule 1111 at Section (f)(2), <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-third-preliminary-draft-rule-language.pdf?sfvrsn=10>.

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exceeds the target by between 11 and 20 percent, the fee would increase to \$750 for those units, and to \$1000 for each unit that is more than 20 percent of the sales target.⁴

B) The Final Rules Should Include a Per Unit Mitigation Fee that Accounts for the Health Cost of NOx Emissions Over the Appliance's Lifetime.

While the centering of consumer “choice” in the latest revisions can be a workable framework, the Board should recognize that an individual’s choice to install a polluting appliance results in community harm by locking in a new source of NOx pollution and its corresponding impacts on public health. The Final Rules should ensure that the costs of that choice to harm are properly borne by the customer making that choice. The lifetime health costs from NOx pollution from a new gas water heater are approximately \$950.⁵ The lifetime health costs from NOx pollution from a new residential central furnace are approximately \$3,300.⁶ These costs far exceed the proposed \$50 mitigation fee for gas water heaters and \$100 fee for gas furnaces, failing to account for the true health and environmental damage caused by these appliances. Accordingly, **the Final Rule should be revised to increase the mitigation fees for polluting appliances to \$950 for water heaters and \$3,300 for residential central furnaces.** These adjustments will strengthen the rule’s effectiveness by ensuring that mitigation fees more accurately account for the public health costs associated with NOx pollution.

Notably, on top of failing to capture the cost of health harms, the current proposed \$100 mitigation fee for gas furnaces is only 1% of the estimated \$10,000 capital cost of a new furnace and is eclipsed by rebates offered by the gas industry to continue to purchase polluting appliances.⁷ SoCalGas offers up to \$2,250 rebates for efficient gas models, creating a stronger

⁴ As an example, if the compliance period has a 50 percent zero-NOx sales target and a manufacturer sells 100,000 units, of which 75,000 are NOx-emitting, the manufacturer would be assessed a \$500 fee for each of the first 10,000 units, a \$750 fee for each of the next 10,000 units, and a \$1,000 fee for the remaining 5,000 units.

⁵ This cost was calculated using baseline daily emissions, estimated number of units, and useful life figures from the Preliminary Draft Staff Report and the agency’s health-based screening threshold. The Staff Report identifies 5,128,000 water heating units with baseline emissions of 2.32 TPD, and with water heating units having an average 15-year life. SCAQMD, Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121 (“Preliminary Draft Staff Report”) at 2-20; Table 5-1 (Sept. 2024), <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. The \$383,000 in health costs per ton of NOx is taken from SCAQMD most recent cost analysis. SCAQMD, Proposed Amended Rule 1111/1121, Public Consultation (Mar. 6, 2025) at Slide 69, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-pc-march-2025.pdf?sfvrsn=10>. With 5,128,000 units in the category, an equipment life of 15 years, and a health-based valuation of \$383,000 per ton of NOx, the lifetime cost of NOx pollution is \$948.68 per unit. $(2.32/5128000 * 365 * 15 * 383,000) = 948.68$.

⁶ This cost was calculated using the same formula as in the previous note. The category emits 3.99 tons of NOx per day. With 4,200,000 units in the category, an equipment life of 25 years, and a health-based valuation of \$383,000 per ton of NOx, the lifetime cost of NOx pollution is \$3,320.13 per unit. $(3.99/4200000 * 365 * 25 * 383000) = 3320.13$.

⁷ Preliminary Draft Staff Report at 2-18.

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financial incentive to stick with polluting appliances.⁸ The capital cost difference between a gas furnace and a heat pump is \$8,800,⁹ making the proposed fee insufficient to shift consumer behavior. Even assuming an initial \$500 manufacturer fee for sales that exceed zero-emission targets is passed onto customers choosing to purchase a polluting appliance, the mitigation fees from the purchase of polluting appliances is still unlikely to shift purchasing behavior. This is especially true when considering the generous rebates offered by the gas industry.

Similarly, the \$50 mitigation fee for gas water heaters is less than 2% of the estimated \$3,000 capital cost. SoCalGas offers rebates of \$75 to \$1,500 for gas water heaters¹⁰—again, higher than the proposed fee. With a capital cost difference of \$2,200 between gas and heat pump water heaters,¹¹ the mitigation fee is too insignificant to influence purchasing decisions. Even at its lowest offered level, incentives for gas water heaters exceed the mitigation fee proposed for water heaters. These fees, therefore, must be significantly higher.

C) Higher Fees for Polluting Appliances Will Generate Meaningful and Reliable Funding to Ensure Zero-Emission Appliances Are Affordable for Low-Income Customers.

The Preliminary Draft Staff Report estimates 5.35 million furnaces, and 5.128 million water heaters will be impacted by the rule.¹² Annually, about 556,000 space and water heating units are replaced.¹³ Assuming 70% of water heater sales in 2027 are still polluting models, the \$50 per unit fee would generate \$12 million—enough for only 4,000 rebates of \$3,000 each out of 342,000 units sold. Similarly, assuming 70% of furnace sales in 2027 are still polluting models, the \$100 per unit fee would generate \$19 million, funding only 6,300 rebates out of 214,000 units sold.

Moreover, the potential for supplemental incentives from federal programs is far from assured. For example, with the Trump Administration stopping execution of awarded contracts from the Environmental Protection Agency, the California Energy Commission recently announced a hold on dispersing funds from the federal Home Electrification and Appliance Rebates (“HEEHRA”) program.¹⁴ Fees that capture appliance pollution costs both properly put

⁸ According to the Preliminary Draft Staff Report, a typical residential furnace is between 40,000 and 90,000 Btu/hr. *Id.* For a Tier III gas furnace, SoCalGas currently provides a rebate of \$25 per kBtu/hr. <https://www.socalgas.com/sites/default/files/2025-02/SoCalGas-Home-Energy-Efficiency-Rebate-Program-Application-2025.pdf>. A Tier III 90,000 Btu/hr furnace would therefore be eligible for a \$2,250 rebate (90 kBtu/hr * \$25 kBtu/hr).

⁹ Preliminary Draft Staff Report at 2-18.

¹⁰ SoCalGas, 2025 Home Energy Efficiency Rebate Program Application.

¹¹ Preliminary Draft Staff Report at 2-20.

¹² *Id.* at 5-2 (Table 5-1).

¹³ Assuming a 25-year useful life for a furnace and a 15-year useful life for a water heater- translating into 214,000 furnace and 342,000 water heater installations each year.

¹⁴ Tech Clean California, HEEHRA Rebates Paused (Feb. 2025), <https://techcleanca.com/about/news/heelra-rebates-paused/>.

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these costs on manufacturers supplying polluting appliances and generate meaningful and sustained funding to ensure zero-emission appliances are affordable for low-income customers.

29-3

IV. The Proposed Discounted Rate for Over-Compliance Should Be Eliminated

The proposed discounted mitigation rate for manufacturers exceeding zero-NOx requirements in one year should be removed. While intended as an incentive, it risks undermining early gains by encouraging manufacturers to increase production of NOx-emitting appliances later and pay a lower fee. Rather than accelerating progress, this loophole could incentivize backsliding and delay full market transformation.

V. Conclusion

The stakes are too high not to move towards a zero-NOx standard for these sources, and the latest draft is a disappointing compromise that significantly weakens the expected emission reductions. Fortunately, there is still time to course correct by accelerating the compliance timeline, tiering non-compliance fees to levels of non-compliance, raising mitigation fees to reflect actual pollution costs, and eliminating unnecessary and counterproductive discounts in the fee structure. We look forward to working with you to see this rule passed by the Governing Board in May.

Sincerely

Fernando Gaytan, Senior Attorney
Matt Vespa, Senior Attorney
Adrian Martinez, Deputy Managing Attorney
Earthjustice

Lauren Weston
Executive Director
Acterra: Action for a Healthy Planet

Wesley Reutimann
Deputy Director
Active San Gabriel Valley

Gracyna Mohabir
Clean Air & Energy Regulatory Advocate
California Environmental Voters

Christopher Chavez
Deputy Policy Director
Coalition for Clean Air

[Additional Signatories on next page]

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Tony Sirna
Deputy Policy Director
Evergreen Action

Ruth Ann Norton
President and Chief Executive Officer
Green and Healthy Homes Initiative

Kevin Ma
Chair
Green Sanctuary Unitarian Universalist Church of Palo Alto

Charles Miller
Chapter Chair
Los Angeles Climate Reality Project

Andrea Vidaurre
Co-Founder/ Policy Analyst & Advocate
People's Collective for Environmental Justice

Sven Thesen
Co-Founder
Project Green Home

Sean Armstrong
Managing Principal
Redwood Energy

Jack Hanson
Executive Director
Run On Climate

Kimberly Orbe
Senior Conservation Program Manager
Sierra Club Angeles Chapter

Anne Pernick
SAFE Cities Senior Advisor
Stand.earth

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Pete Marsh
CEO
Vector Green Power, LLC

CC: Wayne Nastri, Executive Officer, wnastri@aqmd.gov
Michael Krause, Deputy Executive Officer, mkrause@aqmd.gov
Governing Board, COB@aqmd.gov

Response to Comment Letter #29

Response to Comment 29-1:

The proposed compliance targets and mitigation fees are a balanced approach that addresses emission reduction, consumer choice, and affordability. Staff evaluated various data sources for determining the compliance targets, including current heat pump sales in California (<https://pop.rewiringamerica.org/?id=CA>), zero-NOx emission adoption in current California homes, and data sheet shared by RMI. Heat pump sales in California are not as high as in southern states; however, the sales are increasing. The U.S. Energy Information Administration estimated 20 to 30 percent of furnaces and water heaters in California are zero-emission, primarily heat pump and electric resistance technologies. Another consideration for the proposed sales targets is the new energy efficacy standards by the Department of Energy which will prohibit sales of many electric resistance furnaces and water heaters. The proposed compliance target by phases is a reasonable approach, starting at 30 percent within two years of rule adoption and will ramp up to 90 percent by 2036 for zero-NOx emission unit sales. With mitigation fees for NOx-emitting gas units, manufacturers will be motivated to sell more zero-NOx emission units than the target.

Response to Comment 29-2:

At the Stationary Source Committee meeting on March 21, 2025, staff showed the committee mitigation fees determined by different basis, including commenter suggested health benefit-based cost-effectiveness threshold. The per unit cost to fully mitigate the NOx emissions would be around \$3,000 for PAR 1111 and \$900 for PAR 1121, based on the cost effectiveness screening threshold of \$383,000 per ton of NOx reduced. To increase the cost of a NOx-emitting furnace or water heater equal to the current median cost of a heat pump would be around \$8,000 for PAR 1111 and \$2,500 for PAR 1121. Staff developed the ZEM alternative option due to concerns about the cost of appliances for consumers and therefore did not propose such high fees. The currently proposed \$100 and \$50 per unit under the target is around one percent of the unit costs, making it an affordable fee. The over the target fee will only be paid if the manufacturer exceeds the sales targets and is meant to encourage manufacturers to promote zero-NOx emission technologies. Due to affordability concerns, staff recommends maintaining mitigation fee as proposed with a change suggested by the Stationary Source Committee to reduce the over the sales target fee for PAR 1121. The proposed fees are as follows, with the fees proposed to increase by

the CPI annual percent increase, capped at a three percent increase as explained in chapters 3 and 4:

- Units sold under the sales targets: \$100 for PAR 1111 and \$50 for PAR 1121
- Units sold over the sales targets: \$500 for PAR 1111 and \$250 for PAR 1121.

The proposed mitigation fee will be a sustainable funding source for incentivizing some zero-NOx emission unit installations. Through rule implementation, incentive programs, and increased market adoption, staff expects the cost of zero-NOx emission units to decrease over time.

Response to Comment 29-3:

Staff proposed a discounted fee to further incentivize manufacturers to promote their zero-NOx emission appliances. However, based on responses from manufacturers and environmental stakeholders, staff has removed the discounted fee. Any potential savings by the manufacturers would likely not be passed on to the consumers, and manufacturers have not indicated the discounted rate would incentivize further zero-NOx sales. ~~The discounted rate is for a manufacturer that sells zero-NOx emission units above the zero-NOx sales target. The discounted rate and increased mitigation fee on the over the NOx-emitting sales target will hinder the ability of the manufacturers to fully pass those fees onto the customers. Staff does not agree that it will create a loophole that will encourage manufacturers into gaming their year-over-year sales.~~

COMMENT LETTER #30: CHAD CHANTARACHARAT**Jennifer Vinh**

From: [REDACTED]
Sent: Monday, March 17, 2025 11:39 AM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name: Chad Chantaracharat****Email:** [REDACTED]**Phone:** [REDACTED]**Message:**

Vote No on electric water heater. Cost of energy is already too high. We've been struggling to make ends meet as it is with inflation.

30-1

Response to Comment Letter #30*Response to Comment 30-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on cost, please refer to Response to General Comment 2.

COMMENT LETTER #31: DAVID KRAMER**Jennifer Vinh**

From: [REDACTED]
Sent: Monday, March 17, 2025 12:02 AM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name:** David Kramer**Email:** [REDACTED]**Phone:** [REDACTED]**Message:**

Dear Concerned Fellow Citizens and Monitors Of Our Clean Air- I wish to share my objection and personal opinion on the possibility of no longer being able to access Natural Gas as my family's preferred choice for heating our water and providing heat for our home and at our family business. Without choice for the two primary options that are available to us will, I believe, take out of our hands the responsibility that each and every citizen has for providing essential requirements for our personal needs AND protecting the welfare of or shared environment. Please continue to educate all constituents of our general culture and community as to the advantages and disadvantages that both natural gas and electricity provide for the utility of the public. And then allow the educated citizenry and conscious collective Tywill of the people

31-1

decide on an individual basis what is the best choice between natural gas and electricity for their heating needs. Taking away choice eliminates trust. And without trust we will be without the freedom that truly binds fellow citizens together and allows for greatest possible outcomes pertaining to environmental integrity and strength of our healthy culture. With sincere respect to you and your mission, David Kramer & Family Chino Hills

31-1

Response to Comment Letter #31*Response to Comment 31-1:*

Staff appreciates the comments and agrees that educating consumers on the economic and air quality benefits of different technologies is important. Staff is working to launch the Go Zero incentive program that includes an outreach component to help inform residents of the available incentive program and benefits of transitioning to heat pump technologies.

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on outreach, please refer to Response to General Comment 5.

COMMENT LETTER #32: GARY DUFOUR**Jennifer Vinh**

From: [REDACTED]
Sent: Monday, March 17, 2025 5:36 PM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name: Gary Dufour****Email:** [REDACTED]**Phone:** [REDACTED]**Message:**

I am vehemently opposed to the proposed rule change as it will impose yet another unnecessary burden on hard working California families. Natural gas IS ac clean and very reliable energy. These impositions from unelected officials are the very reason California is struggling. We will not comply.

32-1

Response to Comment Letter #32*Response to Comment 32-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the need for the amendment of Rules 1111 and 1121, please refer to Response to General Comment 10.

COMMENT LETTER #33: JAMES FLESHER**Jennifer Vinh**

From: [REDACTED]
Sent: Monday, March 17, 2025 3:11 PM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name:** James Flesher**Email:** [REDACTED]**Phone:** [REDACTED]**Message:**

I am writing to oppose regulations 1111 and 1121. I do not feel the state should have the authority in forcing me the inability to purchase natural gas appliances. I think this is more regulation by the state as we see more and more residents leave CA because of rules like this.

33-1

Response to Comment Letter #33*Response to Comment 33-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on the need for the amendment of Rules 1111 and 1121, please refer to Response to General Comment 10.

COMMENT LETTER #34: JAMIE ROSS**Jennifer Vinh**

From: Jamie R <[REDACTED]>
Sent: Wednesday, March 12, 2025 8:03 AM
To: Jennifer Vinh
Subject: [EXTERNAL] Opposition to water heater rule

Hello,

I would like to share my opposition to the proposed rule SCAQMD is considering to eliminate natural gas water heaters. This rule would be very costly to Californians. Most of us cannot afford the conversion should our water heater go out.

I know my Orange County board members are opposed to this.

Thank you,

Jamie Ross
Orange County resident

34-1

Response to Comment Letter #34*Response to Comment 34-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

COMMENT LETTER #35: NORMA BERTAGNA**Jennifer Vinh**

From: [REDACTED]
Sent: Wednesday, March 12, 2025 6:34 AM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name: Norma Bertagna****Email:** [REDACTED]**Phone:** [REDACTED]**Message:**

I oppose these rule even since they have been modified. I am 89 years old, on a fixed income and cannot afford this. I also detest that you feel empowered to spend my money on something that makes an insignificant impact on pollution. This should be completely optional. Vote no!

35-1

Response to Comment Letter #35*Response to Comment 35-1:*

For discussion on cost and affordability, please refer to Response to General Comment 2.

For discussion on the impact of these rules on air quality, please refer to Response to General Comment 10.

COMMENT LETTER #36: CITY OF CANYON LAKE**RESOLUTION NO. 2025-10**

36-1

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CANYON LAKE, CALIFORNIA, OPPOSING THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT'S PROPOSED AMENDED RULES 1111 AND 1121

WHEREAS, the South Coast Air Quality Management District (SCAQMD) has proposed amendments to Rules 1111 and 1121 to require a transition to zero-emission residential furnaces and water heaters in an effort to reduce nitrogen oxide (NOx) emissions; and

WHEREAS, the City recognizes the importance of improving air quality and reducing emissions to meet state and federal environmental goals; and

WHEREAS, the proposed amendments would place significant financial burdens on homeowners, businesses, and local governments due to the high costs of new appliances, infrastructure upgrades, and installation requirements; and

WHEREAS, there are concerns regarding the technological readiness of zero-emission heating appliances, particularly in existing housing stock where retrofitting may be costly or infeasible; and

WHEREAS, the proposed implementation timeline may not allow sufficient time for communities, manufacturers, and contractors to transition effectively, potentially leading to supply chain challenges and increased costs; and

WHEREAS, several cities, councils of governments, and industry stakeholders have expressed opposition to the proposed amendments due to their economic and logistical challenges; and

WHEREAS, the City supports a more measured approach that balances air quality improvements with economic feasibility, technological advancements, and equitable implementation strategies.

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF CANYON LAKE DOES HEREBY RESOLVE AS FOLLOWS:


- Section 1.** The above recitals are true and correct and are incorporated herein by reference.
- Section 2.** The City Council hereby opposes SCAQMD's Proposed Amended Rules 1111 and 1121 in their current form and urges SCAQMD to consider alternative approaches that minimize negative impacts on local governments, businesses, and residents.
- Section 3.** That the City Clerk shall certify the adoption of this Resolution and that the same shall be in full force and effect.

Section 4. This Resolution shall take effect immediately upon its adoption.

PASSED, APPROVED AND ADOPTED this 12th day of March 2025.


Mark Terry, Mayor

ATTEST:


Sheryl L. Garcia, MMC, CPM
City Clerk

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) SS
CITY OF CANYON LAKE)

I, Sheryl L. Garcia, City Clerk of the City of Canyon Lake, California, do hereby certify, that the foregoing is a true and correct copy of Resolution No. 2025-10, adopted by the City Council at a meeting held on March 12, 2025, by the following vote:

AYES: Castillo, Smith, Steeber, Welty, Terry
NOES: None
ABSTAIN: None
ABSENT: None



Sheryl L. Garcia, MMC, CPM
City Clerk

Response to Comment Letter #36

Response to Comment 36-1:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on technology readiness, please refer to Response to General Comment 4.

For discussion on outreach, please refer to Response to General Comment 5.

Additionally, staff has met with furnace and water heating manufacturers to discuss the new rule concept to incorporate feedback from manufacturers and to understand how the proposed amended rules may affect the supply chain and consumers. Manufacturers have zero-NOx emission appliances available today and were confident they could supply the market even based on the original rule concept with future effective zero-NOx emission mandates. They have not expressed any concerns meeting the market demand based on the revised rule concept that includes a slower transition to zero-NOx emission appliances.

COMMENT LETTER #37: CLEAN POWER ALLIANCE

March 18, 2025

South Coast Air Quality Management District
Planning, Rule Development, and Implementation
21865 Copley Dr.
Diamond Bar, CA 91765

Re: Clean Power Alliance Comments on SCAQMD Third Preliminary PARs 1111 and 1121

37-1

Clean Power Alliance of Southern California ("CPA") appreciates the opportunity to provide comments on South Coast Air Quality Management District's ("SCAQMD") Third Preliminary Proposed Amended Rules 1111 and 1121 ("PARs"). CPA also appreciates SCAQMD staff's efforts to broaden their public engagement since CPA's submittal of its October 2024 comments. CPA remains supportive of the PARs' approach to reduce nitrogen oxide ("NOx") emissions from natural gas-fired furnaces and water heaters and urges the Board to adopt the PARs. CPA also continues to commend SCAQMD's development of the Go-Zero Rebate Program ("Rebate Program") and its preserved launch timeline despite a delay in the PARs' implementation deadlines. Launching the Go-Zero Rebate Program as initially planned will help customers and the market prepare for and adapt to the PARs.

Background

CPA is California's largest community choice aggregator ("CCA"), serving over three million residents and one million customers across 35 communities in Los Angeles and Ventura counties. CPA is governed by a Board of locally elected officials who represent and serve our communities. CPA has been ranked the number one green power provider in the United States by the National Renewable Energy Laboratory ("NREL") for two years in a row.¹

CPA helps our customers and communities enhance resilience, conserve energy, reduce harmful greenhouse gas emissions, and save money on their electric bills. We seek to recognize and address the importance of healthy communities, including those disproportionately affected by air pollution and climate change. CPA advances the efforts noted above, in part, through our customer programs. CPA offers programs that provide incentives and benefits for low-income customers and disadvantaged communities that mitigate energy affordability challenges while advancing clean energy solutions.

¹ NREL 2023 Utility Green Power Rankings, 2024, at pp. 3 and 6. Found here:
<https://www.nrel.gov/analysis/assets/pdfs/green-pricing-top-10-2022-data-plus-archives-28aug2024.pdf>

801 S. Grand Ave., Suite 400, Los Angeles, CA 90017
cleanpoweralliance.org

The PARs and Go-Zero Rebate Program will help equitably improve the air quality, reduce emissions, and mitigate costs associated with the clean energy transition for CPA's customers and the communities we serve.

CPA Supports SCAQMD's Approach in the Third Preliminary PARs 1111 and 1121, the PARs Should be Adopted

CPA understands the potential long-term health, climate, and cost benefits associated with expanding use of zero-emission appliances and electrification in general. The potential benefits of zero-emission appliance standards are magnified in CPA's service territory considering CPA is recognized as the leading green power provider among all utilities in the country.

CPA continues to recommend SCAQMD adopt the PARs.

SCAQMD has Expanded its Education, Engagement, and Outreach Strategies and Practices Since October 2024

In its October 2024 comment letter, CPA recommended SCAQMD expand its current public outreach efforts to a broader stakeholder base before the SCAQMD Board votes to adopt the PARs. Since October, SCAQMD staff have hosted and engaged the public in at least six public meetings or consultations resulting in numerous verbal and email comments and 87 written comments submitted thus far. CPA acknowledges SCAQMD staff have expanded upon their outreach to better seek, receive, and incorporate input throughout the ongoing development of the PARs.

SCAQMD Should Continue its Expanded Education, Engagement, and Outreach Efforts Following the Adoption of the PARs

Assuming the SCAQMD Board adopts the PARs, CPA then recommends SCAQMD continue to identify and engage community partners to develop and execute a thorough education, engagement, and outreach strategy through the compliance deadlines (including the alternative compliance option deadlines of 2036) to improve public awareness of the standards and Go-Zero Rebate Program. CPA suggests SCAQMD continue to collaborate with members of its Environmental Justice Advisory Group and expand those efforts to members of similar groups and committees, such as the California Air Resources Board Environmental Justice Advisory Committee² and the Disadvantaged Communities Advisory Group³ advising California Public Utilities Commission and California Energy Commission actions.

CPA also continues to suggest SCAQMD incorporate efforts to collaborate with local governments, utilities, and local permitting agencies to improve and expedite the implementation of the PARs. The PARs will affect millions of customers across SCAQMD's jurisdiction and SCAQMD's engagement of and coordination with the impacted public should reflect the scope of the PARs' impacts following the adoption of the PARs.

² <https://ww2.arb.ca.gov/environmental-justice-advisory-committee>

³ <https://www.energy.ca.gov/about/campaigns/equity-and-diversity/disadvantaged-communities-advisory-group-dacag>

37-1

CPA Continues to Support the Rebate Program

CPA supports the Rebate Program and commends SCAQMD staff for retaining its launch date despite delaying the implementation dates for PARs 1111 and 1121. CPA understands there are challenges with electrification that must be addressed to achieve emissions reduction. Cost impacts associated with electrification, including upfront and capital costs, especially to low-income customers, are of particular concern to CPA. Maintaining the timely launch of the Rebate Program will help advance compliance with the PARs while reducing costs for Rebate Program participants considering SCAQMD already has funding available for the Rebate Program prior to collecting non-compliance fees.⁴ Once fees associated with alternative compliance or non-compliance are collected, SCAQMD's Rebate Program will appropriately direct fees collected for non-compliance with the PARs and reinvest those funds in compliant appliance incentives.

Conclusion

CPA appreciates SCAQMD staff's hard work on the PARs and looks forward to continuing to collaborate with staff throughout the remaining development and hopeful implementation processes.

If you have any questions, please contact C.C. Song at [REDACTED] and Clark McIsaac at [REDACTED].

Sincerely,

C.C. Song
Senior Director of Regulatory Affairs
Clean Power Alliance of Southern California

⁴ SCAQMD Presentation: Proposed Amended Rule 1111 – Reduction Of NOx Emissions From Natural Gas-Fired Furnaces (PAR 1111), Proposed Amended Rule 1121 – Reduction of NOx Emissions From Residential-Type, Natural Gas-Fired Water Heaters (PAR 1121); March 6, 2025; at slide 17.

Response to Comment Letter #37*Response to Comment 37-1:*

Staff appreciates the support for the proposed amended rules and Go Zero incentive program. Staff is in frequent contact with the California Air Resources Board, Bay Area Air District, other air quality agencies, local governments, and community groups to gain insight on methods to conduct outreach. Staff will continue to perform outreach after rule adoption, which will be supplemented by outreach conducted through the Go Zero incentive program. For more information regarding outreach, please refer to Response to General Comment 5.

COMMENT LETTER #38: MIKE SELNA**Jennifer Vinh**

From: Mike Selna <[REDACTED]>
Sent: Wednesday, March 19, 2025 10:55 AM
To: Jennifer Vinh
Subject: [EXTERNAL] Support for Amended Rules 1111 and 1121

38-1

I am writing in support of the proposed amendments to Rules 1111 and 1121. I applaud AQMD's work to reduce NOx emissions, thereby reducing new asthma cases, hospital visits and premature deaths. Our air quality has vastly improved because of your historic efforts, but we still have some of the worst air quality in the nation.

We need to reduce NOx emissions by 67% by 2037 in order to avoid Federal sanctions for violation of the Clean Air Act. Those Federal sanctions could include loss of highway funding, a cost opponents ignore. These amendments will help meet the standards.

Many of the arguments in opposition to these amendments are economic hardship issues. I believe the economic impacts of NOT approving the amendments are more significant and far reaching. These amendments not only reduce NOx emissions but also greenhouse gas emissions. The economic impacts of climate change in the form of health maintenance costs, disaster recovery costs, and increased insurance premiums will far outweigh the short-term costs of electrification of residential heating. Owning a home will become even less attainable as insurance costs skyrocket. These economic impacts are not considered by the cities and individuals opposed to these rules.

AQMD has gone a long way to accommodate those who do not wish to comply with these necessary changes in how we heat our homes by allowing natural gas furnaces to be installed when mitigation fees are paid. In some respects, this goes too far and negates some of the benefits of these rules.

In the long run, these rules will save money and reduce emissions that impact our environment and our health.

Thank you for your efforts in providing better living conditions in our region.

Michael Selna, Huntington Beach

Response to Comment Letter #38

Response to Comment 38-1:

Staff appreciates the support.

COMMENT LETTER #39: KENNETH ORTIZ**Jennifer Vinh**

From: [REDACTED]
Sent: Wednesday, March 19, 2025 6:53 AM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name: KENNETH ORTIZ****Email:** [REDACTED]**Phone:** [REDACTED]**Message:**

I am voicing my opposition to PAR 1111 and 1112, natural gas is clean burning.

39-1

Response to Comment Letter #39*Response to Comment 39-1:*

For discussion on the need for rule amendments, please refer to Response to General Comment 10.

COMMENT LETTER #40: LISA BACA**Jennifer Vinh**

From: [REDACTED]
Sent: Tuesday, March 18, 2025 10:11 PM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name:** Lisa Baca**Email:** [REDACTED]**Phone:** [REDACTED]**Message:**

40-1

As the Executive Director of the CA Latino Leadership Institute, I work in the underserved immigrant community of Southeast Los Angeles, (SELA). The South Coast Air Quality Management District is seeking comments on the proposed rules 1111 and 1121 that would eventually ban the use of natural gas for heating our homes or heating our water. This new policy is not good for low income communities like SELA. Why I believe it isn't sound policy to implement Rule 1111 and Rule 1121: 1. Natural gas is a lot less expensive than electricity to heat our homes and to heat water. Underserved immigrant communities struggle in this economy to put food on the table and the cost for electric conversion is in the thousands of dollars. 2. The cost for electricity has increased and the demand for electricity in the SELA summer months, which has

40-1

a tree canopy for shade and cooling is less than 20%, will also increase for cooling homes, taking showers and cooking. This will also puts a stronger demand on the current overburdened summer electric grid and family budgets. 3. If you are rich, there is no problem converting from gas, but if you are poor or elderly on a fixed income, it is prohibitive to transition and then maintain the cost long term for cooking and hot water. I LOVE Natural gas; it is affordable, convenient, Like the families I would with in SELA, I am able to cook and heat my water living on a fixed income. Please do not make this change from natural gas water heaters. Thank you.

Response to Comment Letter #40

Response to Comment 40-1:

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost and affordability, please refer to Response to General Comment 2.

For discussion on electricity demand and grid sustainability, please refer to Response to General Comment 3.

COMMENT LETTER #41: MARY ANN RAILEY**Jennifer Vinh**

From: [REDACTED]
Sent: Wednesday, March 19, 2025 6:47 AM
To: Jennifer Vinh
Subject: Contact Form

Contact Form**Name: Mary Ann Railey****Email:** [REDACTED]**Phone:** [REDACTED]

Message:
I oppose not having the freedom of choice!

41-1
**Response to Comment Letter #41***Response to Comment 41-1:*

For discussion on consumer choice, please refer to Response to General Comment 1.

COMMENT LETTER #42: RINNAI AMERICA CORPORATION

March 20, 2025

Jen Vinh
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765

(Submitted via email at: jvinh@aqmd.gov)

Re: Comments on Proposed Amended Rule 1121 & 1111

Dear Ms. Vinh,

Rinnai America Corporation (Rinnai) appreciates the opportunity to provide comments on the South Coast Air Quality Management District's (SCAQMD) Proposed Amended Rule 1121, Reduction of NOx Emissions from Residential-Type, Natural Gas-Fired Water Heaters (PAR 1121) and Proposed Amended Rule 1111, Reduction of NOx Emissions from Natural-Gas-Fired Furnaces (PAR 1111). As a leading manufacturer of high-efficiency water heating appliances, Rinnai remains committed to supporting emissions reductions while preserving consumer choice and affordability, ensuring technical feasibility, and maintaining market stability.

Rinnai notes that its current product offerings do not fall within the scope of PAR 1111 and PAR 1121, but as an industry stakeholder and manufacturer of water and space heating products, Rinnai has concerns regarding the structure and implementation of the rules and their implications for manufacturers, consumers, regulatory consistency, and compliance with law.

Regulatory Disparities

Rinnai is concerned that PAR 1121 creates an uneven regulatory framework that disadvantages tankless water heaters in comparison to tank-type water heaters in the Southern California market. Specifically, the proposed amendments include a shift in the deadline for new building compliance from January 1, 2026 to January 1, 2027 for tank water heaters, as well as a phased-in alternative compliance option, providing manufacturers and distributors of these products with additional time and flexibility to adjust to new regulatory requirements. On the other hand, the zero-NOx deadline for Rule 1146.2 remains unchanged, with no phase-in alternative, for tankless gas water heaters as well as boilers and process heaters. Consequently, we are disadvantaged in the Southern California market since our products will be eliminated from the marketplace after January 1, 2026 while products covered by existing Rule 1121 will still be available for installation. These proposed amendments create an unbalanced regulatory landscape that the District needs to reconsider.

Practical Implications

While a phased-in transition is preferable to an immediate and impractical ban, the current proposal remains problematic for the industry. Even with the alternative compliance pathway, the revised rule still presents substantial logistical and financial burdens for manufacturers, distributors, and consumers. The requirement to retool manufacturing processes, adjust supply chains, and meet phased-in sales

Rinnai America Corporation | 103 International Drive, Peachtree City, GA 30269 | 800-621-9419

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42-2

Rinnai Comments on Proposed Amended Rule 1121 and 1111
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42-2

targets will impose compliance burdens (including reporting and labeling mandates) and high costs that will ultimately be passed on to consumers, either partially or in total. The need to modify manufacturing, sales and distribution is exacerbated by ongoing supply chain challenges, manufacturing and distribution infrastructure limitations, and the lack of technical feasibility.

PARS 1111 and 1121 also fail to account for concerns regarding consumer choice, product availability, and market feasibility. The rule drastically reduces consumer choice, particularly in existing buildings where electric alternatives may be impractical due to inadequate electrical infrastructure, increased installation costs, or space constraints. By accelerating a transition to technologies that are not yet viable in all applications, the rules will force consumers into higher-cost and less practical options that could require expensive retrofits.

Additionally, Rinnai has concerns about the rule's cost-effectiveness. Rinnai encourages the District to conduct a comprehensive third-party cost-benefit analysis of the transition from low NOx to zero NOx emissions. A full life-cycle emissions assessment is necessary, as net benefits may be minimal or even negative when considering factors such as emissions from electricity generation, distribution losses, improper installation, cold temperatures, and installation challenges in tight spaces. And on the other hand, the costs imposed on consumers and businesses will be significant, including not only product costs but installation costs that may include electrical upgrades, space reconfiguration, venting modifications, and condensate management.

Furthermore, in light of recent challenges—including tragic and devastating wildfires, rising inflation, and trade tariffs—the District should be especially mindful of the financial burden on constituents. As communities work to recover and rebuild, it is critical to ensure that new regulations do not inadvertently impede much-needed housing and infrastructure development. Instead, the District should prioritize policies that facilitate rapid and cost-effective construction while balancing environmental and public health goals.

EPCA Preemption

42-3

Despite SCAQMD's efforts to adjust its regulatory approach, Rinnai maintains that the current proposal still conflicts with federal law. The Energy Policy and Conservation Act (EPCA), 42 U.S.C. § 6201 *et seq.*, prohibits state and local regulations from setting standards that effectively ban gas appliances because such bans concern the energy use or energy efficiency of those appliances. The zero-NOx standard effectively eliminates gas-fired water heaters and furnaces from the market and forces market shifts toward alternatives. This is precisely the type of regulation that EPCA preempts. Having a phased-in ban, rather than an immediate ban, does not avoid EPCA preemption.

Conclusion and Recommendation

While Rinnai is in some sense neutral because it does not produce these products, it remains concerned that the District's modified approach is still unlawful under EPCA, imposes significant and unwarranted burdens and financial penalties (taxes) on manufacturers, and harms consumer choice and affordability.

We appreciate the District's efforts to develop an alternative approach to Rule 1146.2's zero-NOx rule, which is preempted, for PARS 1111 and 1121. However, the underlying issues regarding legality,

Rinnai America Corporation | 103 International Drive, Peachtree City, GA 30269 | 800-621-9419

Rinnai Comments on Proposed Amended Rule 1121 and 1111
March 20, 2025
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regulatory fairness, compliance feasibility, and consumer impacts need to be resolved before any alternative approach is adopted.

We appreciate the opportunity to provide these comments and remain available for further discussions.

Sincerely,



Marc D. Neufcourt
Director, Regulatory and Government Affairs

Cc: Perry McGuire, Rinnai America Corp., Vice President and General Counsel
Renee Eddy, Rinnai America Corp., Chief Innovation Officer
Sarah Jorgensen, Reichman Jorgensen Lehman & Feldberg

Response to Comment Letter #42

Response to Comment 42-1:

Staff will conduct a technology check-in for Rule 1146.2 and provide an update to the Stationary Source Committee prior to June 2027.

The compliance targets by the proposed ZEM alternative compliance option are not hard targets. Manufacturers may decide the number of sales of NOx-emitting gas units and pay more fees if they sell NOx emitting units above the targets. Both rules had mitigation fee alternative compliance options previously. PAR 1111 and PAR 1121 manufacturers worked with the supply chain to reconcile their sales to the region for the report and mitigation fee. The proposed ZEM alternative compliance option provides flexibility for the implementation and addresses the concern for consumer choice and costs.

For discussion on consumer choice, please refer to Response to General Comment 1.

Response to Comment 42-2:

For discussion on cost, please refer to Response to General Comment 2.

For discussion on cost-effectiveness, please refer to Response to General Comment 6. The project costs used in the calculation are real-world installation costs including needed electrical upgrade costs as explained in Chapter 2.

Response to Comment 42-3:

For discussion on EPCA, please refer to Response to General Comment 9.

COMMENT LETTER #43: AIR-CONDITIONING, HEATING, AND REFRIGERATION INSTITUTE (AHRI)



2311 Wilson Boulevard Suite 400 Arlington VA 22201 USA
 Phone 703 524 8800 | Fax 703 562 1942
www.ahrinet.org

March 20, 2025

Ms. Heather Farr
 Planning, Rule Development, and Implementation
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

Ms. Jen Vinh
 Planning, Rule Development, and Implementation
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

(Submitted electronically via jvinh@aqmd.gov and HFarr@aqmd.gov)

RE: AHRI Comments in Response – South Coast Air Quality Management District (SCAQMD) Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired Furnaces (PAR 1111) and Proposed Amended Rule 1121 – Reduction of NO_x Emissions from Small Natural-Gas-Fired Water Heaters (PAR 1121)

Dear Ms. Farr and Ms. Vinh:

The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) respectfully submits this letter in response to the third preliminary drafts of Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired Furnaces (PAR 1111) and Proposed Amended Rule 1121 – Reduction of NO_x Emissions from Small Natural-Gas-Fired Water Heaters (PAR 1121) from South Coast Air Quality Management District (SCAQMD or District).

AHRI represents more than 330 manufacturers of heating, ventilation, air conditioning, and refrigeration (HVACR), and water heating equipment. It is an internationally recognized advocate for the HVACR industry and certifies the performance of many of the products manufactured by its members. In North America, the annual economic activity resulting from the HVACR industry is more than \$211 billion. In the United States alone, AHRI member companies, along with distributors, contractors, and technicians employ more than 700,000 people.

AHRI and its members are committed to, and support, greenhouse gas (GHG) emission reductions, while promoting sustainable, safe, reliable, and affordable access to the essential air-conditioning and water heating provided by the products they manufacture.

I. Comments to PAR 1111 and PAR 1121

A. Mitigation Fee Structure

AHRI appreciates the District offering alternative paths for compliance and allowing for consumer choice. However, Table 3, *Zero-Emission Manufacturer (ZEM) Alternative Compliance Option Targets and Mitigation Fee Schedule*, of both PAR 1111 and 1121 introduce burdensome fees to manufacturers, who have no recourse against if consumers chose ultra-low NO_x products. Rather

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AHRI Comments – SCAQMD PAR 1111 and PAR 1121
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than the proposed fee schedule, AHRI recommends replacing the current fee structure with a flat fee for each phase of compliance or an escalating annual flat fee over several years rather than over targeted percentages.

Additionally, AHRI requests clarification on how the mitigation fees in Table 3 of PAR 1121 were calculated and how they will be implemented. AHRI's members are concerned that if implemented, the mitigation fees will reduce the affordability of existing ultra-low NOx products in the District.

B. Annual Reporting Requirements and Record Keeping

Both PAR 1111 and PAR 1121 require manufacturers to maintain records of the model number and serial number of each zero-NOx unit, furnace, and water heater sold; the number of units sold; and the contact information of the distributor for at least five years and produce the information upon request. AHRI and its members are concerned about the amount of proprietary information required to be held by manufacturers, specifically serial numbers. In the past, manufacturers have provided shipment data by zip code rather than serial numbers.

AHRI emphasizes that the data that District staff is requiring to be provided is proprietary information of product manufacturers. AHRI strongly urges District staff to add language clarifying that the District will treat such data as Confidential Business Information and will not share the data with third party entities. Such language would provide assurances to manufacturers that the confidential business information they are being compelled to disclose, specific to their organization, will not be accessible to parties other than the District.

C. Product Labeling

AHRI does not support the requirement for a label on furnaces and water heaters to enforce PAR 1111 and PAR 1121. Manufacturers do not have a way to know where the equipment will ultimately be installed, as our members work through distributors and wholesalers, labeling specific to a state air district is impractical and overly burdensome. SCAQMD maintains a database¹ of equipment with NOx levels and an inspection agency therefore could look up equipment compliance.

AHRI requests clarification on whether the labeling requirements are applicable to all products following the January 2029 effective date.

II. Comments specific to third preliminary draft of Proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces (PAR 1111)

A. Furnace Size

AHRI supports the District retaining the less than 175,000 British thermal units (Btu)/ hour scope for furnaces.

B. Acceptable Alternatives

AHRI members are concerned that allowing electric furnaces as an acceptable zero-emission product to replace a furnace could lead to increasing the winter demand on the electric grid and result in large electric bills for customers that would not see those utility costs if using a gas furnace. This could be a substantial issue for low- and moderate-income families. While the District's focus is on air quality, California Energy Commission (CEC) Title 24, Building Standards Code, only allows

¹ <http://www.aqmd.gov/home/programs/business/business-detail?title=certified-equipment>

AHRI Comments – SCAQMD PAR 1111 and PAR 1121
March 20, 2025
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electric resistance heating in a few exceptions. AHRI recommends that this should not be listed as an acceptable alternative, except as allowed by Title 24.

C. Verification Procedures

AHRI members also note there are currently 1,666,000+ matched Air Source Heat Pump (ASHP) sets listed on the AHRI Directory of Certified Product Performance². It would be largely burdensome for manufacturers to list both the ASHP indoor/outdoor matched models and there must be a less obtrusive path to allow for verification.

III. Comments specific to third preliminary draft of Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural-Gas-Fired Water Heaters (PAR 1121)

A. Zero-Emission Limits Compliance Path and Compliance Schedule

For the zero-emissions compliance path in PAR 1121, AHRI supports removing NOx requirements for existing mobile homes, and recommends maintaining Table 2, *Zero-Emissions Limits and Compliance Schedule*. Additionally, AHRI supports the modification of the proposed compliance dates and notes that the dates should not be sooner than proposed in this third draft.

IV. Conclusion

AHRI appreciates the opportunity to submit these comments and welcomes the opportunity for further discussion. If you have any questions regarding this submission, please do not hesitate to contact me.

Sincerely,



Nicole Colantonio
Director, Regulatory Affairs
Direct: (703) 600-0332
Email: ncolantonio@ahrinet.org

² AHRI Directory of Certified Product Performance. <https://ahridirectory.org/>

Response to Comment Letter #43*Response to Comment 43-1:*

Manufacturers have the option to comply with PAR 1111 and PAR 1121 by the ZEM alternative compliance option or compliance schedule for new and existing buildings according to rule paragraph (d)(2). The proposed ZEM alternative compliance option, in lieu of paragraph (d)(2), intends to provide flexibility for the implementation and addresses the concern for consumer choice and costs. The compliance targets by the proposed ZEM alternative compliance option are not hard targets. If consumer demand results in higher sales of NO_x-emitting gas units, the manufacturer may supply those units; however, the higher fee will apply. The under the target mitigation fee is proposed as a flat fee; however, the over the target sales is meant to deter the sales of NO_x-emitting units.

The mitigation fees were intended to encourage the purchase of zero-NO_x emitting units and fund the Go Zero incentive fee. Staff could have proposed much higher mitigation fees, please see the discussion in Response to Comment 29-2.

Both rules had mitigation fee alternative compliance options previously. PAR 1111 and PAR 1121 manufacturers worked with the supply chain to reconcile their sales to the region for the report and mitigation fee. Staff have met with each manufacturer for clarification of the rule language and future implementation and are available for any question from the manufacturers.

Please refer to Response to Comment PC-3 and Response to Comment PC-6 for discussion on sales targets and mitigation fees.

Please refer to Response to Appendix B 45-2 for a discussion on confidential information.

As mentioned earlier, mitigation fee alternative compliance options were implemented previously, and model and serial numbers were included in the report. However, to address stakeholders' concern, PAR 1111 and PAR 1121 will not require reporting unit serial numbers as previously proposed.

Manufacturers using the ZEM alternative compliance option are not subject to any labeling requirement. Instead, they comply with the informative material requirement, which is displaying specified language on consumer brochures, technical specification sheets, and the manufacturer's website. The labeling requirement for new and existing buildings is applicable until January 1, 2029, if manufacturers decide not to use the ZEM alternative compliance option and directly comply with rule paragraph (d)(2).

Any zero-NO_x emission unit allowed by PAR 1111 should also comply with other applicable rules and regulations. Staff understands that Title 24 restricts the installation of electric resistance furnaces but they are not completely prohibited. For the cost-effective analysis for PARs 1111 and 1121, staff primarily relied on the costs for heat pumps, which are the primary zero-NO_x emission technology considered. South Coast AQMD rules are technology neutral, any unit that meets the zero-NO_x emission standard would comply with PARs 1111 and 1121.

Manufacturer reported information under ZEM alternative compliance option provides essential information for their specific sales, this information is not intended for the AHRI certification verification. Staff did agree to reduce the reporting burden by removing the

serial number reporting and only requiring reporting for outdoor units for heat pumps that have an indoor and outdoor component.

Staff appreciates AHRI's support on the modifications of PAR 1121 for the third preliminary draft.

COMMENT LETTER #44: RHEEM MANUFACTURING COMPANY

March 20, 2025

Via Email: pcampbell@aqmd.gov, jvinh@aqmd.gov

Mr. Peter Campbell
Ms. Jennifer Vinh
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765

RE: Proposed Amended Rule 1111 Reduction of NOx Emissions From Natural Gas-Fired Furnaces Proposed and Amended Rule 1121 – Reduction of NOx Emissions From Small Natural Gas-Fired Water Heaters

Dear Mr. Campbell and Ms. Vinh,

Rheem Manufacturing Company (Rheem) appreciates the opportunity to submit the following comments in response to the South Coast Air Quality Management District's (SCAQMD) Third Preliminary Draft Proposed Amended Rule 1111 Reduction of NOx Emissions from Natural Gas-Fired Furnaces and Third Preliminary Draft Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural Gas-Fired Water Heaters.

Rheem is an industry leader in total heating, cooling, refrigeration and water heating solutions and one of the few global brands with product offerings covering residential and commercial heating, cooling, conventional and hybrid storage water heaters (HPWH), tankless water heaters, solar water heating systems, pool and spa heaters, commercial boilers, residential hydronic and geothermal systems, commercial refrigeration products, indoor air quality accessories, and replacement parts for all categories. Rheem is headquartered in Atlanta, Georgia, and has U.S. based manufacturing facilities in Alabama, Arkansas, California, Connecticut, and North Carolina. The company also operates distribution facilities throughout the US, Canada, and many other countries around the world. Rheem manufactures commercial boilers and pool heating equipment at the Raypak facility in Oxnard, CA, which are affected by SCAQMD rules.

Rheem appreciates SCAQMD staff's efforts to update the Rules 1111 and 1121 and specifically to include and consider stakeholder input. Rheem supports the intention to provide consumers, plumbers, and contractors with fuel and equipment choice; recognizing complications with emergency replacements, electrical panel upgrades, added air-flow provisions, and higher equipment and installations costs. However, Rheem would like to express and reiterate our concerns regarding the definitions, the compliance date basis, the inappropriately applied mitigation fee, and the burdensome new labeling and reporting requirements. Rheem also



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RHEEM MANUFACTURING COMPANY • 1100 ABERNATHY STE. 1400 • ATLANTA, GA 30328 • RHE



offers specific improvements and recommendations including a more straightforward mitigation fee approach.

Definitions

Rheem notes that the definition of “NEW BUILDING” in the second preliminary drafts of Rules 1111 and 1121 had “or any subsequent version of the Building Code.” This statement was removed from the NEW BUILDING definition in Rule 1121 but not Rule 1111. Rheem recommends it be added to the definition in Rule 1121.

The newly proposed “ZERO-NOx EMISSION UNIT” definitions include “heating capacity equivalent to [Furnaces or Water Heaters] subjected to this rule.” While Rheem understands the intent of the definitions is to apply to units that are a direct replacement for a natural gas-fired unit, the use of “heating capacity” and “equivalent” are troublesome. Heating capacity is typically just input rate multiplied by steady-state efficiency. For water heaters, a typical gas-fired storage water heater can be replaced with an electric resistance or heat pump storage water heater, which both have significantly less “heating capacity” than a gas-fired storage water heater;¹ or an electric instantaneous water heater, which typically has a much higher “heating capacity” than a gas-fired storage water heater.² Zero-NOx storage water heaters can replace a gas-fired storage water heaters but have a longer recovery times due to the lower heating capacity. Zero-NOx instantaneous water heaters heat water as it flows through the unit, so require a much larger heating capacity as the time to heat is so short. As neither zero-NOx water heater solution has an equivalent heating capacity to the gas-fired storage water heaters covered by Rule 1121, Rheem requests SCAQMD clarify what technologies and ranges within a technology would constitute a “ZERO-NOx EMISSION UNIT.” Rheem notes that if SCAQMD adjusts the mitigation fee approach as described elsewhere in these comments, then the reporting of ZERO-NOx EMISSION UNIT data may not be necessary.

Regarding scope of covered furnaces, Rheem supports SCAQMD retaining the less than 175,000 British thermal units (Btu)/ hour scope for furnaces and not increasing to include larger commercial furnaces at this time.

Requirements

Rheem supports aligning the existing building water heater compliance date with the gas-fired instantaneous compliance date from Rule 1146.2 of January 1, 2029.

¹ Rheem estimates that the range of heating capacities for gas-fired storage water heaters to be between 20-60 kBtu/h (32 kBtu/h average), electric resistance storage water heaters to be between 10-40 kBtu/h (16 kBtu/h average), 120V heat pump water heaters to be between 5-17 kBtu/h (9 kBtu/h average), and 240V heat pump water heaters to be between 10-38 kBtu/h (21 kBtu/h average). Heating capacity for heat pump water heaters includes heating from the heat pump and electric resistance elements.

² Rheem estimates that the range of heating capacities for electric instantaneous water heaters that can replace a gas-fired storage water heater (*i.e.*, residential-duty commercial electric instantaneous water heaters) to be between 36-120 kBtu/h (72 kBtu/h average).



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Rheem recommends that the new building compliance date be based on the permit application date rather than the construction or alteration completion date. Buildings permitted now may not complete construction by January 1, 2027. Rheem expects construction to be slowed somewhat due to the number of homes that will need to be rebuilt following the recent wildfire damage. Rheem recommends amending exemption (h)(2)(C) from Rule 1111 and exemption (h)(C) from Rule 1121 from “Date of Adoption” to “January 1, 2027.”

44-2

Alternative Compliance Options

Rheem appreciates SCAQMD providing a compliance pathway that allows for consumer choice. However, Rheem has strong concerns regarding mitigation fee application, structure, and potential effectiveness.

44-3

As proposed, the mitigation fee is misapplied. Any fee imposed on the manufacturer, rather than the installer, has a diluted (if any) effect on the adoption of zero-NOx technology. Manufacturers make a variety of models available to the market and fulfill the demand as it is called for by the channel, which is comprised of distributors, wholesalers, dealers, contractors, and installers. A fee imposed per unit sold by the manufacturer does little to alter market demand and has little bearing on the volume of equipment manufacturers supply to fulfill the channel requests. Rheem requests SCAQMD reconsider applying the mitigation fee at the point of sale. This would ensure that furnaces and water heaters sold within the air district are accounted for and that the fee can be directly associated with the choice of product. Further, Rheem recommends working with the local gas utilities to cover the cost of the mitigation fees.

The escalation structure of the mitigation fee is also highly problematic. A critical aspect of any fee or incentive—at all parts of the market channel—is certainty and predictability. Any variable that stands to affect the market value of new equipment must be known in advance. As proposed, the mitigation fee is applied to the manufacturer at the end of year and possesses an uncertainty of between \$50 and \$500 per unit. Yet the manufacturer must predict this when offering at the first step in the distribution channel, in a way that accurately factors any applicable fees, including any other fees that may be assessed from Rule 306. Further, it should be understood that these fees are passed through the distribution channels and get compounded with each step ultimately impacting the consumer cost. Rheem does not support the proposed mitigation fee escalation if the sales targets are not met. Manufacturers cannot fully predict or force demand, so all mitigation fees are expected to be passed through to the consumer. A more straightforward approach would be to keep the mitigation fee constant for a given period and adjust it every few years to align with the gas-fired phasedown that is desired by SCAQMD. Rheem understands that the SCAQMD already has an accurate estimate of the number of water heaters and furnaces installed in their jurisdiction. SCAQMD can estimate the number of replacements each year as this shouldn’t change dramatically year over year. Based on mitigation fees collected, program effectiveness can be gauged, and mitigation fee changes can be assessed. Moving to a single fee removes the need for a manufacturer to submit



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confidential business information, which may inappropriately be used outside of determining compliance with Rules 1111 and 1121. When based on manufacturer reported sales, any public statement on the effectiveness of Rules 1111 and 1121, including the number of units installed or mitigation fees collected, will be problematic and result in public disclosure of confidential business information.

Sections (f)(3)(A) of Rule 1111 and (f)(2)(A) of Rule 1121 address when the “percentage of [Furnaces or Water Heaters] sold is greater than the [...] Sales Target” and sections (f)(3)(B) and (f)(2)(A) address when the “percentage of Zero-NOx Emission Units sold is greater than the [...] Sales Target.” Rheem requests clarification on what happens with the sales target exactly meets the sales target.

Rheem requests that a sample filled out form 400A be provided as the form appears to not have been developed for purposes related to this application. Rheem also requests a sample fee calculation be provided. Rule 306 has several different fees, including, but not limited to, filing, plan evaluation, and inspection. Given the many units installed within the SCAQMD jurisdiction each year, Rheem expects inspection fees, if assessed, to quickly become greater than the mitigation fee.

Section (f)(2)(E) of Rule 1111 and section (f)(1)(E) of Rule 1121 require a report and mitigation fee pursuant to (g)(2) or (f)(1), respectively, to be paid every year, yet sections (g)(2)(A) and (f)(1)(A) require filing an alternate compliance plan by November 1, 2026. Rheem understands these requirements to mean that a new compliance plan should be submitted each year. If so, Rheem recommends “November 1, 2026” be amended to “no later than November 1 the year prior to the calendar year utilizing this alternative compliance option.” Alternatively, if the intent is to require a manufacturer to lock in the compliance option pathway in 2026, then Rheem does not support the requirement. This would essentially require payment of Rule 306 fees in perpetuity even after a manufacturer stops producing NOx emitting units. Rheem notes that section (f)(1)(B) of Rule 1111 appears to allow selection of the compliance option each year for mobile home furnaces.

Section (g)(2)(B) of Rule 1111 and section (f)(1)(B) of Rule 1121 state that “The manufacturer sells, or enables distributors, retailers, Resellers, or Installers to sell, Zero-NOx Emission Units into or within the South Coast AQMD.” Rheem understands this to mean that only manufacturers with electric and gas products can use the alternate compliance option. Rheem does not understand the requirement to mean that a manufacturer must compel the distribution channel to comply. Manufacturers have no ability to force customers to buy a specific product, which has traditionally been the role of government.

Rheem notes that the SCAQMD jurisdiction is not an isolated market and encourages SCAQMD to establish its prohibitions and fees in a way that discourages noncompliance by way of obtaining equipment outside of the district.



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44-4

Labeling, Recordkeeping, and Reporting

Rheem recommends that the “and” in section (g)(1)(B)(ii) of Rules 1111 and 1121 be amended to “or.” The intent of this section appears to be to provide information to the consumer, not to overexpose them to regulatory language.

Section (g)(1)(C)(ii) of Rules 1111 and 1121 sets a single date for setting mobile home unit label language. After the Table 2 compliance dates, gas-fired mobile home units can only be installed in existing homes. This makes half of the label unnecessary. Rheem recommends removing section (g)(1)(C)(ii) from Rules 1111 and 1121. Similarly, section (g)(4)(B)(ii) of Rule 1111 and section (g)(3)(B)(ii) of Rule 1121 require alternate language be submitted prior to October 1, 2025. Rheem recommends these sections also be removed. Further, there are other jurisdictions establishing zero NOx and zero GHG regulations and are requiring labelling. If we can’t update the labeling as needed new regulations go into effect, then compliance with these labeling provisions will be unnecessarily burdensome.

Thank you for the opportunity to provide these comments. If there are any questions, please contact me directly.

Sincerely,

James Phillips
Senior Regulatory Affairs Manager
Rheem Manufacturing Company

cc: Allison Skidd, Joe Boros, Karen Meyers, Matt Lattanzi

Response to Comment Letter #44

Response to Comment 44-1:

Thank you for noting the discrepancy on the new building definition in PAR 1111 and PAR 1121. Staff fixed it in PAR 1121.

Staff understands the concern on the definition for Zero-NOx emission unit and revised it for clarity.

Response to Comment 44-2:

Regarding the exemption provided to new buildings by paragraph (h)(2), staff believes there is sufficient time to incorporate zero-NOx emission appliances in the building plan or modified building plan, by January 1, 2027. Besides, builders have already been implementing zero-NOx emission appliances in new buildings to comply with Title 24 electric ready requirement for new buildings. Staff does not observe a need to further relax this exemption.

PAR 1111 and PAR 1121 is implemented and enforced through the supply chain, not at the consumer level. It is not practical or feasible to require sales reporting and apply mitigation fees for each NOx-emitting appliance sold in our jurisdiction at the point of sale. Applying the reporting requirements and mitigation fees at the manufacturer level has been

the approach used for Rules 1111 and 1121 for decades. Mitigation fee alternative compliance options were previously implemented in both PAR 1111 and PAR 1121, when manufacturers could not comply with the lower emission limit and thus paid a mitigation fee for selling units with higher emissions. This approach is also used for other area source rules, such as Rule 314 that includes sales reporting requirements and applies fees on the architectural coating manufacturers, not at the point of sale.

Response to Comment 44-3:

Please see Response to Comment 43-1 for more on mitigation fees.

Response to Comment 44-4:

Informative material requirement is proposed in place of a potential labeling requirement as a tool of compliance identification in a more effective but less burdensome way. The comment (g)(1)(B) now is in the new definition for informative material for rule streamlining. In existing Rule 1111, informative material includes all three types of material, not just any one of them that is recommended by the commenter. Staff does not suggest changing it.

Staff agrees with the commenter and has removed the rule language for the due date of submitting alternative language. With this change, manufacturers will use the language in the rule unless there is an alternative language approved.

COMMENT LETTER #45: JOHNSON CONTROLS

Johnson Controls
5757 N. Green Bay Ave.,
Milwaukee, WI 53201
Tel (414) 524-1200



March 20, 2025

Ms. Heather Farr
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Ms. Jen Vinh
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

(Submitted electronically via jvinh@aqmd.gov and HFarr@aqmd.gov)

RE: Johnson Controls Comments in Response – South Coast Air Quality Management District (SCAQMD) Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired Furnaces (PAR 1111)

Ms. Farr and Ms. Vinh:

Johnson Controls

With a global team of nearly 100,000 experts in more than 150 countries, Johnson Controls (JCI) offers the world's largest portfolio of building technology and software as well as service solutions from some of the most trusted names in the industry. We are committed to helping our customers and industries around the world pursue goals for best-in-class environmental targets in carbon and water. Since our inception, our business has been a force for efficiency, resource conservation, decarbonization and water conservation.

Today, the trifecta of low-carbon, energy efficiency, electrification, and digitalization enable us to slash carbon and operating costs. By 2030, we have committed to cut our Scope 1 and 2 absolute emissions by 55% and in FY24 have reached 48% reduction since 2017. Our 2030 Scope 3 target is to reduce product in use emissions by 16% and as of FY24, we reduced

emissions 20% since 2017. These ambitious emissions reduction targets have been approved by the Science Based Targets initiative. We are also committed to achieving Net Zero Scope 1 and 2 emissions and 100% renewable electricity by 2040.

45-1

PAR 1111 Mitigation Fee Structure

JCI appreciates SCAQMD's efforts to balance consumer choice and the need for emissions reductions, however there are implementation concerns with the current proposed revisions. JCI cautions against adding the mitigation fees to ultralow NOx furnaces (e.g., 14 ng/l) as proposed by the alternative compliance option. The proposed mitigation fee structure will result in increased fees which are ill-defined and based on unknowable market conditions. Due to the plan uncertainties, there will be increased fees which the supply chain is likely to pass through to consumers. This result is contrary to the stated objective of reducing impact to low- and middle-income consumers. JCI feels a more definite mitigation fee structure, combined with recently resumed, rebates via the well-established TECH Clean California program¹ with supporting funding from the Inflation Reduction Act provides more than enough incentive for heat pump installations (up to \$45 million or \$8000 per income qualified households).

PAR 1111 Record Keeping and Reporting Requirements

45-2

As summarized in PAR 1111 manufacturers are required to collect and maintain records of the model number and serial number of each zero-NOx emission unit or ultralow NOx furnace, the number of units sold for each category, and the contact information of the distributor for at least five years and produce the information upon request. JCI believes the amount of confidential business information required is burdensome and, without specific protections by SCAQMD, data is at risk of being shared directly or indirectly with third parties. JCI urges SCAQMD to incorporate protective language that SCAQMD would treat the information as confidential business information and will not be shared by SCAQMD.

PAR 1111 Dual Fuel Systems

45-3

JCI is a strong supporter of Dual Fuel systems which combine the benefits of a heat pump with that of a suitable backup heating source such as ultralow NOx furnace offerings. Dual fuel systems have the benefits of lower source emissions as well as lower operating costs, avoiding the inefficient use of electric resistance backup heat. Further, they often have lower upfront infrastructure costs when replacing an existing furnace. JCI would like to thank SCAQMD for considering these benefits by including proposal guidelines which allow Dual

¹ <https://techcleanca.com/about/news/heehra-rebates-resume-in-california/>

Fuel systems. This will hasten the adoption of heat pumps by demonstrating their performance capabilities while avoiding the concerns by many of our customers of the extreme costs and inefficiencies associated with heat pumps with electric resistance back-up heating.

45-3

PAR 1111 Further Considerations

45-4

JCI appreciates staff's efforts to find amicable alternatives to achieve emissions reductions while considering the lower and mid-income population via their proposed "alternative compliance plans". However, due to the evolutionary nature of the proposed PAR 1111, the general public workshops failed to fully reach the impacted consumer body or address the PAR 1111 details which invariably cause problems such as how to include mini-split heat pumps without potentially increasing emissions.

The alternative compliance plan approach depends on balancing furnace and heat pump sales if the zero NOx emission unit count is based on number of compressors. For example, residential heat pumps typically have one compressor and, according to PAR 1111, will be counted as one unit. However, it is highly unlikely that only one mini-split heat pump – which tend to have maximum heating capacities of 24,000 Btu/hr. – will replace a typical furnace which can have a capacity of 100,000 Btu/hr. or higher. It is more likely that one furnace would be replaced by as many as four mini-split heat pumps, meaning that the regulated entity could install three additional furnaces elsewhere in the district, thus increasing NOx emissions overall. It is not clear that this outcome advances the environmental objectives of PAR 1111.

Conclusions

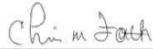
45-5

The enduring economic conditions have placed substantial burden on consumers, businesses, and all levels of the HVAC supply chain. Because this burden, combined with the majority of public comments opposing the PAR 1111, we suggest a pause in the rulemaking process to allow further public and business engagement and better assess the cost impact, technical, material and issues which have yet to be addressed by the currently proposed rule.

Due to the limited time for a thorough review of the final proposed rule draft, the proposed alternatives need further discussion with California businesses, manufacturers and SCAQMD staff before being finalized.

Johnson Controls thanks SCAQMD's staff for its work on this rule and expresses its willingness to continue working with staff to find amicable solutions which achieves both emissions reductions and lowers cost to California consumers.

If you have any questions, or would like to discuss this further, please contact us.



Chris M. Forth
VP Regulatory, Codes & Environmental
Affairs
Johnson Controls, Inc.
5005 York Drive
Norman OK 73069



David Stephens
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Cc:

Katie McGinty, Johnson Controls, VP & Chief Sustainability & External Relations Officer
Crystal Klein, Johnson Controls, VP & Ast. GC HVAC/R & Ducted, GP & Reg
James Manser, Johnson Controls, VP Global Government Relations

Response to Comment Letter #45

Response to Comment 45-1:

The proposed ZEM alternative compliance option, in lieu of paragraph (d)(2) for direct compliance of zero-NOx emission standards, intends to provide implementation flexibility and address consumer choice and costs. The compliance targets by the proposed ZEM alternative compliance option are not hard targets. If consumer demand results in higher sales of NOx-emitting gas units, the manufacturer may supply those units; however, the higher fee will apply. The under the target mitigation fee is proposed as a flat fee that increases over time by CPI; however, the over the target sales is meant to deter the sales of NOx-emitting units.

Both rules had mitigation fee alternative compliance options previously. PAR 1111 and PAR 1121 manufacturers worked with the supply chain to reconcile their sales to the region for the report and mitigation fee.

Please refer to Response to Comment PC-3 and Response to Comment PC-6 for discussion on sales targets and mitigation fees.

Response to Comment 45-2:

The new rule concept includes reporting requirements and any information designated by the manufacturer as confidential in the annual report will be kept confidential by the South Coast AQMD. Information submitted to the Executive Officer may be designated as confidential under the provisions of the California Public Records Act (Govt. Code). The designation must be clearly indicated on the reporting form, identifying exactly which information is deemed confidential. The South Coast AQMD's Guidelines for

Implementing the California Public Records Act⁽¹⁾, which were adopted by the Governing Board on May 6, 2005, and amended on July 5, 2013, specifically with reference to trade secrets, adequately protect confidential information from misappropriation. The South Coast AQMD will request a justification from the entity claiming confidential information and evaluate the justification, any other information at its disposal, and determine if the justification supports the claim that the material is in fact a trade secret. If the claim of confidentiality is not meritorious or is inadequately supported by the evidence, the South Coast AQMD shall promptly notify, by certified mail and email, the entity who claimed confidential status that the justification is inadequate and that the information will be released after 21 calendar days from the date of such notice unless the person claiming trade secret brings a legal action to preclude such release. Staff understands that sales volume data is considered as business confidential data and is cautious to protect that data. Staff has modified the rule language for the clarity of annual report requirement and included an explanation of this in Chapter 4.

Please refer to Response to Appendix B Comment 43 for more on mitigation fee structure and recordkeeping and reporting requirements.

Response to Comment 45-3:

Dual fuel system has been discussed in this rulemaking process. While some manufacturers supported the dual fuel system, some other manufacturers opposed it as this allowance would undercut the development and commercialization of lower emission technologies. Staff previously proposed to allow dual fuel systems for high-altitude installations for a specified period. When the ZEM alternative compliance option was proposed that allows for both sales of zero-NOx emission and NOx-emitting units, there is no need to have a provision for dual fuel systems. Consumers may choose to install a dual fuel system, which should be considered as a NOx-emitting unit.

Response to Comment 45-4:

At the Public Consultation Meeting, staff included a slide explaining the considerations for sales targets determination at situations multiple units would be needed to replace one NOx-emitting furnace. Staff specifically noted non-ducted units and non-centralized systems such as minisplit heat pumps and electric resistance wall or floor furnaces and was committed to consider mechanisms to address this. The draft PAR 1111 and PAR 1121 released on April 1st include provisions that specify how to count those units in the target.

Response to Comment 45-5:

Please refer to Response to Comment PC-30 regarding the request of pausing rulemaking process for more engagement.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on outreach, please refer to Response to General Comment 5.

⁽¹⁾ <https://www.aqmd.gov/docs/default-source/default-document-library/Guidelines/prg-guidelines.pdf>

COMMENT LETTER #46: NORITZ AMERICA CORPORATION

March 20, 2025

Jen Vinh
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765

(Submitted via email at: jvinh@aqmd.gov)

Re: Comments on Proposed Amended Rule 1121 & 1111

Dear Ms. Vinh,

Noritz America Corporation (Noritz) appreciates the opportunity to provide comments on the South Coast Air Quality Management District's (SCAQMD) Proposed Amended Rule 1121, Reduction of NOx Emissions from Residential-Type, Natural Gas-Fired Water Heaters (PAR 1121) and Proposed Amended Rule 1111, Reduction of NOx Emissions from Natural-Gas-Fired Furnaces (PAR 1111). As a leading manufacturer of high-efficiency water heating appliances, Noritz remains committed to supporting emissions reductions while preserving consumer choice and affordability, ensuring technical feasibility, and maintaining market stability. Noritz is headquartered within the District's jurisdiction in Fountain Valley, CA.

Noritz does not offer products for sale that are under the scope of either PAR 1111 and PAR 1121, but as an industry stakeholder and manufacturer of water and space heating products, Noritz has concerns regarding the structure and implementation of the rule and its implications for manufacturers and regulatory consistency.

Regulatory Disparities

Noritz is concerned that PAR 1121 creates an uneven regulatory framework within the District which will have severe impacts on the entire product chain from manufacturers like ourself, to distributors, and ultimately consumers. In particular, the proposed amendments include a shift in the deadline for new building compliance from January 1, 2026 to January 1, 2027 and a phased-in alternate compliance option. This provides manufacturers and distributors of these products additional time and flexibility to adjust to the new requirements. This is contrasted against the 1146.2 rulemaking, for which the majority of Noritz product offering is covered, is unchanged, with no phase-in alternate compliance option and an implementation date set for January 1, 2026. This means that for at least 1-year, products like Noritz water heaters will be eliminated from the marketplace while products covered by Rule 1121 will still be available for installation. These proposed amendments create an unbalanced regulatory landscape that the District needs to reconsider. This can be further exacerbated by new building construction particularly those covered under Climate Zone 13, 14 which permit gas instantaneous water heating products under 2022 Title 24, Part 6, while they may not physically be available in the region.

EPCA Preemption

Noritz America Corporation
11160 Grace Ave, Fountain Valley CA 92708, USA
Toll Free: (866) 7NORITZ (866-766-7439) Fax: (714) 241-1514
Website: www.noritz.com

46-1

46-2

46-2

Despite SCAQMD's efforts to adjust its regulatory approach, Noritz maintains that the current proposal still conflicts with federal law. The Energy Policy and Conservation Act (EPCA), 42 U.S.C. § 6201 et seq., prohibits state and local regulations from setting standards that effectively ban gas appliances because such bans concern the energy use or energy efficiency of those appliances. The zero-NOx standard effectively eliminates gas-fired water heaters and furnaces from the market and forces market shifts toward alternatives. This is precisely the type of regulation that EPCA preempts. Having a phased-in ban, rather than an immediate ban, does not avoid EPCA preemption.

We appreciate the opportunity to provide these comments and remain available for further discussions.

Sincerely,



Randy Oshiro
Engineering Manager

Response to Comment Letter #46

Response to Comment 46-1:

Please refer to Response to Comment 42-1.

Response to Comment 46-2:

Please refer to Response to Comment 42-3.

COMMENT LETTER #47: JOHN CARSER**Proposed Rules 1111 and 1121**

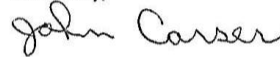
Dear South Coast AQMD:

I am writing to support the proposed amendments to Rules 111 and 1121. I applaud AQMD's work to reduce NOX emissions, thereby reducing new asthma cases, hospital visits and premature deaths. Our air quality has vastly improved because of your historic efforts, but we still have some of the worst air quality in the nation.

In the long run, these rules will save money and reduce emissions that impact our environment and our health.

I appreciate all your efforts in providing better living conditions in our region.

Sincerely,

**Response to Comment Letter #47**

Response to Comment 47-1:

Staff appreciates the support.

47-1

COMMENT LETTER #48: DAVID PRICE**Marissa Poon**

From: Emily Yen
Sent: Thursday, March 27, 2025 9:01 AM
To: [REDACTED]
Subject: FW: [EXTERNAL] My public comment regarding proposed SCAQMD Rule 1111 (Gas furnaces) and Rule 1121 (gas water heaters) to require failed gas furnaces and water heaters to be replaced by electric versions

From: David Price <[REDACTED]>
Sent: Thursday, March 13, 2025 9:35 AM
To: Emily Yen <eyen@aqmd.gov>; Peter Campbell <pcampbell@aqmd.gov>
Subject: [EXTERNAL] My public comment regarding proposed SCAQMD Rule 1111 (Gas furnaces) and Rule 1121 (gas water heaters) to require failed gas furnaces and water heaters to be replaced by electric versions

Dear Emily Yen and Peter Campbell of the SCAQMD,

48-1

As I understand it, the South Coast Air Quality Management District (SCAQMD) Governing Board is soliciting public comment regarding proposed Rule 1111 (Gas furnaces) and Rule 1121 (gas water heaters) to require failed gas furnaces and water heaters to be replaced by electric versions.

I own the condo I live in in Pasadena, CA. Our condo complex consists of clusters of four condo Units with each four-Unit cluster served by a 400 amp meter box---and thus each condo is limited to a 100 amp sub panel. I have met with an official of Pasadena Water & Power to ascertain the feasibility of increasing my sub panel's capacity and from that meeting it became obvious that such an increase would require our HOA community to engage in a clearly cost-prohibitive, life-disruptive major project. Licensed electricians with whom I've spoken say that even with possibly greater-efficiency electric appliances it is unfeasible to operate an all-electric household using only the 100 amp sub panel that we have (HVAC, water heater, oven/stove, dishwasher, other kitchen appliances, clothes washer/dryer, lighting, other electrical/electronic devices such as TV, computer, modems, personal care appliances, etc.). Trying to add an EV charger to such a fantasy all-electric household here would be a folly upon a folly. And this amp-capacity limitation does not even address the prospect of skyrocketing rates of electricity charges.

I sure that our condo complex is not alone in this amp-capacity practical limitation, and I cannot imagine that any amount of electricity/physical plant "cost shifting" can be workable for California, particularly with our looming deficits, and if such envisioned policies cause an additional critical mass of taxpayers to exit the state.

48-1

And even further, has anyone considered the undue added mental stress such unworkable proposals would add to the lives of the millions of people affected by proposed Rules 1111 and 1121?

Not being an “expert”, I’m sure I’ve left out a number of other significant drawbacks to these proposed rules. Please contact me if I may be of other input.

Sincerely,

David Price

Pasadena, CA

Response to Comment Letter #48:*Response to Comment 48-1:*

For discussion on the electric grid and electricity demand, please refer to Response to General Comment 3. For a discussion on the electrical and amperage demand the space and water heating appliances require, please see the electrical service upgrade discussion in Chapter 2 and Response to Appendix C Comment 10-3.

APPENDIX C TO ATTACHMENT I: FINAL STAFF REPORT

APPENDIX C:

RESPONSE TO COMMENTS RECEIVED AFTER PUBLIC WORKSHOP (ORIGINAL RULE CONCEPT)

Comments Received from October 3, 2024 to February 7, 2025

PUBLIC WORKSHOP

Staff held the Public Workshop on October 3, 2024, to provide a summary of preliminary PAR 1111 and PAR 1121 based on the original rule concept. This appendix includes 16 comments expressed verbally at the Public Workshop and 108 comment letters received in the period of October 3, 2024, to February 7, 2025, as summarized in the table below. Staff response is provided for each comment. For comments received after February 7, 2025, on the new rule concept and staff responses, please see Appendix B.

Table Appendix C-1: Comments Letters Received from October 3, 2024, to February 7, 2025

| Comment Letter | Commentor Name | Representing | Date Received |
|----------------|--|--|---------------|
| 1 | Fran Inman, David Fleming, Tracy Hernandez, David Englin | BizFed | 10/3/2024 |
| 2 | Kory Griggs | Indoor Weather Inc. | 10/4/2024 |
| 3 | Allen Mairs | Self | 10/10/2024 |
| 4 | Marc D. Neufcourt | Rinnai America Corporation | 10/11/2024 |
| 5 | Charles Miller, David Diaz MPH, Claire Robinson, Tomas Castro, Lisa Swanson, Christopher Chavez, Christy Zamani, Fernando Gaytan, Jorge Rivera, Margo A. Reeg, Tori Kjer, Charlotte Matthews, Sharon Ungersma, Kim Orbe, Sam Fishman, Anne Pernick, Stuart Wood PhD, Ben Stapleton | Los Angeles Climate Reality Project, Active San Gabriel Valley, Amigos de los Rios, Climate Action Campaign, Climate Reality Project Orange County Chapter, Coalition for Clean Air, Day One, Earthjustice, Healing and Justice Center, League of Women Voters of Los Angeles County, Los Angeles Neighborhood Land Trust, RMI, San Fernando Valley Climate Reality Project, Sierra Club Angeles Chapter, SPUR, Stand.earth, Sustainable Claremont, USGBC California | 10/11/2024 |
| 6 | Ann Stalwick, Chana Nevo | Self | 10/14/2024 |
| 7 | Steve Pearson | DAUM Commercial Real Estate Services | 10/15/2024 |
| 8 | Dennis L. Sandoval | DAUM Commercial Real Estate Services | 10/15/2024 |
| 9 | Elizabeth Elliott | Self | 10/14/2024 |
| 10 | Gregory Rice | Self | 10/14/2024 |
| 11 | Bob Helbing | Air-Tro Heating & Air Conditioning | 10/14/2024 |
| 12 | Bernard Cane | Self | 10/15/2024 |
| 13 | Raquel J. Comstock | Self | 10/15/2024 |
| 14 | Turner White | DAUM Commercial Real Estate Services | 10/15/2024 |
| 15 | Josh Leite | ECM Management LLC | 10/15/2024 |
| 16 | Heather Collins | Self | 10/15/2024 |
| 17 | Nancy Hoskins | Self | 10/15/2024 |
| 18 | C.C. Song | Clean Power Alliance of Southern California | 10/16/2024 |

| Comment Letter | Commentor Name | Representing | Date Received |
|----------------|--|--|---------------|
| 19 | Paul Granillo | Inland Empire Economic Partnership | 10/16/2024 |
| 20 | Jeffrey Ball | Orange County Business Council (OCBC) | 10/16/2024 |
| 21 | Rosalie Barcinas | Southern California Edison | 10/16/2024 |
| 22 | David L. Nearing | Self | 10/16/2024 |
| 23 | Kory Griggs* | Indoor Weather Inc. | 10/17/2024 |
| 24 | Jeanine Just | Self | 10/17/2024 |
| 25 | Fran Inman, David Fleming, Tracy Hernandez, David Englin | BizFed | 10/17/2024 |
| 26 | Ken Belding | Empire Comfort Systems | 10/17/2024 |
| 27 | Nicole Colantonio | Air-Conditioning, Heating, & Refrigeration Institute | 10/17/2024 |
| 28 | Luis Portillo | San Gabriel Valley Economic Partnership | 10/17/2024 |
| 29 | Jason Thomas | Carrier | 10/17/2024 |
| 30 | Alise L.H. Davis | Self | 10/17/2024 |
| 31 | Matthew Doss | Cypress Land Company | 10/17/2024 |
| 32 | Timothy Jemal | NAIOP SoCal | 10/17/2024 |
| 33 | James Phillips | Rheem Manufacturing Company | 10/17/2024 |
| 34 | Kim Hornburg | Self | 10/17/2024 |
| 35 | Bradford White Corporation (BWC) | Bradford White Corporation (BWC) | 10/17/2024 |
| 36 | Cliff Hamlow | Self | 10/17/2024 |
| 37 | Kevin Barker | Southern California Gas Company (SoCalGas) | 10/17/2024 |
| 38 | Chris Jackson | NAI Capital Commercial | 10/29/2024 |
| 39 | Courtney Wing | Newcastle Partners | 10/29/2024 |
| 40 | Robert S. Glass | Daikin Comfort Technologies Manufacturing, L.P. | 10/31/2024 |
| 41 | Fran Inman, David Fleming, Tracy Hernandez, David Englin | BizFed | 10/31/2024 |
| 42 | Elle C. Chen | Asian Pacific Environmental Network (APEN) | 12/4/2024 |
| 43 | Robina Suwol | California Safe Schools | 12/6/2024 |
| 44 | Jane Williams | California Communities Against Toxics | 12/10/2024 |
| 45 | Dr. Gengmun Eng | Self | 12/10/2024 |
| 46 | Cheryl Auger | Ban SUP (Single Use Plastic_ | 12/10/2024 |
| 47 | Stephanie Pincetl | Self | 12/11/2024 |
| 48 | Laurene von Klan, Kent Strumpell | Climate Action Santa Monica | 12/11/2024 |
| 49 | Michelle Kim | Shared Streets | 12/11/2024 |

| Comment Letter | Commentor Name | Representing | Date Received |
|----------------|---|---|---------------|
| 50 | Paul Little | The Board of Directors of the Pasadena Chamber of Commerce and Civic Association | 12/12/2024 |
| 51 | David Diaz, MPH | ActiveSGV | 12/13/2024 |
| 52 | Will Barrett | American Lung Association | 12/12/2024 |
| 53 | Evan Gillespie | Industrious Labs | 12/12/2024 |
| 54 | Charles Miller, Lisa Swanson, Sharon Ungersma | Los Angeles Climate Reality Project, Climate Reality Project Orange County Chapter, San Fernando Valley Climate Reality Project | 12/13/2024 |
| 55 | Chris Chavez | Coalition for Clean Air | 12/11/2024 |
| 56 | Sean Armstrong | Redwood Energy | 12/11/2024 |
| 57 | Marc Carrel | Breathe Southern California | 12/11/2024 |
| 58 | Gracyna Mohabir | California Environmental Voters | 12/12/2024 |
| 59 | Cristhian Tapia-Delgado | Pacific Environment | 12/12/2024 |
| 60 | Eli Lipmen | Move LA | 12/13/2024 |
| 61 | Kim Orbe | Sierra Club | 12/13/2024 |
| 62 | David Levitus, Ph.D. | LA Forward Institute | 12/12/2024 |
| 63 | Christy Zamani | Day One | 12/13/2024 |
| 64 | Fernando Gaytan | Earthjustice | 12/13/2024 |
| 65 | Patricia Pipkin | Self | 12/13/2024 |
| 66 | Stuart Wood Ph.D. | Sustainable Claremont | 12/13/2024 |
| 67 | Tori Kjer | Los Angeles Neighborhood Land Trust | 12/13/2024 |
| 68 | Jasmin Vargas | Jobs to Move America | 12/13/2024 |
| 69 | Julia May | Communities for a Better Environment (CBE) | 12/13/2024 |
| 70 | David Martinez | Climate Action Campaign | 12/13/2024 |
| 71 | Marven E. Norman, MPA | Center for Community Action and Environmental Justice (CCA EJ) | 12/13/2024 |
| 72 | Elise Kalfayan | Glendale Environmental Coalition | 12/12/2024 |
| 73 | Margo A. Reeg | League of Women Voters of Los Angeles County | 12/13/2024 |
| 74 | Theral Golden | West Long Beach Association | 12/13/2024 |
| 75 | Cynthia Babich | Del Amo Action Committee | 12/13/2024 |
| 76 | Elizabeth Reid-Wainscoat | Center for Biological Diversity | 12/13/2024 |
| 77 | Jorge Rivera | Healing and Justice Center | 12/13/2024 |
| 78 | Catalina Gonzalez | Center for Progressive Reform | 12/13/2024 |
| 79 | Brian Tisdale | City of Lake Elsinore | 12/13/2024 |
| 80 | Jeffrey Ball | Orange County Business Council | 12/18/2024 |
| 81 | Henry Rogers | Harbor Association of Industry and Commerce | 12/18/2024 |
| 82 | Henry Rogers | Harbor Association of Industry and Commerce | 12/18/2024 |

| Comment Letter | Commentor Name | Representing | Date Received |
|----------------|---|---|---------------|
| 83 | Tim Hepburn | City of La Verne | 12/18/2024 |
| 84 | Fernando Gaytan, David Diaz, Jane Williams, Robina Suwol, Christopher Chavez, Elizabeth Reid-Wainscoat, Ana Gonzalez, Lisa Swanson, Laura Garcia-Santiago, Charles Miller, Eli Lipmen, Hilary Firestone, Cristhian Tapia-Delago, Sharon Ungersma, Kimberly Orbe, Anne Pernick, Sam Fishman, Ben Stapleton | Earthjustice, Active San Gabriel Valley, California Communities Against Toxics, California Safe Schools, Coalition for Clean Air, Center for Biological Diversity, Center for Community Action & Environmental Justice, Climate Reality Project Orange County Chapter, Communities for a Better Environment, Los Angeles Climate Reality Project, MoveLA, Natural Resources Defense Council, Pacific Environment, San Fernando Valley Climate Reality Project, Sierra Club, Stand.earth, SPUR, USGBC California | 12/18/2024 |
| 85 | Kimberly Caceres | South Bay Association of Chambers of Commerce | 12/18/2024 |
| 86 | Mendell L. Thompson | City of Glendora | 12/18/2024 |
| 87 | Jeremy Harris | Long Beach Area Chamber of Commerce | 12/19/2024 |
| 88 | Kyle Bergeron | A.O. Smith Corporation | 12/19/2024 |
| 89 | Evan Trubee | Self | 12/19/2024 |
| 90 | Karen Hawley | Self | 12/19/2024 |
| 91 | Arlene Wohlgemuth | Self | 12/19/2024 |
| 92 | Victor Reyes-Morelos | Valley Industry & Commerce Association | 12/20/2024 |
| 93 | Barbara Rohlf | Self | 12/29/2024 |
| 94 | Mel Foley | Self | 1/2/2025 |
| 95 | Arnold Gregg | Self | 1/2/2025 |
| 96 | Rae Aaselund | League of Women Voters of Pasadena | 1/7/2025 |
| 97 | Nicole Reynolds, Jim Reynolds | Self | 1/15/2025 |
| 98 | Ray Marquez | San Bernardino Council of Governments | 1/24/2025 |
| 99 | Art Bennett, Brian Johsz, Ray Marquez, Peter Rogers | City of Chino Hills | 1/31/2025 |
| 100 | Mona Clark | Self | 1/4/2025 |
| 101 | Tom Quast | Self | 1/4/2025 |
| 102 | Edwin Gow | Self | 1/9/2025 |
| 103 | Frank J. Navarro | City of Colton | 1/16/2025 |
| 104 | Dave Mock | Self | 1/25/2025 |
| 105 | Joanne Genis | Self | 2/1/2025 |
| 106 | Vamsi Kotla | ReMo Homes | 2/6/2025 |
| 107 | Tim Hepburn | City of La Verne | 2/6/2025 |

| Comment Letter | Commentor Name | Representing | Date Received |
|----------------|-------------------|--------------|---------------|
| 108 | Alexandria Helmer | Self | 2/10/2025 |

Comment PW-1: Kory Griggs (Indoor Weather)

The majority of the 13 percent of homes in the South Coast AQMD that have furnaces without AC are homes located in colder climates which have high cost-effectiveness.

Using rental equipment allowed by alternative compliance options for situations such as emergency replacements due to a sudden unit failure may pose a financial burden to the owners and operators. The costs of installing the short-term replacement with rental equipment may include the costs of permits, installation, and removal of the natural gas-fired unit. Enforcement for removal of rental water heaters will not be effective.

Response to Comment PW-1:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. By this new rule concept, consumers may opt for gas units if installing zero-NOx emission units would be challenging for emergency replacements. Short-term replacement with rental equipment is no longer needed and thus removed from the proposed amended rules.

For consumers who choose a zero-NOx emission unit, staff acknowledges the higher incremental costs when replacing only a furnace without simultaneous replacement of a cooling system, and cooling systems are less common in high-altitude areas. Staff has revised the rule proposal, and more information on high altitudes can be found in Response to General Comment 8.

Comment PW-2: Michael Corbett (Bradford White)

Recommend funding and developing a program to provide temporary rental water heaters to offset the costs of installation and removal of rental units.

Recommend clarifying that the information required for the annual report is to be kept confidential.

Response to Comment PW-2:

Staff has revised the rule proposal which no longer includes the provision for temporary rentals. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes a manufacturer alternative compliance option for zero-NOx emission sales targets, allowing for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

With the new rule concept, the revised PAR 1111 and PAR 1121 have removed previously proposed alternative compliance options and the associated annual report requirement. The new rule concept includes reporting requirements and any information designated by the manufacturer as confidential in the annual report will be kept confidential by the South Coast AQMD. Information submitted to the Executive Officer may be designated as confidential under the provisions of the California Public Records Act. The designation must be clearly indicated on the reporting form, identifying exactly which information is deemed confidential. The South Coast AQMD's Guidelines for Implementing the California Public Records Act⁽¹⁾, which were adopted by the Governing Board on May 6, 2005, and amended on July 5, 2013, specifically with reference to trade secrets, adequately

⁽¹⁾ <https://www.aqmd.gov/docs/default-source/default-document-library/Guidelines/pr-guidelines.pdf>

protect confidential information from misappropriation. The South Coast AQMD will request a justification from the entity claiming confidential information and evaluate the justification, any other information at its disposal, and determine if the justification supports the claim that the material is in fact trade secret. If the claim of confidentiality is not meritorious or is inadequately supported by the evidence, the South Coast AQMD shall promptly notify, by certified mail and email, the entity who claimed confidential status that the justification is inadequate and that the information will be released after 21 calendar days from the date of such notice unless the person claiming trade secret brings a legal action to preclude such release. Staff understands that sales volume data is considered as business confidential data and is cautious to protect that data. Staff has modified the rule language for the clarity of annual report requirement and included an explanation of this in Chapter 4.

Comment PW-3: Jessi Davis (SoCal Gas)

Recommend holding another meeting detailing the methodology for the cost-effectiveness analysis to understand the direct costs absorbed by owners and operators. Clarify if the technology check-in would be only for space heating since the proposed compliance date for PAR 1121 is January 1, 2027, and the proposed technology check-in is after the compliance date on June 1, 2027.

Response to Comment PW-3:

The major components of the cost-effectiveness analysis included capital costs, emission reductions, discount rate, and equipment useful life. Staff's explanation for the cost-effectiveness analysis can be found in Chapter 2 of this staff report and Response to General Comment 6. Staff discussed the cost-effectiveness analysis in previous working group meetings and is available to provide more explanation at individual meetings with stakeholders.

Staff will provide updates/technology check-in to the Stationary Source Committee prior to major milestones in the rules, per Stationary Source Committee direction. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Manufacturers that opt to enroll in this alternative compliance option will submit a plan no later than November 1, 2026. The proposed technology check-in will incorporate the manufacturer enrollment information.

Comment PW-4: Bob Helbing (Air-Tro)

Reduction of 10 tons of NOx per day would not significantly affect overall NOx emissions, which is a total of 400 tons per day.

Response to Comment PW-4:

The 2022 Air Quality Management Plan emissions inventory lists the total 2018 NOx emissions from stationary and area sources as 60 tpd, whereas the mobile source emissions is 306 tpd. The South Coast AQMD does not regulate mobile sources, therefore, it is only proper to compare the NOx levels to emissions of other sources under our regulatory authority. The proposed amended rules, by the new rule concept, would effectively reduce the stationary and area source emissions by 10.2 percent. Staff recognizes the need to

pursue emission reduction by PAR 1111 and PAR 1121 to address the air quality needs of the South Coast AQMD.

Comment PW-5: Mihran Roumaja (NAIOP Commercial Real Estate Development Association)

Encourage all costs for economic impact analysis to be considered.

The proposed rules assume electric utility providers would be able to provide sufficient electrical supply and there are concerns that the current electrical system does not have the capacity to meet the additional demand due to the rules.

Response to Comment PW-5:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

In addition to the cost-effectiveness analysis detailed in Chapter 2, staff has prepared a Draft Socioeconomic Impact Assessment that will be made available 30 days prior to the Public Hearing. Please find more information on the cost-effectiveness analysis in Response to General Comment 6.

Staff recognizes the importance of electric grid reliability not only for zero-emission technologies, but also natural gas technology, which often require electricity to operate. Please find more information on the electric grid in Response to General Comment 3.

Comment PW-6: Audry Egger (Inland Empire Economic Partnership (IEEP))

Concerns about PAR 1121 with increased costs to residents and small businesses due to the rule and requesting more clarity on the economic feasibility.

Response Comment PW-6:

The new rule concept provides further flexibility for consumers. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. The new rule concept also revised the proposed applicability and will not expand to large size spacing heating units. PAR 1111 and PAR 1121 will be less likely to impact small businesses.

Regarding the previous rule concept, prior to the new rule concept, staff acknowledges the higher upfront cost in many zero-emission installations. However, the lower annual operational costs are anticipated based on the fuel price estimates based on a combination of CEC's 2023 Integrated Energy Policy Report and Energy Information Administration national level forecasts. The socioeconomic analysis estimates the overall unit lifetime savings because the lower operational costs would offset the higher upfront costs.

Federal, state, and local incentives could offset some upfront costs for zero-emission appliances. South Coast AQMD is expecting to launch the Go Zero incentive program in 2025 and to allocate 75 percent of its funding for overburdened communities identified by CalEnviroScreen, which will help target the communities that would need additional financial assistance. Moreover, the Go Zero incentive program is allocating funds for single family homes, multifamily homes, and small businesses.

Comment PW-7: Xico Manarolla (Clean Power Alliance (CPA))

Consumers should be educated about PAR 1111 and PAR 1121 and their potential impacts. Clean Power Alliance urges staff to coordinate with community partners. Staff should ensure that sufficient funding is provided to disadvantaged communities. Recommend permitting to be streamlined.

Response to Comment PW-7:

PAR 1111 and PAR 1121 were developed through a public process that began in the last quarter of 2023. Staff has enhanced public outreach for the rule development based on similar comments received. For further discussion on outreach, please see Response to General Comment 5.

By the new rule concept, manufacturers enrolled in the new manufacturer alternative compliance option will pay mitigation fee for selling gas units which could be a revenue stream for Go Zero incentive program. This incentive program will continue to have a focus on overburdened communities.

Comment PW-8: Victor Reyes (Valley Industry and Commerce Association (VICA))

The electrical upgrades required for PAR 1111 and PAR 1121 will place an excessive financial strain on commercial and multifamily property owners, which can reduce the number of affordable housing units. Utility costs underestimated in cost-effectiveness analysis. Requests to delay PAR 1111 and PAR 1121.

Response to Comment PW-8:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. The new rule concept also revised the proposed applicability and will not expand to large size space heating units. PAR 1111 and PAR 1121 will be applicable to small size units typical for residential use. It is the consumers' individual choices if they install small size units in commercial and multifamily properties.

Staff gathered cost data for various types of furnaces and water heaters for the cost-effective analysis described in Chapter 2 of this report. The required electrical upgrades are considered in the costs to retrofit a zero-emission appliance. Further, Chapter 2 provides discussion on new and emerging technologies that are less likely to require a panel upgrade. Some examples are 120V plug-in heat pump water heaters, portable heat pumps for space heating/cooling, and multi-function heat pumps for water heating and space heating/cooling. For further discussion on cost, please see Response to General Comment 2.

If consumers elect to install zero-NOx emission units in commercial and multifamily properties, such properties that already rely on AC for cooling are not anticipated to need electrical upgrades. If the electrical system can supply sufficient power to operate an AC, it can also support a heat pump system that both cools and heats. The addition of zero-emission water heater will add to the demand; however, 120v units are available, designed for building retrofits, and can be plugged into a standard outlet.

On the other hand, many installations in commercial and multifamily properties are subject to Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters which was adopted in June 2024 for zero-emission standards. Please refer to the Rule 1146.2 Public Hearing documents which include the staff report and socioeconomic impact assessment which contains an analysis related to costs.⁽²⁾

Staff understands the costs associated with retrofitting zero-emission appliances and anticipates that the adoption of the amended rules will send a market signal to manufacturers, which will, in turn, drive overall costs down. Additionally, federal, state, and local incentives, including the upcoming South Coast AQMD Go Zero incentive program, will help alleviate the financial burden. Staff recognizes the need to pursue emission reductions with an earlier timeframe to address the air quality needs of the South Coast AQMD and does not suggest a further delay of the public hearing. Staff is committed to monitoring the rule implementation after rule adoption, providing periodic updates, and conducting technology check-in(s).

Comment PW-9: Peter Whittingham (LA BizFed)

Promotion of shared circuit 120V heat pump water heaters and PAR 1121 proposed compliance date for existing buildings for January 1, 2027, are of concern. BizFed plans to send independent study results on 120V heat pump water heaters. Independent study states that 120V shared circuit heat pump water heaters and 240V heat pump water heaters lack the reheating capabilities of a natural gas-fired water heater. Compliance dates should align with electric vehicle fleets, which is 2035.

Response to Comment PW-9:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff understands that the first hour rating and recovery time of a shared circuit 120V heat pump water heater is different from its natural gas-fired counterpart with the same tank volume. Oftentimes, heat pump water heater manufacturers recommend sizing up the tank volume to match the first hour rating of the current natural gas-fired water heater. Since several heat pump water heater manufacturers have different installation requirements, staff recommends consulting the manufacturer's recommendations.

South Coast AQMD establishes BARCT limits based on technical feasibility and cost effectiveness. Zero-emission technologies are available and in operation today. The future effective dates would allow time for the transition and help mitigate the cost impact. The rule will apply upon appliance replacement; therefore, the emission reductions will occur gradually. Staff recognized that cost-effectiveness of some categories by the original rule concept are over the 2022 AQMP screening threshold. The new manufacturer alternative compliance option allowing NOx-emitting units satisfies the direction set forth by 2022 AQMP addressing higher cost-effectiveness categories for zero-NOx emission standards.

These emission reductions are critical to comply with National Ambient Air Quality Standards. Further, because the South Coast AQMD is designated as an "extreme"

⁽²⁾ <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2024/2024-Jun7-026.pdf>

nonattainment area for ozone, our rules cannot be less stringent than another air district's rule, unless they are infeasible. . BAAD has compliance dates for space heating in 2029 and for water heaters starting in 2027. CARB is also in the rule development for zero-emission space and water heaters, proposing a similar implementation timeline.

Comment PW-10: Ken Belding (Empire Comfort Systems)

Gas heating products are essential for backup heating for those that have a furnace without AC. Recommend exempting high altitude homes that have a furnace and no AC.

Response to Comment PW-10:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Please see Response to General Comment 8 for further discussion on high altitudes. Staff will re-assess the technologies and costs through a technology check-in and provide updates to the Stationary Source Committee.

Comment PW-11: Jed Holtzman (RMI)

Heat pump technology has evolved and cold climate heat pump technology is currently utilized in cold climates successfully. Gas-fired residential appliances emit more than gas fired by gas power plants. Alternative compliance option for 24-month rental unit extends compliance date.

Response to Comment PW-11:

Staff agrees with the insight on heat pump technology. Heat pump technology that operates in cold climates can be found through the Northeast Efficiency Partnerships website⁽³⁾, where they list heat pumps that can operate down to negative 25 degrees Fahrenheit.

Staff has revised the rule proposal which no longer includes the provision for temporary rentals. The new rule concept for PAR 1111 and PAR 1121 provide flexibility for compliance by including a manufacturer alternative compliance option with compliance targets for zero-NOx emission sales.

Comment PW-12: Wes Reutimann (Active San Gabriel Valley)

Support of staff's efforts in the rulemaking process and urge staff to amend rule in a timely manner.

Response to Comment PW-12:

Staff appreciates the support. Staff recognizes the need to pursue emission reductions to address the air quality needs of the South Coast AQMD.

Comment PW-13: Melissa Yu (Sierra Club)

Appreciate staff for the incorporating input from the public and proposing solutions for different circumstances. Amending both rules would send a strong market signal to zero emission furnace and water heater manufacturers and suppliers.

⁽³⁾ <https://neep.org/heating-electrification/ccashp-specification-product-list>

Response to Comment PW-13:

Staff appreciates working with stakeholders during the rulemaking process and believes amending PAR 1111 and PAR 1121 could prompt manufacturers to innovate heat pump technologies and drive overall costs down.

Comment PW-14: Robert Glass (Daikin Comfort Technologies)

For PAR 1111, the labeling requirement for furnaces sold before zero emission compliance dates requires manufacturers to include, “2) After January 1, 2028, only for installation in mobile homes,” which could incur more labeling costs for manufacturers who do not manufacture a mobile home furnace. Recommend having separate labeling requirement based on whether a manufacturer manufactures a mobile home furnace or not.

After 2030, the alternative compliance option for emergency replacements and construction allow for a temporary rental installation of a natural gas-fired furnace for an additional six to 24 months. Therefore, the labeling portion that states, “3) After January 1, 2030, not compliant for use and installation in the South Coast AQMD” would suggest the rental installation is non-compliant.

Commercial furnaces, wall furnaces, and floor furnaces do not have an Annual Fuel Utilization Efficiency (AFUE) to calculate emissions.

Enforcement of rule based on installation date would create stranded inventory. Recommend enforcement based on manufacture date.

Recommend clarifying that dual fuel furnaces are not to be run with natural gas.

Response to Comment PW-14:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Revised PAR 1111 and PAR 1121 removed the provision for temporary rentals and updated the labeling provision. The commenter’s concern on labeling requirement has been resolved.

The new rule concept also revised the proposed applicability to retain the current rule’s size applicability, meaning commercial-sized furnaces will not be included in PAR 1111. Wall furnaces, and floor furnaces are not required to calculate NOx emissions using an AFUE. AFUE is used to calculate the nanograms of NOx per joule of Useful Heat Delivered to the Heated Space to demonstrate a furnace meets the NOx limits in Table 1 of Rule 1111; wall furnaces, and floor furnaces are not subject to those NOx limits. A compliance schedule based on installation date aligned with previous amendments to Rules 1111 and Rule 1121, as well as the current version of Rule 1146.2. Future effective dates gave time for the supply chain to ensure inventory would be compliant by the compliance dates and minimize stranded inventory.

Comment PW-15: Michael Rochmes (LA Climate Reality)

Regulations can send a market signal to manufacturers to provide affordable solutions for the proposed amended rules.

Response to Comment PW-15:

Staff agrees with the commenter. It is important to set the market signal that will drive technology development and reduce costs overtime.

Comment PW-16: Richard Markuson (Plumbing-Heating-Cooling Contractors Association (PHCC))

Costs to replace appliances will need to be communicated by HVAC contractors. Concerns about the economic impact on local businesses and rate of implementation. The industry needs additional time to comply with the proposed amended rules. Incentives are essential for consumers to offset costs.

Response to Comment PW-16:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Many HVAC contractors have been included in the working group meetings for this rule development. Staff has also met with several HVAC contractors to for individual discussions with regards to transitioning to zero-emission appliances. Staff will continue to work with stakeholders after the rule adoption and conduct technology check-in(s) to assess any issues with implementing zero-emission technologies. For more information on outreach, please see Response to General Comment 5. For more information on costs, please see Response to General Comment 2.

The federal, state, and local incentives, including the upcoming South Coast AQMD Go Zero incentive program, will help consumers offset some upfront costs. The Go Zero incentive program will launch in 2025 and will incentivize residences and small businesses to install zero-emission appliances.

Comment Letter #1: Los Angeles County Business Federation (BizFed)

Comment Letter #1

October 3, 2024

Hon. Vanessa Delgado, Chair
South Coast Air Quality Management District Governing Board
21865 Copley Dr.
Diamond Bar, CA 91765

Dear Chair Delgado and Governing Board members –

We are reaching out on behalf of BizFed, the Los Angeles County Business Federation, an alliance of more than 200 business organizations representing more than 400,000 employers in Los Angeles County, including large and small businesses in a wide range of industries throughout the South Coast Air Basin (SCAB). We are writing specifically regarding Proposed Amended Rule (PAR) 1111 and PAR 1121; many of the businesses we represent have or will be writing their own individual comment letters that specifically address the impacts to their industries. Our comments address the impacts on the business community as a whole and include overarching concerns of our diverse membership.

BizFed's concerns are related to the most recent draft rule language issued Friday, September 20. The SCAQMD's promotion of shared circuit 120v heat pump water heaters as alternatives to the devices currently permitted under Rule 1121, and the proposed January 1, 2027 compliance date for the proposed rule amendment, is of significant concern. As a result of staff's endorsement of these devices as adequate replacements for currently permitted water heaters, BizFed has sought and received an analysis of these new devices from a licensed plumbing engineer and general contractor and is providing results from that analysis below.

1-1

SCAQMD staff has taken the position that shared circuit 120v heat pump water heaters would be a cost-effective solution for owners/operators of multifamily communities and other affected entities to comply with the proposed amendments to SCAQMD's PAR 1121. Unfortunately, the data gathered by the licensed plumbing engineer shows that shared circuit 120v heat pump water heaters lack the reheating abilities provided by natural gas water heaters or dedicated circuit 240v heat pump water heaters. This is critical performance data that must be considered by the SCAQMD Governing Board when it considers amendments to PAR 1121; failing to consider this information will leave owners/operators to choose between prohibitively expensive retrofits or leaving millions of residents without sufficient hot water.

1-2

Two Simple Examples

Family of 4 living in a two bedroom / two bath apartment getting ready in the morning.

2022 California plumbing code 501.1(2) sets 49-gallon first hour rating as code. Manufacturers recommend 40-gallon natural gas hot water heaters be upsized to 60-70-gallon heat pump hot water heaters, with 60-76 gallon first hour ratings.

| Ex. | First Hour Usage (Peak Hour) In Order | Hot water Usage (Gallons) | First Hour Rating | Result |
|-----|--|---|-------------------|--|
| 1 | 1 Clothes washing machine (1 cycle) 1 Hand dishwashing (10 min) 1 Automatic dishwasher (1 cycle) 4 Bathroom faucets (1 min / person) <u>4 Showers (10 minutes / person)</u> Total | 11 13 04 04 <u>+54</u> 86 Gal. | 60-76 Gallons | The fourth person runs out of hot water for their shower. 3 hours and 45 minutes for shared circuit 120V unit to reheat the tank |
| 2 | 1 Hand dishwashing (10min) 1 Automatic dishwasher (1 cycle) 1 bath 4 Bathroom faucets (1 min / person) <u>3 showers (10 minutes / person)</u> | 13 04 26 04 <u>+40</u> 87 Gal. | 60-76 Gallons | The fourth person runs out of hot water for their shower. 3 hours and 45 minutes for shared circuit 120V unit to reheat the tank |

| Water Heater | Natural Gas | Heat Pump (120V Shared) | Heat Pump (240V Dedicated) |
|--------------|--------------|---|----------------------------|
| Reheat Time | < 45 minutes | ~3 hours 45 minutes (50 Gal) ~4 hours - 5 hours (60 Gal) | ~ 1 hour 15 minutes |

| Cost & Scope to Install | \$1,700+ | \$4,000 - \$15,000 | \$30,000 - \$80,000 |
|-------------------------|------------------------------|--|---|
| | -New water heater -Permit | -New water heater -Drain pan w/ dedicated drain line -Demo -City permit & fee <u>Likely Additions</u> -New electrical outlet -New breaker -Electrical panel upgrade -Stucco, drywall, painting -Asbestos & lead abatement -Closet reframing -Utility provider permit & fee -Louvered doors or ducting -Carpentry / paint -Stacked drains | -New water heater -Dedicated electrical circuit -Drain pan w/ dedicated drain line -Demo -City permit & fee <u>Likely Additions</u> -Louvered doors or ducting -Electrical panel upgrade -Stucco, drywall, carpentry, painting -Asbestos & lead abatement -Utility provider permit & fee -Closet reframing -General contractor costs <u>Commercial Buildings:</u> -Potential transformer upgrade -Electrical wire & conduit upgrades -Site work -M.E.P engineering designs |

Per the latest SCAQMD staff report posted 09/20/24, staff estimates there are 5.1 million hot water heaters impacted by rule 1121. At just \$4,000 / conversion, the economic impact across the South Coast Air Basin (SCAB) would be more than \$2 trillion dollars. In addition, this cost magnitude will be very inflationary for the local economies and lead to many of these costs being passed through to consumers, lessees, and 16+ million residents of the South Coast Air Basin.

The products, businesses, and residents of the SCAQMD are not ready for a rule change of this magnitude (\$2+ trillion) affecting millions of people. At a minimum, compliance for retrofits should be extended to coincide with the conversion of the vehicle fleet to electric in 2035, or at a minimum 2029, consistent with the timeframe included within the 2022 Air Quality Management Plan adopted by the Governing Board (Table 4-20), and there needs to be other safeguards to protect homeowners and renters from potential disproportionate financial impacts that can be associated with converting dual-fuel households to a single energy source.

1-3

Additionally, consideration should also be given to the true cost per day of tons of NO_x removed, and an option provided for an in-lieu fee on the sale of gas hot water heaters as a means to support the acceleration of the SCAQMD's incentive program, Go Zero.

1-4

Thank you for your thoughtful consideration.

Sincerely,



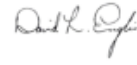
Fran Inman
BizFed 2024 Chair
Majestic Realty



David Fleming
BizFed Founding Chair



Tracy Hernandez
BizFed Founding CEO
IMPOWER, Inc.



David Englin
BizFed President

BizFed Association Members

Action Apartment Association
 Advanced Medical Technology Association
 Alhambra Chamber
 American Beverage Association
 Antelope Valley Chamber formerly Lancaster Chamber of Commerce
 Apartment Association of Greater Los Angeles
 Apartment Association of Orange County
 Apartment Association, CA Southern Cities, Inc.
 Apartment Association of California
 Arcadia Association of Realtors
 AREAA North Los Angeles SFV SCV
 Armenian American Business Association
 Armenian Trade & Labor Association
 Arts District Los Angeles
 ASCM Inland Empire Chapter
 Associated Builders & Contractors SoCal (ABC SoCal)
 Associated General Contractors
 Association of Independent Commercial Producers
 AV Edge California
 Azusa Chamber
 Bell Chamber
 Beverly Hills Chamber
 BioCom
 Black Business Association
 Black Professional Network
 Boyle Heights Chamber of Commerce
 Bridge Compton Org
 Building Industry Association - LA/Ventura Counties
 Building Industry Association of Southern California
 Building Industry Association- Baldyview
 Building Owners & Managers Association of Greater Los Angeles
 Burbank Association of Realtors
 Burbank Chamber of Commerce
 Business and Industry Council for Emergency Planning and Preparedness
 Business Resource Group
 CalAsian Chamber
 CalChamber
 California African American Chamber of Commerce
 California Apartment Association- Los Angeles
 California Asphalt Pavement Association
 California Bankers Association
 California Black Chamber of Commerce
 California Business Properties
 California Business Roundtable
 California Cleaners Association
 California Contract Cities Association
 California Council for Environmental & Economic Balance (CCEEB)
 California Fuels & Convenience Alliance- Formerly California Independent Oil Marketers Association (CIOA)
 California Gaming Association
 California Grocers Association
 California Hispanic Chamber
 California Hotel & Lodging Association
 California Independent Petroleum Association
 California Infrastructure Delivery Coalition
 California Life Sciences Association
 California Manufacturers & Technology Association
 California Metals Coalition
 California Natural Gas Producers Association
 California Restaurant Association
 California Retailers Association
 California Self Storage Association
 California Small Business Alliance
 California Travel Association (CalTravel)
 California Trucking Association
 Californians For Smarter Sustainability
 Carson Chamber of Commerce
 Carson Dominguez Employers Alliance
 Central City Association
 Century City Chamber of Commerce
 Chatsworth Porter Ranch Chamber of Commerce
 Citrus Valley Association of Realtors
 Civil Justice Association of California CJAC
 Claremont Chamber of Commerce
 Commerce Business Council formerly Commercial Industrial Council/Chamber of Commerce
 Compton Chamber of Commerce
 Compton Community Development Corporation
 Compton Entertainment Chamber of Commerce
 Construction Industry Air Quality Coalition
 Construction Industry Coalition on Water Quality
 Council of Infill Builders
 Crenshaw Chamber of Commerce
 Culver City Chamber of Commerce
 Downey Chamber of Commerce
 Downtown Alliance
 Downtown Long Beach Alliance
 DTLA Chamber of Commerce
 El Monte/South El Monte Chamber
 El Salvador Corridor Association
 El Segundo Chamber of Commerce
 Employers Group
 Energy Independence Now EIN
 Engineering Contractor's Association
 EXP The Opportunity Engine
 FastLink DTLA
 Filipino American Chamber of Commerce
 Friends of Hollywood Central Park
 FuturePorts
 Gardena Valley Chamber
 Gateway to LA
 Glendale Association of Realtors
 Glendale Chamber
 Glendora Chamber
 Greater Antelope Valley AOR
 Greater Bakersfield Chamber of Commerce
 Greater Coachella Valley Chamber of Commerce
 Greater Downey Association of REALTORS
 Greater Lakewood Chamber of Commerce
 Greater Leimert Park Crenshaw Corridor BID
 Greater Los Angeles African American Chamber
 Greater Los Angeles Association of Realtors
 Greater Los Angeles New Car Dealers Association
 Greater San Fernando Valley Chamber
 Harbor Association of Industry and Commerce
 Harbor Trucking Association
 Historic Core BID of Downtown Los Angeles
 Hollywood Chamber
 Hospital Association of Southern California
 Hotel Association of Los Angeles
 ICBWA- International Cannabis Women Business Association
 Independent Cities Association
 Independent Hospitality Coalition
 Industrial Environmental Association
 Industry Business Council
 Inglewood Board of Realtors
 Inland Empire Economic Partnership
 Irwindale Chamber of Commerce
 Kombucha Brewers International
 La Cañada Flintridge Chamber
 LA County Medical Association
 LA Fashion District BID
 LA South Chamber of Commerce
 Larchmont Boulevard Association
 Latin Business Association
 Latino Food Industry Association
 Latino Golfers Association
 Latino Restaurant Association
 LAX Coastal Area Chamber
 Licensed Adult Residential Care Association- LAIRCA
 Long Beach Area Chamber
 Long Beach Economic Partnership
 Long Beach Major Arts Consortium
 Los Angeles Area Chamber
 Los Angeles Economic Development Center
 Los Angeles Gateway Chamber of Commerce
 Los Angeles Latino Chamber
 Los Angeles LGBTQ Chamber of Commerce
 Los Angeles Parking Association
 Los Angeles Regional Food Bank
 MADIA Tech Launch
 Malibu Chamber of Commerce
 Manhattan Beach Chamber of Commerce
 Manhattan Beach Downtown Business & Professional Association
 Marina Del Rey Lessees Association
 Marketplace Industry Association
 Monrovia Chamber
 Motion Picture Association of America, Inc.
 MoveLA
 MultiCultural Business Alliance
 NAIOP Southern California Chapter
 NAREIT
 National Association of Minority Contractors
 National Association of Theatre Owners
 CA/Nevada
 National Association of Women Business Owners
 National Association of Women Business Owners - LA
 National Association of Women Business Owners- California

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National Federation of Independent Business
Owners California
National Hookah
National Latina Business Women's Association
Norwegian American Chamber of Commerce
Ofiso Community Foundation
Orange County Business Council
Orange County Hispanic Chamber of Commerce
Pacific Merchant Shipping Association
Panorama City Chamber of Commerce
Paramount Chamber of Commerce
Pasadena Chamber
Pasadena Foothills Association of Realtors
PGA
Pharmaceutical Care Management Association
PhRMA
Pico Rivera Chamber of Commerce
Pomona Chamber
Rancho Southeast REALTORS
ReadyNation California
Recording Industry Association of America
Regional CAL Black Chamber, SVF
Regional Hispanic Chambers
San Gabriel Valley Economic Partnership
San Pedro Peninsula Chamber of Commerce
Santa Clarita Valley Chamber
Santa Clarita Valley Economic Development Corp.
Santa Monica Chamber of Commerce
Secure Water Alliance
Sherman Oaks Chamber
Signal Hill Chamber
South Bay Association of Chambers
South Bay Association of Realtors
South Gate Chamber of Commerce
Southern California Contractors Association
Southern California Golf Association
Southern California Grantmakers
Southern California KFC Franchise
Southern California Leadership Council
Southern California Minority Suppliers
Development Council Inc.
Southern California Water Coalition
Southland Regional Association of Realtors
Specialty Equipment Market Association
Structural Engineers Association of Southern
California
Sunland/Tujunga Chamber
Sunset Strip Business Improvement District
Swiss American Chamber of Commerce
Thai American Chamber of Commerce
The Bridge Network
The LA Coalition for the Economy & Jobs
The Los Angeles Taxpayers Association
The Two Hundred for Homeownership
Torrance Area Chamber
Tri-Counties Association of Realtors
United Chambers – San Fernando Valley & Region
United Contractors
United States-Mexico Chamber
Unmanned Autonomous Vehicle Systems
Association
Urban Business Council
US Green Building Council
US Resiliency Council
Valley Economic Alliance, The
Valley Industry & Commerce Association
Venice Chamber of Commerce
Vermont Slauson Economic Development
Corporation
Veterans in Business
Vietnamese American Chamber
Village of Sherman Oaks BID
Warner Center Association
West Covina Chamber
West Hollywood Chamber
West Hollywood Design District
West Los Angeles Chamber
West San Gabriel Valley Association of Realtors
West Valley/Warner Center Chamber
Westchester BID
Western Electrical Contractors Association
Western Manufactured Housing Association
Western Propane Gas Association
Western States Petroleum Association
Westside Council of Chambers
Westwood Community Council
Whittier Chamber of Commerce
Wilmington Chamber
World Trade Center
Yes in My Backyard
7-Eleven Franchise Owners Association of
Southern California

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Response to Comment Letter #1*Response to Comment 1-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Consumers will have the choice of both zero-NOx emission units and NOx-emitting natural gas-fired units. For zero-NOx emission units, as mentioned in Chapter 2 of this report, Rule 1111 and Rule 1121 are fuel and technology neutral, meaning any technology that can meet the emission limits is compliant with the rule. Shared circuit 120V heat pumps offer a viable solution to buildings that are unable to accommodate a utility upgrade, as they can use an existing 120V circuit to power the heat pump water heater. These shared circuit 120V heat pumps are one of several options that can be used as adequate replacements for currently permitted water heaters for consumers who choose a zero-NOx emission replacement.

Response to Comment 1-2:

Staff recognizes that 120V heat pump water heaters and 240V heat pump water heaters have different first hour rating and recovery rates compared to their natural gas-fired counterpart. Increasing the storage capacity of the heat pump water heater can help to overcome the slower recovery rate of the zero-emission units. While manufacturer calculations can provide insight on the ability for these technologies to provide sufficient water, staff has also considered the anecdotal testimonies from residents who use heat pump water heaters for their source of hot water. The ability to provide sufficient hot water to a resident is dependent on the number of occupants, the time of use, and the extent of hot water use.

PAR 1121 establishes a market signal for manufacturers to further advance their technologies. The new rule concept for manufacturer alternative compliance option will be a slower transition to zero-NOx emission allowing further time for technology advancement.

Chapter 2 provides an example of the analysis on the replacement of a natural gas-fired residential water heater less than 75,000 Btu/hr subject to the rule, with a heat pump, which is one example of a zero-emission unit. The capital cost of a natural gas-fired unit is estimated to be \$3,000 based on the 2019 E3 “Residential Building Electrification in California”⁽⁴⁾, while the capital cost of the heat pump is estimated to be \$5,200 based on TECH Clean California heat pump rebate program⁽⁵⁾ real world installation data. The commenter estimated capital costs of the heat pump replacements based on the worst-case scenarios counting all possible installation and construction work which are not expected for most cases. Therefore, staff believes those costs would not be representative for the purpose of rule analysis. Please find more discussion on the cost-effectiveness method in Response to General Comment 6.

⁽⁴⁾ <https://www.ethree.com/e3-quantifies-the-consumer-and-emissions-impacts-of-electrifying-california-homes/>

⁽⁵⁾ <https://techcleanca.com/public-data/>

Response to Comment 1-3:

PAR 1111 and PAR 1121 proposed compliance dates were determined feasible by BARCT analysis discussed in Chapter 2 and aligned with the timelines of other agencies and the 2022 AQMP Control Measures, R-CMB-01, and R-CMB-02. . . Staff recognized that cost-effectiveness of some categories by the original rule concept are over the 2022 AQMP screening threshold. The new manufacturer alternative compliance option allowing NOx-emitting units satisfies the direction set forth by 2022 AQMP addressing higher cost-effectiveness categories for zero-NOx emission standards.

Response to Comment 1-4:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

The cost-effectiveness analysis detailed in this report is generally used to compare alternative means of emissions control relating to the cost of purchasing, installing, and operating control equipment to achieve the projected emission reductions. For information regarding the cost per ton of NOx reduced, please refer to Chapter 2 of this report.

Staff has also prepared a Draft Socioeconomic Impact Assessment released for public review and comments at least 30 days prior to the public hearing. The analysis considers the range of probable costs or savings, impact to small businesses, and impact on employment and the regional economy. The preliminary analysis estimates overall unit lifetime savings as the lower operational costs would offset the higher upfront costs. For more discussion on the cost-effectiveness analysis, please see Response to General Comment 6.

Previous amendments to Rule 1111 and Rule 1121 provided mitigation fee alternative compliance options because no compliant technology was available in the market. The new technologies were still under development and more time was needed for commercialization. For the zero-emission market, staff has identified various technologies that are commercially available. For the new rule concept for manufacturer limits, there will be a mitigation fee component. The Control Measure, R-CMB-01, set forth by the 2022 AQMP is focused on achieving the maximum NOx emission reductions possible. Allowing an additional equipment lifetime (15 -25 years) for natural gas use would ultimately delay emission reductions.

COMMENT LETTER #2: KORY GRIGGS

From: kory.indoorweatherhvac.com <kory@indoorweatherhvac.com>

Sent: Friday, October 4, 2024 7:03 PM

To: Peter Campbell <pcampbell@aqmd.gov>

Subject: [EXTERNAL] Comment on Rule 1111 and 1121

Comment Letter #2

My name is Kory Griggs, and I am an HVAC contractor in the San Bernardino mountains.

I want to comment about the proposal the AQMD is working on to amend rule 1111 and 1121.

1. The public is unaware of the amendment's implications on their future budgets and the costs of repairs to their homes. This must be addressed.
 - You recognize that as much as 13% of the structures in the SCAQMD district will require a major expense in infrastructure upgrades to install a heat pump
 - You recognize that the cost of operation will increase by as much as 38%
 - In climate zones that are cooler than the average SoCal locations equipment cost will be greater due to the need for specialized equipment (low ambient equipment).

2-1

2. The reliance of rebate programs to offset the cost of upgrades for the building owners of greatest need.
 - These programs usually incentivize early adopters, as they are first come, first served. (Folks of less means typically do not replace equipment in advance of its failure.)
 - There is no guarantee that the programs will be available from year to year. (Again, biasing people that have the budget to adapt prior to equipment failure.)
 - The programs typically exclude lower efficiency equipment in favor of higher efficiency units. (Favoring higher ticket items over budget friendly equipment, ticket items that those of lower means typically do not choose due to lack of funds.)
 - There are no known socioeconomic-based programs.
 - There are no known programs for residential infrastructure improvements: panel upgrades, electrical home runs, disconnects, etc.

2-2

3. Cost of operation.
 - In many areas in CA our electricity rates are artificially inflated (due to "over usage" penalties or TIERED rates, the rates vary from climate zone to climate zone with variable different Tier thresholds.)
 - The programs offered by the utility providers for all electric homes rarely offset the cost of operation enough to be effective solutions for most users.
 - Higher charges for high use times of day ie. 4-9pm

2-3

4. Temporary, emergency replacements.

- The current plan is not workable from a cost perspective.
- In actual emergency situations the possible length of approval times may cause a real hazard to persons or property.
- If the distributors are not allowed to sell gas-fired furnaces or water heaters, who will have the temporary equipment available?

2-4

Kory Griggs

Indoor Weather Heating, Air & Refrigeration, Inc., President



9092896201 ext 4

<http://www.indoorweatherHVAC.com>***Response to Comment Letter #2****Response to Comment 2-1:*

Thank you for your comments.

While staff has worked hard to ensure all stakeholders are aware of the current rulemaking, we recognize that further education is needed. The outreach portion of the upcoming Go Zero incentive program is intended not only to educate consumers about the rebates, but also the upcoming compliance dates for zero-emission units. Please see Response to General Comment 5 for further discussion on outreach.

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. For consumers who choose zero-NOx emission units, staff acknowledges that the upfront cost may be higher for many cases; however, based on the IEPR projected future year rates for electricity and natural gas, staff has identified operational cost savings due to the higher efficiency of zero-emission technologies. Cold climate heat pumps are built to work efficiently in conditions down to 20 degrees Fahrenheit and can operate in conditions down to negative 25 degrees Fahrenheit. Average heat pumps will achieve above 200 percent efficiency at 20 degrees Fahrenheit and beat low-temperature heat pumps will achieve 188 percent efficiency even at 0 degrees Fahrenheit.⁽⁶⁾

⁽⁶⁾ <https://learnmetrics.com/best-heat-pumps-for-cold-climates/>

Please see Response to General Comment 2 for discussion on cost and Response to General Comment 8 for discussion on high altitudes.

Response to Comment 2-2:

Incentive programs like the South Coast AQMD's Go Zero, the state's TECH Clean California are intended to accelerate the market for heat pumps and encourage adoption. This will allow the market to mature, providing lower prices and more options by the time the future effective compliance dates for manufacturers go into effect. Most incentive programs do prefer higher efficiency units to realize higher operational cost savings and lower electricity use. The existence of multiple incentive programs means lower income consumers can stack rebates to afford more expensive high efficiency heat pump systems. Finally, most incentive programs, including Go Zero include greater funds and incentive amounts for low income or otherwise overburdened communities. For example, Go Zero will allocate 75 percent of funding for overburdened communities.

Response to Comment 2-3:

In order to mitigate the costs of more electrical appliances in households, the state legislature passed Assembly Bill 205, which creates a flat rate for electric bills, resulting in lower per kilowatt-hour charges. In addition, the IEPR forecast projects rapidly increasing natural gas prices, while electricity rates will go up more slowly. Overall, staff expects consumers to save money in operating costs when switching to zero-emissions. Finally, staff will re-evaluate operational cost based on the updated projection on the utility rates at the technology check-in(s).

Response to Comment 2-4:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. By this new rule concept, consumers may opt to install NOx-emitting gas units if installing zero-NOx emission units would be challenging for emergency replacements. Short-term replacement with rental equipment is no longer needed and thus removed from the proposed amended rules.

COMMENT LETTER #3: ALLEN MAIRS

From: Allen Mairs <mairs1952@gmail.com>
Sent: Thursday, October 10, 2024 2:56 PM
To: Yanrong Zhu <yzzhu1@aqmd.gov>
Subject: [EXTERNAL] November 1 meeting

Comment Letter #3

Greetings,

If these measures to make Mountain communities all electric are implemented, it will be devastating for residents and the real estate market.

I have a friend that FROZE TO DEATH during Snowmagedon winter before last. She lived in an all electric home and we had extended periods where we had no electricity.

Conversion to heat pumps is cost prohibitive to most mountain residents, plus they just don't work when temperatures drop as they do in winter months, PLUS temperatures HAVE to be maintained to prevent water pipes from freezing.

People live in mountain/rural areas because they CHOOSE not to live in cities.

Please help us with this delima.

Allen Mairs

3-1

Response to Comment Letter #3:*Response to Comment 3-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff understands the importance of space heating in mountain communities. By the new rule concept, consumers will have the choice of both zero-NOx emission units and natural gas-fired units for installation.

For consumers who choose zero-NOx emission units The costs are expected to decrease when the zero-emission technologies gain more market adoption. Heat pumps are currently used in cold climates, such as Maine, Vermont, and Alaska. For more information regarding cold climate heat pumps please refer to Chapter 2 of this report. Staff acknowledges the higher upfront costs to retrofit and operate heat pumps. Costs associated with retrofitting heat pumps can be offset using federal and state rebates. In addition, the South Coast AQMD's Go Zero incentive program is also expected to help minimize costs. Please see Response to General Comment 2 for further discussion on costs and Response to General Comment 8 for further discussion on high altitudes. Chapter 2 provides some discussion on grid reliability, and please see Response to General Comment 3 for further discussion. Local and state agencies are working together for a pathway in meeting the future increased electrical demand and providing local grid infrastructure upgrades.

COMMENT LETTER #4: RINNAI

Comment Letter #4



October 11, 2024

Jen Vinh
Planning, Rule Development, and Implementation
South Coast Air Quality Management District (SCAQMD)
21865 Copley Drive, Diamond Bar, CA 91765
(Submitted via email to: jvinh@aqmd.gov)

RE: Proposed Amended Rule 1121. Control of Nitrogen Oxides from Residential-Type, Natural Gas-Fired Water Heaters

Dear Ms. Vinh,

On behalf of Rinnai America Corporation, we appreciate the opportunity to provide comments on SCAQMD Rule 1121. As a leading manufacturer of gas water heaters and boilers, we have a long-standing commitment to reducing emissions and improving energy efficiency. However, the proposed zero-NOx emission limitations in Rule 1121 raise substantial concerns. Specifically, by requiring zero NOx emissions, Rule 1121 effectively eliminates all gas-fired appliances from the market, leaving heat pumps as the only alternative. While most of our products, such as instantaneous water heaters and boilers, fall under Rule 1146.2, as a prominent member of the water heating industry we feel the need to oppose unreasonable standards for all types of water heaters. Such restrictions could hinder the availability of affordable and high-efficiency options for consumers. This regulatory approach is not only impractical but is also inconsistent with the needs of consumers and the current state of infrastructure in Southern California.

4-1

Federal Preemption Under EPCA: The proposed limitations under Rule 1121 raise serious concerns regarding federal preemption under the Clean Air Act (CAA) and Energy Policy and Conservation Act (EPCA). EPCA prohibits states from enacting their own regulations related to the energy use of covered products, which includes water heaters and boilers regulated at the federal level. Imposing state-specific NOx limits could create a regulatory patchwork that directly conflicts with established federal standards. Additionally, these unique requirements could disrupt the national market, placing undue burdens on manufacturers to produce separate models for California and the rest of the country, thus violating the Dormant Commerce Clause.

4-2

Technical Feasibility and Lack of Alternatives: While Rinnai supports efforts to reduce emissions, the zero-NOx requirement under Rule 1121 fails to recognize that the development of technologies like hydrogen-enriched gas and advanced low-NOx combustion systems that are still evolving. Eliminating ultra-low NOx gas-fired appliances in favor of heat pumps as the sole option ignores the substantial benefits and advancements that gas technologies have achieved in improving both efficiency and emissions performance.

4-3

Rinnai America Corporation | 103 International Drive, Peachtree City, GA 30269 | 800-821-9419

Rinnai Comments on SCAQMD PAR 1121
October 11, 2024
Page 2 of 2

The zero-NOx standard would effectively exclude gas-fired water heaters and boilers, regardless of the emissions reductions they could achieve through cleaner combustion technologies. This blanket approach stifles innovation and dismisses any potential for hybrid systems or hydrogen-enriched natural gas, both of which offer promising pathways to reducing NOx without eliminating gas-fired systems altogether.

4-4

Economic and Consumer Impact: From an economic standpoint, the zero-NOx rule creates significant burdens for consumers. Transitioning to heat pumps, while viable in some cases, presents substantial challenges in terms of upfront costs, installation complexity, and performance in varied climates. These costs would disproportionately affect low- and middle-income households, as well as those living in older homes not readily equipped for electric retrofits. It is vital to acknowledge that heat pumps are not a one-size-fits-all solution, particularly in colder environments where gas-fired systems offer more reliable heating.

4-5

Grid Reliability and Infrastructure Challenges: One of the most pressing concerns associated with Rule 1121 (as well as other rules such as Rule 1111 and 1146.2) is its impact on grid reliability. Shifting the entire burden of water and space heating to electric heat pumps will place significant strain on California's already challenged electrical grid. Recent rolling blackouts and grid instability during peak demand periods underscore the fragility of the current infrastructure. Requiring widespread adoption of electric heat pumps under these conditions will exacerbate the problem, leading to greater risks of power outages and heightened energy costs for consumers. It is imperative that any regulatory approach consider the readiness of the electric grid to handle such a drastic increase in demand.

4-6

Conclusion and Recommendation: Rinnai urges SCAQMD to reconsider the zero-NOx emission requirement under Rule 1121. Although the majority of our products, like instantaneous water heaters and boilers, are regulated under Rule 1146.2, we believe it is crucial, as a leading member of the water heating industry, to oppose unworkable standards that affect all types of water heaters. We recommend a more pragmatic approach that encourages the continued development of ultra-low-NOx gas technologies, hydrogen-enriched natural gas systems, and hybrid solutions that combine gas and electric technologies. These alternatives can achieve meaningful reductions in emissions without eliminating consumer choice or undermining the economic feasibility of gas-fired systems.

4-7

A balanced, technology-neutral policy that fosters innovation across a range of heating solutions will be far more effective than a zero-NOx mandate that forces a costly and premature shift to electric heat pumps. Such an approach would allow the market and our industry to continue evolving toward cleaner technologies while maintaining reliable, affordable, and efficient options for consumers.

We appreciate your consideration of these concerns and look forward to continued dialogue on how best to meet the region's environmental goals in a manner that respects both consumer needs and economic realities.

Sincerely,



Marc D. Neufcourt
Director, Regulatory and Government Affairs

Response to Comment Letter #4*Response to Comment 4-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

PAR 1121 aligns the new building compliance date with the CEC Building Code effective date and the previous rule concept set existing building compliance dates with other agencies' proposals and the goal set by the 2022 AQMD Control Measure R-CMB-01. As discussed in Chapter 2, various technologies could achieve zero-emission standards and the South Coast AQMD is technology and fuel neutral. Nevertheless, staff understands that heat pumps are the predominant zero-emission technology in the current market. Modern heat pumps can reach 300 to 400 percent efficiency or even higher. Manufacturers suggested a clear policy direction of future effective zero-emission standards is needed to justify further product development. PAR 1121 would encourage more market adoption of highly efficient units and further advancement on product development. Staff expects the costs of zero-emission technologies to come down overtime. For further discussion on costs, please see Response to General Comment 2. For further discussion on technology readiness, please see Response to General Comment 4.

Staff would also like to point out that Rule 1146.2 was amended in June 2024 to include future effective zero-emission standards.

Response to Comment 4-2:

PAR 1121 is not preempted by the Clean Air Act. It is well-established that under Section 116 of the Clean Air Act, states retain the right to adopt and enforce any standard or limitation respecting emissions of air pollutants from stationary sources, including from products subject to Rule 1121. (*See* 42 U.S.C. 7416). In fact, Rule 1121 (last amended 2004) was approved into the State Implementation Plan and is federally enforceable.

Moreover, PAR 1121 is not preempted by the EPCA. Please see Response to General Comment 9.

Finally, PAR 1121 does not violate the Dormant Commerce Clause. As held by the Ninth Circuit Court of Appeals, there are two broad categories of state regulations that may contravene the Dormant Commerce Clause: "(1) those that directly burden interstate commerce or otherwise discriminate against out-of-state interests; and (2) those that incidentally burden interstate commerce." (*Pacific Merchant Shipping Association v. Goldstene*, 639 F.3d. 1154, 1177 (9th Cir. 2011)). "Regulations falling under the first category are generally struck down, while those in the second category are reviewed under a balancing test. Under this balancing test, a regulation may violate the Commerce Clause if the burdens they impose so outweigh the putative local benefits so as to render the regulations unreasonable or irrational. ... '[I]t is clear, however, that the Supreme Court used the term 'direct' to refer to regulations whose *central* purpose is to regulate commerce, usually in order to benefit local interests.' " (*Id.* at 1177-78) (citations omitted)). Under the balancing test, courts do not substitute their judgment as to the relative value of the benefits

and burdens imposed by the regulation. Instead, “[a] statute is unreasonable or irrational when the asserted benefits of the statute are illusory or relate to goals that evidence an impermissible favoritism of in-state industry over out-of-state industry.” (*Alaska Airlines, Inc. v. City of Long Beach*, 951 F.2d 977, 983 (9th Cir. 1991)).

Here, PAR 1121 does not directly burden interstate commerce or otherwise discriminate against interstate commerce. PAR 1121 does not favor in-state manufacturers or distributors over out-of-state industry. Nor is the rule’s central purpose to regulate commerce or markets. Instead, it is a classic air pollution regulation, originally adopted in 1978, to reduce pollution from the regulated sources. Accordingly, the proposed rule amendments are valid unless they impose such a burden on interstate commerce as to be “unreasonable or irrational.” This test is only violated where the asserted benefits of the rule are “illusory” or relate to goals of economic protectionism—favoring in-state industry over out of state. There is no evidence of a protectionist motive here. And the benefits of the rule are far from illusory—it is expected that upon full implementation, PAR 1121 will obtain approximately 2.3 tons per day of NOx emission reductions.)

Response to Comment 4-3:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

The 2022 AQMP’s objective is to transition to zero-emission technologies, wherever feasible, and staff identified technically feasible zero-emission control options for equipment subject to Rule 1121. South Coast AQMD is designated as “extreme” nonattainment and NOx emission reductions are critical to meet National Ambient Air Quality Standards. Zero-emission air and water heating technologies exist today and waiting for technologies to develop and emerge that will achieve fewer NOx emission reductions and take longer to become commercially viable would not meet South Coast AQMD’s air quality goals.

Cold climate heat pump technology is currently utilized in cold climates successfully. For more information regarding cold climate heat pumps please refer to Chapter 2 of this report and Response to General Comment 8.

Response to Comment 4-4:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

South Coast AQMD is technology and fuel neutral and is focused on achieving NOx emission reductions. The new rule concept allows NOx-emitting natural gas-fired units. Further, should zero-NOx natural gas technologies be developed and adopted, consumers would have the opportunity to choose between newly designed natural gas and other zero-emission appliances.

Response to Comment 4-5:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff acknowledge the higher upfront cost in many zero-emission installations; however, lower annual operational costs are anticipated. Federal, state, and local incentives, including the upcoming South Coast AQMD Go Zero incentive program, will help alleviate the financial burden. Moreover, staff will re-evaluate operational cost based on the updated projection on the utility rates at the technology check-in(s). Please see Response to General Comment 2 for further discussion on cost.

Response to Comment 4-6:

Staff recognizes the importance of electric grid reliability for electric units, but also for natural gas units, which often require electricity to operate. The CEC, CPUC, and CARB are working to coordinate efforts, identify issues not covered by ongoing efforts, and assess needed actions to better align the energy system with the state's climate targets. The new rule concept provides a slower transition that will slow demand increase and time to enhance the grid for future demand. For further discussion, please see Response to General Comment 3.

Response to Comment 4-7:

Staff appreciates Rinnai's comments. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

As the South Coast Air AQMD has been classified as "extreme" nonattainment for the 2015 8-hour ozone standard, staff is required to consider emission reduction for all categories and set future effective dates to reduce emissions as early as feasible. PAR 1121 is technology and fuel-neutral and is focused on achieving the maximum NOx emission reductions possible. The new rule concept provides a pragmatic approach for transition to zero-emission technologies to achieve needed NOx emission reductions, while ensuring consumer choices of zero-NOx emission and natural gas units.

COMMENT LETTER #5: LOS ANGELES CLIMATE REALITY PROJECT

Comment Letter #5



October 11, 2024

Chair Larry McCallon and Committee Members
 Stationary Source Committee
 South Coast Air Quality Management District (South Coast AQMD)
 21865 Copley Drive
 Diamond Bar, CA 91765

RE: SUPPORT for Proposed Amended Rules 1111 and 1121

Dear Chair McCallon and Members of the Stationary Committee:

The undersigned organizations write in strong support of Proposed Amended Rules (PAR) 1111 and 1121 to set a zero-NO_x emission limit on gas-powered furnaces and water heaters, which will be on the committee agenda at your October 18 meeting.

5-1

The 2022 Air Quality Management Plan (AQMP) states that the "only way to achieve the required nitrogen oxide (NO_x) reductions is through extensive use of zero-NO_x technologies

across all stationary and mobile sources.”¹ Applying zero-NO_x standards on furnaces and water heaters is critical for meeting National Ambient Air Quality Standards (NAAQS) and steering the region away from severe nonattainment.

When fully implemented, these rules will reduce NO_x emissions by 10 tons per day, approximately 10% of the regional NO_x pollution under Air District authority. Residential appliances alone emit more NO_x than – and nearly comparable levels of direct fine particulate matter (PM_{2.5}) as – the South Coast region’s oil and gas production, oil refineries, and cement production combined.²

Implementation of zero-emission appliance standards will have significant health benefits for people living in the South Coast region. NO_x emissions negatively impact respiratory and cardiovascular health. They also contribute to the formation of ozone and secondary PM_{2.5},^{3,4} which is tied to severe health issues, including respiratory, pulmonary, cardiovascular, cognitive, reproductive, and developmental problems; cancer; and premature mortality.⁵

5-2

The true value of zero-NO_x solutions like energy efficient heat pumps also encompasses significant additional benefits, such as reduced greenhouse gas emissions and increased access to efficient cooling and air filtration during more frequent and intense extreme heat and wildfire events. This clean equipment can be powered by distributed energy resources, improving resilience for Southern California communities.

Opponents of these measures argue that further studies are needed before amending Rules 1111 and 1121. These calls for further studies serve no purpose but to delay a transition to pollution-free heating equipment in the South Coast region. Staff has made clear through the rulemaking process that technology to support this transition exists today and that these measures are feasible. Indeed, heat pumps have already outsold gas furnaces in the United States for the last two years,⁶ with 35% year-over-year growth in the heat pump water heater market last year as well.⁷ These technologies are proven.

As you know, zero-NO_x standards on furnaces and water heaters have already passed at the Bay Area Air Quality Management District, where they are well underway on implementation planning. The South Coast region has an even greater need to pass zero-NO_x standards on an expedited timeline. The region has failed to meet any national ozone standards, including

5-3

¹ South Coast Air Quality Management District (SCAQMD), [2022 Air Quality Management Plan](#), Executive Summary (December 2, 2022).

² U.S. Environmental Protection Agency (EPA), [2020 National Emissions Inventory](#), March 2023. Appliance emission estimates include residential & commercial emissions for the gas, oil, & other fuel categories, with commercial emissions adjusted to exclude certain non-appliance sources like pipeline compressor stations.

³ J.A. Last et al., “Ozone and Oxidant Toxicity,” *Comprehensive Toxicology* 15, pp. 389-402, 2018.

⁴ World Health Organization, [“WHO global air quality guidelines. Particulate matter \(PM2.5 and PM10\), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide.”](#) 2021.

⁵ California Air Resources Board, [“Inhalable Particulate Matter and Health \(PM2.5 and PM10\).”](#)

⁶ D. Reisinger (CNET), [“Heat Pumps Outsell Gas Furnaces Once Again: What’s the Difference?”](#) February 24, 2024.

⁷ EPA, [“ENERGY STAR® Unit Shipment and Market Penetration Report Calendar Year 2023 Summary.”](#) 2024.

standards the U.S. EPA adopted in 1997, almost thirty years ago.⁸ These ongoing attainment failures mean the Air District cannot afford to delay feasible measures that are known to reduce significant NO_x and PM_{2.5} emissions.

5-3

Your staff is estimating that the full implementation of these rules will not be achieved for 15-25 years after their latest compliance date.⁹ This is already past 2050 for some sources of pollution. The longer it takes to pass these amendments and to send the important market signal they represent, the longer it will take to actualize their full benefit. These rule amendments must pass this year.

5-4

South Coast AQMD staff has undergone a thorough public process and found that zero-emission appliances are the best available control technology. Installation of heat pumps in new buildings and as replacements for existing gas-powered appliances at end of life generally provide cost savings over the life of the appliances, and these rules provided reasonable accommodation for more complicated emergency replacements, as well as master-metered mobile home parks. With the passage of the Go Zero rebate program, the South Coast AQMD has also provided financial support for compliance, with priority in the transition going to disadvantaged communities. This financial support supplements existing federal, state, and local rebates for heat pump installation.

5-5

By setting future effective compliance dates, PAR 1111 and 1121 send an important market signal to zero-emission furnace and water heater supply chains. The sooner this rule is passed, the more beneficial this market signal will be. The technology check-in planned for June 2027 will provide an opportunity to evaluate market adoption and supply of heat pump technology for small spaces, limited power supply, and mobile homes – all areas addressed in the rule by alternative compliance options and later implementation dates.

5-6

The proposal to move these equipment categories to zero-NO_x alternatives has been part of the AQMP since 2022. The District must stay the course to deliver on the promise of the 2022 AQMP. We respectfully ask the Stationary Source Committee to move PAR 1111 and 1121 forward to the Governing Board expeditiously and lay the groundwork for reducing up to 10 tons of NO_x per day in the South Coast region.

5-7

Sincerely,

Charles Miller
Chapter Chair
Los Angeles Climate Reality Project

David Diaz, MPH
Executive Director
Active San Gabriel Valley

⁸ EPA, "Finding of Failure to Attain 1997 8-Hour Ozone Standard; Los Angeles-South Coast Air Basin," August 15, 2024.

⁹ SCAQMD, "Preliminary Draft Staff Report [PAR 1111 and PAR 1121]," pg. 5-3, September 2024.

Claire Robinson
Managing Director
Amigos de los Rios

Tomas Castro
OC Climate Equity Advocate
Climate Action Campaign

Lisa Swanson
Policy Chair
Climate Reality Project Orange County Chapter

Christopher Chavez
Deputy Policy Director
Coalition for Clean Air

Christy Zamani
Executive Director
Day One

Fernando Gaytan
Senior Attorney
Earthjustice

Jorge Rivera
Executive Co-Director
Healing and Justice Center

Margo A Reeg
President
League of Women Voters of Los Angeles County

Tori Kjer
Executive Director
Los Angeles Neighborhood Land Trust

Charlotte Matthews, Managing Director
Jed Holtzman, Senior Associate
RMI

Sharon Ungersma
Chapter Chair
San Fernando Valley Climate Reality Project

Kim Orbe
Senior Conservation Program Manager
Sierra Club, Angeles Chapter

Sam Fishman
Sustainability and Resilience Policy Manager
SPUR

Anne Pernick
SAFE Cities Senior Advisor
Stand.earth

Stuart Wood PhD
Executive Director
Sustainable Claremont

Ben Stapleton
Executive Director
USGBC California

Response to Comment Letter #5*Response to Comment 5-1:*

Staff appreciates the comments and believes that amending PAR 1111 and PAR 1121 at its current projected date would help achieve emissions reductions more effectively.

Response to Comment 5-2:

Implementation of PAR 1111 and PAR 1121 will result in a NOx emissions reduction of 6 tons per day. Reduction of NOx emissions would improve air quality, which could reduce health risks associated with air pollution.

Response to Comment 5-3:

Since rules enforced by the South Coast AQMD cannot be less stringent than those by other air districts, unless such a rule would be infeasible, staff has considered the compliance dates of other air districts, such as BAAD, in the BARCT assessment.

Response to Comment 5-4:

PAR 1111 and PAR 1121 are area sources rules that regulate the product supply chain that achieves emission reductions at equipment natural turnover. This aligns with other agencies for similar rules. Staff acknowledges the benefits from full implementation of the rules. PAR 1111 and PAR 1121 have proposed implementation dates as early as feasible. Staff agrees that the public hearing should not be delayed.

Response to Comment 5-5:

Staff determined the feasibility of zero-emission standards through the BARCT analysis and is developing the Go Zero incentive program to help lower the upfront cost for some consumers with a focus on the overburdened communities. The new rule concept for manufacturer alternative compliance option would further address installations when zero-NOx emission technologies are not as cost effectiveness.

Response to Comment 5-6:

Staff agrees with the commenter.

Response to Comment 5-7:

Staff appreciates the support.

COMMENT LETTER #6: ANN STALWICK AND CHANA NEVO

Comment Letter #6

Peter Campbell

From: CHANA NEVO <chanalenevo@msn.com>
Sent: Monday, October 14, 2024 12:18 PM
To: Peter Campbell
Subject: [EXTERNAL] Comment on rule 1111and 1121

I been a realtor since 1979 and have sold in northern and southern California. The real estate market is not stable at present. Migration to other states from Californian has a one percent increase (average) due to several causes ,inflation, pricing, interest rates and cost of living.

By implementing and having homeowners retrofit their houses to all electrical appliances will affect the market pricing on properties. Present electrical system in houses will not carry the high amperage appliances. The National Association of Builders states the cost would be \$30,000. to \$40,000. to retrofit a house. This could bankrupt people and send the housing market in a downward dive. The State Incentive Programs will not work. That money comes from the taxpayers and people still have to purchase all the appliances; stove, furnace, AC, and water heaters. What about pool and jacuzzies is that an additional cost.

How is the disposal of all those appliances going to affect the demand on the waste disposal system. The higher demand on the electrical grid will cause blackouts. The cost of electrical use will be quite higher to the consumer than natural gas. All this extra expenses affects buyers decision on purchase and sellers on selling.

This is great impact on people's lives causing a lot of stress and anxiety which will create more problems because of the waste disposals of metal, plastic, Freon, and electronics.

THIS WILL NOT HELP TO REACH CLEANER AIR QUALITY!!!

*Thank you,
Ann Stalwick
Crestline, California*

In addition.

Regarding 1111 and 1121

I live in Crestline, CA which is in climate 16, snow country where the heat pumps can freeze. You would need low ambient equipment in these area at a much higher cost to the consumer. This is a big risk to resident's health and safety, Last year's storm caused state of emergency and blackouts and some people froze to death .

*Thank you.
Chana Neno*

Response to Comment Letter #6*Response to Comment 6-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff has evaluated the cost of electrical upgrade and included the required cost in the cost-effectiveness analysis as discussed in Chapter 2. Given 87 percent of homes in the South Coast AQMD region have air conditioning systems, most of the homes will not require electrical upgrades if the consumer chooses a zero-emission unit to comply with PAR 1111. In addition, there are various zero-emission options that do not need electrical upgrades, such as portable heat pumps for space heating and cooling and 120V plug-in heat pump water heaters. While an increase in electrical service may be needed in some cases, some planners such as Redwood Energy⁽⁷⁾ believe it can be avoided, even with all electric appliances in a home. For further discussion on cost, please see Response to General Comment 2.

Response to Comment 6-2

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. For consumers that elect to install zero-NOx emission units, the proposed zero-emission standards have future effective dates that would apply at natural appliance replacement when old units break down or consumers choose to replace them, which means most consumers would have sufficient time to plan for future replacement. Federal, state, and local incentives, including the upcoming South Coast AQMD Go Zero incentive program, will help alleviate the financial burden for consumers who choose zero-emission appliances. Please see Response to General Comment 2 for further discussion on cost.

Response to Comment 6-3:

For both the original and new rule concept, the transition to zero-emission appliances would occur at the natural replacement of the furnace or water heater, so there would be no additional waste created. For a discussion on grid reliability, please see Response to General Comment 3.

Response to Comment 6-4:

Staff understands the importance of space heating in mountain communities. Please see Response to General Comment 8.

⁽⁷⁾ <https://www.redwoodenergy.net/watt-diet-calculator>

COMMENT LETTER #7: STEVE PEARSON (DAUM COMMERCIAL REAL ESTATE SERVICES)**Comment Letter #7**

Mr. Peter Campbell
 Planning, Rule Development, and Implementation
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765
 Email: pcampbell@aqmd.gov

Re: Comments on PAR 1111 and PAR 1121

Dear Mr. Campbell:

DAUM Commercial Real Estate Services appreciates the opportunity to provide comments on the South Coast Air Quality Management District proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces (PAR 1111) and Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural Gas-Fired Water Heaters (PAR 1121).

Our company is one of the oldest commercial real estate services companies in Southern California. We are committed to reducing our carbon footprint while meeting the needs of our tenants. Installation of energy efficient lighting controls, compliance with outdoor water conservation requirements, and other energy-reducing measures can be found throughout our properties.

We are concerned that the proposed rules do not consider issues facing commercial and industrial real estate property owners and our tenants. For example, commercial property owners already face sky high costs for rent, insurance and other daily operating necessities.

7-1

We would respectfully request that the District revise PAR 1111 and PAR 1121 to provide commercial and industrial property owners with greater flexibility and time to deal with already existing leases set to renew by the end of 2026 or until such time that our local utility provider informs us that they can accommodate any new electrical hook-up which would be required due to the installation of a new system in order to avoid any additional delays for occupancy of our properties.

7-2

Thank you for taking into consideration our concerns. Please contact me with any questions.

Sincerely,

Steve Pearson

Principal
 DAUM Commercial Real Estate Services

Response to Comment Letter #7*Response to Comment 7-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. The new rule concept also revised the proposed applicability and will not expand to large size spacing heating units such as commercial furnaces. The revised PAR 1111 and PAR 1121 have minimized the impact to commercial properties.

Many installations in commercial and multifamily properties are subject to Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters which was adopted in June 2024 for zero-emission standards. Please refer to the Rule 1146.2 Public Hearing documents, which include the staff report and the socioeconomic impact assessment for more information on the analysis.⁽⁸⁾ Staff will conduct a technology check-in and report to the Stationary Source Committees in June 2026 for the implementation of Rule 1146.2.

Response to Comment 7-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For consumers electing to install zero-NOx emission units, the 2026 compliance date was delayed until 2027 and is for new construction only, when the building code will also require new building electric ready, and the 2029 compliance date is for existing building. These existing building compliance dates only applied to appliances that were sold or installed after the compliance effective dates. Existing units could continue to operate until natural replacement. The revised PAR 1111 and PAR 1121 will provide flexibility and more time to comply.

⁽⁸⁾ <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2024/2024-Jun7-026.pdf>

COMMENT LETTER #8: DENNIS L SANDOVAL (DAUM COMMERCIAL REAL ESTATE SERVICES)

Comment Letter #8

*"Serving Southern California Businesses since 1904!"***SCAQMD PAR 1111 and PAR 1121**

Mr. Peter Campbell
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Email: pcampbell@aqmd.gov

Re: Comments on PAR 1111 and PAR 1121

Dear Mr. Campbell:

My associates and I appreciate the opportunity to provide comments on the South Coast Air Quality Management District proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces (PAR 1111) and Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural Gas-Fired Water Heaters (PAR 1121).

Our company provides corporate real estate consulting to a large cross section of businesses within the State of California. Our goal is to help businesses grow and expand within our incredible State. We are aiding our clients to help them not only identify quality buildings but also introduce them the architects and builders who are committed to reducing their carbon footprint while meeting the operational and economic needs of the business environment, which will create good paying jobs in a responsibly designed building.

Installation of energy efficient lighting controls, compliance with outdoor water conservation requirements, and other energy-reducing measures can be found throughout the inventory of buildings we promote and market.

We are concerned that the proposed rules do not take into account issues facing commercial and industrial real estate property business owners, property owners and tenants. Construction costs, material costs, layers of compliance regulations and operational costs are escalating to the point where we are asked much too frequently, *"What are our out of state alternatives for relocation and expansion?"*

8-1

Conversion costs in various areas of the business are compounding the cost to expand in California, let alone relocate to within the state (trucks, forklifts, ambient air issues, etc.).

We would respectfully request that the District revise PAR 1111 and PAR 1121 to provide commercial and industrial property owners with greater flexibility and time to deal with already existing leases set to renew by the end of 2026 or until such time that our local utility providers can confidently inform us that they can accommodate any new electrical hook-up which would be

8-2

required due to the installation of a new system in order to avoid any additional delays for occupancy of our properties. The threat of “Black outs,” “Business Disruption” and “Increased Costs” are very concerning and causing much angst within our business communities. 8-2

Thank you for taking into consideration our concerns. Please contact me and my associates at DAUM Commercial Real Estate Services directly for any additional questions or concerns.

Sincerely,

Dennis L. Sandoval

Dennis L. Sandoval
Executive Vice President / Principal
DAUM Commercial Real Estate Services

Direct: 562-576-1421
Email: dsandoval@daumcre.com

Response to Comment Letter #8

Response to Comment 8-1:

Staff appreciates your comment. Please see Response to Comment 7-1.

Response to Comment 8-2:

Staff appreciates your comment. Please see Response to Comment 7-2.

COMMENT LETTER #9: ELIZABETH ELLIOTT

Comment Letter #9

Peter Campbell

From: Mel and Elizabeth Elliott (phoebeintheforest) <melandlizelliott@gmail.com>
Sent: Monday, October 14, 2024 12:36 PM
To: Curt Hagman (GBM); Supervisor.Rowe@bos.sbcounty.gov; Peter Campbell
Subject: [EXTERNAL] Rules 1111 & 1121

Dear Mr. Hagman, Ms. Rowe and Mr. Campbell:

Thank you for taking the time to read my email.

I am a resident of Lake Arrowhead, CA and have lived on the mountain since 1980. While my home is a 45-minute drive away from the valley and in the county of San Bernardino, it may as well be hundreds of miles away in regards to weather! My garden reflects this difference: daffodils in the spring, peonies in the summer, autumn color, and white Christmases in the winter. Weather-wise, the mountain communities have more in common with New England than with the rest of the Inland Empire.

Because of this dramatic difference in weather and temperatures, our communities need an exception to Rules 1111 and 1121. The planned changeover mandating electric heat and water heating appliances is unnecessarily punitive! An unelected group of people who are ignorant of the different climates in our vast state are making rules for people who live in moderate-climate areas because that is where they live and what they experience.

9-1

Electric bills will soar in the mountains. Guaranteed. These rules will cause a lot of hardship on this mountain. So I am asking that there be an exception put into place for people who live above the 3,000 ft. elevation. It is not right...or even "scientific"...to place everyone under the same rules. There must be an exception for those living in a cold climate. One size does not fit All, or even Most.

9-2

Thank you for your consideration,

Elizabeth Elliott
Lake Arrowhead, CA

Response to Comment Letter #9*Response to Comment 9-1:*

South Coast Air Basin has been classified as "extreme" nonattainment for the 2015 8-hour ozone standard and the region has the worst air quality in the nation. Therefore, there is a need to identify and propose cost-effective control/compliance options, while striving to achieve the emission reductions necessary for regional air quality attainment, especially given the magnitude of the emission reductions required to meet the ozone standards.

The South Coast AQMD Governing Board (Board), who will ultimately decide to approve or disapprove the proposed rule amendments, is comprised of elected officials and appointed officials. The Board has 13 members; ten are elected officials. Of these, four are county supervisors representing Los Angeles, Orange, Riverside and San Bernardino counties, elected to South Coast AQMD's Board by their Boards of Supervisors. Six are City Council members representing the cities in each county (because of its size, Los Angeles County has two representatives, elected by respective city selection committees, and the City of Los Angeles has one representative, selected by the Mayor of Los Angeles). The remaining three Board members are appointed by state elected officials; one by the

Governor of California, one by the Speaker of the State Assembly and one by the State Senate Rules Committee. The Board includes representatives from all areas within the jurisdiction of the South Coast AQMD to ensure the concerns of all the residents are considered.

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff understands that the mountain communities have cold climates as compared with the other areas of South Coast AQMD; however, as discussed in Chapter 2, zero-emission technologies have been adopted in many cold climate regions. Please see Response to General Comment 8 for further discussion on high altitudes.

Response to Comment 9-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Staff acknowledges that for consumers who choose zero-emission units, the upfront cost may be higher in many cases; however, based on the IEPR projected rates for electricity and natural gas in future years, staff has identified operational cost savings due to the higher efficiency of zero-emission technologies. Please see Response to General Comment 2 for further discussion on cost. Please see Response to General Comment 4 for more information on technology readiness.

COMMENT LETTER #10: GREGORY RICE

Comment Letter #10

Peter Campbell

From: greggrice@aol.com
Sent: Monday, October 14, 2024 9:53 AM
To: Peter Campbell
Subject: [EXTERNAL] Comments on 1111 & 1112

I want to comment about the proposal the AQMD is working on to amend rule 1111 and 1121.

I understand your intent to limit emissions from natural gas fueled appliance. However, I feel the industry is not ready for that change.

First, I have directly contacted multiple manufacturers of both HVAC Heat Pumps and manufacturers of Domestic Water Heat Pumps. The response so far is that even the new high efficiency heat pumps are not really very efficient in areas above 4500 ft. elevation because of the cold temperatures in the wintertime combined with the freezing rain and snow. I even looked into geothermal units and got the same response. Although different refrigerants are available and different percentages of antifreeze could be used for a closed loop geothermal system, the installation instructions and comments to questions asked resulted in a low ambient temperature of 20 degrees to prevent the heat pumps from ceasing.

10-1

Some recommended dual fuel systems, but of course the second fuel would be natural gas which you are intending to eliminate. A few (like Trane) provide efficiency charts of their most efficient cold climate units based on ambient temperature. Below 20 degrees, the efficiency really drops off. Some use a cycle to provide heat to the heat pump and heat exchanger to provide the unit from ceasing up. Unfortunately, it is taking heat back from the conditioned space and cooling the inside of the house or using heat elements that draw a lot of power. When it is below 20 degrees outside, the inside is provided with colder air at a time when the occupants need warmth. Additionally, the heat pumps are designed to run continuously. Therefore, the cold air can't even be turned off.

10-2

I was also informed, and I verified that the typical house electrical would have to be upgraded to 200 Amp services for the heating and water heating heat pump systems. Additionally, your likely next step will be to require other gas fueled appliance follow suit and be converted to heat pumps. The additional demand for the additional appliance (stoves, dryers, etc.,) would require the services be upgraded to 400-amp services. Something SCE does not approve for residences in

10-3

the mountain areas. Because of the temperature limits on lithium batteries, battery backups for solar is also considered a fire hazard.

10-3

I doubt SCE has grid upgrade plans in place to cover the capacity needed for your proposed rule changes.

In fact, SCE currently recommends gas fueled generators be in place for the mountain areas because of the many power outages caused by maintenance or periods of fire hazards. In the area I live, over the past 4 years we have averaged at least two such outages a month, mostly during cold weather.

10-4

I truly believe that you are proposing rule changes that will likely cause illness, or death to many residents in the mountains above 4500 ft elevation. Having worked in both the north and south deserts for many years, I believe it will have similar health impacts in those areas as well. Contrary to common belief, the deserts get very cold during winter. And the electrical power grid is not at the same level in the deserts or mountains.

10-5

That doesn't even take into consideration the financial impact to residents or business owners.

A final note: Your reason for the rule changes is to improve air quality for health of the residents in your region. As you propose these changes, are you also amending your budget for the potential of a class action lawsuit because of the more immediate negative health impacts to the residents in the mountain and desert areas and the of higher fire risk from battery backup to solar? The efficiency of solar during winter months really drops because of shading from the tall trees, cloud cover, fog, or snow on the panels. Thus, some type of backup is necessary, which generally seems to require natural gas.

10-6

Gregory Rice
PO Box 1455
Crestline CA 92325

Response to Comment Letter #10*Response to Comment 10-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Cold climate heat pumps are available on the market and can operate at outside air temperatures as low as negative 25 degrees Fahrenheit. Geothermal heat pumps are not reliant on outside air and can operate even in very cold conditions. For further discussion on cold climate heat pumps, please see Response to General Comment 8.

Response to Comment 10-2

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Heat pumps, especially ones designed for cold climates, often have a defrost mode to prevent the outside unit from freezing over. Cold climate heat pumps are built to work down to negative 25 degrees Fahrenheit, and to work efficiently down to 20 degrees Fahrenheit. Average heat pumps will achieve above 200 percent efficiency at 20 degrees Fahrenheit and cold climate heat pumps will achieve 188 percent efficiency even at 0 degrees Fahrenheit.⁽⁹⁾ This efficiency is much higher than the most efficient gas furnace with efficiency below 100 percent. Dual fuel systems using a natural gas furnace will have higher emissions and less energy efficiency. Please see Response to General Comment 8 for further discussion on high altitudes.

Response to Comment 10-3

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Many homes with 100 amps never get close to maxing out that limit, according to Blake Herrschaft, building electrification programs manager at Peninsula Clean Energy, a California provider of 100 percent carbon-free electricity. Technology advances in the last few years, from low-power 120V heat-pump water heaters to smart electrical panels that automatically flatten demand peaks by pausing nonessential loads, make 100-amp electrification feasible. That is especially true for single-family homes that are under 2,500 square feet.⁽¹⁰⁾ Please see Response to General Comment 4 for further discussion on technology readiness.

Response to Comment 10-4:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

⁽⁹⁾ <https://learnmetrics.com/best-heat-pumps-for-cold-climates/>

⁽¹⁰⁾ <https://www.canarymedia.com/articles/electrification/yes-its-possible-to-electrify-a-home-on-just-100-amps>

The topic of grid infrastructure was brought up during the public process, and staff has been in contact with utilities and other state organizations on grid reliability topics. Staff recognizes there are challenges for certain situations, and the new proposed rule concept addresses the concern. Through conversations with utilities, staff found there are existing efforts on the utility and state level to address future electricity demand and reliability, and some of these points are described in Chapter 2 of this staff report. For more information on the electric grid, please refer to Response to General Comment 3.

Staff also recognizes the health benefit to communities. BAAD evaluated ambient air quality and health impacts from NO_x-emitting natural gas-fired furnaces and water heaters in commercial and residential buildings in support of the zero-emission standards BAAD adopted in March 2023. According to the BAAD staff report, the proposed zero-emission space and water heaters in residential and commercial buildings will result in reductions in NO_x emissions and reductions in secondary PM_{2.5} across the Bay Area. These reductions in secondary PM_{2.5} avoid an estimated 23 to 52 deaths per year and about 71 new cases of asthma per year. Reductions in total PM_{2.5} attributable to the targeted appliances, including reductions in primary PM_{2.5} from adoption of electric appliances, would avoid an estimated 37 to 85 premature deaths per year and about 110 new cases of asthma each year. The valuations of the health impacts from total PM_{2.5} were estimated to be between 400 to 890 million U.S. dollars annually. Similar benefits would accrue to communities in the South Coast AQMD.

Response to Comment 10-5

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NO_x emission sales targets for manufacturers, will allow for both zero-NO_x emission units and NO_x-emitting natural gas-fired units to be sold and installed for use.

The rules are proposed for cleaner air to protect public health. Regarding the previous rule concept, the BARCT assessment determined the proposed zero-emission standards with future effective implementation dates were feasible. Staff is committed to monitoring the rule implementation after rule adoption, providing periodic updates to the Stationary Source Committee, and conducting technology check-in(s).

Response to Comment 10-6

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NO_x emission sales targets for manufacturers, will allow for both zero-NO_x emission units and NO_x-emitting natural gas-fired units to be sold and installed for use.

Staff also understands that residents in the mountain areas may consider back-up power generation technologies as important resources in case of power outages during the winter months. PAR 1111 and 1121 do not contain any back up power requirements that would require or limit the use of or types or back-up power technologies. For further discussion on high altitudes, please see Response to General Comment 8.

It is essential for electrical generation and local grid infrastructure to meet demand. Local utilities such as SCE are mapping service areas, including the mountain communities, to determine where upgrades are needed. On the other hand, as the country transitions to a cleaner power grid, researchers are searching for the best ways to integrate energy storage

for backup power.⁽¹¹⁾ Staff will maintain regular contact with utilities and monitor the implementation. For further discussion on the electric grid, please see Response to General Comment 3.

⁽¹¹⁾ <https://www.nrel.gov/news/program/2024/how-mountains-could-store-mountains-of-clean-energy.html>

COMMENT LETTER #11: BOB HELBING**AIR-TRO HEATING & AIR CONDITIONING**

1630 S. Myrtle Ave. Monrovia, CA 91016
 (626) 357-3535 www.airtro.com
 CSLB Lic. #258228

October 14, 2024

Comment Letter #11

SCAQMD

ATTN: Peter Campbell

Via email at:

pcampbell@aqmd.gov

21865 Copley Dr.

Diamond Bar, CA 91765

SUBJECT: PAR 1111 & PAR 1121

Dear Mr. Campbell:

The purpose of this letter is to comment on Proposed Amended Rules (PAR) 1111 and 1121. The proposed changes to PAR 1111 and PAR 1121 are flawed to the point of being unworkable. They will not improve air quality within the District, but they will inflict significant economic harm to the residents of the District.

My credentials on the topic come from being a fourth-generation contractor, a third generation engineer with a B.S. in Mechanical Engineering from the California Institute of Technology (Caltech), 30 years as owner and manager of a \$15 million HVAC firm (Air-Tro, Inc.), past President of the Institute of Heating and Air Conditioning Industries (IHACI) as well as past President of the Monrovia Chamber of Commerce. This has given me practical experience, academic and technical education, and decades of work within the community as a tradesman, advocate and industry leader.

The proposed changes ignore basic scientific facts about ozone formation. The economic analysis is based on bad numbers. And the conclusions are made in defiance of recent court cases that deny local agencies the power to ban gas appliances. Staff should withdraw these proposals and rework them using better scientific models and more accurate economic projections and with a consciousness of legal limits to SCAQMD authority.

PAR 1111 and PAR 1121 ban the sale of gas appliances for comfort heating and water heating on the basis that these appliance emit oxides of nitrogen (NOx) which are precursor chemicals to ozone. Ozone is a major component of smog, and ozone levels in the District routinely exceed EPA limits.

11-1



However, gas appliances don't emit very much NOx. The District sees close to 400 tons of NOx emissions daily. Of that total, only about 10 tons (or about 2.5%) come from gas furnaces and water heaters. By way of comparison, a single container ship by itself emits just over 10 tons of NOx daily (assuming a 40,000 kw power plant emitting 10g/kwh).

Not only that, but the small amounts of emissions from these units occurs when ozone formation is already at its lowest level due to natural conditions. NOx also does not create ozone by itself. It requires energy from solar ultraviolet rays to break off oxygen ions from N₂O. These free oxygen ions then combine with oxygen molecules to form ozone. The more sunshine, the more ozone. We can see this if we look at SCAQMD data for peak ozone days at their Rubidoux Riverside sampling station, which records some of the worst ozone conditions in the district. (Attachment #1). All occurrences where ozone levels exceed the EPA's one-hour limit (90 parts per billion) take place on afternoons where high mean outdoor temperatures exceed 84°.

11-1

What are these units doing when natural conditions favor ozone creation? They aren't running. Furnaces operate on cold winter nights, not hot summer afternoons. The highest ozone level in the dataset is 139 ppb on August 29 at 2pm, on a 103° day, and we can be assured no one had their furnace running when it's 103° out. Water heating is more distributed, but domestic hot water is most in demand in the early morning or early evening for use in showers, laundry, and washing dishes. Few people shower at 2pm.

In short, PAR 1111 will achieve *no* changes in peak ozone levels, and PAR 1121 will have an impact too small to be measured. Neither rule will bring district ozone closer to EPA compliance.

The economic calculations provided by staff are equally flawed. A ban on gas furnaces and water heaters will force customers to rely on electrically driven heat pumps. By the calculations of district staff (Slide #25 of the Working Group #4 presentation, available at <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-wgm4-april-2024.pdf?sfvrsn=14>), residents currently pay the gas company 6¢ per kilowatt-hour of energy while electricity costs 26¢/kwh, over 4 times as much. That 26¢/kwh estimate is far too low. As an Edison customer, I currently pay winter rates of 43¢/kwh (Attachment #2). In addition, on that same slide district staff assumes that gas prices will rise 50% while electricity will only go up 21%. In fact, the CEC's Integrated Energy Policy Report California Energy Commission Report cited by staff (<https://efiling.energy.ca.gov/GetDocument.aspx?tm=254463>) predicts "gas price projections out to 2050 remain relatively steady," while Edison has requested a 46% electricity rate hike by 2028 (<https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/pao/customer-notice/cn-2023/sce-grc-2025--a2305010--final.pdf>). That will take rates from 43¢/kwh to 63¢/kwh, more than ten times the 6¢/kwh cost that same amount of energy costs when purchased as natural gas. Increasing energy costs by a factor of ten is an unconscionable burden on the communities that make up the district.

11-2

In addition, district staff overestimate the energy efficiency of heat pump technology. One of the major benefits of heat pumps is that they don't create heat. Instead they move it (or pump it). They capture outdoor heat and bring it inside to heat the home (or the home's hot water). As a



result, for every kilowatt of energy used, several kilowatts of heat result. The ratio of heating to consumption is called the COP (coefficient of performance). Unfortunately for their analysis, district staff assumed a COP of 5, or five times as much heat is generated for every unit of energy consumed. There are indeed heat pumps capable of this high level of performance. They are called “ground source heat pumps” and rely on coiled heat exchangers buried or submerged below grade to use soil or water as a heat source. Such systems are used successfully in other parts of the country, but to function they need at least a half-acre of land or an adjacent water feature such as a lake or pond.

There are few residential lots of such size or with access to such water features within the district. Even for homes with large lots, the cost of trenching to lay the lines runs into the tens of thousands. Trenching for typical ground source heat pump system in the Midwest can run over \$50,000. It’s hard to imagine what the cost would be in Southern California, which has some of the highest construction costs in the nation. It’s also unclear if such work could even be permitted; no local building department has the expertise to oversee such work.

Air source heat pumps, on the other hand, are frequently installed in Southern California. These require no trenching or other exotic techniques. In fact, they look and operate just like residential central air conditioning units. But their efficiencies don’t match ground source models. The very best air source heat pumps have COPs of 3 (or just a bit less). By using a COP of 5 rather than 3 district staff overestimated heat pump performance and underestimated energy use by 66%. Combine this with the miscalculated electricity rates, and calculated costs for one kwh of heat rises from staff estimates of 6¢/kwh to an expected cost of 21¢/kwh, or three and a half times higher.

11-2

Similar errors exist in district staff’s estimates of first costs. They used historical information from the TECH fuel swapping program for the cost of a heat pump installation, which yielded a figure of \$7,000 for installation. But the majority of heat pumps installed under that program were mini ductless systems. The majority of furnaces installed in the district are for ducted central heating systems. Replacing these with ducted heat pumps would cost at least \$15,000 and that presumes no major electrical upgrades are needed. A new electrical service would add another \$5,000 to \$8,000.

District staff similarly used incorrect numbers to estimate expected equipment life. They used estimates of TECH staff that heat pumps and furnaces have similar lifespans of about 20 years. However, furnaces only run in the winter while heat pumps provide summer cooling as well as winter heating. The increased run time means increased wear and tear, and in fact heat pumps only last 10 to 15 years. This raises life cycle costs from staff estimates of \$350/yr (\$7,000 divided by 20 years) to actual costs of either \$1,000/yr (\$15,000 divided by 15 years) or \$1,330/yr if electrical improvements are needed. Again, costs will prove to be three to four times higher than staff estimates.

Staff frequently refer to a proposed “Go Zero” rebate program being offered to disadvantaged communities or homeowners to help mitigate these costs. The proposed funding of \$50 million will not go far in a District with 17 million residents; the funding amounts to about \$3/resident.

11-3



Let's touch briefly on the legal issues, with SCAQMD potentially embarrassing itself through regulatory overreach. In 2019 the city of Berkeley banned gas hookups to new structures built within their city. Within two years dozens of other California cities and counties passed similar bans. The California Restaurant Association sued to overturn the ban and earlier this year prevailed before the Ninth Circuit Court of Appeals. The court ruled that the only authorities that can issue such a ban are the US Congress and the Federal Department of Energy. If the district moves forward with this ban, they can expect to see it swiftly overturned by the courts.

11-4

If the Board approves PAR 1111 and 1121, the response from industry trade groups like PHCC (Plumbing, Heating and Cooling Contractors) and AHRI (American Heating and Refrigeration Institute) will likely be swift. SCAQMD will likely find itself in prolonged, expensive and ultimately embarrassing legal action, seeing its efforts set aside by the Federal courts.

In short, PAR 1111 and 1121 are based on poor science, flawed economics and bad law. This board should withdraw this proposal from consideration before it imposes massive replacement costs and electric bills on the community with no resulting improvement in air quality, or before it suffers an embarrassing legal defeat.

If you have any questions or wish more background information, feel free to call me at (626) 357-5315 x14 or email me at bobhelbing@airtro.com

Sincerely,



Robert Helbing
President



Response to Comment Letter #11*Response to Comment 11-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

PAR 1111 and PAR 1121 are technology and fuel-neutral and are focused on achieving the maximum NOx emission reductions possible. Equipment that meets the NOx emission limits, regardless of the energy source, is not prohibited by PAR 1111 or PAR 1121.

For information regarding the emissions inventory, please refer to Response to Comment PW-4. By reducing NOx emissions, PAR 1111 and PAR 1121 would achieve control on both ozone and PM2.5 formation. While ozone formation is most efficient during peak UV production hours, it still occurs during other daylight hours and NOx concentrations are still relevant outside of those peak hours. In addition, NOx emitted in the early morning, even though it may still be dark, will have a much longer chemical lifetime for daytime reactions or be transferred to eastern part of the region for warmer daytime reactions. NOx is also an important PM2.5 precursor making NOx reductions from the ozone control strategy instrumental in attaining federal standards for PM2.5. Additionally, PM2.5 levels are highest in the winter months during the overnight hours with nearly all exceedances of the 24-hour federal standard occurring between November and February.

Response to Comment 11-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

As discussed in Chapter 2 for zero-NOx emission unit installations, staff analysis relied upon the fuel price estimates which are based on a combination of the CEC's 2023 IEPR and EIA national level forecasts extended to 2050. Electricity forecasts are based on the LADWP and SCE planning areas. Natural gas forecasts are based on SoCalGas forecasts. Forecasted prices will not match observed electric and natural gas prices in any given year and may differ materially.

The commenter mentioned "gas price projections out of 2050 remain relatively steady" is modeled prices at California's Malin and Topock border hubs, which reflect what utilities or large end users (for example, power plants and industrial) pay for gas delivered to the state's borders from out-of-state suppliers (shippers, supply basins, third party marketers). Those wholesale prices at the border do not reflect retail prices. Staff believe the IEPR and EIA forecasted rates for consumers are more appropriate for the purpose of this rule analysis.

Staff analysis on the fuel switch/operational cost is based on the 2019 RASS released by the CEC. The RASS includes information on the energy use of both electrical and natural gas appliances in Californian's homes. Heat pump energy efficiency rate was not utilized in the calculation; however, staff has included the discussion of the technologies and their efficiencies with the references to information sources in Chapter 2.

Most of the homes in the region have a 100-amp or 200-amp panel, which means minimum construction for electrical upgrade would be needed for those homes if the consumer chooses a zero-emission unit. Staff recognizes that there may be some cases where a utility upgrade is required and could include trenching, which adds to the cost. While trenching is costly, the end user would not bear the full cost when the trenching is required before the facility's meter. For homes that require construction, PAR 1111 and PAR 1121 provide flexibility in the new rule concept.

Regarding the upfront cost, staff understands a ducted heat pump could cost \$15,000. However, the rules apply at natural replacement when a new installation is needed with or without the rule requirements. Therefore, analysis would count the incremental cost, which is the difference of installing a zero-emission unit versus a conventional unit.

The expected equipment life used in staff analysis is appropriate. The California Public Utilities Commission recently conducted a Residential HVAC and DHW measure Effective Useful Life Study⁽¹²⁾ and summarized the effective useful life as 23 years for heat pump HVAC and 38 years for heat pump water heaters. Effective useful life is defined as an estimate of the median number of years that the measures installed under a program are still in place and operable.

Response to Comment 11-3:

The upcoming Go Zero pilot incentive program will have future phases of the program with potential expansion of a fivefold increase of the funding level. By the new rule concept, mitigation fees will be collected from the sales of gas units to further support Go Zero incentive program. Staff anticipates that Go Zero rebates may be layered with other federal, state, or local incentives, such as: TECH Clean California.

Response to Comment 11-4:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. The South Coast AQMD rules are technology and fuel-neutral and are focused on achieving the maximum NOx emission reductions possible. Please see Response to General Comment 9 for more details regarding the comment on banning gas appliances.

⁽¹²⁾https://www.calmac.org/publications/CPUC_Group_A_2023_Res_HVAC_and_DHW_EUL_Study_Final_Report.pdf

COMMENT LETTER #12: BERNARD CANE

Comment Letter #12

**NAIOP SOCIAL MEMBERS
SCAQMD PAR 1111 and PAR 1121**

Mr. Peter Campbell
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Email: pcampbell@aqmd.gov

Re: Comments on PAR 1111 and PAR 1121

Dear Mr. Campbell:

I appreciate the opportunity to provide comments on the South Coast Air Quality Management District proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces (PAR 1111) and Proposed Amended Rule 1121 – Reduction of NO_x Emissions from Small Natural Gas-Fired Water Heaters (PAR 1121).

I am committed to reducing my carbon footprint while meeting the needs of my poor and struggling tenants. Installation of energy efficient lighting controls, compliance with outdoor water conservation requirements, and other energy-reducing measures can be found throughout my properties and most of these underperforming Pieces of Dog Schiff are made in communist Chyna and last less than a used piece of toilet paper, thus causing another form of waste that you guys created to soil Mother Earth! Shame Shame shame!

12-1

I am concerned that the proposed rules do not consider issues facing commercial and industrial real estate property owners, humanity as a whole, and/or tenants. For example, like all PUC and related regulations and policies emanating from Sacto and the California GOOBERMINT you guys can't get anything right, so all of this is an absolute waste of time until we get some smart people with common sense in Sacto's GOOBERMINT. The level of stupidity and contrarianism boggles the mind!

12-2

I would respectfully request that the District revise PAR 1111 and PAR 1121 to provide commercial and industrial property owners with greater flexibility and time to deal with already existing leases set to renew by the end of 2026 or until such time that my local utility provider informs me that they can accommodate any new electrical hook-up which would be required due to the installation of a new system in order to avoid any additional delays for occupancy of my bankrupt properties, due to the idiots ruining this state.

12-3

Thank you for taking into consideration my concerns. Please contact a psychiatrist and a priest to confess your sins and stupidity before you all ruin this once great state! If you have any questions, we are already doomed!

Sincerely,

Bernard Cane
We, the People///

Response to Comment Letter #12*Response to Comment 12-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff appreciates the comments and the effort for a better environment. There are many heat pump manufacturers worldwide, with several located in the United States. A list of heat pump manufacturers for space heating and water heating can be found on the Department of Energy website⁽¹³⁾.

Response to Comment 12-2:

The new rule concept also revised the proposed applicability and will not expand to large size spacing heating units such as commercial furnaces. The revised PAR 1111 and PAR 1121 have minimized the impact to commercial and industrial properties. Please see Response to Comment 7-1 regarding the similar comment.

Response to Comment 12-3:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Please refer to Response to Comment 7-2 and Response to General Comment 3 for electricity demand and grid sustainability.

⁽¹³⁾ <https://www.regulations.doe.gov/eecompass/consumer-products>

COMMENT LETTER #13: RAQUEL J. COMSTOCK

Comment Letter #13

Peter Campbell

From: Raquel Comstock (Rocky) <realtorraq@gmail.com>
Sent: Tuesday, October 15, 2024 1:12 PM
To: Raquel Comstock; Peter Campbell; Jivar Afshar; Jennifer Vinh; PICRequests
Subject: [EXTERNAL] Comment about the proposal the AQMD is working on to amend rule 1111 and 1121.

For our Mountain Communities Temporary, emergency replacements are not practice:

- The current plan is not workable from a cost perspective. 13-1
- In actual emergency situations the possible length of approval times may cause a real hazard to persons or property. 13-2
- If the distributors are not allowed to sell gas-fired furnaces or water heaters, who will have the temporary equipment available?
- Can all the California Mountain Communities receive an exemption the same as the mobilehome parks? 13-3
- Our weather system in the California Mountains differs from other areas, we need gas as a backup supply because we do not have solar energy available on most of the North Face communities at all. 13-4

Please kindly reply to verify receipt of this email.

Grateful One,
Raquel J. Comstock, R.E. Broker
CA.DRE lic 02240817

Summit2sea Realty Inc.
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Cell 1(951) 536-4298

PO Box 4696 Crestline, CA 92325

email: realtorraq@gmail.com

Response to Comment Letter #13*Response to Comment 13-1:*

The cost-effectiveness analysis for PAR 1111 and PAR 1121 are included in this report. Please refer to Response to Comment 7-1, Response to General Comment 6, and Chapter 2 of this report for information regarding the cost-effectiveness analysis.

Response to Comment 13-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

By this new rule concept, consumers may opt to gas units if installing zero-NOx emission units would be challenging for emergency replacements. Short-term replacement with rental equipment is no longer needed and thus removed from the proposed amended rules.

Response to Comment 13-3:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

The new rule concept provides more flexibility and consumer choice. Consumers, including residents in mountain community, may choose to install gas units for challenging situations. Moreover, based on stakeholder comments, PAR 1111 is retaining the exemption of downflow furnaces for high-altitude installation.

Response to Comment 13-4:

Staff understands the need for grid reliability and back-up power for installing zero-NOx emission units. For further information, please see Response to General Comment 3.

COMMENT LETTER #14: TURNER WHITE (DAUM COMMERCIAL REAL ESTATE SERVICES)

Comment Letter #14

SCAQMD PAR 1111 and PAR 1121

Mr. Peter Campbell
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Email: pcampbell@aqmd.gov

Re: Comments on PAR 1111 and PAR 1121

Dear Mr. Campbell:

Daum Commercial appreciates the opportunity to provide comments on the South Coast Air Quality Management District proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces (PAR 1111) and Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural Gas-Fired Water Heaters (PAR 1121).

Our company focuses on Industrial Real Estate in Orange county. We are committed to reducing our carbon footprint while meeting the needs of our tenants. Installation of energy efficient lighting controls, compliance with outdoor water conservation requirements, and other energy-reducing measures can be found throughout our properties.

We are concerned that the proposed rules do not take into account issues facing commercial and industrial real estate property owners and our tenants. For example, with the price of running a business there are already so many extra fees that most businesses struggle to get a location that works for them when it's time to sign a new lease and these additional costs are only going to make it more difficult for small businesses to grow as they immediately have to

14-1

We would respectfully request that the District revise PAR 1111 and PAR 1121 to provide commercial and industrial property owners with greater flexibility and time to deal with already existing leases set to renew by the end of 2026 or until such time that our local utility provider informs us that they can accommodate any new electrical hook-up which would be required due to the installation of a new system in order to avoid any additional delays for occupancy of our properties.

14-2

Thank you for taking into consideration our concerns. Please contact Steve Pearson at steve.pearson@daumcommercial.com 714-307-6511 with any questions.

Sincerely,

Turner White

Salesperson
DAUM COMMERCIAL

Response to Comment Letter #14*Response to Comment 14-1:*

Staff appreciates the comment on PAR 1111 and PAR 1121. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. The new rule concept also revised the proposed applicability and will not expand to large size spacing heating units such as commercial furnaces. The revised PAR 1111 and PAR 1121 have minimized the impact to commercial and industrial properties. Please refer to Response to Comment 7-1 and Response to General Comment 2 for cost and affordability.

Response to Comment 14-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Please refer to Response to Comment 7-2 and Response to General Comment 3 for electricity demand and grid sustainability.

COMMENT LETTER #15: JOSH LEITE (ECM MANAGEMENT)

Mr. Peter Campbell
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Email: pcampbell@aqmd.gov

Re: Comments on PAR 1111 and PAR 1121

Dear Mr. Campbell:

Comment Letter #15

ECM Management LLC appreciates the opportunity to provide comments on the South Coast Air Quality Management District proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces (PAR 1111) and Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural Gas-Fired Water Heaters (PAR 1121).

Our company is involved in ground up development and construction of industrial buildings. We are committed to reducing our carbon footprint while meeting the needs of our tenants. Installation of energy efficient lighting controls, compliance with outdoor water conservation requirements, and other energy-reducing measures can be found throughout our properties.

We are concerned that the proposed rules do not take into account issues facing commercial and industrial real estate property owners and our tenants. For example, the need to install electric water heaters and furnaces will have added cost implications both for these components (which are costlier than their natural gas options) as well as the added cost for increased electrical service components and usage. Modifying the size of an already design electrical system requires both additional schedule considerations as well as design costs.

15-1

We would respectfully request that the District revise PAR 1111 and PAR 1121 to provide commercial and industrial property owners with greater flexibility and time to deal with already existing leases set to renew by the end of 2026 or until such time that our local utility provider informs us that they can accommodate any new electrical hook-up which would be required due to the installation of a new system in order to avoid any additional delays for occupancy of our properties.

15-2

Thank you for taking into consideration our concerns. Please contact myself, Josh Leite, with any questions.

Sincerely,



Josh Leite
Senior Development Manager
ECM Management LLC

Response to Comment Letter #15*Response to Comment 15-1:*

Staff appreciates the comment on PAR 1111 and PAR 1121. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NO_x emission sales targets for manufacturers, will allow for both zero-NO_x emission units and NO_x-emitting natural gas-fired units to be sold and installed for use. The new rule concept also revised the proposed applicability and will not expand to large size spacing heating units such as commercial furnaces. The revised PAR 1111 and PAR 1121 have minimized the impact to commercial and industrial properties. Please refer to Response to Appendix C Comment 7-1 and Response to General Comment 2.

Response to Comment 15-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NO_x emission sales targets for manufacturers, will allow for both zero-NO_x emission units and NO_x-emitting natural gas-fired units to be sold and installed for use. Please refer to Response to Appendix C Comment 7-2 and Response to General Comment 3.

COMMENT LETTER #16: HEATHER COLLINS**Peter Campbell**

From: Heather Collins <heatherashlyncollins@gmail.com>
Sent: Tuesday, October 15, 2024 3:58 PM
To: Peter Campbell
Subject: [EXTERNAL] Gas Appliance Issues for Mountain Areas

Comment Letter #16

Hello

As a recent resident of Crestline it came to my attention that there is a measure that would require us to get rid of all our gas appliances. After going to a few meetings and talking with neighbors who lived through the large ice storm, I feel this would be detrimental to people's health and may even cause unintentioned death. Many of my neighbors relied on their gas appliances to stay warm and cook when they were trapped in the blizzard. Trees fell on the power lines in the area and made using electricity impossible. I also heard of a few people who didn't have gas appliances pass away during this time, since they were trapped for weeks on end and eventually froze to death here. I understand the importance to try and do what we can for the environment, I feel like most people that live up here have a respect and love for the planet and trees that surpass most people that live in the large cities but I dont feel like forcing communities that have such drastic weather to install something that could be a potential hazard and potential legal liability is the answer.

16-1

Please reconsider this mandate
Thank you

--

Heather Ashlyn Collins
BG Designer/Painter
<http://www.heatherashlyndesign.com/>
IG: HeathBarDraws
TRAUST OG VIRÐING

Response to Comment Letter #16*Response to Comment 16-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff understands that the mountain communities have a cold climate and heating in wintertime is essential. As discussed in Chapter 2, zero-emission technologies have been adopted in many cold climate regions. PAR 1111 and PAR 1121 are technology neutral, and the new rule concept addresses concerns for high altitudes. Please see Response to General Comment 4 and Response to General Comment 8 for more about the zero-emission technologies adopted in cold climate regions. For further discussion on grid reliability and back-up power sources, please refer to Response to General Comment 3.

COMMENT LETTER #17: NANCY HOSKINS**Peter Campbell**

From: nancy nieto <nancynieto36@yahoo.com>
Sent: Tuesday, October 15, 2024 7:37 PM
To: Peter Campbell
Subject: [EXTERNAL] Rules 1111 and 1121

Comment Letter #17

In 1952, my parents bought out home in the San Bernardino Mountains. I was 8 years old and now I am 80. The house is 100.

It is important to note that the environmental study for Rules 11 11 and 11 21 did not review the mountain ranges of Southern California. Winter weather in the mountains includes freezing temperature, snow, sleet and powerful winds. The elevation where I live is 5,000 feet. From my research, it appears that the unique mountain conditions were not considered in the AQMD Board's evaluation.

A heavy winter snow storm regularly causes a power outage that leaves freezing temperatures in homes. Roads are laden with snow and in non-maintained County roads, they are not plowed. That means that there is no way out and no way in. During the blizzard 2 years ago, I was snowed in for 3 weeks.

The feeling of isolation is very scary: no heat, no lights, no tv, WiFi or landline. There is no way to order a delivery of food. I live with my cousin and we depend on these services.

Solar power is not practical when there is heavy snow. No sunshine; no electricity. Fog can do the same thing

: no sunshine, no electricity. Fierce winds break the branches off trees; they fall on the power lines and take them down. No electricity is the result. My generator and fire place saved my life. Two warm

dogs were also a help. We would cuddle in front of the fireplace.

Nancy

Hoskins.

25131 Grandview Dr.

Crestline, CA. 92325.

(909) 589-0439

Sent from my iPhone

17-1

Response to Comment Letter #17*Response to Comment 17-1:*

Staff appreciates your comments. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Staff evaluated the feasibility of heat pumps in cold climates as part of the BARCT assessment, which can be found in Chapter 2 of this report. 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. Please see Response to General Comment 8 for more about the zero-emission technologies adopted in cold climate regions. Please refer to Response to General Comment 3 for information regarding electricity demand and grid sustainability. Sustainable electricity supply is essential for both zero-NOx emission and NOx-emitting units. Many natural gas appliances also rely on electricity to operate. For example, all gas-fired fan-type central furnaces currently regulated by Rule 1111 require electricity to operate and therefore cannot operate during a power outage. Some older model water heaters may not need electricity to operate; however, newer features on modern water heaters require electricity to operate. Further, for tank type water heaters, the water in the tank will stay warm for several hours in the event of a power outage.

COMMENT LETTER #18: C. C. SONG (CLEAN POWER ALLIANCE)

October 16, 2024

South Coast Air Quality Management District
Planning, Rule Development, and Implementation
21865 Copley Dr.
Diamond Bar, CA 91765

Comment Letter #18

Re: Clean Power Alliance Comments on SCAQMD PARs 1111 and 1121

Clean Power Alliance of Southern California ("CPA") appreciates the opportunity to provide comments on South Coast Air Quality Management District's ("SCAQMD") Proposed Amended Rules 1111 and 1121 ("PARs"). CPA is generally supportive of the PARs' approach to reduce nitrogen oxide ("NOx") emissions from natural gas-fired furnaces and water heaters by implementing zero-emission appliance standards. CPA commends SCAQMD's development of the Go-Zero Rebate Program which will help customers and the market prepare for and adapt to the PARs.

CPA recommends the following modifications to, or related to, PARs 1111 and 1121:

- Expand current public outreach efforts to a broader stakeholder base before the SCAQMD Board votes to adopt the PARs;
- If adopted, develop and implement a thorough public education, engagement, and outreach strategy focusing on the general public and community-based organizations;
- Incorporate panel upgrades, equipment rentals, and construction costs associated with transitioning to PAR-compliant appliances in the Go-Zero Rebate Program; consider requiring decommissioning non-compliant equipment as part of the program; and align the program with other complementary incentives; and
- Consider additional incentives for demand response enabled appliances and controls to enable responsiveness to periods of peak demand to reduce customer operational costs and increase grid reliability.

CPA further recommends SCAQMD coordinate among:

- Stakeholders to identify and develop opportunities to stack the Go-Zero Rebate Program with other incentives to maximize their impact; and
- Local permitting agencies to encourage the acceleration of permitting process timelines and mitigate unnecessary delays associated with appliance electrification.

CPA appreciates SCAQMD's substantial considerations of the impacts of increased electrical load as a result of implementing the PARs on the state's resources. SCAQMD's analysis of grid reliability in their



801 S. Grand Ave., Suite 400, Los Angeles, CA 90017
cleanpoweralliance.org

draft staff report¹ demonstrates SCAQMD has invested the time and resources to address such an important and pressing issue.

Background

CPA is California's largest community choice aggregator ("CCA"), serving over three million residents and one million customers across 35 communities in Los Angeles and Ventura counties. CPA is governed by a Board of locally elected officials who represent and serve our communities. CPA has been ranked the number one green power provider in the United States by the National Renewable Energy Laboratory ("NREL") for two years in a row.²

CPA helps our customers and communities enhance resilience, conserve energy, reduce harmful greenhouse gas emissions, and save money on their electric bills. We seek to recognize and address the importance of healthy communities, including those disproportionately affected by air pollution and climate change. CPA advances the efforts noted above, in part, through our customer programs. CPA offers programs that provide incentives and benefits for low-income customers and disadvantaged communities that mitigate energy affordability challenges while advancing clean energy solutions.

The PARs and Go-Zero Rebate Program will help equitably improve the air quality, reduce emissions, and mitigate costs associated with the clean energy transition for CPA's customers and the communities we serve.

CPA Supports SCAQMD's Approach in PARs 1111 AND 1121

CPA understands the potential long-term health, climate, and cost benefits associated with expanding use of zero-emission appliances and electrification in general. With improved indoor air quality and no combustion and greatly reduced fire risk, all-electric buildings are safer and healthier to live in along with being cost effective. The potential benefits of zero-emission appliance standards are magnified in CPA's service territory considering CPA is recognized as the leading green power provider among all utilities in the country.

CPA also understands there are challenges with electrification that must be addressed to achieve emissions reduction. Cost impacts associated with electrification, including upfront and capital costs, especially to low-income customers, are of particular concern to CPA.

CPA therefore recommends SCAQMD adopt the PARs after incorporating the recommendations and considerations discussed below.

SCAQMD Should Pursue Wider Education, Engagement, and Outreach Strategies and Practices

CPA recommends SCAQMD 1) immediately identify and coordinate with community partners who may not have been engaged in the development process to solicit feedback and expand awareness of the

18-1

¹ Preliminary Draft Staff Report 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 ("Preliminary Draft Staff Report"), September 2024, at pp. 2-23 – 2-26.

² NREL 2023 Utility Green Power Rankings, 2024, at pp. 3 and 6. Found here: <https://www.nrel.gov/analysis/assets/pdfs/green-pricing-top-10-2022-data-plus-archives-28aug2024.pdf>

PARs before the SCAQMD Board votes to adopt the PARs, and 2) if the PARs are adopted, build upon those identified stakeholders to further expand general public and consumer awareness of the PARs through the end of the PARs compliance timelines. CPA would be happy to work with SCAQMD staff to collaborate on options and strategies to connect with community partners, local governments, and utilities both before and following the potential adoption of the PARs.

A thorough public education, engagement, and outreach strategy is important to the success of SCAQMD's PARs and will improve customers' abilities to plan for potential changes in costs and installation needs or time that may result from compliance with the standards. SCAQMD staff have driven an extensive and ongoing outreach process to seek, receive, and incorporate input throughout the development of the PARs. However, it is apparent that the stakeholders SCAQMD has been able to engage with have been largely limited to those who will have compliance obligations: manufacturing and contractor experts. Unfortunately, members of (or representatives of) the general public, energy consumers, and community-based organizations ("CBOs") have not been extensively engaged across the development of the PARs to the same extent as manufacturing and contractor experts.

18-1

Though SCAQMD's engagement efforts are extensive they are often conducted through e-newsletters and email distribution lists, meaning stakeholders who are 1) aware of SCAQMD and its purpose, and 2) savvy enough to sign up for the proper distribution lists will be most aware of and prepared to provide their input on SCAQMD efforts.

In the immediate term, CPA urges SCAQMD rapidly engage community partners (such as CBOs representing low-income residents and disadvantaged communities) to solicit further input and perspectives before SCAQMD votes on the adoption of PARs 1111 and 1121. CPA suggests SCAQMD engage members of its Environmental Justice Advisory Group³ ("EJAG") to help identify and solicit input from regional CBOs who have not yet provided input on the PARs before SCAQMD's Board votes on the PARs. SCAQMD staff could coordinate with the CBOs SCAQMD and the EJAG are already engaging regarding application assistance under the Go-Zero Rebate Program ("Rebate Program").⁴ Given the compressed timeline between submitting these comments and the anticipated Board vote in December 2024, CPA reiterates our interest in assisting SCAQMD staff identify and engage community partners and local governments.

18-2

Assuming the PARs are adopted, CPA then recommends SCAQMD continue to identify and engage community partners to develop and execute a thorough education, engagement, and outreach strategy through the end of the final compliance deadline to improve public awareness of the standards and Go-Zero Rebate Program. CPA suggests SCAQMD continue its collaboration with members of its EJAG and expand those efforts to members of similar groups and committees, such as the California Air Resources Board ("CARB") Environmental Justice Advisory Committee⁵ and the Disadvantaged

³ <https://www.aqmd.gov/nav/about/groups-committees/environmental-justice-advisory-group>

⁴ SCAQMD EJAG meeting presentation, August 30, 2024, at slide 12, found here: <https://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/rescheduled-2024-ejag-agenda-august-30.pdf?sfvrsn=9>

⁵ <https://ww2.arb.ca.gov/environmental-justice-advisory-committee>

Communities Advisory Group⁶ advising California Public Utilities Commission ("CPUC") and California Energy Commission ("CEC") actions.

CPA also suggests SCAQMD incorporate efforts to collaborate with local governments and utilities regarding solutions to unnecessarily prolonged service upgrade processes in its strategy. Some installations of appliances compliant with the PARs will require service and/or panel upgrades which can take more than 12 months to complete.⁷ As an example, the alternative compliance option for emergency replacements could be particularly burdensome to low-income customers who need to upgrade to electrical appliances as a result of an unexpected equipment failure. That could add months or years of rental costs and could potentially exceed the 6-month alternative compliance rental option afforded to emergency replacements in the PARs. Similarly, CPA urges SCAQMD to coordinate with local permitting agencies to resolve challenges to quickly reviewing electrification upgrade permit applications to help streamline the process and reduce the need for temporary gas equipment.

18-3

The PARs will affect millions of customers across SCAQMD's jurisdiction and SCAQMD's engagement of and coordination with the impacted public should reflect the scope of the PARs' impacts.

The Go-Zero Rebate Program Should Address Additional Incentives Opportunities

CPA supports the Rebate Program and recommends SCAQMD to make the following changes:

- Expand the scope of its Rebate Program to mitigate costs, borne by low and moderate-income customers, of necessary infrastructure upgrades (e.g. panel upgrades) or construction to transition to appliances that comply with PARs 1111 or 1121;
- Ensure the Rebate Program is stackable with other incentives that will help ease upfront compliance costs;
- Coordinate with stakeholders to identify and expand access to other incentives, including those not associated directly with the upfront costs of the appliances themselves. This could include panel upgrades, equipment rentals, permitting fees and other required costs to electrify;
- Consider requiring decommissioning non-compliant equipment as a requirement for participation in the Rebate Program; and
- Consider higher incentives for demand response-enabled devices and controls to enable grid responsiveness and increase customer abilities to lower operational costs.

18-4

SCAQMD's Rebate Program will appropriately direct fees collected for non-compliance with the PARs and reinvest those funds in compliant appliance incentives. Even with the Rebate Program's incentives, customers may still face significant upfront costs associated with compliance with the PARs – including costs that extend beyond the capital costs of the appliances which are not currently considered in the Rebate Program. The cost of a panel upgrade, increasing the size of a space that houses equipment, or costs related to service upgrades can make upgrades prohibitive.

⁶ <https://www.energy.ca.gov/about/campaigns/equity-and-diversity/disadvantaged-communities-advisory-group-dcacg>

⁷ San Francisco Bay Area Planning and Urban Research Association ("SPUR") Policy Brief: "Solving the Panel Puzzle," May 14, 2024, at p. 6. Found here: https://www.spur.org/publications/policy-brief/2024-05-14/solving-panel-puzzle?utm_medium=redirect&utm_source=solvingthepanelpuzzle.

The PARs will result in millions of customers transitioning from natural gas-fired appliances to electric appliances.⁸ CPA is aware that this transition sometimes requires infrastructure upgrades or construction work to accommodate electrification before or during installation work. This additional work often results in higher parts and labor costs and protracted construction and installation timelines and is likely to disproportionately impact low-income customers. Additional resources and funding should be made available to assist low- and moderate- income customers make this transition.

Relatively few programs currently provide rebates for installation costs and those that do – such as the Technology and Equipment for Clean Heating Program (“TECH”)⁹ and Southern California Edison Company’s (“SCE”) Energy Assistance Savings Program¹⁰ – do not cover all costs and do not always have funding available. The Rebate Program may be able to supplement those incentive gaps and provide stackable rebates to make water heater and furnace upgrades at low-to-no cost for low- income and disadvantaged residents. CPA also suggests SCAQMD consider incorporating into the Rebate Program a requirement to decommission non-compliant equipment at the time of replacement, as a condition to receiving the rebate, to avoid the potential for second markets for or customer retention of non-compliant equipment. Further, the education, engagement, and outreach strategy addressed above would provide SCAQMD staff the opportunity to also identify other programs (including regional programs) that may be stackable with the Rebate Program.

18-4

Conclusion

CPA appreciates SCAQMD staff’s hard work on the PARs and looks forward to collaborating with staff throughout the remaining development and potential implementation processes.

If you have any questions, please contact C.C. Song at csong@cleanpoweralliance.org and Clark McIsaac at cmcisaac@cleanpoweralliance.org.

Sincerely,

C.C. Song
Senior Director of Regulatory Affairs
Clean Power Alliance of Southern California

⁸ Preliminary Draft Staff Report, Table 5-1: PAR 1111 and PAR 1121 Baseline Emissions Estimate, at p. 5-2.

⁹ <https://techcleanca.com/>

¹⁰ <https://www.sce.com/residential/assistance/energy-saving-program>

Response to Comment Letter #18*Response to Comment 18-1:*

Staff understands that outreach and community engagement regarding the rules are important for adoption of the rules and, moreover, emissions reductions. In addition to newsletter and newspaper postings, staff conducted numerous meetings with manufacturers, contractors, environmental groups, building owners, business associations, energy providers, local and state government agencies, consulting firms, etc. Staff also conducted many site visits to installations in various buildings, including single family homes, mobile home parks, low-rise and high-rise apartment buildings, office buildings, and grocery stores. Staff will continue the public outreach after rule adoption. In addition, the Go Zero incentive program has an outreach, education, and application assistance element. Please refer to Response to General Comment 5 for further information regarding outreach.

Response to Comment 18-2:

Through the public process, staff has engaged with environmental groups including EJAG, CBOs, and utilities, such as SoCalGas and SCE, for the development of PAR 1111, PAR 1121, and the Go Zero incentive program. In addition, education to disadvantaged communities is a key objective for the Go Zero incentive program that is projected to launch in early 2025. Please refer to Response to General Comment 5 for further information regarding outreach.

Response to Comment 18-3:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

By this new rule concept, consumers may opt to gas units if installing zero-NOx emission units would be challenging for emergency replacements. Short-term replacement with rental equipment is no longer needed and thus removed from the proposed amended rules. Please see Response to General Comment 7 for discussion on emergency replacements.

Response to Comment 18-4

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

The Go Zero incentive program pilot phase has 75 percent of funds allocated to overburdened communities identified by CalEnviroScreen. To further help ease upfront costs, staff is exploring ways to identify other eligible incentive programs to stack with Go Zero incentives. In addition, a key objective of the Go Zero incentive program is to educate residents and small businesses about incentives and rebates that they can use with the Go Zero incentive program. The Go Zero incentive program will launch as a pilot program with the opportunity to expand and integrate any findings made during the pilot phase in future phases. Staff will consider stakeholder's suggestions for the pilot and future phases of the program.

COMMENT LETTER #19: PAUL GRANILLO (INLAND EMPIRE ECONOMIC PARTNERSHIP)

Executive Board

Richard Egger, *Chairman*
Best, Best, & Krieger

John Chapman, *First Vice-Chair*
San Antonio Regional Hospital

Baron Parikh, *Second Vice-Chair*
Bank of America

Lupe Valdez, *Immediate Past-Chair*
Union Pacific Railroad

Dan Rendler, *Treasurer*
Southern California Gas Co.

Ron Vera, *Legal Counsel*
Vera & Barbano Law

Fran Irtan, *At-Large Member*
Majestic Realty

Maggie O'Sullivan, *At-Large Member*
J.P. Morgan

Patricia Villages, *Immediate Past-Chair*
Acton, LLC

Paul Granillo, *Secretary*
Inland Empire Economic Partnership

Board of Directors

Dr. Ron Carter
Loma Linda Medical Center

Idko Benavoli
Highland Fairview

Patty Senecal, *WSFA*

Dr. Ray Wolfe, *SRCTA*

Derek Armstrong, *County of San Bernardino EDA*

Dr. Kurt Wilson, *WRCCOG*

Dr. Kim Wilson
University of California, Riverside

Jerrod McNaughton
Inland Empire Health Plan (IEHP)

Sandra Culler, *Charter Spectrum*

Maftrol Keil, Ph.D.
Chief Economist, IEPP

Asif Elkhadi, *Ontario Airport Authority*

Mayer Eunice Ulloa
City of Chino

Mayer L. Dennis Michael
City of Rancho Cucamonga

Mayer Deborah Robertson
City of Rialto

Mayer Acquanetta Warren
City of Fontana

Mayer Eddie Tejeda
City of Redlands

Mayer Ulises Cabrera
City of Moreno Valley

Dr. Tomas Morales
President, California State University, San Bernardino

B.J. Patterson
Pacific Mountain Logistics

Lena Kent, *BNSF Railway*

Phil Serghini, *Walmart*

Trini Jimenez, *Watson Land Company*

Col. Paul Cook (Ret.)
Supervisor 1st District, County of San Bernardino

Hon. Karen Spiegel
Supervisor, 2nd District, County of Riverside

Suzanne Holland, *County of Riverside EDA*

Lin Anderson
IMA Consulting Group

David Ambrose, *Amazon*

Pat Morin, *California Steel Industries*

Osair Cobian, *SWRCC*

Frank Pine, *Southern California News Group*

Michael Burrows, *San Bernardino Airport*

Lowell King, *Goodwill Southern California*

Walter Marquez, *Fairplex*

Michael Carley, *Southern California Edison*

Michael D'Elia, *PNC Bank*

Georgina Garcia, *Kaiser Permanente*



October 16th, 2024

The Honorable Vanessa Delgado
Chair South Coast Air Quality Management District Governing Board
21865 Copley Dr.
Diamond Bar, CA 91765

To: The Honorable Vanessa Delgado

From: Inland Empire Economic Partnership

Comment Letter #19

RE: Proposed Amended Rules (PAR) 1111 & 1121

Dear South Coast Air Quality Management District Governing Board and the Honorable Vanessa Delgado,

The Inland Empire Economic Partnership (IEEP) is writing to express our opposition to Proposed Amended Rules 1111 and 1121. While we recognize and value the intention of the South Coast Air Quality Management Board (SCAQMD) in reducing NOx emissions to promote clean energy usage and protect the longevity of our changing environmental needs, PAR 1111 and PAR 1121 directly place our Inland Empire communities in a disadvantageous fiscal position that harms the residents and businesses within our region.

Economic Impact on the Region

With an average personal annual income nearly doubled below the state average, our concern lies with the anticipated increase in costs for installation, maintenance, and compliance for Inland Empire residents. The disproportionate fiscal impact PAR 1111 and 1121 would have on the region, in an effort to effectively meet zero-emission compliance standards, would further the financial disparity already seen across the Inland Empire, creating a wider divide between economic mobility and a stagnant or decreasing financial standing of Inland Empire residents.

19-1

Burden on Small Businesses

PAR 1111 and 1121 act as foundational efforts in the rise of burgeoning costs for small businesses, including, but not limited to, installation fees, certification and labeling fees, and mitigation fees. These additional costs have a realistic potential force to reduce the profitability of local small business, and in some cases, aid in closure of regional businesses altogether.

19-2

3403 Tenth Street, Suite 300
Riverside, California, 92508
Phone: (909) 944 – 2201
www.ieep.com

While we support the goal of adapting our environmental plans for the betterment of our regional and state-wide communities, PAR 1111 and 1121 create unrealistic standards and schedules that place Inland Empire residents and businesses in an immovable and detrimental financial position, with the potential for long-term counterproductive effects.

We urge SCAQMD to continue their efforts in reducing NOx emissions in a feasible manner, with a manageable and flexible schedule that best serves the individuals and businesses that will be directly impacted by their installation.

Thank you for your consideration,



Paul Granillo
President & CEO
Inland Empire Economic Partnership

3403 Tenth Street, Suite 300
Riverside, California, 92508
Phone: (909) 944 – 2201
www.ieep.com

Response To Comment Letter #19*Response to Comment 19-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For consumers electing to install zero-NOx emission units, staff understands that the upfront cost may be higher for some units; however, the socioeconomic analysis for this rule development estimates overall unit lifetime savings as the lower operational costs for zero-emission heat pumps would offset the higher upfront costs. In addition, zero-emission appliances such as heat pumps have significantly lower maintenance costs than those of traditional heating systems, meaning they will require a smaller annual budget for their proper functioning.⁽¹⁴⁾ The upfront cost of zero-emission appliances for units subject to PAR 1111 is comparable to the cost of conventional replacements in buildings with preexisting AC. According to the U.S. Census' American Community Survey, almost 96 percent of homes in the Inland Empire region have AC, resulting in very little additional cost for homes in the region. PAR 1111 and PAR 1121 will provide regulatory certainty for the manufacturers to further advance the zero-emission technologies and provide more products to the market. Staff expects unit and installation costs will decrease when the market adoption increases during the future rule implementation. Federal, state, and local incentives, including the South Coast AQMD Go Zero Incentive Program, could offset some upfront costs for zero-emission appliances. Please see Response to General Comment 2 for more information on cost.

Response to Comment 19-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

PAR 1111 and PAR 1121 do not have certification or mitigation fee requirements for zero-NOx emission appliances. There are limited labeling requirements for manufacturers, but not for consumers. The socioeconomic analysis for this rule development estimates overall unit lifetime savings for zero-NOx emission units such as heat pumps as the lower operational costs would offset the higher upfront costs. Furthermore, the Go Zero incentive program has allocated funding for small businesses. Finally, staff will conduct a technology check-in(s) to assess the market adoption of zero-emission technologies and re-evaluate the cost and provide updates to the Stationary Source Committee. Please see Response to General Comment 2 for more information on cost.

⁽¹⁴⁾<https://mygreenhome.io/heatpumps/heat-pumps-pros-and-cons#:~:text=Indeed%2C%20the%20cost%20of%20yearly%20maintenance%20of%20a,a%20smaller%20annual%20budget%20for%20their%20proper%20functioning.>

COMMENT LETTER #20: JEFFREY BALL (ORANGE COUNTY BUSINESS COUNCIL)

2 Park Plaza, Suite 100, Irvine, CA 92614 | P 949.476.2242 | F 949.476.0443 | www.ocbc.org

October 16, 2024

The Honorable Vanessa Delgado, Chair
 South Coast Air Quality Management District Governing Board
 21865 Copley Drive
 Diamond Bar, CA 91765

Comment Letter #20

Re: Delayed Action Requested on Proposed Amended Rules 1111 & 1121

Dear Chair Delgado:

Orange County Business Council (OCBC), the leading voice of business in Orange County, kindly requests that the South Coast Air Quality Management District (SCAQMD) Governing Board postpone any action on Proposed Amended Rules (PAR) 1111 & 1121.

OCBC supports sustainable public and private infrastructure that protects public health, facilitates a well-educated public and workforce, and supports a robust economy – all while providing for reliable natural gas and electric transmission, distribution, and storage systems and supports sufficient “green” and open space infrastructure to promote quality of life. However, OCBC has serious concerns regarding PAR 1111 & 1121 – namely, we simply believe that there has not been enough time to collect a robust set of data and information regarding the overall impact these rules would have on the business communities throughout the district.

20-1

If these PARs are adopted as written, it could have a significantly negative impact on the housing market, which is already a point of contention for Orange County’s resident workforce. Mandating building owners to refurbish their facilities to be in compliance with these regulations, especially when done at scale, will cost owners an excessive amount in costs – which will likely be passed down to renters. This comes at a time in which the cost of living is at an all time high across the region.

20-2

These PARs will also have a significant impact on the hospitality industry – which is one of Orange County’s most vibrant and diverse economic sectors. Many in the hospitality industry are still recovering from losses that were experienced during the state mandated lockdowns during the COVID-19 pandemic. Adding expansive regulatory burdens only a mere few years removed from the pandemic could prove to be detrimental.

20-3

OCBC will continue to support a comprehensive approach, and inclusive dialogue, to addressing the state’s infrastructure needs and will continue to work with government entities, such as SCAQMD, to ensure that the voice of the Orange County business community is engaged when discussing comprehensive infrastructure improvements – such as natural gas infrastructure, among other things.

Orange County Business Council appreciates your consideration of our concerns on this matter.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jeffrey Ball".

Jeffrey Ball
 President/CEO

THE LEADING VOICE OF BUSINESS IN ORANGE COUNTY

Response to Comment Letter #20*Response to Comment 20-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural "gas-fired units to be sold and installed for use.

Staff has been working with business associations (e.g., Bizfed), businesses, and installers since the prior zero-emission rule development for Proposed Amended Rule 1146.2 - Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters and with the development of the 2022 AQMP. The public process for PAR 1111 and PAR 1121 started in October 2023, and staff held eight working group meetings, one public workshop, and one public consultation for stakeholders' engagement. Further, staff conducted many individual meetings and site visits with stakeholders regarding the feasibility of zero-emission standards. Some of the site visits were conducted in Orange County to single family homes, apartment buildings, hotels, and grocery stores. The PAR 1111 and PAR 1121 BARCT assessment includes real world installation data from TECH Clean California, which include costs for both single-family and multifamily installations since 2021. Finally, staff will conduct technology check-in(s) to assess market adoption of zero-emission technologies and re-evaluate the cost and provide updates to the Stationary Source Committee. For further discussion on outreach, please refer to Response to General Comment 5.

Response to Comment 20-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For consumers electing to install zero-NOx emission units, PAR 1111 and PAR 1121 had future effective compliance dates to allow for the technology and market to evolve as a response to regulatory requirements and for consumers to plan for future installations. Additionally, the Go Zero incentive program is expected to launch in 2025 to encourage retrofitting zero-emission appliances in single-family homes, multifamily homes, and small businesses. Staff presented current legislation regarding tenant protections, rent control, and pass-through costs in Working Group Meeting #5⁽¹⁵⁾. For more information regarding the Go Zero incentive program, please refer to Appendix C Response to Comment 18-4.

Response to Comment 20-3:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff understands the financial impacts the pandemic took on all industries, especially the hospitality industry. The proposed rule requirements will not take effect until future effective dates and only upon natural unit replacement, when existing units fail and must be replaced. The extended compliance schedule is designed to minimize the financial

⁽¹⁵⁾ http://sfdev.aqmd.gov/home/news-events/calendar_v2?month=6&day=20&year=2024

impact. The proposed amended rules are critical to meet National Ambient Air Quality Standards, as healthy ambient air is important to protect public health and can help encourage tourism to the region. The new rule concept further addresses consumer concerns as it will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

COMMENT LETTER #21: ROSALIE BARCINAS (SOUTHERN CALIFORNIA EDISON)

October 16, 2024

Michael Krause
Assistant Deputy Executive Officer
South Coast Air Quality Management District
21865 Copley Dr.
Diamond Bar, CA 91765

Comment Letter #21**RE: Public Workshop for Proposed Amended Rules 1111 and 1121**

Dear Mr. Krause,

Southern California Edison (SCE) appreciates the opportunity to provide the following comments based on the Public Workshop (Workshop) for Proposed Amended Rules on Reduction of NO_x emissions from Natural-Gas-Fired Furnaces (Rule 1111) and Reduction of NO_x Emissions from Small Natural-Gas-Fired Water Heaters (Rule 1121), held on October 3, 2024, by the South Coast Air Quality Management District (SCAQMD).

SCE supports the proposed revisions to SCAQMD Rules 1111 and 1121 as outlined on October 3, 2024.

Under Rules 1111 and 1121, SCAQMD has introduced zero-emission regulations for new space and water heating equipment. This marks a significant step towards California's goal of achieving carbon neutrality by 2045, a goal that requires coordinated efforts and strategic actions across all sectors. These zero-emission regulations also pave the way for improved air quality, aiming to meet federal air pollution standards by 2037 within the SCAQMD area, while continuously promoting cleaner technologies to safeguard public health and the environment.

At SCE, we commend SCAQMD for its thorough rule update assessments, developed through extensive public engagement, numerous workshops, site visits, and collaboration with various stakeholders, including SCE.

SCE supports SCAQMD's proposed compliance dates and technology check-in.

The proposed rule by SCAQMD states that no person shall manufacture, supply, sell, resell, offer for sale, import, or install equipment for use within the SCAQMD, according to the Zero-Emission Limits and Compliance Schedule identified in Tables 1-2 of the Proposed Amended Rules. This provides a clearer path compared to using the manufactured date, as some entities have suggested. This proposed language helps prevent the issue of unsold equipment from outside the SCAQMD area being transferred and installed within the SCAQMD area, potentially delaying the intended air emission reductions by up to two years or more, depending on manufacturers' and distributors' inventory levels. Additionally, the compliance dates for the Bay Area AQMD Rules 9-4 and 9-6, which are equivalent to the SCAQMD Rules 1111 and 1121, are also not based on the manufactured date. Therefore, allowing the addition of the manufactured date could incentivize the transfer of unsold equipment from other areas to SCAQMD. Consequently, SCE supports SCAQMD's proposed compliance dates.

21-1

In addition, SCE supports a future technology check-in to identify updates on market supply of zero-emission technology for all equipment categories, market adoption of new technologies, reevaluation of fuel switching costs, and evaluation of building readiness addressing issues on small spaces, limited power supply, mobile home application, and any equity issues.

SCE is transforming the grid to enable the transition to a zero-carbon economy while managing the impacts of these rules.

SCE is proactively transforming the electric grid to accommodate significant advancements in decarbonized generation, the widespread adoption of customer-owned distributed energy resources, and the increasing use of electric vehicles and zero-emission appliances like heat pumps. As outlined in Edison's whitepapers "Countdown to 2045"¹ and, most recently, "Reaching Net Zero,"² electrification is the most cost-effective path to decarbonize California's economy and we are proactively working to plan for grid infrastructure needs, the necessary grid planning efforts required. "Countdown to 2045" calls for 100% of retail sales of electricity to be decarbonized, 90% of vehicles to be electrified, and 95% of buildings to be electrified and found that even accounting for grid upgrades required, customers would save about 40% on their energy bills by 2045. As California progresses towards its goal of becoming carbon neutral by 2045, the grid also must evolve to remain safe, reliable, resilient, and affordable. "Reaching Net Zero" expands on this analysis to look at Edison International's specific impacts, examining how "challenge scenarios" can inform potential risks and opportunities, and identifies certain policy solutions (such as proactive grid planning and reducing permitting timelines) to enable a rapid and equitable clean energy transition.

21-2

We are collaborating closely with the California Public Utilities Commission (CPUC), the California Independent System Operator (CAISO), and the California Energy Commission (CEC) to identify and ensure the state's energy needs are captured in the integrated energy policy reports and other planning processes. Through these coordinated efforts, California strives to make the electric grid ready to support the state's clean energy future. With a combination of diffuse adoption of new equipment and sufficient planning horizons, SCE should be able to accommodate these impacts with the traditional load planning processes. Preliminary analysis of adopting heat pumps for space and water heating in residential buildings is not expected to significantly impact the remaining capacity of distribution circuits serving these buildings.

Lastly, technology that allows for demand flexibility will help further reduce the grid impacts of these rules. The CEC has identified the need for 7GW of flexible demand by 2030 and is developing flexible demand appliance standards and partnering with other agencies to help enable the rapid expansion of flexible demand. Locally, SCE is developing innovative incentives and flexible demand programs to promote the market adoption of clean and energy-efficient technologies.

SCE acknowledges the critical role of workforce education and equity in implementing the proposed Rules 1111 and 1121 and is eager to collaborate with SCAQMD.

While the current market share of heat pump technologies in the SCAQMD area remains relatively low compared to traditional gas-fired technologies, the market is rapidly transitioning towards cleaner, more efficient solutions. According to ENERGY STAR's 2022 report, heat pump water heaters sales have increased by 26%, while gas-fired water heaters have decreased by 17%.³ Additionally, the California Energy Commission's (CEC) recently adopted 2025 Building Energy Efficiency Standards are expected to

21-3

¹ Countdown to 2045. Edison International. <https://www.edison.com/clean-energy/countdown-to-2045>

² Reaching Net Zero. Edison International. <https://www.edison.com/clean-energy/reaching-net-zero>

³ Heat Pump Water Heater Sales in 2022 Signal a Decisive Shift in Water Heating Trends. CleanTechnica. <https://cleantechnica.com/2023/10/25/heat-pump-water-heater-sales-in-2022-signal-a-decisive-shift-in-water-heating-trends>

drive 500,000 heat pump installations within the first three years of adoption⁴, significantly accelerating market growth.

As heat pump adoption increases, SCE acknowledges the critical need for contractor education and awareness. SCE's Energy Education Centers offer a variety of heat pump and related courses, which are continually updated based on industry needs and insights. These courses, offered free of charge, cover best installation practices and emphasize the benefits of heat pumps, ensuring contractors, installers, and market actors are equipped to meet customer and regulatory expectations.⁵ SCE has also developed a Contractor Demand Building Program that provides a free heat pump water heater for contractors who attend a series of trainings on proper installation techniques for heat pump water heaters.⁶

While drawing lessons learned from CEC's Building Initiative for Low-Emissions Development (BUILD) Program⁷ and Technology and Equipment for Clean Heating (TECH) Clean California, SCE also supports statewide initiatives to accelerate the adoption of clean space and water heating technology across California homes to help create an equitable pathway to carbon-free homes by 2045. The TECH Clean California program provides essential support for contractors installing heat pumps, including heat pump water heaters. The program offers technical and sales training from certified instructors and manufacturers, with a focus on installation techniques and incentives designed to ease the transition to heat pump technologies.⁸ These programs not only provide financial incentives but also enhance contractor training relevant to SCAQMD's proposed Rules 1111 and 1121. Additionally, SCE's certified, expert-led training classes ensure contractors are equipped to deliver optimal performance and customer satisfaction.⁹

At a statewide level, there is significant momentum behind electrification initiatives. In October 2023, ten major heating and cooling equipment manufacturers joined the CEC in a public commitment to help the state achieve its climate target of installing six million heat pumps in California's buildings by 2030.¹⁰ This collaboration includes workforce development support to ensure that contractors are well-prepared to meet growing demand, including in the Southern California region.

Equity considerations remain at the forefront of SCE's strategy, ensuring that these communities can benefit from heat pump installations. SCE's Energy Savings Assistance (ESA) Program further complements these efforts by providing income-qualified customers with no-cost installations of energy-efficient equipment, including heat pumps and other energy-saving measures. This program helps reduce energy costs while improving comfort in low-income households, making it a key

21-3

⁴ Energy Commission Adopts Updated Building Standards Expanding Requirements for Heat Pumps and Electric-Ready Buildings. California Energy Commission. <https://www.energy.ca.gov/news/2024-09/energy-commission-adopts-updated-building-standards-expanding-requirements-heat>

⁵ HVAC Heat Pump Systems. Your guide to efficient heating and cooling. Southern California Edison.

https://www.sce.com/sites/default/files/inline-files/Heat_Pump_Overview_Fact_Sheet_WCAG.pdf

⁶ HPWH Installation Solutions. Southern California Edison. <https://www.sce.com/business/contractor-demand-building-program>

⁷ Building Initiative for Low-Emissions Development Program – BUILD. California Energy Commission.

<https://www.energy.ca.gov/programs-and-topics/programs/building-initiative-low-emissions-development-program-build>

⁸ TECH Clean California. <https://www.switchon.org/contractors/tech-clean-california>

⁹ HPWH Installation Solutions. Southern California Edison. <https://www.sce.com/business/contractor-demand-building-program>

¹⁰ Top Global Building Appliance Manufacturers and Distributors Commit to Help California Achieve Six Million Heat Pump Goal. California Energy Commission. October 10, 2023. <https://www.energy.ca.gov/news/2023-10/top-global-building-appliance-manufacturers-and-distributors-commit-help>

component of California's equity and energy efficiency goals. Additionally, TECH Clean California allocates 40% of its budget to equity communities, including those within the SCAQMD area. These efforts are crucial to ensuring that disadvantaged and low-income communities benefit from the transition to zero-emission technologies. SCE is committed to collaborating with SCAQMD to expand its efforts in these communities, ensuring an equitable transition to clean energy solutions.

21-3

We look forward to working with SCAQMD to enhance both workforce readiness and equity as part of the broader transition to zero-emission space and water heating technologies.

Conclusion

We thank SCAQMD for taking into consideration the above comments on the Public Workshop for Proposed Amended Rule 1111 and 1121 and look forward to working with SCAQMD staff and other stakeholders throughout this process. Please do not hesitate to contact me at (626) 302-9652 with any questions or concerns you may have. I am available to discuss these matters further at your convenience.

Sincerely,

/s/ Rosalie Barcinas

Rosalie Barcinas
she/her
Director – Electrification & Customer Services Policy
Strategy and Regulatory Affairs
Southern California Edison
2244 Walnut Grove Ave, Rosemead, CA 91770
T. 626-302-9652
Email: rosalie.barcinas@sce.com

CC: Peter Campbell
Planning, Rule Development, and Implementation
South Coast Air Quality Management District

Jen Vinh
Planning, Rule Development, and Implementation
South Coast Air Quality Management District

Response to Comment Letter #21*Response to Comment 21-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff appreciates the support on the rule proposal and acknowledges that enforcement of PAR 1111 and PAR 1121 through the supply chain, as opposed to the manufacture date, can remedy the issue of sales and installations of non-compliant units. Staff will conduct a technology check-in(s) to assess the market inventory and adoption of zero-NOx emission technologies and provide updates to the Stationary Source Committee.

Response to Comment 21-2:

Staff appreciates SCE transforming the grid, collaborating with other agencies, and developing programs such as flexible demand to enable the transition to zero-emission standards. The impacts of PAR 1111 and PAR 1121 on the electric grid infrastructure area matter of concern with increased adoption of zero-emission technologies. Increased supply and strategic distribution of energy are essential to support increased energy demands. Staff anticipates technologies will emerge as a response to regulations to offer solutions for effective use of energy. Finally, the new rule concept will provide a slower transition to zero-NOx emission and more time for the grid enhancement to meet future demand.

Response to Comment 21-3:

Staff agrees that education regarding installation and use of zero-emissions technologies is of utmost importance for the workforce and owners and operators of zero-emission equipment. The Go Zero incentive program will educate both contractors and residents about the logistics of installing and operating zero-emission equipment, in addition to the potential impacts of the proposed amended rules. Moreover, the Go Zero program will allocate 75 percent of its funding to overburdened communities as identified by CalEnviroScreen. Staff will explore opportunities to collaborate with other organizations including SCE for the Go Zero incentive program.

COMMENT LETTER #22: DAVID L. NEARING**Peter Campbell**

From: Dave Nearing <ibdave236@gmail.com>
Sent: Wednesday, October 16, 2024 9:13 PM
To: Peter Campbell
Subject: [EXTERNAL] Required Heat Pumps

Comment Letter #22

Mr. Hagman I am totally against this effort to make it mandatory to install heat pumps.

I arrived in Crestline in 1957, my family purchased the existing home in 1958, and we have managed to live without heat pumps for many years.

Last year Farmers dropped me, only a few months ago I was finally accepted by Calif. "fair" plan. after some tree cutting and installing new breakers. With the wrap around policy I am now paying \$5484.00 /yr. 2023 I was paying \$1846. Now the "Government" wants to tell me what I need to do to the homestead.

22-1

Please find some workaround to eliminate the proposed requirements further putting the Mountain Community financially behind.

Sincerely
David L. Nearing

Response to Comment Letter #22*Response to Comment 22-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For consumers electing to install zero-NOx emission units, staff understands the higher upfront cost for some cases; however, the socioeconomic analysis estimates overall unit lifetime savings as the lower operational costs would offset the higher upfront costs. There are also federal, state, and local incentives that could offset some upfront costs. South Coast AQMD is expecting to launch the Go Zero incentive program in 2025 and allocate 75 percent of its funding for overburdened communities. In addition, staff has revised the rule proposals for PAR 1111 and PAR 1121 to provide more flexibility. Staff expects the costs of zero-emission appliances will come down over time when there is more market adoption. Please see Response to General Comment 1 for discussion on flexibility, Response to General Comment 2 for discussion on cost, and Response to General Comment 8 for discussion on heat pumps used in cold climates.

COMMENT LETTER #23: KORY GRIGGS (INDOOR WEATHER INC.)**Peter Campbell**

From: kory.indoorweatherhvac.com <kory@indoorweatherhvac.com>
Sent: Thursday, October 17, 2024 7:21 AM
To: Peter Campbell
Subject: [EXTERNAL] Rule 1111 and 1121 Comment Letter #23

Public comments on Rules 1111 and 1121 proposed amendments.
Submitted by Kory Griggs

These amendments need to be delayed further to allow more time for the many reasons listed below

Both 1111 and 1121- It's obvious that the stakeholders do not have a grasp on the costs associated with this proposal that they will be required to shoulder, and therefore have not had enough time to make public comments.

Both 1111 and 1121 - The ongoing need to "shore up" the workings of the proposal. Issues range from inaccurate cost analysis, lack of studies in all climate zones in SoCal (particularly zone 16's more extreme cases of operating cost, installation cost and infrastructure upgrade costs), lack of available funding on socioeconomic need basis and funding directed at infrastructure upgrades.

Both 1111 and 1121- A proper study and cost analysis needs to be done using actual data (not internet searches for the "average" cost of XYZ).

Staff at a minimum need to have the data from the manufacturers on the products available - heat pump HVAC systems both standard and low ambient *standard scroll or reciprocating, inverted, ducted, ductless, unitary, and proper knowledge of needs or lack thereof of backup heat requirements. AND heat pump tanked water heaters both 120 volt and 240 volt- and have a better working knowledge of the installation requirements of these products (which include permitting requirements involving both health a safety). Get real world estimates from actual HVAC contractors, electricians and plumbers for the installation and infrastructure upgrade requirements on the various building types and ages in the district to install these products. As in all state and government work there should be at least three different estimates for the cost of installation. Once staff has this data a real-world cost analysis can be made.

Both 1111 and 1121- The various building types should not be averaged together to provide a cost analysis. The operating cost, and installation requirement vary greatly from building type to building type, with data that is not averaged out across all types a better cost analysis can be made.

1111 - In the comparison of Gas furnace operating cost vs new heat pump technology cost, the data points are off.

Both the gas furnace and heat pump equipment that are being compared are unspecified. Based

on the numbers used we can only assume the following.

A. The furnace is of average size 60-80k 3 ton, is of average efficiency 80% AFUE is a 40 NOx unit, and uses a PSC blower motor.

B. The heat pump is an inverted type, is of the highest SEER and of a smaller tonnage (3 tons or less).

In this comparison multiple assumptions are made.

1. That if the furnace were to be replaced it would be replaced with the same type using the same amount of energy BUT no furnace produced today by law is allowed to use PSC motor technology, therefore the wattage data of this data point is off. All furnace replacements in the district must be 14 NOx or less. The option for greater than 80% AFUE also exists, as well as multiple stage, modulating and variable speeds.

2. Unlike the gas furnace assumption, the data point for the heat pump assumes the highest SEER 2 rating (I'm guessing 18 SEER 2 or greater based on assumed size of 3 tons and wattage figures provided) when calculating wattage. This causes the wattage data to be skewed lower. The minimum efficiency and average efficiency installed is 14 SEER 2.

THESE ASSUMPTIONS AND THE EQUIPMENT COMPARISONS LEAD TO FALSE DATA POINTS.

These data points need to be straight across, equipment size and efficiency types to be able to properly assess cost thresholds.

1111- all heat pump refrigerants will be changing next year. Currently we in the industry have little to no data on cost of new equipment and are just now receiving training on installation requirements. Leaving a proper cost analysis further skewed due to unknown costs of equipment and unknown cost of new installation requirements. Currently we are hearing that equipment will be as much as 20% more, and new installation requirements look like they may add 2-4 additional hours of work, which will add as much as a 20% increase in labor costs.

23-2

Both 1111 and 1121- At a minimum, a media campaign or public outreach program needs to be funded in advance of the passage of these amendments. The cost that will be incurred directly by the stakeholders are so great in many instances that the lack of effort to inform the public is unjust.

23-3

1121- Having a technology check-up in 2027 after the amendments have already taken effect in new construction and once the amendments take affect for "replacement" tanked water heaters is unworkable. Plumbers have nearly zero working knowledge and very little exposure to this new technology.

Unlike HVAC heat pump technology that has been in use and is well known by those that install, maintain, and repair the equipment, for years and years, plumbers have little to no working knowledge of the technology and equipment they will be required to install in all applications in just slightly more than two years from now. A major effort needs to be put forth to get the plumbing industry involved prior to the adoption of amendment 1121 to avoid the foreseeable technological and installation pitfalls after the passage of this amendment.

23-4

Both 1111 and 1121- Having a known need prior to the passage of the amendments for more financial assistance to bring cost thresholds in alignment and then propose after passage a

"follow-up" is not a workable solution. Not only does the AQMD not have a proper grasp of cost adoption, but they are going to rely on a hopeful future analysis in 2027 far too deep into the dates of effect of the amendments to allow for proper analysis of the cost thresholds used to justify the passage in the first place.

23-4

Both 1111 and 1121 - temporary or rental "emergency" replacement issues. As of now the proposal as written is completely unworkable. The cost to the stakeholders that will need access to this "emergency" temporary or rental is outsized. As an HVAC contractor I can tell you there is no such thing as a "temporarily" installed furnace or water heater, both are permanently installed items in a home's infrastructure, they require permits and inspection. Typically, a manufacturer requires knowledge of the location and installation date to provide a full factory warranty. Once this "temporary" furnace or water heater is installed it will then be required to be removed in as little as 6 months (not sure if we have a right to gain access to a private property and forcibly remove this product.. TBD (?). Therefore, the cost to temporarily install and "rent" a furnace is greater than just a regular install. Additional labor will be required to remove the equipment. Additional cost will be incurred in tracking and reporting needed to the AQMD.

23-5

1121 - Health department codes for the recovery time and temp of hot water in all public food establishments, hospitals etc. etc. The data I'm seeing with heat pump tanked water heaters does not appear to support the requirements, this needs to be accounted for due to public health and safety requirements.

23-6

Kory Griggs
Indoor Weather Inc
9092896201 ext 4
indoorweatherhvac.com

Response to Comment Letter #23

Response to Comment 23-1:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff started to solicit technology and cost information from manufacturers in the 2023 manufacturer survey during the process of the Rule 1146.2 amendment. The survey questions included appliances for residential and commercial buildings. At the first working group meeting for PAR 1111 and PAR 1121, staff discussed the survey outcome and continued to urge stakeholders to share the cost information or offer feedback on the information staff collected.

The PAR 1111 and PAR 1121 BARCT assessment used real world installation data from TECH Clean California installations, which include upfront costs for both single-family and multifamily installations since 2021 and included cold climate applications. Please see Chapter 2 and Response to General Comment 6 for more discussion about the analysis and Response to General Comment 8 for more discussion on cold climate heat pumps.

Through previous rulemaking, staff gathered a list of installers for mountain communities. Those installers have been notified of all public meetings and documents released for this

rulemaking. Further, staff reached out to certain individual high-altitude installers to ensure participation.

Manufacturers have expressed that the regulatory certainty that comes with zero-NOx emission standards would have enhanced future product development. As BAAD adopted zero-emission standards for space and water heaters in residential and commercial buildings in March 2023 and CARB is also in rule development for similar requirements, the previous rule concept prior to the current rule concept for PARs 1111 and 1121 aligned with other agencies and with their policy direction. A group of manufacturers and agencies joined the California Heat Pump Partnership (CAHPP) and committed to advancing the state toward Governor Newsom's goal to install 6 million heat pumps by 2030.⁽¹⁶⁾ Chapter 2 has detailed discussion on various types of heat pumps technologies and staff analysis has considered different building types and ages. Please refer to Response to General Comment 4 for more discussion on technology readiness and Response to General Comment 6 for more discussion on analysis.

Staff evaluated the high-altitude applications and understood that in cold climates and mountain communities, cooling by AC systems is less common. 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. Recent technology development has also resulted in various zero-emission options that minimize building or electrical upgrades during installation and thus reduce the cost. Please see Response to General Comment 4 for more information. The new rule concept for PARs 1111 and 1121 further addresses the concern. Staff expects the technologies will further advance, market adoption will increase with clear policy direction, and costs of zero-NOx emission units will come down over time.

Staff analysis on the fuel switch/operational cost is based on the 2019 RASS released by the CEC. The RASS includes information on the energy use of both electrical and natural gas appliances in Californian homes. Heat pump energy efficiency rate was not utilized in the calculation; however, staff has included discussion of the technologies and their efficiencies with references of information sources in Chapter 2. Please refer to Response to General Comment 6 for more information.

Response to Comment 23-2:

Staff understands that effective in 2025 (or 2028 for window units), refrigerants with a global warming potential of over 750 will no longer be able to be used in new equipment. It is expected that most contractors' day-do-day work will not change and it will be "business as usual".⁽¹⁷⁾ Manufacturers have chosen future compliant refrigerants (e.g., R-32 and R-454B) for zero-emission appliances and those refrigerants are designed to be more efficient. In addition, in the previous rule concept prior to the new rule concept, PAR 1111 and PAR 1121 zero-emission effective dates were one to five years after the effective dates of refrigerant transition and the installations are based on appliance natural turnover.

Response to Comment 23-3:

Staff understands that outreach and community engagement regarding the zero-emission rules are important. In addition to newsletter and newspaper postings, staff conducted

⁽¹⁶⁾ <https://heatpumppartnership.org/>

⁽¹⁷⁾ <https://www.rheem.com/air-conditioning/articles/what-to-know-about-the-2025-hvac-refrigerant-change/>

numerous meetings with manufacturers, contractors, environmental groups, building owners, business associations, energy providers, local and state government agencies, consulting firms, etc. Staff also conducted many site visits to installations in various buildings, including single family homes, mobile home parks, low-rise and high-rise apartment buildings, office buildings, and grocery stores. Staff will continue the public outreach after rule adoption. In addition, the Go Zero incentive program has an outreach, education, and application assistance element. Please refer to Response to General Comment 5 for additional information regarding outreach.

Response to Comment 23-4:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff will provide updates/technology check-in(s) on the rule implementation to the Stationary Source Committee prior to major rule milestones. The effective date for zero-emission appliances installed in new building aligns with building code; therefore, installers will have to install the zero-emission technology in new buildings with or without PAR 1111 and PAR 1121.

There are many training opportunities offered to contractors through manufacturers, various incentive programs (e.g., TECH), utility companies, and local agencies. They could include in-person and virtual trainings. The Go Zero incentive program has also allocated funds for installer training. The training sessions will present contractors with the intricacies of installations and also provide training on permit processes and improve their ability to secure permits to complete electrical and mechanical connections. The anticipated launch of the Go Zero incentive program is 2025. For financial assistance, please see Response to General Comment 2 for more information.

Response to Comment 23-5:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Please see Response to General Comment 2 regarding the cost concern and Response to General Comment 7 regarding emergency replacements.

Response to Comment 23-6:

Staff understands the difference of recovery time between heat pumps and conventional gas units and included that in the analysis and working group meeting discussion. Water heaters used in restaurants and hospitals and the health code were discussed during the rulemaking for Rule 1146.2. Please check the Rule 1146.2 Public Hearing documents including staff report and socioeconomic impact assessment for analysis related to costs.

(18)

(18) <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2024/2024-Jun7-026.pdf?sfvrsn=6>

COMMENT LETTER #24: JEANINE JUST**Peter Campbell**

From: jeanine.jeaninejust.com <jeanine@jeaninejust.com>
Sent: Thursday, October 17, 2024 7:58 AM
To: Peter Campbell
Cc: jeanine.jeaninejust.com
Subject: [EXTERNAL] MOUNTAIN RESIDENT JEANINE JUSTCommenting on the AQMD Rule 1111 and 1121

TO: Peter Campbell,

Comment Letter #24

I want to comment about the proposal the AQMD is working on to amend rule 1111 and 1121.

• My name is Jeanine Just. I lived in Laguna Beach for over 20 years, before making Crestline my home for the past 15 years. Unlike Laguna Beach, it's common for electricity to frequently go out and sometimes for days. I'm a single woman in my 70s, and I'm happy to report that I have safely survived lots of tough mountain weather conditions. Why? Because I used my commonsense and selected from several options—gas, electric, fireplaces, candles and backup food supplies. I know for certain that electricity requirements in the mountains—are very different than in the Southern CA basin. I feel it's very important for AQMD to do a study specific on the mountains, to determine the detrimental effects of this proposal—and to consider making exceptions to the proposed rules that would apply to 4000 feet and above. California's power grid is already strained. The mountain needs a solution that would work for both the environment and the economy—not a one-size-fits all solution.

• Just as air quality is important to AQMD air quality is very important to mountain residents. In fact, many mountain residents moved here to get away from the poor air quality in the S. CA basin. We don't appreciate it when the wind blows the smog up to our mountains and creates unhealthy air quality. 24-1

• I'm also concerned about the proposal for "all electric mountain homes." Yesterday, the electric company sent a text that says, "Alert: High winds and fire conditions are forecast for Friday morning through Saturday afternoon. We may have to shut off your power to decrease risk during this time. Power restoration typically takes 8 hours and will start after the wind subsides. Delays may occur if daylight is required for safe inspections." My question is ... how will mountain residents stay alive during cold winter weather—when their only option is electricity? 24-2

• I've been a business consultant and entrepreneurs' advocate for over 40 years. I know for certain that small businesses in America, and especially in the mountains, are struggling to stay in business. There are lots of reasons, but California small business laws over the past 10 years, have reduced small businesses profitability. On top of that the Covid business closures forced lots of business to close their doors. IF ... mountain business property owners or business renters have to pay all the fees and money required to upgrade their utilities to all electric (and then pay extra electric bills) —it will be the "straw that breaks the camels back" for lots of our mountain businesses. Lots of buildings are older and would require huge amounts of money to bring them up to AQMD standards. We need our small businesses!!! 24-3

• Our mountain has some upper socio-economic residents—but lots of residents are mid to lower socio-economic status, who moved here because the cost of living was affordable. We also have lots of retirees and seniors that are on fixed incomes. Many people are suffering from the home/property damage caused by Snowmageddon in 2023—and struggling financially because they had to take out SBA loans to rebuild their damaged property. Now insurance cancellation and/or huge increases in 24-4

home insurance costs have many people living in fear of losing their homes or are losing their homes. The AQMD proposal would further devastate the mountain economy and the lives of many mountain residents. 24-4

I am asking AQMD to seriously reconsider the unique mountain challenges and our unique weather environment. I believe the AQMD proposal would have major unintended negative consequences. Thanks for your consideration,

Sincerely,
Jeanine Just

23581 Lake Drive, Crestline, Ca
909-338-1313

Response to Comment Letter #24

Response to Comment 24-1:

Staff appreciates the comments on PAR 1111 and PAR 1121 and the understanding of importance of air quality to the mountain communities.

Response to Comment 24-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff recognizes there are buildings in the mountain communities that are already all-electric, and that there is concern about grid reliability during extreme weather conditions. As electricity is required to operate not only zero-emission appliances but also many NOx-emitting natural gas units (e.g., gas furnaces), it is essential to ensure electric grid reliability. Please see Response to General Comment 3 on electric grid reliability. As zero-emission technologies advance, some new technologies will enter the market that require minimal electrical upgrade and construction, for example, currently available 120V heat pump water heaters and portable heat pumps for HVAC. Please see Response to General Comment 4 for more discussion on technology readiness.

Response to Comment 24-3:

State and local incentives could offset some upfront costs for small businesses, including the ongoing state-wide TECH Clean California rebates; local or utility programs for commercial applications such as the SCE program implemented by Willdan Energy Solutions; and the upcoming South Coast AQMD pilot incentive program, Go Zero, which will have \$5 million allocated for small businesses to transition natural gas units to heat pumps. Go Zero will allocate 75 percent of funding for overburdened communities, and there is potential for a fivefold funding increase for future phases of the program. The new rule concept also includes mitigation fees for NOx-emitting units sold which will create a revenue stream for future Go Zero rebate funding. Staff anticipates that Go Zero rebates

for small businesses may be layered with other applicable rebates and tax credits, as well as local incentives, and the application assistance funding will allow for further guidance to program applicants on the incentive stacking process.

Heat pumps can be over 300 percent more efficient than conventional natural gas or electric resistance units, leading to operational cost savings over the lifetime of the unit. For more information on cost, please see Response to General Comment 2.

Regarding the rule applicability, installations in small businesses may subject to Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters which was adopted in June 2024 and includes future effective zero-emission standards. Please check the Rule 1146.2 Public Hearing documents including staff report and socioeconomic impact assessment for analysis related to costs.⁽¹⁹⁾

Response to Comment 24-4:

For consumers choosing to install zero-NOx emission units, despite capital cost funding opportunities and operational cost savings mentioned in above Response to Appendix C Comment 24-3, staff understands there may still be cost concerns. A status update/technology check-In will re-evaluate the market for zero-emission technology and the associated costs. As manufacturers provide the market with more heat pump models, costs may decrease overtime. PAR 1111 and PAR 1121 are applicable to new installations at end of unit life, or at natural turnover, meaning that existing units can continue to operate until they naturally break down, resulting in long implementation timelines. In addition, staff has proposed a new rule concept which addresses the concern. Please see Response to General Comment 1.

⁽¹⁹⁾ <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2024/2024-Jun7-026.pdf?sfvrsn=6>

COMMENT LETTER #25: BIZFED

Comment Letter #25

October 17, 2024

Hon. Vanessa Delgado, Chair
South Coast Air Quality Management District Governing Board
21865 Copley Dr.
Diamond Bar, CA 91765

Dear Chair Delgado and Governing Board members –

We are reaching out on behalf of BizFed, the Los Angeles County Business Federation, an alliance of more than 200 business organizations representing more than 400,000 employers in Los Angeles County, including large and small businesses in a wide range of industries throughout the South Coast Air Basin (SCAB).

We are writing specifically regarding Proposed Amended Rule (PAR) 1111 and PAR 1121; many of the businesses we represent have or will be writing their own individual comment letters that specifically address the impacts to their industries. Our comments address the impacts on the business community as a whole and include overarching concerns of our diverse membership.

Recently BizFed has hosted SCAQMD staff and Governing Board members to demonstrate the impact of the proposed rulemaking on multifamily residential properties. These proposed rules, with their expedited implementation timelines, will be the highest cost for the lowest amount of NOx reduction in the agency's history. We are extremely concerned about the impact on the southern California economy and on an already overburdened and constrained housing market.

25-1

We have attached the presentation that was shared with SCAQMD staff and Governing Board members that illustrates the real-world costs of these proposed rules on multifamily residential properties. In each case a licensed professional HVAC/mechanical engineer was retained to develop a scope of work to implement the proposed rules for water and space heating at two separate residential properties. The scope was then provided to a licensed general contractor to obtain quotes to complete the work.

As you will see from the attached, the costs are astronomical. In the first case, the buildings will need to be retrofitted to eliminate the existing hydronic space heating system, which is common for larger multifamily buildings built since the late 1980's. In that case, the total retrofit cost exceeds \$37,000 per unit.

25-2

In the case of the older property which will require much more extensive site and electrical system updates to accommodate Proposed Amended Rules 1111 and 1121, the cost exceeds \$72,000 per unit. Properties similar to this exist throughout the South Coast Air

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Basin and this example is reflective of the tremendous cost and detrimental impact these proposed rules will have if adopted as written.

It is our desire that these real- world costs and impacts be included in the record of this rulemaking should the Governing Board decide to move forward. However, we strongly recommend that the Governing Board conduct further due-diligence to better understand these significant costs and impacts to housing in southern California before moving forward. At the minimum, we recommend that the Board modify both PAR 1111 and 1121 to align implementation with the district's own Air Quality Management Plan which identifies 2029 as the implementation date for each proposed rulemaking.

25-2

Further, we appreciate that staff has somewhat recognized the significant challenge that implementing these rules will be for single family and multifamily owners by allowing for an extension of time for projects that will require construction and/or utility upgrades. We believe this a good first step but that the rule needs to go farther to address what could be devastating cost impacts to homeowners and renters. Specifically, there should be a further extension of time for implementation in buildings where the existing hydronic heating systems will need to be replaced. Additionally, homeowners facing costs of \$20,000 or more should be given additional time to secure financing and/or let the market mature to see implementation costs come down with new technologies.

25-3

Thank you for your attention to these critical issues. We look forward to continuing to collaborate with you to make these proposed rules less onerous and impactful to homeowners and renters in the South Coast Air Basin.

Thank you for your thoughtful consideration.

Sincerely,



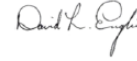
Fran Inman
BizFed 2024 Chair
Majestic Realty



David Fleming
BizFed Founding Chair



Tracy Hernandez
BizFed Founding CEO
IMPOWER, Inc.



David Englin
BizFed President

BizFed Association Members

Action Apartment Association
Advanced Medical Technology Association
Alhambra Chamber
American Beverage Association
Antelope Valley Chamber formerly Lancaster Chamber of Commerce
Apartment Association of Greater Los Angeles
Apartment Association of Orange County
Apartment Association, CA Southern Cities, Inc.
Apartment Association of California
Arcadia Association of Realtors
AREAA North Los Angeles SFV SCV
Armenian American Business Association
Armenian Trade & Labor Association

Arts District Los Angeles
ASCM Inland Empire Chapter
Associated Builders & Contractors SoCal (ABC SoCal)
Associated General Contractors
Association of Independent Commercial Producers
AV Edge California
Azusa Chamber
Bell Chamber
Beverly Hills Chamber
BioCom
Black Business Association
Black Professional Network

Boyle Heights Chamber of Commerce
Bridge Compton Org
Building Industry Association - LA/Ventura Counties
Building Industry Association of Southern California
Building Industry Association- Baldyview
Building Owners & Managers Association of Greater Los Angeles
Burbank Association of Realtors
Burbank Chamber of Commerce
Business and Industry Council for Emergency Planning and Preparedness
Business Resource Group
CalAsian Chamber

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| | | |
|--|---|--|
| CalChamber | LA Fashion District BID | Unmanned Autonomous Vehicle Systems Association |
| California African American Chamber of Commerce | LA South Chamber of Commerce | Urban Business Council |
| California Apartment Association- Los Angeles | Larchmont Boulevard Association | US Green Building Council |
| California Asphalt Pavement Association | Latin Business Association | US Resiliency Council |
| California Bankers Association | Latino Food Industry Association | Valley Economic Alliance, The |
| California Black Chamber of Commerce | Latino Golfers Association | Valley Industry & Commerce Association |
| California Business Properties | Latino Restaurant Association | Venice Chamber of Commerce |
| California Business Roundtable | LAX Coastal Area Chamber | Vermont Slauson Economic Development Corporation |
| California Cleaners Association | Licensed Adult Residential Care Association- LARCA | Veterans in Business |
| California Contract Cities Association | Long Beach Area Chamber | Vietnamese American Chamber |
| California Council for Environmental & Economic Balance (CCEEB) | Long Beach Economic Partnership | Village of Sherman Oaks BID |
| California Fuels & Convenience Alliance- Formerly California Independent Oil Marketers Association (CIOMA) | Long Beach Major Arts Consortium | Warner Center Association |
| California Gaming Association | Los Angeles Area Chamber | West Covina Chamber |
| California Grocers Association | Los Angeles Economic Development Center | West Hollywood Chamber |
| California Hispanic Chamber | Los Angeles Gateway Chamber of Commerce | West Hollywood Design District |
| California Hotel & Lodging Association | Los Angeles Latino Chamber | West Los Angeles Chamber |
| California Independent Petroleum Association | Los Angeles LGBTQ Chamber of Commerce | West San Gabriel Valley Association of Realtors |
| California Infrastructure Delivery Coalition | Los Angeles Parking Association | West Valley/Warner Center Chamber |
| California Life Sciences Association | Los Angeles Regional Food Bank | Westchester BID |
| California Manufacturers & Technology Association | MADIA Tech Launch | Western Electrical Contractors Association |
| California Metals Coalition | Malibu Chamber of Commerce | Western Manufactured Housing Association |
| California Natural Gas Producers Association | Manhattan Beach Chamber of Commerce | Western Propane Gas Association |
| California Restaurant Association | Manhattan Beach Downtown Business & Professional Association | Western States Petroleum Association |
| California Retailers Association | Marina Del Rey Lessees Association | Westside Council of Chambers |
| California Self Storage Association | Marketplace Industry Association | Westwood Community Council |
| California Small Business Alliance | Monrovia Chamber | Whittier Chamber of Commerce |
| California Travel Association (CalTravel) | Motion Picture Association of America, Inc. | Wilmington Chamber |
| California Trucking Association | MoveLA | World Trade Center |
| Californians For Smarter Sustainability | MultiCultural Business Alliance | Yes in My Backyard |
| Carson Chamber of Commerce | NAIOP Southern California Chapter | 7-Eleven Franchise Owners Association of Southern California |
| Carson Dominguez Employers Alliance | NAREIT | |
| Central City Association | National Association of Minority Contractors | |
| Century City Chamber of Commerce | National Association of Theatre Owners CA/Nevada | |
| Chatsworth Porter Ranch Chamber of Commerce | National Association of Women Business Owners | |
| Citrus Valley Association of Realtors | National Association of Women Business Owners - LA | |
| Civil Justice Association of California CJAC | National Association of Women Business Owners- California | |
| Claremont Chamber of Commerce | National Federation of Independent Business Owners California | |
| Commerce Business Council formerly Commercial Industrial Council/ Chamber of Commerce | National Hookah | |
| Compton Chamber of Commerce | National Latina Business Women's Association | |
| Compton Community Development Corporation | Norwegian American Chamber of Commerce | |
| Compton Entertainment Chamber of Commerce | Ofiso Community Foundation | |
| Construction Industry Air Quality Coalition | Orange County Business Council | |
| Construction Industry Coalition on Water Quality | Orange County Hispanic Chamber of Commerce | |
| Council of Infill Builders | Pacific Merchant Shipping Association | |
| Crenshaw Chamber of Commerce | Panorama City Chamber of Commerce | |
| Culver City Chamber of Commerce | Paramount Chamber of Commerce | |
| Downey Chamber of Commerce | Pasadena Chamber | |
| Downtown Alliance | Pasadena Foothills Association of Realtors | |
| Downtown Long Beach Alliance | PGA | |
| DTLA Chamber of Commerce | Pharmaceutical Care Management Association PhRMA | |
| El Monte/South El Monte Chamber | Pico Rivera Chamber of Commerce | |
| El Salvador Corridor Association | Pomona Chamber | |
| El Segundo Chamber of Commerce | Rancho Southeast REALTORS | |
| Employers Group | ReadyNation California | |
| Energy Independence Now EIN | Recording Industry Association of America | |
| Engineering Contractor's Association | Regional CAL Black Chamber, SVF | |
| EXP The Opportunity Engine | Regional Hispanic Chambers | |
| FastLink DTLA | San Gabriel Valley Economic Partnership | |
| Filipino American Chamber of Commerce | San Pedro Peninsula Chamber of Commerce | |
| Friends of Hollywood Central Park | Santa Clarita Valley Chamber | |
| FuturePorts | Santa Clarita Valley Economic Development Corp. | |
| Gardena Valley Chamber | Santa Monica Chamber of Commerce | |
| Gateway to LA | Secure Water Alliance | |
| Glendale Association of Realtors | Sherman Oaks Chamber | |
| Glendale Chamber | Signal Hill Chamber | |
| Glendora Chamber | South Bay Association of Chambers | |
| Greater Antelope Valley AOR | South Bay Association of Realtors | |
| Greater Bakersfield Chamber of Commerce | South Gate Chamber of Commerce | |
| Greater Coachella Valley Chamber of Commerce | Southern California Contractors Association | |
| Greater Downey Association of REALTORS | Southern California Golf Association | |
| Greater Lakewood Chamber of Commerce | Southern California Grantmakers | |
| Greater Leimert Park Crenshaw Corridor BID | Southern California KFC Franchise | |
| Greater Los Angeles African American Chamber | Southern California Leadership Council | |
| Greater Los Angeles Association of Realtors | Southern California Minority Suppliers Development Council Inc. | |
| Greater Los Angeles New Car Dealers Association | Southern California Water Coalition | |
| Greater San Fernando Valley Chamber | Southland Regional Association of Realtors | |
| Harbor Association of Industry and Commerce | Specialty Equipment Market Association | |
| Harbor Trucking Association | Structural Engineers Association of Southern California | |
| Historic Core BID of Downtown Los Angeles | Sunland/Tujunga Chamber | |
| Hollywood Chamber | Sunset Strip Business Improvement District | |
| Hospital Association of Southern California | Swiss American Chamber of Commerce | |
| Hotel Association of Los Angeles | Thai American Chamber of Commerce | |
| ICBWA- International Cannabis Women Business Association | The Bridge Network | |
| Independent Cities Association | The LA Coalition for the Economy & Jobs | |
| Independent Hospitality Coalition | The Los Angeles Taxpayers Association | |
| Industrial Environmental Association | The Two Hundred for Homeownership | |
| Industry Business Council | Torrance Area Chamber | |
| Inglewood Board of Realtors | Tri-Counties Association of Realtors | |
| Inland Empire Economic Partnership | United Chambers – San Fernando Valley & Region | |
| Irwindale Chamber of Commerce | United Contractors | |
| Kombucha Brewers International | United States-Mexico Chamber | |
| La Cañada Flintridge Chamber | | |
| LA County Medical Association | | |

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Response to Comment Letter #25*Response to Comment 25-1:*

Staff appreciates BizFed's work with staff during the rulemaking and for providing comments.

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

South Coast Air AQMD has been classified as in "extreme" nonattainment for the 2015 8-hour ozone standard with the worst air quality in the nation. Therefore, there is a need to identify and propose cost-effective control/compliance options, while striving to achieve the emission reductions necessary for regional air quality attainment, especially given the magnitude of the emission reductions required to meet the ozone standards. Implementation of PAR 1111 and PAR 1121 will result in a NOx emissions reduction of 6 tons per day, which means 10 percent of 2018 NOx emissions from all stationary and area sources in the region.

The proposed rules are based on the BARCT assessment as discussed in Chapter 2 of this report. The cost-effective analysis of the BARCT assessment utilizes real world installation data from TECH Clean California, which includes costs for both single-family and multifamily installations since 2021. The new manufacturer alternative compliance option addresses the concern for cases that may not be cost effective by installing zero-NOx emission units, when consumers may choose to install natural gas-fired units.

Response to Comment 25-2:

PAR 1111 and PAR 1121 apply at the unit natural turnover when a replacement unit must be installed, often at unit breakdown. The rules evaluate the incremental cost of installing a zero-emission appliance versus a conventional gas unit. Retrofitting work such as eliminating the existing system would not be considered in the incremental cost, as the existing unit would have to be removed even to install like-for-like units. Furthermore, as zero-emission technologies advance, technologies may emerge that can serve as drop-in replacements for existing systems, saving considerable costs, such as heat pump hydronic heating systems⁽²⁰⁾.

Staff analysis has considered the required electrical upgrades in the costs to retrofit a zero-emission appliance. Further, Chapter 2 provides discussion on new and emerging technologies that are less likely to require a panel upgrade. Please see Response to General Comment 4 for more information.

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

⁽²⁰⁾ <https://www.harvest-thermal.com/product#air-handler>

Response to Comment 25-3:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff will continue to work with stakeholders after the rule adoption for the implementation. Staff is also committed to the technology check-in to reassess the technologies and cost.

Incentive programs such as South Coast AQMD's Go Zero and the state's TECH Clean California, will help alleviate the financial burden of installing zero-emission appliances.

Hydronic heating systems are most likely subject to Rule 1146.2 which was amended in June 2024 for zero-emission standards with later compliance dates for installations in existing buildings. Please check the Rule 1146.2 Public Hearing documents for the staff analysis.⁽²¹⁾

⁽²¹⁾ <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2024/2024-Jun7-026.pdf?sfvrsn=6>

COMMENT LETTER #26: KEN BELDING

Comment Letter #26

Jennifer Vinh

From: Ken Belding <kbelding@empirecomfort.com>
Sent: Thursday, October 17, 2024 11:49 AM
To: Jennifer Vinh
Cc: Peter Campbell
Subject: [EXTERNAL] ARLO: RE: Proposed Amended Rule 1111Control of Nitrogen Oxides from Residential-Type, Natural Gas-Fired Space Heating Equipment

Dear Ms. Vinh,

On behalf of Empire Comfort Systems, we appreciate the opportunity to provide comments on SCAQMD Rule 1111. As a leading manufacturer of gas space heating appliances, we have a long-standing commitment to reducing emissions and improving energy efficiency. While this may seem like ancient history our company worked with The Gas Research Institute (GRI) in the 1990's reducing NOx on our Gravity Wall Furnaces. After many months of trying to establish a test method that would work consistently and accurately we then turned to reducing the NOx generated from the units. Again, after many months we were able to accomplish this feat. Again, we spent many months and more dollars developing tooling to create the parts to build and sell this product only to be told that it wasn't necessary. This new initiative by the SCAQMD is something unanticipated and of course has potential dangerous consequences.

This rule essentially eliminates all gas-fired appliances needlessly and recklessly. This rule is throwing the baby out with the bathwater. Our products generally and for the most part require no electricity to operate except what is supplied from the thermocouple on the unit. Those people who live in areas of the SCAQMD that require at least some heat in the winter to stay alive should have the ability to install one of our space heating appliances as back-up when the power goes out. They are as efficient as can be made and still run off of no externally supplied electricity. The DOE recognized this about 10 years ago when it gave space heaters (Direct Heating Equipment) in a Federal Register Listing the ability to not have to try and increase their efficiency. It was recognized that they were important appliances and also losing sales rapidly except in those areas where backup heat was necessary due to the adverse effect of cold weather combined with power outages. A good example of this was the power outages experienced in Texas a few years ago when people died due to hypothermia in the very widespread power outage due to an ice storm. Jf course mountainous regions such as those in the SCAQMD have the same potential on a yearly basis. These heaters are supplemental and in general do not replace a central heat pump system but give the homeowner confidence that when the power goes out, they will be protected. This is hoping your friends and or relatives won't suffer this same fate as the Texans did and certainly in many other areas around the country.

Speaking of EPCA, the proposed limitations under Rule 1111 raise the issue of federal preemption under the Clean Air Act (CAA) and Energy Policy and Conservation Act. EPCA denies states the ability to enact their own regulations related to the energy use of covered products, including Direct Heating Equipment, which in fact they have had to protect in the past. NOx limits create a regulation that directly goes against federal standards. The requirements will disrupt markets not only in the SCAQMD but across the country because of different models being needed if in fact one can be made to emit zero NOx. This of course will violate the Dormant Commerce Clause.

Make no mistake about it, Empire Comfort Systems and our industry certainly support efforts to reduce emissions. As reported before, we were an industry leader on this issue 30 years ago. We are now involved with the Hydrogen infused gas and the advanced low NOx combustion systems that are still being researched and developed.

The consumer burden from this rule is obvious. Low-income folks and even those who aren't will suffer greatly and needlessly in order to switch from low NOx appliances to a zero NOx system. The estimates to do what is suggested by the creation of PAR 1111 is in the low thousands of dollars to a minimum of 20,000 dollars to upgrade a gas home to all electric heating. It will at a minimum put lives in danger to the point where there will be hypothermia victims in the SCAQMD. This will come with the already overburdened and very fragile California electrical grid system. The NOx produced by the site of creating the electric for this region will be off the charts again needlessly if a more even-keel approach is taken to what is a perceived issue. 26-3

An approach that uses a combined and long-term low NOx strategy versus one that will be a massive burden on a large percentage of your population. Not only in the higher elevations but in the low-income housing in the more populated areas that are using Gravity Wall furnaces as a sole source of heat and could certainly not afford a new heat pump system. 26-4

Please consider a slower phase in of low NOx versus this quick 12 month impossible turn-around schedule.

I hope you consider my topics carefully and for the good of the citizens of the SCAQMD please consider a more blended approach.

Thank you for your time and consideration.

Ken Belding | Director Government Affairs
Empire Comfort Systems, Inc.
918 Freeburg Avenue, Belleville, Illinois 62220
P: 618.233 7420
E: kbelding@empirecomfort.com

Response to Comment Letter #26

Response to Comment 26-1:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff recognizes the importance of electric grid reliability not only for zero-emission technologies, but also NOx-emitting natural gas technology, which often requires electricity to operate. Please see Response to General Comment 3 for discussion on grid reliability.

Response to Comment 26-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

PAR 1111 and PAR 1121 do not ban natural gas or otherwise regulate the amount of natural gas used by the equipment subject to PAR 1111 and PAR 1121. This rulemaking was not

any different from previous rulemakings lowering NOx emission limits of various equipment. PAR 1111 and PAR 1121 are technology and fuel-neutral and are focused on achieving the maximum NOx emission reductions possible. Equipment that meets the NOx emission limits, regardless of the energy source, is not prohibited by PAR 1111 and PAR 1121.

With the new rule concept, consumers will be able to choose either zero-emission appliance options or NOx emitting appliance options in the market. Please see Response to General Comment 1.

Response to Comment 26-3:

Staff acknowledge the higher upfront cost in many zero-emission installations; however, lower annual operational costs are anticipated. State, and local incentives, including the upcoming South Coast AQMD Go Zero incentive program, will help alleviate the financial burden. Finally, staff will re-evaluate operational cost based on the updated projection on the utility rates at the technology check-in. Please see Response to General Comment 2 for more information on cost.

Response to Comment 26-4:

Staff understands that the mountain communities have a colder climate and heating in wintertime is essential. Please see Response to General Comment 8 for discussion about cold climate regions.

COMMENT LETTER #27: AIR-CONDITIONING, HEATING, & REFRIGERATION INSTITUTE

2311 Wilson Boulevard Suite 400 Arlington VA 22201 USA
Phone 703 524 8800 | Fax 703 562 1942
www.ahrinet.org

Comment Letter #27

October 17, 2024

Mr. Peter Campbell
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Ms. Jen Vinh
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

(Submitted electronically via pcampbell@aqmd.gov and jvinh@aqmd.gov)

RE: AHRI Comments in Response – South Coast Air Quality Management District (SCAQMD) Proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired Furnaces (PAR 1111) and Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural-Gas-Fired Water Heaters (PAR 1121)

Dear Mr. Campbell and Ms. Vinh:

The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) respectfully submits this letter in response to the Proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired Furnaces (PAR 1111) and Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural-Gas-Fired Water Heaters (PAR 1121) from South Coast Air Quality Management District (SCAQMD or District).

AHRI represents more than 330 manufacturers of air conditioning, heating, water heating, and refrigeration equipment. It is an internationally recognized advocate for the HVACR industry and certifies the performance of many of the products manufactured by its members. In North America, the annual economic activity resulting from the HVACR industry is more than \$211 billion. In the United States alone, AHRI member companies, along with distributors, contractors, and technicians employ more than 704,000 people.

AHRI and its members are committed to, and support, greenhouse gas (GHG) emission reductions, while promoting sustainable, safe, reliable, and affordable access to the essential air and water heating and cooling provided by the products they manufacture.

AHRI Comments – SCAQMD PAR 1111 and PAR 1121
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I. General Comments for PAR 1111 and PAR 1121

A. AHRI Member Products Provide Critical Services to California

Space and water heater products¹ include a wide range of manufactured goods, which provide comfort and ensure public health and safety. These space and water heater products serve and support nearly every major sector in California, providing life critical products and services for medical facilities and hospitals; government agencies; the U.S. military; law enforcement, first responders, and public safety; energy; public works and infrastructure support services; critical manufacturing; defense industrial base; and conservation. Often, the health, safety, and the functioning of society depend on these products. Overly burdensome regulations could impair the HVACR and water heating sector's ability to meet these critical needs.

27-1

B. AHRI Members Have Greatly Reduced Emissions

AHRI and its members are committed to the overall health of the environment and have a long history of developing products to meet ever-more-challenging aspirational carbon neutrality and emission-reduction goals. Over the past 20 years, the industry has made significant investments toward reducing its emissions and its carbon footprint by creating cleaner technologies and products.

However, on the path to carbon reductions, there are many significant challenges and technological constraints to what can be achieved.

C. Emergency Replacements

In most cases, space and water heating equipment is replaced upon failure of the appliance. If this occurs and the house needs a panel upgrade or other alterations to accommodate a zero-NOx solution, that house could go without space- or water heating for several days, if not weeks, while the retrofits occur. If such an event were to happen during a cold snap, there could be significant concern for the health and safety of the occupant(s). AHRI recommends for the District to continue to consider solutions to the emergency replacement issue, including proactive replacement programs, such that the impact of proposed PAR 1111 and PAR 1121 does not compromise safe and reliable access to services.

27-2

The California Statewide Codes and Standards Reach Codes Team (Statewide Reach Code Team) performed a cost effectiveness study for upgrading existing buildings in 2019.² In its report, the team recognized the challenges associated with emergency replacements of space

¹ Space heating products include space heaters, room heaters, ventless room heaters, infra-red heaters, heat pumps, furnaces, boilers, heating elements, burners, boiler equipment and associated parts and accessories, anti-scaling agents, filters, venting, and their associated spare parts, and similar products. These examples are meant to be representative, not exhaustive, of heating products. Water heating products include products which heat water for potable uses; water heating equipment that utilizes gas, oil, or electric (via electric resistance heating elements or a heat pump); storage water heaters; tankless water heaters; and others. Water heater products utilize oil, gas, or electricity to heat potable water for use outside the heater upon demand, and similar products. These examples are meant to be representative, not exhaustive, of water heater products.

² California Statewide Codes and Standards Reach Codes, "2019 Cost-Effectiveness Study: Existing Single Family Residential Building Upgrades" Prepared by: Frontier Energy, Inc. and Misti Bruceri & Associates, LLC. (2019), https://localenergycodes.com/download/826/file_path/fieldList/2019%20Res%20Cost-Eff%20Report-Glendale-2021-03-10.pdf

AHRI Comments – SCAQMD PAR 1111 and PAR 1121
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and water heating when moving from gas to electric, and outlined specific exceptions for these issues:

- Exception 1: Non-ducted space conditioning systems and systems without central air conditioning.
- Exception 2: Ducted space conditioning systems where only the gas furnace is replaced.
- Exception 3: The main service panel does not have the capacity or space to accommodate an additional 240V, 30 A circuit, and the cost to upgrade the main service panel and run required electrical service to the heat pump air handler is prohibitive as determined by the jurisdiction.

For heat pump water heaters, the Statewide Reach Code Team identified the need for the following exceptions:

- Exception 1: The proposed location of the new water heater is located within conditioned space.
- Exception 2: The proposed location of the replacement water heater is not large enough to accommodate a heat pump water heater (HPWH) equivalent in size and one-hour capacity rating to the existing water heater or the next nominal size available.
- Exception 3: The main service panel does not have the capacity or space to accommodate an additional 240 V, 30 A circuit, or the cost to upgrade the main service panel and run required electrical service to the water heater is prohibitive as determined by the jurisdiction.
- Exception 4: A solar water heating system is installed meeting the installation criteria specified in Reference Residential Appendix RA4.20 and with a minimum solar savings fraction of 60 percent.

27-2

AHRI recommends for the District to consider and address these exceptions in the continued development of PAR 1111 and PAR 1121.

II. Comments specific to Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired Furnaces (PAR 1111):

A. Dual-Fuel Systems

AHRI requests that the District reconsider its exclusion of dual-fuel systems as a compliance pathway for the ultra-low NO_x requirements in PAR 1111. Dual-fuel systems provide an ideal pathway to lower NO_x emissions and reach the average NO_x emissions of less than 14ng/j required in the section. Not only would a dual-fuel pathway limit NO_x emissions but it also would help homeowners move to heat pumps sooner, at a reasonable cost, and provide increased resiliency to the grid by reducing winter peak loads.

27-3

SCAQMD should include a definition of dual-fuel systems in the proposed rule with control requirements to ensure the weighted average NO_x emissions are below the requirements. Dual-fuel systems also should be considered as an option in the environmental analysis, especially given the impact to low- and medium-income consumers.

B. Product Labeling

AHRI members do not support the requirement for a label on furnaces to enforce PAR 1111.

27-4

AHRI Comments – SCAQMD PAR 1111 and PAR 1121
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Manufacturers do not have a way to know where the equipment will ultimately be installed, as our members work through distributors and wholesalers, labeling specific to a state air district is impractical and overly burdensome. SCAQMD maintains a database³ of equipment with NOx levels and an inspection agency therefore could look up equipment compliance.

27-4

C. Alternate Compliance – Rental Furnaces

AHRI members are concerned with the suggested alternate compliance options related to rental furnaces. The emergency replacement exemption for furnaces involves the temporary installation of ultra-low NOx furnaces for a very short period of time until electrical upgrades can be completed. This amounts to an unreasonable amount of labor and upgrade charges to the consumer.

27-5

AHRI believes a short-term rental furnace option will be costly for homeowners and contractors: requiring that almost twice the work be completed for one furnace replacement. If the District believes rental equipment will enable this option for alternate compliance, then AHRI recommends the District develop, administer and fund a program, as opposed to relying on the market to create such an offering.

III. Comments specific to Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural-Gas-Fired Water Heaters (PAR 1121):

A. Residential Applications

As referenced in the Preliminary Staff Report⁴, the New Buildings Institute (NBI) worked closely with 120V HPWH manufacturers and utilities in California on a statewide 120-volt HPWH field validation program from 2021 to 2023⁵. AHRI reminds the District that notwithstanding 120V HPWHs ability to be “plugged in” to a standard 120V outlet, many utility closets, basements, and garages do not currently have a 120V outlet located by the water heater. This means that even when these products are readily available, an electrician would be required to install a dedicated outlet for the water heater. Further HPWHs require condensate removal. If a drain does not exist near the water heater, a plumber would be required to install one. These are just a few of the technical barriers and costs that need to be considered for the wide-scale adoption of these products, which are not accounted for in the Preliminary Staff Report's analysis.

27-6

A rushed technology transition may lead to unintended consequences with respect to installation and performance of the products, which would only serve to damage public perception and slow the adoption in other jurisdictions. Given the status of this market, the 2027 transition date for existing construction is unreasonable. A reasonable timeframe must be established for these products to be developed and matured, such that the supply chain can handle this regulation and contractors and technicians have time to be trained in proper installation and maintenance.

³ <http://www.aqmd.gov/home/programs/business/business-detail?title=certified-equipment>

⁴ <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf>

⁵ https://newbuildings.org/wp-content/uploads/2023/07/PlugInHeatPumpWaterHeaterFieldStudyFindingsAndMarketCommercializationRecommendations_NBI202308.pdf

AHRI Comments – SCAQMD PAR 1111 and PAR 1121
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B. Product Labeling

AHRI members do not support the requirement for a label on water heaters to enforce PAR 1121. SCAQMD maintains a database⁵ of equipment with NOx levels and an inspection agency therefore could look up equipment compliance.

If the District continues to use labels as an enforcement mechanism, AHRI suggests the label language in PAR 1121 be consistent with the language adopted in Rule 1146.2, "For use in existing buildings only."

The label wording in PAR 1121 (g)(1) – *Labeling Water Heaters for Installation and Use in Existing Buildings* implies that any water heater is suitable for use in mobile homes:

"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."

However, because of specific space constraints and plumbing requirements, not all water heaters are suitable for use in mobile homes. This wording could be misinterpreted by stakeholders that any water heater with this label is suitable for use in a mobile home setting.

C. Alternate Compliance – Rental Water Heaters

AHRI members are concerned with the suggested alternate compliance options related to rental water heaters. Generally, warranties apply to water heaters installed in a specific dwelling and it is transferable between owners, but not between locations. Any contractor intending to use a water heater as a short-term rental for different locations could void the warranty.

AHRI believes a short-term rental water heater option will be costly for homeowners and contractors: requiring that almost twice the work be completed for one water heater replacement. If the District believes rental equipment will enable this option, then AHRI recommends for the District to develop, administer and fund a program, as opposed to relying on the market to create such an offering.

AHRI questions how a rental water heater option would permit contractors who rent water heaters to purchase equipment for rental purposes from manufacturers, when manufacturers are making every effort not to ship non-compliant product into the district.

D. Annual Reporting Requirements

AHRI members emphasize that the data that District staff is requiring to be provided under paragraph (g)(4)(E) is proprietary information of product manufacturers. It is unclear as to why the District believes this information is necessary to fulfill its enforcement obligations related to this rule. AHRI strongly urges District staff to add language to paragraph (g)(4)(E) of PAR 1121 clarifying that the District will treat such data as Confidential Business Information and will not be shared by the District with third parties. Such language would also provide assurances to manufacturers that they are not being compelled to directly or indirectly disclose confidential

⁵ <http://www.aqmd.gov/home/programs/business/business-detail?title=certified-equipment>

27-7

27-8

27-9

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information, specific to their organization, to which other parties would not otherwise have access.

IV. Conclusion

Two fundamental pillars of industry are certainty and consistency. The proposals in these comments address certainty for industry. Consistency can only be achieved by local air quality management districts working to align on NOx requirements so that there is one clear, consistent path forward for manufacturers in California. Incentives should be provided for early adoption, and programs should be put in place to help low-income households afford this transition. This approach will aid in an equitable transition and remove the main hurdle for emergency replacements, which is cost. This approach will also allow for optimal environmental benefits.

AHRI appreciates the opportunity to submit these comments and welcomes the opportunity for further discussion. If you have any questions regarding this submission, please do not hesitate to contact me.

Sincerely,



Nicole Colantonio
Director, Regulatory Affairs
Direct: (703) 600-0332
Email: ncolantonio@ahrinet.org

Response to Comment Letter #27

Response to Comment 27-1:

Staff appreciates AHRI's comment on PAR 1111 and PAR 1121. Staff recognizes the importance of the public process to receive input and feedback from stakeholders in various industries and appreciates AHRI's participation in this process. The public process included a series of working group meetings and numerous individual meetings with stakeholders who may be impacted by this rulemaking. Staff conducted multiple site visits to various stakeholders and continues to be open to stakeholder feedback and input during the rulemaking process. Please see Response to General Comment 5 for more information on outreach.

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Response to Comment 27-2:

The commenter mentioned the 2019 study was based on 240V heat pumps. Since then, installers have gained more experience from greater heat pump adoption and more new technologies have been developed to address various installation challenges. Chapter 2

provides discussion on new and emerging technologies that are less likely to require a panel upgrade and construction. Some examples are 120V plug-in heat pump water heaters, portable heat pumps for space heating/cooling, and multi-function heat pumps for water heating and space heating/cooling. Split systems for both HVAC and water heating have been developed to address space constraints. Moreover, the utility companies are launching a meter collar technology that provides a connection path between the utility meter and the existing panel⁽²²⁾. The meter collar can be used for connecting photovoltaic systems, electric vehicles, and other distributed energy resources such as home batteries. Additionally, it can be utilized to create a circuit for heat pumps used in water heating and space heating applications. Both SCE and PG&E are evaluating this meter collar under various programs, including pilot programs. As such, this meter collar presents a viable solution to the market barrier posed by panel upgrades. For further discussion on technology readiness, please refer to Response to General Comment 4.

Staff acknowledges the higher incremental costs when replacing only a furnace without simultaneous replacement of a cooling system and that cooling systems are less common in high-altitude regions. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Response to Comment 27-3:

Dual fuel systems were discussed in previous rulemakings for Rule 1111 but did not gain support from some manufacturers. Space heating/cooling dual fuel system is composed of an electric heat pump that provides heating and cooling paired with a gas furnace that provides heat below a certain external temperature threshold. While some manufacturers supported the dual fuel system, some other manufacturers opposed it as this allowance would undercut the development and commercialization of lower emission technologies which were zero-emission technologies.

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use, which also includes dual fuel units.

Staff understands it is essential for electrical generation and local grid infrastructure to meet demand. Please see Response to General Comment 3 for further discussion on the electric grid.

Due to the South Coast AQMD being in extreme nonattainment for various federal ozone standards, aggressive control measures targeting NOx emission reductions are the priority. PAR 1111 and PAR 1121 are technology and fuel neutral and are focused on achieving the maximum NOx emission reductions possible. Should zero-NOx natural gas technologies

⁽²²⁾ <https://connectder.com/>

be made available in the South Coast AQMD, such as natural gas fuel cell water heaters, consumers would have the opportunity to choose between zero-NOx emitting natural gas and other zero-emission appliances. With the current rule proposal and based on space and water heating appliances currently available in the South Coast AQMD, customers will have the choice to purchase NOx emitting natural gas units or other zero-NOx emission appliances.

Response to Comment 27-4:

With the new rule concept, the revised PAR 1111 and PAR 1121 have removed previously proposed alternative compliance options and the associated annual report requirement. Staff recognizes the need for a compliance tool to differentiate the units allowed to be installed in new and existing buildings. Labeling requirements are common for area source rules and are important tools for enforcement, especially when some units distributed to the market can only be installed under certain conditions. Manufacturers may elect to send a sticker or label to distributors to be applied upon unit installation.

Manufacturers that elect to comply by the new ZEM alternative compliance option will not be subject to labeling requirement for selling NOx-emitting natural gas-fired units.

Response to Comment 27-5:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Please refer to Response to General Comment 7 for discussion on emergency replacements.

Response to Comment 27-6:

Minimal or no electrical work is required for installing 120V plug-in heat pump water heaters. They are available in dedicated and shared circuit models and they require a 120V/15A outlet, which is the most common outlet in all homes, including older homes. It is also common for homes to have 120V/15A outlets next to the water heater or in the area with appliances. Chapter 2 provides more discussion on 120V heat pump water heaters which are commercially available in big box shops such as Home Depot and Lowes.^{(23),(24)} Manufacturers are also developing 120V split system heat pump water heaters to further alleviate the concern on electrical outlets and space constraints.

Condensate removal is required for high efficiency units, including high efficiency gas units. For example, all condensing (high efficiency) furnaces need condensate removal lines. Manufacturers expressed to staff that CEC requirements are driving the adoption of high-efficiency furnaces.

⁽²³⁾ <https://www.homedepot.com/b/Plumbing-Water-Heaters-Tank-Water-Heaters-Heat-Pump-Water-Heaters/N-5yc1vZckra>

⁽²⁴⁾ <https://www.lowes.com/pl/water-heaters/hybrid-heat-pump-technology/120-volt/4294859099-4294400540-4294639144?msocid=06cbfa22943064fb081eeea095de6582>

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff will continue to work with stakeholders after the rule adoption on implementation and market transformation to zero-emission appliances. Staff is also committed to conducting technology check-in(s) to reassess the technologies and cost.

Response to Comment 27-7:

Regarding the label wording that commenter mentioned), staff has made revisions to address the concern.

In addition, by the new rule concept, manufacturers that elect to comply by the new manufacturer alternative compliance option will not be subject to labeling requirement for selling NOx-emitting natural gas-fired units.

Response to Comment 27-8

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For more information regarding emergency replacements, please refer to Response to General Comment 7.

Response to Comment 27-9:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

The revised PAR 1111 and PAR 1121 no longer include the report requirement mentioned in the comment. By the new rule concept manufacturers electing to comply by the new manufacturer alternative compliance option will report the sales of NOx-emitting natural gas units and Zero-NOx emission units after each compliance year to demonstrate the compliance target.

COMMENT LETTER #28: SAN GABRIEL VALLEY ECONOMIC PARTNERSHIP (SGVEP)

Comment Letter #28



October 17, 2024

Hon. Vanessa Delgado, Chair
South Coast Air Quality Management District Governing Board
21865 Copley Dr.
Diamond Bar, CA 91765

RE: PROPOSED AMENDED RULE 1111 & 1121

Dear Chair Delgado and Governing Board members,

On behalf of the San Gabriel Valley Economic Partnership (Partnership), I write to respectfully urge for more caution and ask for you as a board to defer consideration of Proposed Amended Rules 1111 and 1121 to allow South Coast Air Quality Management District (SCAQMD or District) Governing Board members and staff to receive additional information, data, input and dialogue from the numerous stakeholders potentially impacted by this proposed rule.

The Partnership is a regional non-profit organization committed to advancing the economic vitality of the San Gabriel Valley, representing small businesses, large industrial corporations, healthcare organizations, colleges and universities, local governments, non-profit organizations, and all other regional stakeholders. The Partnership supports efforts and policies that aim to provide clean air and water to our communities. We have significant concerns, however, regarding the scale of the mechanical, electrical, plumbing and other requirements necessary to comply with retrofits of existing commercial and multifamily residential properties, as well as the accuracy of the District's estimates of the utility costs associated with upgraded service, and the dramatic cost implications to hundreds of thousands of families who rent their homes.

Examine the cost impacts to homes and businesses that would require electrical upgrades. For many homes, installing an electric water heater would necessitate an upgrade to the electrical panel. Electric water heaters typically require more power, often running on a 240-volt circuit, which many older homes are not equipped to handle. Upgrading an electrical panel can cost anywhere from \$1,000 to \$3,000 or more, depending on the complexity of the work and the region. This is a substantial, unexpected expense for homeowners, particularly in low- to middle-income households, who may already be struggling with rising energy costs. We urge the District to examine the cost implications to homes requiring various levels of upgrades.

28-1

Consult with Investor and Municipal Electric Utilities to ensure their systems can handle the increased load. Electric water heaters would add considerable load to the already stressed electrical grid. During periods of peak demand, especially in colder months or during heatwaves, utilities often struggle to meet energy needs. Adding millions of electric water heaters to the grid could exacerbate this problem. To accommodate the surge in demand from millions of homes switching to electric water heaters, significant upgrades to the electrical grid would be required. These upgrades—such as increasing the capacity of transmission lines, substations, and local distribution systems—come at a huge financial cost, which would likely be passed down to consumers in the form of higher utility bills. We urge the District to work with electric utilities to understand the impacts such a policy could have from an implementation perspective but also to a cost one.

28-2

Provide offramps in cases of high cost or delays in installation. If a policy mandating electric water heaters is implemented, it is crucial to include offramps that allow for exceptions in cases where electric water heaters are either cost-prohibitive or installation cannot be done in a timely manner for consumers.

- *Cost prohibitive:* As mentioned earlier, for many homes installing an electric water heater requires significant electrical upgrades. These upgrades can cost thousands of dollars—far more than the cost of a new water heater itself. For homeowners facing these substantial costs, it would be unreasonable to require the installation of an electric water heater. Allowing them to opt for a gas water heater instead would provide a practical, cost-effective alternative. Without such an offramp, these homeowners could face severe financial strain or be forced to delay replacing an essential household appliance, which could affect their quality of life.
- *Delay in Installation:* Another practical concern is unreasonable delays in installing an electrical water heater due to extended installation time, especially if it involves complex electrical upgrades. Some of the required upgrades may not be in the control of the customer and rely upon upgrades to their local electrical system. Homes in underserved areas might face even longer wait times due to a shortage of qualified electricians or contractors. In these situations, homeowners should not be forced to wait weeks or months without hot water simply because an electric heater installation is delayed. Providing an offramp for the use of gas water heaters in cases where installation timelines are extended ensures that customers can maintain a functional home without unnecessary inconvenience.

28-3

The Partnership appreciates the time, work, and dedication the SCAQMD Governing Board and staff have put into ensuring that our region's air quality is clean and safe. In this instance, it is important that we respectfully urge the SCAQMD Governing Board to delay consideration/adoption of PAR 1111/1121 to allow District staff to continue to work with owners of a variety of commercial and incorporate the information gleaned from these visits and other sources in order to prepare a proposed rule and socioeconomic impact study that incorporates all available information. Thank you.



Luis Portillo
President & CEO

Response to Comment Letter #28*Response to Comment 28-1:*

Staff appreciates the comment on PAR 1111 and PAR 1121.

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Please refer to Response to General Comment 2 for further discussion on cost.

Response to Comment 28-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

PAR 1111 and PAR 1121 are technology and fuel neutral but have identified all-electric heat pumps as the promising technology in the current market as discussed in Chapter 2. Conventional electric resistance water heaters can achieve zero-emission but are not preferred considering the low efficiency and higher power demand. Modern heat pumps can reach 300 to 400 percent efficiency or even higher which mitigates some challenges for grid reliability.

The topic of grid infrastructure was brought up during the public process, and staff has been in contact with utilities and other state organizations on grid reliability topics. Staff is continuing to be in communication with investor-owned utilities, municipal utilities, and community choice aggregators. Through conversations with utilities, staff found there are existing efforts on the utility and state level to address future electricity demand and reliability, and some of these points are described in Chapter 2 of this staff report. For more information, please refer to Response to General Comment 3 on grid reliability.

Response to Comment 28-3:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff analysis has considered the required electrical upgrades in the costs. Incentive programs like South Coast AQMD's Go Zero and the state's TECH Clean California, will help lower the upfront cost of zero-emission appliances.

Further, Chapter 2 provides discussion on new and emerging technologies that are less likely to require a panel upgrade. Some examples are 120V plug-in heat pump water heaters, portable heat pumps for space heating/cooling, and multi-function heat pumps for water heating and space heating/cooling.

Please see Response to General Comment 2 for further discussion on cost, Response to General Comment 4 for further discussion on technology readiness, and Response to General Comment 7 for further discussion on emergency replacements.

COMMENT LETTER #29: CARRIER**Comment Letter #29****Jason Thomas**

Director Regulatory Affairs

HVAC North America

jason.m.thomas@carrier.com

October 17, 2024

Mr. Peter Campbell
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Submission via email: pcampbell@aqmd.gov

RE: Carrier Comments on Preliminary Draft PAR 1111

Dear Mr. Campbell,

Carrier is a global leader in intelligent climate and energy solutions. With more than a century of expertise, we drive innovation while pursuing our customers first and helping protect our planet. Our range of products include residential and commercial heating, ventilation, and air conditioning (HVAC) products, transport refrigeration products, chillers, and HVAC building services.

In the proposed rule, (d)(2) states *"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."* If our understanding is correct, new buildings that are started in 2025 but completed in 2026 would require zero NOx equipment. The timeline of equipment specification, purchase, manufacturing, installation, and building completion creates significant compliance challenges. Builders, equipment manufacturers, distributors, and contractors may be unable to change course in a short timeline, which will lead to significant delays in building projects. Additionally, restricting installation for existing buildings in January 1, 2028 will likely create issues in the market as well. Manufacturers, distributors, and contractors have uncertainty when predicting demand. This will inherently lead to misalignment in supply and demand. Carrier requests South Coast Air Quality Management District to allow the sale of product built prior to the compliance date to be sold and installed for both new and existing buildings.

29-1

30 S. Meridian Street, Suite 500, Indianapolis, Indiana 46204

Thank you for consideration of these suggestions. If you have questions or would like to have a deeper conversation on HVAC supply chain dynamics, please email to coordinate time for discussion.

Sincerely,



Jason Thomas
Director, Regulatory Affairs
Carrier

Response to Comment Letter #29

Response to Comment 29-1:

Staff appreciates the comment on PAR 1111. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff recommends maintaining the zero-emission requirement upon installation in new buildings but is proposing to exempt furnaces from meeting the zero-emission limit if the unit is installed into a new building with a building permit approved for the building construction by the appropriate enforcement agency prior to the date of rule adoption.

A compliance schedule based on installation date aligns with previous amendments to Rules 1111 and Rule 1121, as well as the current version of Rule 1146.2. Future effective dates will provide time for the supply chain to have adequate compliant inventories by the effective dates and to address any stranded asset concerns.

COMMENT LETTER #30: ALISE DAVIS**Comment Letter #30****Peter Campbell**

From: Alise Davis <alh.davis99@gmail.com>
Sent: Thursday, October 17, 2024 1:22 PM
To: Curt Hagman (GBM); supervisor.rowe@bos.sbcounty.gov; Peter Campbell
Subject: [EXTERNAL] SCAQMD proposed changeover to electric appliances

October 17, 2024

Dear Supervisor Curt Hagman, Supervisor Dawn Rowe, and Mr Peter Campbell,

I have been a resident of the Lake Arrowhead area since 1978. I am a retired teacher from The Rim of the World School District and I am on a fixed income.

I am one of Southern California's mountain residents severely affected by the South Coast Air Quality Management's planned change mandating electric heat and water heating appliances. In our area, electrical shut downs often occur. If I don't have a gas water heater, **I could freeze to death in winter as some people have during harsh isolating storms.**

30-1

It is not right that an unelected group that does not understand our needs and does not represent the mountain residents should arbitrarily impose unrealistic, exorbitantly priced changes to the homes we have worked so hard to purchase and keep.

I am very concerned about the SCAQMD's proposed plans, and I beg you to understand how devastating and life-threatening they will be for me and other retired residents of the California mountains.

Sincerely,

Alise L.H. Davis

Response to Comment Letter #30*Response to Comment 30-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff understands that the mountain communities are located in a colder climate and that heating in wintertime is essential. Please see Response to General Comment 8 for further discussion about zero-emission technologies adopted in cold climate regions.

Staff appreciates the comment on the proposed amended rules and recognizes the importance of electric grid reliability for electric units, but also for NOx-emitting natural gas units, which often require electricity to operate. The CEC, CPUC, and CARB are working to coordinate across efforts, identify issues not covered by ongoing efforts, and assess needed actions to better align the energy system with the state's climate targets.

Please see Response to General Comment 3 for further discussion on electric grid reliability.

Staff recognizes the need to monitor the cost and market for zero-emission technologies and will conduct a status update/technology check-in and report back to the Stationary Source Committee.

COMMENT LETTER #31: CYPRESS LAND COMPANY

Comment Letter #31



Mr. Peter Campbell
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Email: pcampbell@aqmd.gov

Re: Comments on PAR 1111 and PAR 1121

Dear Mr. Campbell:

Cypress Land Company appreciates the opportunity to provide comments on the South Coast Air Quality Management District proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces (PAR 1111) and Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural Gas-Fired Water Heaters (PAR 1121).

Our company owns and manages 37 industrial buildings throughout Southern California. We are committed to reducing our carbon footprint while meeting the needs of our tenants. Installation of energy efficient lighting controls, compliance with outdoor water conservation requirements, and other energy-reducing measures can be found throughout our properties.

We are concerned that the proposed rules do not take into account issues facing commercial and industrial real estate property owners and our tenants. For example, replacing a natural gas HVAC system or water heater with an electric unit at one of our properties would add significant costs to run power infrastructure to the equipment. This would be a burden on us as a landlord and on our tenants.

31-1

We would respectfully request that the District revise PAR 1111 and PAR 1121 to provide commercial and industrial property owners with greater flexibility and time to deal with already existing leases set to renew by the end of 2026 or until such time that our local utility provider informs us that they can accommodate any new electrical hook-up which would be required due to the installation of a new system in order to avoid any additional delays for occupancy of our properties.

31-2

Thank you for taking into consideration our concerns. Please contact Mathew Doss, Chief Operations Officer at Cypress Land Company, with any questions.

Sincerely,

Mathew Doss
Chief Operations Officer
Cypress Land Company
310.208.8077 x 114
Matthew@cypressland.com

10940 Wilshire Blvd., Suite 1900 • Los Angeles, California 90024 • (310) 208-8077 • FAX (310) 208-8127

Response to Comment Letter #31*Response to Comment 31-1:*

Staff appreciates the comment on PAR 1111 and PAR 1121. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.


The new rule concept also revised the proposed applicability and will not expand to larger size spacing heating units typically used at commercial facilities. The revised PAR 1111 and PAR 1121 are applicable to residential-sized units, minimizing any potential impact to commercial properties.

Please see Response to General Comment 2 for further discussion on cost.

Response to Comment 31-2:

Staff appreciates your comment. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

COMMENT LETTER #32: NAIOP SoCAL



NAIOP
COMMERCIAL REAL ESTATE
DEVELOPMENT ASSOCIATION
SoCAL CHAPTER

Comment Letter #32

October 17, 2024

Mr. Peter Campbell
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Email: pcampbell@aqmd.gov

Re: Comments on PAR 1111 and PAR 1121

Dear Mr. Campbell,

NAIOP SoCal appreciates the opportunity to provide comments on Proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired Furnaces (PAR 1111) and Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural-Gas-Fired Water Heaters (PAR 1121).

With nearly 1,300 Members, NAIOP SoCal is the leading nonprofit organization for commercial property owners, developers, owners, investors, brokers, general contractors, architects, engineers and finance professionals in the industrial, office, retail, and mixed-use multifamily real estate sectors across the counties of Los Angeles and Orange.

Our Members are committed to reducing their carbon footprint while meeting the needs of our tenants. Installation of solar energy panels, energy efficient lighting controls, outdoor water conservation devices and other energy-reducing measures can be found throughout the region on commercial and industrial buildings. And, due to updates to California's building codes, commercial and industrial properties are much more energy efficient than similar properties built several decades ago.

NAIOP SoCal is concerned that the proposed rules do not consider issues facing commercial and industrial real estate property owners and our tenants. The fact that commercial property owners are not considered an affected industry by the District staff highlights this concern. The Preliminary Draft Staff Report for PAR 1111 and PAR 1121 states that the proposed regulations would affect "manufacturers, distributors, retailers, resellers, and installers" of natural gas-fired furnaces and water heaters. We believe that commercial and industrial property owners and their tenants should also be considered an affected industry since they will eventually shoulder the costs of complying with the regulations.

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32-1

32-1 In addition, we are concerned that the socioeconomic analysis to be conducted by District staff will be flawed and will not represent an accurate picture of the costs to comply with the proposed regulations, since our industry is not considered an affected industry and impacts to our industry may not have been included in the analysis.

For example, office buildings built in the 1970s were built without central heating and air. Property owners would be faced with large expenses to retrofit such buildings in order to comply with PAR 1111 and PAR 1121.

Another example will be the expenses required to retrofit more commonly installed "split systems." These types of systems usually have one portion of its unit outside and the other mounted on the inside. An increase in capital expenses on buildings with existing AC will be the replacement of these split systems, since the building owner will not be allowed to replace just the heater if the heater fails. They will be required to replace both sides of the "split system" – the piece mounted indoors and the piece mounted outdoors.

Who is expected to pay for the new furnaces and water heaters? Who is expected to work with the utilities to make sure new electrical hook-ups can be made in a timely manner for new tenants to occupy a property? The likely answer: Commercial property owners. We urge the District to incorporate the costs and potential delays in occupancy for new tenants as part of the accompanying socioeconomic analysis.

32-2 Finally, NAIOP SoCal is concerned that the proposed rules assume that electrical utility providers will be able to meet the increased demand for electricity, which will be created by this shift from natural gas equipment to electrical equipment. NAIOP SoCal is concerned that the current electrical infrastructure system does not have the capacity to meet the additional demand that will be created on the system due to the proposed rule.

32-3 We urge the District to revise PAR 1111 and PAR 1121 to provide commercial property owners greater flexibility and time to deal with already existing leases set to renew by the end of 2026, or until such time that our local utility provider informs property owners concerned about occupancy delays that the utilities can accommodate new electrical hook-ups, which would be required due to the installation of a new system.

We welcome the opportunity to meet with the District to further discuss our concerns with PAR 1111 and PAR 1121 and provide examples as to how the proposed rules would impact our Members. For further information, please contact Mihran Toumajian, mtoumajan@naiopsocal.org or 818-817-1714.

Sincerely,



Timothy Jemal
CEO
NAIOP SoCal

Response to Comment Letter #32*Response to Comment 32-1*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. The new rule concept also revised the proposed applicability; the revised PAR 1111 and PAR 1121 are applicable to residential-sized units, minimizing any potential impact to commercial or industrial facilities.

PAR 1111 and PAR 1121 are applicable to manufacturers, distributors, retailers, resellers, and installers, which means they are subject to enforcement for any violation of the rules. The Socioeconomic Impact Assessment specifically considers how costs or savings will be passed on from these affected parties to commercial tenants and households. Specifically, the Socioeconomic Impact Assessment includes the incremental costs to purchase zero-emission HVAC and water heating units, retrofit existing buildings to accommodate these units, make necessary electric panel upgrades, and the energy costs related to the transition to electric heating. These costs are used to evaluate the potential socioeconomic impacts of both directly and indirectly impacted entities including consumers. Please also refer to Response to General Comment 6.

Staff's BARCT analysis consists of technologies and the cost-effective calculation is based on the costs of installing zero-emission technologies. The Socioeconomic Impact Assessment identifies and evaluates the potential socioeconomic impacts of a proposed development on the lives and circumstances of people, their families and their communities. Specifically, the analysis has considered the range of probable costs or savings, impacts to small businesses, and impact on employment and the regional economy. Staff also conducted a sensitivity analysis, the base case that included fuel-switching savings and an analysis that assumed no fuel-switching savings.

Chapter 2 provides discussion on zero-emission technologies. There are many new and emerging technologies that are viable for multifamily buildings to suit various consumer needs, and some are less likely to require a panel upgrade and construction. For example, while a mini split is an ideal option for many, the property owner may choose a 120V portable heat pump for a small rental apartment to avoid the higher cost.

Response to Comment 32-2

Staff recognizes the challenge of grid reliability and is in contact with local utilities as well as state planning agencies like the CEC and CPUC. Please refer to Response to General Comment 3 for further discussion on the electric grid.

Response to Comment 32-3

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Please see Response to General Comment 1 and Response to General Comment 3 for further discussion.

COMMENT LETTER #33: RHEEM MANUFACTURING COMPANY

Comment Letter #33

October 17, 2024

Via Email: pcampbell@aqmd.gov, jvinh@aqmd.gov

Mr. Peter Campbell
Ms. Jennifer Vinh
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765

RE: Proposed Amended Rule 1111 Reduction of NOx Emissions From Natural Gas-Fired Furnaces Proposed and Amended Rule 1121 – Reduction of NOx Emissions From Small Natural Gas-Fired Water Heaters

Dear Mr. Campbell and Ms. Vinh,

Rheem Manufacturing Company (Rheem) appreciates the opportunity to submit the following comments in response to the South Coast Air Quality Management District's (SCAQMD) Proposed Amended Rule 1111 Reduction of NOx Emissions from Natural Gas-Fired Furnaces Proposed and Amended Rule 1121 – Reduction of NOx Emissions from Small Natural Gas-Fired Water Heaters (Proposed Rules).

Rheem is an industry leader in total heating, cooling, refrigeration and water heating solutions and one of the few global brands with product offerings covering residential and commercial heating, cooling, conventional and hybrid storage water heaters (HPWH), tankless water heaters, solar water heating systems, pool and spa heaters, commercial boilers, residential hydronic and geothermal systems, commercial refrigeration products, indoor air quality accessories, and replacement parts for all categories. Rheem is headquartered in Atlanta, Georgia, and has U.S. based manufacturing facilities in Alabama, Arkansas, California, Connecticut, and North Carolina. The company also operates distribution facilities throughout the US, Canada, and many other countries around the world. Rheem manufactures commercial boilers and pool heating equipment at the Raypak facility in Oxnard, CA, which are affected by SCAQMD rules.

Rheem appreciates SCAQMD staff's efforts to update the subject Rules and specifically to include and consider stakeholder input. Rheem would like to express, and reiterate our concerns around the compliance dates, the expanded scope for commercial furnaces, and the new labeling and reporting requirements.



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Purpose and Applicability

Under the current and proposed rules 1111 and 1121, propane gas-fired furnaces and water heaters are not covered. Rheem understands that a field-convertible natural/propane gas-fired product would be covered, tested, and certified under the natural gas-fired configuration.

Rheem notes that mobile (manufactured) home furnaces and water heaters are typically field-convertible natural/propane gas-fired products, with unique design features¹ specifically required for mobile installation, and are not approved for non-mobile home applications. Given this practice, Rheem is not concerned about circumvention of the rule for non-mobile home product propane to natural gas conversions.

Definitions

Rheem recommends the “mobile home” definitions align with the California Energy Commission’s (CEC) definition² of “mobile home” and Federal Department of Housing and Urban Development’s (HUD) definition³ of “manufactured home” as much as possible. However, it should be recognized that ANSI Z21.10.1, the safety standard required for the water heaters covered by Rule 1121, has a slightly different definition and uses the term “manufactured home (mobile home)” to capture the different types of structures while excluding recreational vehicles. This standard prescriptively requires the term “manufactured home (mobile home)” to be used for certain markings. For consistency, Rheem recommends this term be used interchangeably with “Mobile Home” in this rule for product labeling.

33-1

Rheem recommends the following definition:

MOBILE HOME means a structure, transportable in one or more sections, and which is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities, and includes the plumbing, heating, air-conditioning, and electrical systems contained in the structure.

Rheem recommends the following minor modification to the “new building” definition as the 2025 Title 24 will publish around the same time as the Governing Board meeting currently scheduled for December.

“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

¹ Direct inlet air venting through the floor and exhaust venting through the ceiling.

² CEC definition of “mobile home”:

[https://govt.westlaw.com/calregs/Document/11F4EF800995D11EC8315E3DE9BEF651C?viewType=FullText&origin=atContext=documenttoc&transitionType=CategoryPageItem&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/Document/11F4EF800995D11EC8315E3DE9BEF651C?viewType=FullText&origin=atContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default))

³ HUD definition of “manufactured home”: <https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280/subpart-A/section-3280.2>.



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California Building Code Part 2 Chapter 3 for occupancy classification and use, or any subsequent version of the Building Code."

33-1

Scope

Rheem is concerned about the broad scope of Rule 1111 and the inclusion of commercial furnaces 175,000 to 2 million Btu/h. Rheem recognizes that a very small subset of products included already have zero-NOx replacement solutions and that with sufficient development time and incentives this offering will grow. However, there is also a significant portion of the products and applications covered by the regulation that cannot easily or cost-effectively be transitioned within the proposed timeframe, especially in emergency replacement situations. Large space heating installations, which have not historically been subject to ultra-low NOx rules, will require a broad portfolio of heat pumps with cold climate capability that may not be ready to meet the proposed effective dates and could result in significant cost impacts to consumers and businesses where replacements or retrofit products are not available.

33-2

Requirements

The 2025 version of California's Title 24 essentially requires electric heat pump space and water heating in new construction. This is done through "electric ready" construction requirements⁴ and energy modelling with an electric heat pump space and water heater baseline. For water heating, all new construction will have to have all the building components for effective electric heat pump water heater installation and operation, which removes installation advantages for gas-fired and electric resistance water heaters. By the proposed new construction compliance date, any installation using an electric resistance or gas-fired water heater will need to make other efficiency improvements to comply with Title 24. Given the number of constraints the builder must navigate to install a non-electric heat pump water heater, Rheem expects very few new constructions to use a gas-fired water heater. Within rule 1121, Rheem recommends that the new construction non-mobile home water heater date be removed and that the rule only retain the January 1, 2027, date for new construction and existing buildings. This change would simplify the requirements for most residential structures within South Coast's jurisdiction, minimize distribution complications, and ease labeling confusion. Further, this change would align with the Bay Area AQMD's zero NOx date for all installations (*i.e.*, January 1, 2027).

33-3

Rheem recommends that products required for the alternate compliance options be explicitly referred to within section (d)(2) of rule 1121. These products will need to be sold into distribution to serve the needs of the rental market. Rheem recommends the following language, "On and after the applicable Table 2 compliance dates, no person or entity shall install a Water Heater for use in the South Coast AQMD that exceeds the Table 2 NOx emission limits, unless intended for use in an alternate compliance option as described in (f) or meeting exemptions in (h)." Also, it should be recognized that certain retailers and wholesalers within

⁴ For water heating, 240V/30A wiring, drain, and minimum room volume to install a large storage water heater.



INTEGRATED HOME COMFORT



the South Coast jurisdiction could offer for sale water heaters specifically for installation outside the jurisdiction not subject to this rule.

33-3

Rheem strongly encourages Staff to implement a compliance regime for rules 1111 and 1121 based on date of equipment manufacture, rather than installation, to make planning and inventory management straightforward for manufacturers, distributors, and contractors.

Certification

The proposed 1121 only requires certification to section (d)(1), which includes the Table 1 emission limits (e.g., ultra-low NOx) and not the Table 2 emission limits (e.g., zero NOx). Therefore, natural gas-fired water heaters that are compliant with the Table 2 emission limits do not need to be certified. Rheem supports this as the current test method cannot be used to confirm a water heater has zero emissions due to measurement accuracy, equipment tolerances and no correction for emissions that are already present in the ambient air.

33-4

Exemptions

Rheem recommends that Staff reconsider its exclusion of dual-fuel systems as a compliance pathway for the requirements in rule 1111. Dual-fuel systems provide an ideal pathway to lower NOx emissions and a way to reach an average NOx emissions of less than 14ng/J. Not only would a dual-fuel pathway limit NOx emissions but it also would help bridge the cost and availability gaps that exist in switching to heat pumps with cold climate capability.

33-5

SCAQMD should include a definition of dual-fuel systems in the proposed rule with control requirements to ensure the weighted average NOx emissions are below the requirements. Dual-fuel systems also should be considered as an option in the environmental analysis, especially given the impact to low- and medium-income consumers.

Alternate Compliance Options

Rheem recommends a minor clarification to section (f)(1) of rule 1121, "If a Water Heater an Existing Building requires a short-term replacement due to sudden Water Heater failure [...]." The building or consumer needs a replacement water heater, not the existing water heater.

The proposed section (f) does not require rental units to be certified. Rheem understands this is intended as South Coast may not maintain their existing database.

33-6

Rheem recommends that the section (f)(1) alternate compliance option extend the rental period to 24 months. The "construction" option in (f)(2) could arguably be applied for most "electrical upgrade" installations due to broad provisions and uncertain enforcement around expanding the space or relocating equipment. Further, Rheem is concerned that there are several issues the consumer or installer will need to handle for each of these installations, including but not limited to, permitting and performing at least 2 installations, and applying for



INTEGRATED HOME COMFORT



rebates/incentives. Finally, as up to 5 million homes will need to be upgraded, Rheem is concerned about the availability of electricians to perform the electrical upgrades.

33-6

Emergency Replacements

Staff should consider and recognize that there are multiple applications and installation challenges that need to be overcome and addressed prior to the Rule 1111 compliance dates. A key installation challenge is emergency replacement where the electric service, equipment footprint, or product availability prevents immediate compliance and affordability. The proposed alternate compliance option to obtain a rental furnace for no more than six months is an expensive and impractical option, particularly for commercial applications where equipment is removed and installed by crane and where footprint modifications are costly and require advanced planning. Staff should consider a mitigation fee or other exemption pathway to prevent dire outcomes for businesses.

33-7

Labeling

Consistent with the prior recommendation to align the new construction and existing building compliance date for non-mobile home water heaters, Rheem recommends that South Coast remove or revise the labeling requirements in rules 1111 and 1121. With natural gas-fired water heaters and furnaces still expected to be distributed to other air districts after January 1, 2027, and for rental purposes, having label language that identifies specific prohibitions in South Coast and Bay Area could be helpful, but should not be prescribed in this rule. For example, manufacturers may choose to denote "Not for installation in the South Coast and Bay Area AQMD(s) after January 1, 2027" for products distributed in California.

Rheem recommends a mobile home specific label be applied to mobile home products and recommends the following: "Not for installation in South Coast AQMD after January 1, 2026, for newly constructed manufactured (mobile) homes or after January 1, 2030, for existing manufactured (mobile) homes. Excludes master-metered mobile home parks."

33-8

Finally, Rheem requests South Coast clarify that the rental label is to be applied by the rental company and, when applied, should not cover any other label on the product.

Reporting

Rheem does not support the reporting requirements at section (g)(4). Manufacturers of furnaces and water heaters, who primarily serve the market through wholesalers and distributors, have limited knowledge and data on the exact location where their products are installed. Products shipped to distributors or retailers within South Coast may not be installed in the South Coast jurisdiction, while products shipped outside, but near, South Coast could easily be brought in without the manufacturer's knowledge. Further, rental units, for use when the alternate compliance options of section (f) are needed, will need to be available within the South Coast jurisdiction for installers to purchase. Reporting requirements are better left to



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point-of-sale entities, therefore, Rheem recommends this section be removed or amended to address point-of-sale entities.

33-8

Conclusion

Rheem remains committed to bringing sustainable water heating and HVAC solutions to the market to achieve decarbonization goals and to provide cost-effective heating and cooling solutions for new construction and replacement applications serving a broad cross-section of residents, homeowners, and businesses.

Thank you for the opportunity to provide these comments. If there are questions, please contact me directly.

Sincerely,

James Phillips
Senior Regulatory Affairs Manager
Rheem Manufacturing Company

cc: Karen Meyers, Allison Skidd, Joe Boros



INTEGRATED HOME COMFORT

Response to Comment Letter #33*Response to Comment 33-1*

Staff appreciates the comments. Rule 1111 already contains language requiring labels for furnaces intended to be used for propane only. Staff has aligned the definitions for mobile home and new building for the most part as recommended.

Response to Comment 33-2

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

The new rule concept also revised the proposed applicability for PAR 1111 and will not expand to larger size spacing heating units typically used in commercial facilities. Furnaces with rated heat input capacity in the range of 175,000 to 2,000,000 Btu/hr will be addressed in the future rulemaking.

Response to Comment 33-3

Staff understands that while the prescriptive compliance option for Title 24 would require heat pumps, the performance compliance option would still allow non-zero NOx equipment to be installed. In addition to the new rule concept for manufacturer alternative compliance option, staff has revised new building compliance date from 2026 to 2027 under paragraph (d)(2), which aligns with commenter's suggestion. Labeling requirement is a common compliance tool used in area sources rules such as PAR 1111 and PAR 1121. Please see Response to Appendix C Comment 27-4 for more on labeling requirement. With the proposed new rule concept, consumers may opt to gas units if installing zero-NOx emission units would be challenging for emergency replacements. Short-term replacement with rental equipment is no longer needed and thus removed from the proposed amended rules.

PAR 1111 and PAR 1121 apply to the manufacturers, distributors, retailers, resellers, and installers for installations in the South Coast AQMD jurisdiction. Any installation outside of the region by retailers and wholesalers will not be subject to those rules. Staff held discussions on this concern with stakeholders in previous rulemakings and believes there are viable ways to identify the units for shipment to other regions at the distribution level.

Response to Comment 33-4

Staff agrees with Rheem's understanding that only gas units complying with Table 1 NOx standards need to be certified.

Response to Comment 33-5

For a discussion on dual fuel systems, please see Response to Appendix C Comment 27-3.

Response to Comment 33-6

With the proposed new rule concept, consumers may opt to gas units if installing zero-NOx emission units would be challenging for emergency replacements. Short-term replacement

with rental equipment is no longer needed and thus removed from the proposed amended rules.

Response to Comment 33-7

With the proposed new rule concept, consumers may opt to install NOx-emitting natural gas units if the choice to install zero-NOx emission units is too costly or challenging. Short-term replacement with rental equipment is no longer needed and thus removed from the proposed amended rules.

Please refer to Response to General Comment 7 for discussion on emergency replacements.

Response to Comment 33-8

For a discussion on labeling, please see Response to Comment 27-4. For a discussion on reporting requirements, see Response to Comment 27-8.

COMMENT LETTER #34: KIM HORNBURG

Comment Letter #34

Peter Campbell

From: Kim Hornburg <kjhornburg@gmail.com>
Sent: Thursday, October 17, 2024 2:54 PM
To: Peter Campbell
Subject: [EXTERNAL] Proposal to Amend Rules 1111 and 1121

Dear Mr. Campbell,

My name is Kim Hornburg, residing in Crestline, Ca. As one of the approximately 44,000 residents living year round in the San Bernardino Mountains who relies on gas for day-to-day living - heating, cooking, bathing, laundry, etc. - I am extremely concerned about these issues.

Although we live in temperate Southern California, our climate here is more akin to that of the eastern states during the colder months. This fact does not seem to have been taken into consideration in the studies conducted to support these initiatives.

The conversion of our predominately gas system to an all-electric grid would be prohibitive on numerous levels, and therefore life-threatening for many of us when the temperatures dip to freezing and below. It is my hope that these actions will be reevaluated and adjusted to take our unique circumstances into consideration.

34-1

Yours truly,
K Hornburg

Response to Comment Letter #34*Response to Comment 34-1*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff understands the importance of heating in mountain communities. Please see Response to General Comment 8 for discussion on cold climate heat pumps and Response to General Comment 2 for discussion on cost.

COMMENT LETTER #35: BRADFORD WHITE CORPORATION

Comment Letter #35



October 17, 2024

Heather Farr
 Planning and Rules Manager
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

Re: Proposed Rule 1121

Dear Ms. Farr:

On behalf of Bradford White Corporation (BWC), we would like to thank you for the opportunity to comment on South Coast Air Quality Management District's (SCAQMD) proposed Rule 1121 and working groups.

We have compiled our comments and questions to the proposed rule 1121 (PAR 1121), supporting documents and analysis.

General

BWC has reviewed PAR 1121 and participated in all the working groups lead by SCAQMD staff. We appreciate staff's consideration of our comments and those of other stakeholders being addressed in the working groups, as well as staff's due diligence conducting site visits. We have compiled comments specific to PAR 1121 language below. In addition to these comments, after completing site visits with staff members and participating in the most recent working group meeting on August 15, 2024, BWC has significant concerns with staff's feasibility assessment of replacing water heaters under PAR 1121 and have provided those comments as well.

Rental Equipment

We have concerns regarding the two exceptions outlined in PAR 1121 Section(f), subsection 1&2. We appreciate the creativity by allowing rental units, however we believe this solution may prove to be incredibly complicated and costly for homeowners and renters. TECH Clean California ran a quick start grant for this same idea and, importantly, covered the cost of the temporary water heater and labor through the program. If the District believes rental equipment will enable an affordable transition, then BWC recommends the District develop, administer and fund a program, as opposed to relying on the market to

35-1

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create such an offering. We strongly encourage the District to read the quick start grant report¹ and discuss with project stakeholders.

Product Labeling

Similar to rule 1146.2, the District proposes to require that manufacturers affix labels to equipment to inform purchasers and installers. As stated in our letter dated January 19, 2024 and repeated below, we strongly believe the proposed labeling requirement, as written, is unnecessary to enforce the rule and will add significant burdens to compliance for manufacturers of regulated products:

“SCAQMD currently maintains a qualified products list² for all manufacturer water heating and boiler models certified under Rule 1146.2. To enforce the proposed Zero NOx implementation dates, SCAQMD could simply modify their table to show models that are allowed in new construction and models that are only allowed in existing buildings. Secondly, new construction requires plans to be submitted to building jurisdictions to review, as well as Title 24 energy modeling. SCAQMD can work with building jurisdictions within their territory that review and approve project plans to enforce the use of Zero NOx water heating and boiler equipment. Lastly, new construction projects are permitted and require building inspectors to approve the construction. If a non-compliant product were to be installed, it could ultimately be flagged for removal by the building inspector.”³

Unlike products in scope of Rule 1146.2, the regulated product class of water heaters and boilers under 75,000 Btu/hr input, are rarely if at all used in new construction in California. In 2016, California adopted instantaneous gas water heaters as the standard design for newly constructed homes, and multifamily apartments.⁴ We challenge the district’s assumption that a label is necessary to enforce installations in new construction versus existing buildings for this product class, and respectfully request that the district validate this through developer interviews, permit records and the Energy Commission through Title 24 project submissions.

If the District must continue to use labels as an enforcement mechanism, we suggest that the label language in PAR 1121 be the same as the language adopted in Rule 1146.2 “If Installed in South Coast AQMD: For Installation and Use in Existing Buildings Only”. The suggested language in PAR 1121 “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.” is lengthy. Moreover, the proposed language also implies all labeled equipment is suitable for use in mobile homes. Manufacturers produce water heating products that are specifically designed for and certified to be used safely in a mobile home. The proposed language for the label will create confusion among installers and may result in equipment not certified for use in mobile homes being installed in a mobile home. Despite rule 1146.2 being finalized, the same concern exists for the required label on instantaneous water heater products, for use in mobile homes.

Product Reporting

¹ Barnett Plumbing - Final Report 230810.pdf (apppack-app-tpr-prod-privates3bucket-tvt5lpzx0gqm.s3.amazonaws.com)

² Rule 1146.2 - Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters (aqmd.gov)

³ bradford-white-corporation-comment-letter---01-19-2024.pdf (aqmd.gov)

⁴ Building Energy Efficiency Standards for Residential and Nonresidential Buildings for the 2016 Building Efficiency Standards | California Energy Commission

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BWC does not agree with the newly proposed annual reporting requirements for manufacturers. As a manufacturer, we have limited influence or knowledge as to where a product will ultimately be installed after it is manufactured. Manufacturers have limited capability to control a product's final installation location.

Regarding Section (g), Subsection (4), Paragraph (E) of PAR 1121, we wish to emphasize that the data that District staff is requiring to be provided is information that product manufacturers keep very closely guarded. To that end it is unclear to BWC as to why District staff believes this information is necessary to fulfill their enforcement obligations related to this rule since the current rule has been effectively enforced without it.

35-2

We believe District staff should clarify that manufacturers are permitted to work through representative trade associations to provide this information in an aggregated format. Additionally, we strongly urge District staff to add language to this paragraph of PAR 1121 that clarifies that the District will treat such data as Confidential Business Information (CBI) that will not be shared by the District with any third parties. Apart from clarifying the allowance of this common practice, such language would also provide assurances to manufacturers that they are not being compelled to directly or indirectly disclose CBI, specific to their organization, that other parties would not otherwise have access.

If reporting is to be required, we ask that the District use the manufacture date of equipment, consistent with how other regulatory bodies implement such requirements, including the Bay Area Air Quality Management District⁵, and not the date of sale or installation.

Feasibility Analysis

On August 15, 2024, staff presented their findings from conducting site visits and analyzing different installation scenarios. The presentation focused on 120-volt Heat Pump Water Heaters and suggested that these products were a feasible alternative to natural gas in every scenario evaluated. We disagree with staff's conclusion that a 120-volt product is comparable in hot water utility to a commonly seen ultra-low NOx 40-gallon atmospheric vent storage water heater. We have provided a product comparison showing that end users access to hot water would be reduced by over 50%.

35-3

| | URG140T6N ⁶ | RE2H50S10-CON ⁷ | PROPH65 T0 RH120-M ⁸ | HPTV-66 ⁹ |
|-------------------------------|------------------------|----------------------------|---------------------------------|-------------------------|
| Fuel | Natural Gas | Heat Pump Electric 240v | Heat Pump Electric 120v | Heat Pump Electric 120v |
| Rated Storage Volume (US Gal) | 38 | 45 | 59 | 68 |
| First Hour Rating | 64 | 65 | 63 | 76 |
| Usage Pattern | Medium | Medium | Medium | High |
| Recovery @ 90°F Rise (US Gal) | 37 | 24 | Not Listed | Not Listed |

⁵ [20230315_rg0906-pdf.pdf \(baaqmd.gov\)](https://www.baaqmd.gov/20230315_rg0906-pdf.pdf)

⁶ [residential_gas_ultra_low_nox_atmospheric_vent_naeca_compliant_specsheets_1113.pdf](#)

⁷ [residential_heat_pump_aerotherm_re_series_con_specsheets_1901.pdf](#)

⁸ [RH-PIHP-SC-REV5_Plus-without-Leakguard-0627B.pdf \(rheem.com\)](#)

⁹ [ARXSS00123.pdf \(hotwater.com\)](#)

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| | | | | |
|-------------------------------|------------------------|----------------------------|------------------------------------|----------------------|
| | URG140T6N ⁶ | RE2H50S10-CON ⁷ | PROPH65 T0 RH120-M ⁸ | HPTV-66 ⁹ |
| Recovery @ 60°F Rise (US Gal) | Not Listed | Not Listed | 12 | Not Listed |

While it is seemingly feasible to select a HPWH product, either 240-volt or 120-volt, based on a comparable first hour rating, this selection overlooks an important factor, which is the ability for the heater to recover hot water. The table shows a comparison of four products, a 40-gallon ultra-low NOx natural gas atmospheric vent heater, a 50 gallon 240-volt HPWH, a 65 gallon 120-volt HPWH and a 66 gallon 120-volt HPWH.

- A 240-volt HPWH has a gallon per hour (GPH) recovery that is 35% lower than the baseline natural gas unit.
- A 120-volt HPWH has a has a GPH recovery that is 68% lower than the baseline natural gas unit.

35-3

Recovery is important as it determines how long an end user might have to wait for hot water if their tank has been depleted. A 40-gallon ultra-low NOx natural gas atmospheric vent heater can recover almost an entire tank of hot water in an hour. A 240-volt HPWH, assuming ideal conditions and use of a common 4,000 watt heating element working in concert with a compressor, would take nearly two hours or twice as long. A 120-volt HPWH, assuming ideal conditions and no heating element, would take nearly five hours: five times as long to recover. While a 120-volt HPWH may serve a purpose for niche applications where hot water demand is low, it cannot be considered a feasible solution in all cases as emphasized by the District in their analysis as it is far more likely leave many homeowners and renters in the District without adequate hot water for a substantial part of the day.

As the District prepares to adopt PAR 1121, it is essential that the District also prepare to inform the public of the benefits and drawbacks of transitioning to zero NOx water heating products. Consumers must be made aware of all potential installation challenges that will allow them to make an informed decision on the products they choose to have installed in their home, often at a substantial cost. As a manufacturer of these products, BWC recognizes there is no "one-size-fits all" solution to the obstacles that homeowners and renters may encounter. For that reason, we offer many unique products that are designed to meet homeowners and renter needs in a variety of installations. We additionally provide tools for installers, such as RightSpec®10 to ensure the homeowner's and renters hot water utility can be met.

35-4

In closing, we appreciate the opportunity to provide public comment on PAR 1121 and encourage the District to take our suggestions and feedback into consideration as they finalize PAR 1121. We welcome continued dialogue on these matters and would be pleased to have further, direct, conversations with District staff.

Please let me know if you have any questions or would like to schedule a meeting to discuss our comments further.

Respectfully Submitted,

Bradford White Corporation

¹⁰ [RightSpec® Sizing Software | Bradford White Water Heaters. Built to be the best. \(bradfordwhiterightspec.com\)](https://www.bradfordwhiterightspec.com)

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Response to Comment Letter #35*Response to Comment 35-1*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

With the proposed new rule concept, consumers may opt to purchase NOx-emitting natural gas units if the choice to install a zero-NOx emission unit is too costly or challenging for emergency replacements. Short-term replacement with rental equipment is no longer needed and thus removed from the proposed amended rules. Please see Response to General Comment 7 for discussion about emergency replacement.

Response to Comment 35-2

Labeling requirements are a common enforcement tool for area sources rules and have also been required for certified natural gas units. For example, when mitigation fee options were implemented for a furnace certified at 40 ng/J to meet the 14 ng/J standard, a specified labeling language was required. Please see Response to Appendix C Comments PW-14 and 27-4 for more on the labeling requirement.

The 2025 Building Code encourages inherently efficient electric heat pump technology for space and water heating in newly constructed single-family, multifamily, and select nonresidential building types. PAR 1111 and PAR 1121 align with the Building Code for the new building compliance date. Staff believes that a label for natural gas that can only be installed in existing buildings is necessary to enforce zero-emission installations in new constructions.

Staff has revised the labeling provision to allow manufacturers to propose simplified labeling language for approval.

With the new rule concept, the revised PAR 1111 and PAR 1121 have removed previously proposed alternative compliance options and the associated reporting requirements.

Response to Comment 35-3

While staff acknowledges the recovery rate should be considered when sizing and installing 120V heat pump water heaters, staff believes the 120V option is still feasible in many cases where consumers elect to install zero-NOx emission units. Manufacturers designed the 120V heat pump water heaters specifically with retrofits in mind, particularly targeting the water use of a small household. The New Buildings Institute 120V HPWH study⁽²⁵⁾ found hot water runouts in only 5 of 32 sites, and all 5 sites ceased having hot water runouts after changes to set points and simple modifications to behavior. The comparison also does not take into account 120V heat pump water heaters designed for a dedicated circuit and which can be installed in many homes and have similar recovery rates as the 240V heat pump water heaters.

⁽²⁵⁾<https://newbuildings.org/resource/plug-in-heat-pump-water-heater-field-study-findings-market-commercialization-recommendations/>

Response to Comment 35-4

Staff agrees that outreach and public education is essential for training on zero-emission technologies. Please refer to Response to General Comment 5 for further information regarding outreach.

Staff also recognizes that consumers often rely on installers for suggestions on the types of installations. There are many training opportunities offered to contractors through manufacturers, various incentive programs (e.g., TECH Clean California), utility companies, and local agencies. They could be in-person and virtual trainings. The Go Zero incentive program has also allocated funds for installer training. The training sessions will present contractors with the intricacies of installations and also provide training on permit processes and improve their ability to secure permits to complete electrical and mechanical connections. The anticipated launch of the Go Zero incentive program is 2025.

Staff appreciates that Bradford and White Corporation ,as a manufacturer of these products, provides tools for installers. Staff will ensure the Go Zero installer training program enhances installer awareness of those tools.

COMMENT LETTER #36: CLIFF HAMLOW

Comment Letter #36

Peter Campbell

From: Cliff Hamlow <chamlow@apu.edu>
Sent: Thursday, October 17, 2024 4:21 PM
To: Peter Campbell
Cc: Michael Allawos
Subject: [EXTERNAL] NOx emissions limits

AQMD Stationary Source Committee:

Regarding scheduled vote on proposed amendments to **two rules** that would **set NOx emissions limits at zero for residential and commercial space heating and residential water heating**. Amended rules will apply to the manufacturing, sales, and installation of these appliances – essentially eliminating natural gas appliances for these uses.

I am totally opposed to this nonsense proposed rule. There is not enough electricity or other sources of energy in California to sustain such a rule.

Please reign in this proposal and maintain the rules we currently have. Prices of construction and replacement of current appliances is too high for the regular citizen to afford.

Cliff Hamlow,
Former Mayor, City of Glendora

36-1

Response to Comment Letter #36*Response to Comment 36-1*

Staff appreciates the comments. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For a discussion on electrical production and grid reliability, please see Chapter 2 of this Staff Report and Response to General Comment 3. In order to meet National Ambient Air Quality Standards, the 2022 AQMP required staff to seek out zero-emission standards wherever feasible. While staff acknowledges there may be increased cost of zero-emission technologies, staff believes the increased market adoption, incentive programs, and operational cost savings will result in overall affordability of zero-emission units.

COMMENT LETTER #37: SOCALGAS

Comment Letter #37



Kevin Barker
Senior Manager
Energy and Environmental Policy
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Los Angeles, CA 90013
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October 17, 2024

Senator Vanessa Delgado, Chair and
Honorable Governing Board Members
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Subject: Comments on Proposed Amendments to Rule 1111 and Rule 1121

Dear Senator Delgado and Honorable Members of the Governing Board:

Southern California Gas Company (SoCalGas) appreciates the opportunity to provide public comments on the South Coast Air Quality Management District (South Coast AQMD) Proposed Amendments to Rule (PAR) 1111 and Rule (PAR) 1121. If adopted, the proposed amendments will require millions of residents within the South Coast Air Basin to replace approximately 10 million affected units once the existing appliance requires replacement and will require all new buildings to install fully electric space and water heating appliances. These rules create significant burdens for consumers and will cost billions of dollars to reduce overall nitrogen oxide (NOx) emissions within the South Coast Air Basin by just 2.8% or 10 tons per day out of the total 351 tons per day of NOx emitted by all sources within the territory¹. Even if all sources regulated by the California Air Resources Board (CARB) and South Coast AQMD were zero emission, federal sources alone would emit substantially more than the 60 tons per day NOx limit the District must achieve to comply with federal ozone standards.² SoCalGas supports policies to achieve NOx reductions, provided such policies are feasible, permitted by federal law, cost-effective, and commercially available. However, SoCalGas has numerous concerns with the proposed rule, including a concern that it is preempted by federal law.

¹ South Coast AQMD, "Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121," September 2024, Page 5-1, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

² South Coast AQMD, "2022 Air Quality Management Plan Executive Summary," December 2022, Page ES-6, <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/03-es.pdf?sfvrsn=6>.

SoCalGas's comments highlight the following concerns: 1) The proposed rules effectively ban certain appliances covered by the federal Energy Policy and Conservation Act (EPCA); 2) It is imperative that South Coast AQMD inform residents and business owners of the impacts of PAR 1111 and 1121 prior to Board consideration, as it appears that the majority of residents and business owners in the South Coast AQMD jurisdiction are wholly unaware of these significant changes; 3) South Coast AQMD staff need to provide the datasets and assumptions used to perform cost-effectiveness calculations to allow stakeholders to better assess the impacts of the proposed amendments; 4) Several assumptions within the cost-effectiveness analysis are inconsistent and should be reevaluated by staff; 5) Among other issues, the Draft Subsequent Environmental Assessment does not sufficiently explain why energy impacts from PAR 1111 and 1121 are less than significant; 6) Staff should clarify why they plan to perform a technology check-in after rule implementation; and 7) The financial impact of the proposed amendments has not been adequately evaluated and will be burdensome to the everyday customer.

1. The proposed rules effectively ban certain appliances covered by EPCA

Under a recent ruling by the Ninth Circuit Court of Appeals, *California Restaurant Association v. City of Berkeley*, 89 F.4th 1094 (9th Cir. 2024), the Court held that EPCA preempts all regulations "that relate to 'the quantity of [natural gas] directly consumed by' certain consumer appliances at the place where those products are used." *Id.* at 1101. "[A] regulation on 'energy use' fairly encompasses an ordinance that effectively eliminates the 'use' of an energy source." *Id.* at 1102. Here, similar to the Berkeley ordinance, the effect of the proposed rules is to reduce the quantity of gas consumed by EPCA-covered appliances to zero. Under *Berkeley*, States and localities cannot avoid EPCA's preemption provisions "by doing *indirectly* what Congress says they can't do *directly*." *Id.* at 1107 (emphasis in original).

37-1

2. It is imperative that South Coast AQMD inform residents and business owners of the impacts of PAR 1111 and 1121 prior to Board consideration, as it appears that the majority of residents and business owners in the South Coast AQMD jurisdiction are wholly unaware of these significant changes

It is incumbent upon regulatory agencies to ensure affected parties of any rulemaking process know and have an opportunity to understand the proposed changes to rules before the rule amendments are adopted. While staff held six (6) working group meetings and one public workshop, most attendees were manufacturers, contractors, and environmental justice leaders. Given this, it is our impression that the majority of residents and business owners in the South Coast AQMD territory are wholly unaware of the significant changes being proposed.³

37-2

³ This was evident at the California Air Resources Board's (CARB) August 22, 2024, Virtual Listening Session on CARBs similar Zero-Emission Space and Water Heating Standard. This listening session intended to engage residents of Southern California. While the meeting was co-hosted by Climate Action Campaign (CAC) with CARB and attended by South Coast AQMD staff, unfortunately the public was not informed about this opportunity to learn about these proposed regulations. As such, the meeting was attended by fewer than 45 people in a region of 17 million and the majority of attendees were government agency staff, members of CAC, and SoCalGas staff.

It is essential that the public is made aware of these proposed amendments, since the requirements and impacts are far reaching. When the Board adopted its most recent amendments to Rule 1146.2 in June 2024, which regulates NOx emissions from large water heaters, small boilers and process heaters, two members emphasized the need for an immediate outreach campaign to inform those affected by that regulation.⁴ While it's crucial to notify impacted parties about rule changes and implementation timelines, it's even more vital for the regulatory body to engage in public awareness efforts before adoption. PAR 1111 and 1121 will directly impact residential customers, who will bear the majority of compliance costs.⁵ Therefore, it is essential that communities understand how the proposed amendments will influence their choices and future costs.

Previous updates to Rules 1111 and 1121 required that manufacturers develop equipment to meet stricter emissions standards by setting a feasible NOx reduction target. These updates did not require residents to invest in costly modifications to their homes when their space and water heating equipment required replacement. The present proposed amendments, while presented as an emissions reduction regulation, will require property owners – residential and commercial – and tenants to switch out their gas appliances for electric appliances. If approved, the financial burden of these changes will be placed on residents and consumers in the South Coast AQMD territory.

37-2

During the October 3, 2024 South Coast AQMD Public Workshop, an owner of a heating, ventilation, and air conditioning (HVAC) company in the San Bernadino mountains similarly expressed concerns that the public is unaware of the amendments' implications on their future budgets and the costs of major upgrades to their homes. His comments highlighted that staff did not take his region into account when evaluating feasibility and costs. In the analysis, AQMD staff averaged installation costs for climate zones 6, 9, and 10⁶. However, the customers he serves are in climate zone 16 and the majority of these homes do not have preexisting air conditioning (AC). If these amendments are passed and these residents are required to replace their heating system with a heat pump, they will face an additional expense compared to other customers in the District because they will need to install low ambient heat pump equipment which, on average, costs 30 - 50% more than standard heat pump equipment.⁷ It appears that these additional incremental costs were not accounted for in staff's cost-effectiveness analysis. Needless to say, PARs 1111 and 1121 will affect millions of residents and businesses in the South Coast AQMD region and it is imperative that there be public outreach campaigns to garner participation from those this will

⁴ "Governing Board Meeting Live Webcast," South Coast AQMD, June 7, 2024, <https://www.aqmd.gov/home/news-events/webcast/live-webcast?ms=UeHieemQEZc>.

⁵ Rule 1146.2 regulates small commercial boilers and large water heaters as well as tankless water heaters and pool heaters.

⁶ South Coast AQMD, "Proposed Amended Rules 1111 and 1121 Working Group Meeting #2," November 28, 2023, Slide 11, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-wgm2-november-2023.pdf?sfvrsn=14>.

⁷ Diane Oestreich, "Kory Griggs Addresses Air Quality Management Board," Mountain News, published on October 9, 2024, https://www.mountain-news.com/news/kory-griggs-addresses-air-quality-management-board/article_73c973dc-867d-11ef-8fc9-4ff63eba5178.html.

impact the most. SoCalGas requests that South Coast AQMD delay the adoption of these rules to allow adequate time for public outreach. Additionally, SoCalGas requests that South Coast AQMD make all comment letters submitted by stakeholders publicly available on the South Coast AQMD's website within 72 hours of comment submittal.

37-2

3. South Coast AQMD staff need to provide the datasets and assumptions used to perform cost-effectiveness calculations to allow stakeholders to better assess the impacts of the proposed amendments

The data sources used, and assumptions made by South Coast AQMD staff in the cost-effectiveness analysis are unclear. Staff provided general citations to public data sources used to estimate costs during the rulemaking process, but citations should point stakeholders to the specific datasets that were relied upon in the cost-effectiveness evaluation.

For example, capital and operating costs were presented in Working Group Meeting #2 on slides 9 – 13. While staff generally references the source of data used to obtain cost information, the presentation lacks citations for specific reports and datasets used in the evaluation. The link provided on slide 13 of the Working Group Meeting #2 presentation, for example, takes users to the landing webpage for Energy Star Certified Heat Pump Water Heaters, which makes it difficult to understand exactly where staff obtained the annual energy use data for certified water heaters. Similarly, in Working Group Meeting #4, staff updated the cost-effectiveness for residential heat pump water heaters to \$246,000 per ton without providing any explanation. This value was again updated in the staff report to \$327,000 per ton, yet staff never provided an update on this in subsequent Working Group Meetings, and it is unclear how staff determined this value. These are just a few of the many instances where staff failed to provide transparency with the data used to conduct the cost-effectiveness analysis.

37-3

Furthermore, in an effort to gain a better understanding of the costs associated with the transition to electric space and residential water heaters for our customers, SoCalGas asked an independent consulting firm, Ramboll, to use the information presented in the PAR 1111 and PAR 1121 Working Group Meetings and apply the South Coast AQMD's cost-effectiveness analysis technique to estimate costs. Using the methodology and data provided in the Working Group Meetings and the staff report, Ramboll's calculated values are significantly different than those presented by staff for all the replacement scenarios. Table 1 below illustrates this difference for single-family water heaters. It is important to reiterate that Ramboll's analysis is using the same assumptions and values presented by staff, and yet the results were unable to be duplicated and independently verified (see Appendix A for complete analysis).

Table 1: Comparison of Cost-Effectiveness Values for Single-Family Water Heater

| Category | Cost-Effectiveness (\$/Ton) | | |
|---|-----------------------------|------------------|----------------|
| | AQMD Analysis | Ramboll Analysis | Percent Change |
| Single-Family Water Heater with Panel Upgrade | \$601,000 | \$750,345 | 25% |
| Single-Family Water Heater | \$299,000 | \$524,016 | 75% |
| Overall Weighted Average* | \$327,000 | \$544,385 | 66% |

*Based on South Coast AQMD assumption that 9% of homes require a panel upgrade

The lack of clarity as to how staff arrived at these cost-effectiveness values is very concerning. It appears that staff did not update the average annual electricity usage values as indicated in the staff report to arrive at \$601,000⁸ for the cost of a water heater replacement with a panel upgrade (Ramboll's analysis using South Coast AQMD's assumptions is 25% higher for water heaters with panel upgrades, 75% higher for water heaters without upgrades, and 66% higher for water heaters when using South Coast's weighted average calculation). Unfortunately, SoCalGas is unable to determine how staff arrived at \$299,000 for the cost of a water heater replacement without a panel upgrade. Without visibility into the datasets used, assumptions, and calculations made by staff, stakeholders are unable to get a full picture of how the potential costs associated with compliance with these rules were evaluated. Data transparency is crucial in any rulemaking process but is particularly important for PAR 1111 and PAR 1121, as the potential financial implications of this rulemaking will impact millions of residents and businesses in South Coast AQMD jurisdiction. SoCalGas requests that staff provide details on the assumptions, datasets, and calculations used within the cost-effectiveness analysis to derive the cost-effectiveness values presented. It is critical that staff provide this information to help the public better understand what costs customers may encounter in the not-too-distant future. SoCalGas recommends that staff make their calculation spreadsheet available to the public for review and comment as was done for Proposed Rule 2304.⁹

37-3

Given the difficulty of unpacking the cost-effectiveness assumptions and lack of public awareness, stakeholders should be given more time to understand the specific assumptions to ensure the calculations are sound. As such, SoCalGas requests that the Board delay adoption of these proposed rules to allow for an additional public workshop to review the cost-effectiveness calculations that were used to determine the cost-effectiveness values.

⁸ South Coast AQMD, "Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121," September 2024, Page 2-20, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

⁹ South Coast AQMD, "Proposed Rule 2304," see Potential Port Emission Reduction Strategies excel files from Working Group Meetings, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-2304>.

4. Several assumptions within the cost-effectiveness analysis are inconsistent and should be reevaluated by staff

The cost-effectiveness analysis contains several assumptions that are inconsistent, which undermines the overall reliability of the findings. To enhance the accuracy and credibility of the evaluation, it is crucial to address these inconsistencies. SoCalGas's analysis of staff's calculations found several areas that should be addressed. Enhancements should focus on ensuring that assumptions are clearly defined, logically sound, and consistently applied throughout the process. We hope that these insights will help to produce more robust and dependable results, ultimately leading to better-informed decisions.

a. Inconsistent data used to estimate equipment replacement costs

The South Coast AQMD's analysis uses two different data sets to estimate replacement costs for gas and electrical equipment. Gas replacement estimates are based on the E3 Residential Building Electrification analysis¹⁰, while the electric equipment replacement costs are based on the Technology and Equipment for Clean Heating (TECH) data set¹¹. Per the staff report, staff utilized the November 2023 public data set from TECH for Los Angeles, Orange, San Bernardino and Riverside counties and the entire data set from E3 for climate zones 6, 9 and 10¹². According to staff, TECH Clean California Program data includes only 1,400 Multi-Family (MF) buildings and 18,000 Single-Family (SF) buildings that participated in the state incentive program¹³.

It is unclear why staff chose to use two separate sources of data, from where values were pulled, and why staff limited the scope of the data sets. It is important to have data integrity to avoid the appearance of bias in such an analysis. In order to eliminate these data inconsistencies, the same data source can be used for both gas and electric equipment costs. Since the E3 analysis includes estimates for both gas and electric equipment costs, utilizing this data as the basis for the cost-effectiveness calculations would provide consistency.

37-3

¹⁰ Amber Mahone et al., "Residential Building Electrification in California," Energy and Environmental Economics, Inc. ("E3"), April 2019, https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf.

¹¹ Technology and Equipment for Clean Heating (TECH) Clean California. "Heat Pump Data," last modified on September 13, 2024, <https://techcleanca.com/heat-pump-data/download-data/>.

¹² South Coast AQMD, "Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121," September 2024, Page 2-15, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

¹³ South Coast AQMD, "Proposed Amended Rules 1111 and 1121 Working Group Meeting#3," January 31, 2024, Slide 17, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>.

b. Space heating cost-effectiveness analysis assumes simultaneous replacement of AC units, which are not regulated under Rule 1111

South Coast AQMD's analysis should not rely upon a baseline of replacing AC units, an appliance which is not regulated by Rule 1111, in order to achieve cost-effectiveness. South Coast AQMD's analysis asserts that it is not cost-effective to replace a furnace with a heat pump in single-family homes without including the costs of replacing an AC system. In fact, in homes that do not currently have AC, the cost-effectiveness for a heat pump replacement is \$827,000 per ton without a panel upgrade or \$921,000 per ton with a panel upgrade. This exceeds the \$349,000 cost-effectiveness threshold.¹⁴ Furnace replacement with a heat pump only appears cost-effective when costs associated with simultaneous replacement of the furnace and AC are included.

Furthermore, to account for the fact that homes without AC are above the cost-effectiveness threshold, the South Coast AQMD's analysis relies on weighted averages. It is unclear how staff is performing these weighted average calculations, but the analysis relies on two percentages; according to staff, 87% of homes in South Coast AQMD already have AC and only 4% of homes will require a panel upgrade.¹⁵ To estimate the percentage of homes with AC and without AC, staff relied on the U.S. Census American Housing Survey (AHS). Staff did not provide details as to how this data was utilized, but it appears that the 87% estimate includes a significant number of room AC units.¹⁶ While the cost-effective analysis should not include AC units at all, it would be more accurate to exclude room units. Per the AHS data, when excluding room air conditioners only 66% of homes in the South Coast have AC (for the Los Angeles-Orange-San Bernardino-Riverside area).¹⁷ Similarly, per the staff report the TECH data was used to determine that only 4% of homes need electrical panel upgrades for space heating, however it is unclear how staff arrived at this percentage and why such a small dataset was utilized.¹⁸

Overall, this approach assumes a 1:2 appliance replacement and should not be used to conclude that this is cost-effective. Rather than just evaluating the cost to replace a furnace, staff is assuming that customers will replace the furnace and a functioning AC unit at the same time, regardless of cost. It is not realistic to assume that homeowners are going to replace AC units that are in good condition if they only need to buy a new furnace. It is also a divergence from common practice to

¹⁴ South Coast AQMD, "Proposed Amended Rules 1111 and 1121 Working Group Meeting #6," August 15, 2024, Slide 27, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm6-august-2024.pdf?sfvrsn=18>.

¹⁵ South Coast AQMD, "Proposed Amended Rules 1111 and 1121 Working Group Meeting #6," Slide 27.

¹⁶ South Coast AQMD, "Proposed Amended Rules 1111 and 1121 Working Group Meeting #2," November 28, 2023, Slide 7, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm2-november-2023.pdf?sfvrsn=14>.

¹⁷ U.S. Census Bureau, "American Housing Survey (AHS) Table Creator," American Housing Survey, AHS housing unit Characteristics spreadsheet, https://www.census.gov/programs-surveys/ahs/data/interactive/ahstablecreator.html?s_areas=00000&s_year=2023&s_tablename=TABLE1&s_bygroup1=1&s_bygroup2=1&s_filtergroup1=1&s_filtergroup2=1.

¹⁸ South Coast AQMD, "Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121," September 2024, Page 2-17, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

put forth a regulation that is not cost-effective simply because staff believes that residents will benefit from having AC. As indicated in the staff report “although heat pump replacement for furnace without AC has a high cost-effectiveness, the replacement would have an additional benefit of space cooling, which is becoming more of a necessity due to climate change.”¹⁹ Consumers should not be forced to bear the cost of an appliance that they may not need or be able to afford. As such, staff should update the cost-effective analysis excluding the costs of AC replacement; doing so will show that these proposed amendments to Rule 1111 are not cost-effective.

c. South Coast AQMD should consider revising electrical panel upgrade costs to more accurately reflect upfront costs to customers

During the rulemaking process, staff acknowledged that the transition to zero-emission units may require electrical panel upgrades, which will be an added cost to customers who are already paying to replace their appliance. Although staff noted that panel upgrades typically cost approximately \$3,000 based on available data,²⁰ the cost-effectiveness analysis ultimately relied upon a panel upgrade cost of \$750²¹. This value was derived by dividing the \$3,000 estimate in half to account for the longer useful life of the electrical panel (assumed to be 30 years) versus the useful life of the replacement unit (assumed to be 15 years for heat pump water heaters, but staff did not update this value to use the 25-year useful life of heat pump space heaters). Staff also assumed that costs would be shared between both space and water heating appliances even though one appliance replacement could trigger the need to upgrade the whole cost of the panel, resulting in a realized cost of \$3,000 to the customer to replace one appliance.

To accurately estimate upfront costs and effectively communicate expected costs to the public, the cost-effectiveness analysis should be updated to include the total cost of an electrical panel upgrade. The financial investment in panel upgrades is made at the time of purchase, not at the end of the equipment life; therefore, electric panel upgrade costs should not be prorated based on the useful life of the appliance. Furthermore, based on available data, the cost of a panel upgrade can be up to \$18,000²² if customers are responsible for utility infrastructure costs such as pole changeouts or conduit replacements, or other costs such as sub-panels, new breakers, trenching, etc. Additionally, space and water heaters have varying life expectancies, thus it is inaccurate to apply a single 15-year panel lifetime cost to both types of equipment. If staff chooses to stick with this approach, however, then appliances with a 25-year expected life should be identified with the prorated panel upgrade cost.

¹⁹ South Coast AQMD, “Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121,” Page 2-18.

²⁰ NV5, “Service Upgrades for Electrification Retrofits Study Final Report,” May 27, 2022, Page 32, <https://pda.energydataweb.com/api/view/2635/Service%20Upgrades%20for%20Electrification%20Retrofits%20Study%20FINAL.pdf>.

²¹ South Coast AQMD, “Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121,” September 2024, Page 2-17, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

²² NV5, “Service Upgrades for Electrification Retrofits Study Final Report,” Page 32.

Also, as previously noted, staff is performing weighted averages utilizing the assumptions that only “4 percent of homes for space heating and 9 percent of homes for water heating” will require a panel upgrade.²³ Since the transition to zero-emission technology will require California families to ultimately bear this added cost, it is important to ensure that such assumptions used to derive this value are appropriate and provide a realistic cost to customers. For these reasons, we request that South Coast AQMD delay the adoption of these rules to allow for a public workshop to review the assumptions that were used to arrive at these values. In lieu of a public workshop staff could make their calculation spreadsheet available to the public for review and comment.

- d. *Energy Prices used in South Coast AQMD’s analysis are point sources and representative of prices before the proposed rule implementation date*

In its cost-effectiveness analysis for residential and commercial appliances, South Coast AQMD used projected electricity and natural gas rates for 2024-2050 from the 2023 Integrated Energy Policy Report (IEPR) Energy Demand Forecast.²⁴ The 2023 IEPR electricity forecast only goes to 2040, but natural gas rates extend to 2050. Since the compliance dates do not begin until 2026 and these types of equipment have long lifetimes (ex. 15 and 25 years), energy prices are expected to change during that period.²⁵ Hence, SoCalGas proposes that the cost-effectiveness analysis should use an average of projected rates during the equipment’s expected 15- or 25-year lifetime to better reflect the actual cost of O&M for the equipment’s lifetime. We also believe that the approaches for electric and gas appliances should be consistent; however, we were unable to verify the source and timeframe of the electricity and gas rates used for the cost-effectiveness analysis. Therefore, SoCalGas requests clarification from staff how electricity rates are averaged through 2050 if the data was not available from the forecast. Without this clarification, it is not possible to validate the staff report’s analysis.

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- e. *Inflated coefficient of performance assumptions for heat pumps*

South Coast AQMD staff presented energy consumption data during Working Group Meeting #2 on slides 13 and 14. Table 2 below provides a summary of energy usage assumptions provided, gaps in energy usage assumptions, as well as calculated Coefficients of Performance (COP).

²³ South Coast AQMD, “Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121,” September 2024, Page 2-15, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

²⁴ California Energy Commission, “2023 Integrated Energy Policy Report Energy Demand Forecast California Energy Demand,” <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2023-integrated-energy-policy-report/2023-1>.

²⁵ U.S. Energy Information Administration, “Annual projections to 2050,” retrieved on October 8, 2024, <https://www.eia.gov/analysis/projection-data.php>.

Table 2: Summary of Energy Usage Assumptions Used in South Coast AQMD Analysis

| | SF/MF Residential Space Heating | | Commercial Space Heating | | Residential Water Heating ²⁶ | | Coefficient of Performance ²⁷ | |
|--|---------------------------------|-------|--------------------------|------------------|---|-------|--|------|
| | HP | Gas | HP | Gas | HP | Gas | HPSH | HPWH |
| Energy Consumption (kWh) ²⁸ | 565 | 3,822 | No data provided | No data provided | 1,036 | 5,567 | 6.76 | 5.37 |

Based on the residential energy data South Coast AQMD staff provided, the residential heat pump space and water heating COPs are 6.76 and 5.37, respectively. These levels of efficiencies are not consistent with performance of existing heat pump technologies. Heat pump technologies typically range from 3.5-4.4.²⁹

SoCalGas staff attempted to unpack the rationale for the high COP values used by South Coast AQMD staff for both space and water heat pump technologies. The staff report indicates that heat pump technology “can be over three times more efficient than conventional appliances” but does not provide any reference.³⁰ Additionally, the source of the energy consumption data for water heater usage was unclear as the only reference for data source is the ENERGY STAR product finder link.³¹ South Coast AQMD staff should provide the specific appliances or data used to develop these calculations, so stakeholders can understand how the values are derived.

In the South Coast AQMD Space Heating consumption analysis, as presented on slide 12 of Working Group Meeting #2, the current values used in the analysis appear to come from the RASS 2019 executive summary, Tables ES-1 and ES-3.³² The Southern California Edison (SCE) values in Table ES-1 represent the average consumption of all electric HVAC heat pump installations (single-family, multi-family, and mobile homes) in the SCE service territory, while the SoCalGas values in Table ES-3 represent the average consumption of all gas space heating installations (single-family, multi-family, and mobile homes) in SoCalGas territory. These values, however, do not account for the types of buildings (single-family vs. multi-family vs. mobile homes) in which

²⁶ Used lowest range energy usage assumption for both heat pumps and conventional gas water heaters.

²⁷ SoCalGas calculated the coefficient of performance based on energy consumption of gas appliances and heat pump appliances.

²⁸ Gas energy usage converted from therms to kWh using 29.3 kWh/therm conversion factor including electricity load for furnace fan.

²⁹ Nate Juras, “What is Uniform Energy Factor and Why Does it Matter?”, ENERGY STAR, accessed October 16, 2024, <https://www.energystar.gov/products/ask-the-experts/what-uniform-energy-factor-and-why-does-it-matter>.

³⁰ South Coast AQMD, “Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121,” September 2024, Page 2-10, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

³¹ ENERGY STAR Certified Heat Pump Water Heaters, <https://www.energystar.gov/productfinder/product/certified-heat-pump-water-heaters/results>.

³² California Energy Commission, “2019 California Residential Appliance Saturation Study (RASS) Executive Summary,” July 2021, Pages 5 and 11, <https://www.energy.ca.gov/sites/default/files/2021-08/CEC-200-2021-005-ES.pdf>.

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the equipment is installed. For example, if there are more HVAC heat pumps in multi-family homes, which have a lower space heating load than single-family buildings, it could show that the heat pump space heater is saving more energy simply by heating smaller building sizes. By comparing the SCE numbers from Table ES-1 to the building specific values in Table ES-2, one can see that the average space heating load in SCE territory is most similar to multi-family energy consumption. Moreover, comparing SoCalGas numbers from Table ES-3 to the building specific values in Table ES-4 shows the space heating load in SoCalGas territory is most similar to mobile home energy consumption. This suggests that there are more heat pump installations in multi-family buildings, which skews the unit energy consumption values lower within SCE territory.

The more appropriate numbers for the analysis would be from Tables ES-2 and ES-4, which control for building size and therefore compare equal building loads. These tables show that multi-family space heating uses about 40% of the single-family energy usage and mobile home space heating uses about 75% of the single-family energy usage. The following table summarizes ES-2 and ES-4 for energy consumption data by technology and residential building types.

Table 3: Summary of ES-2 and ES-4 Energy Consumption Data

| | Unit Energy Consumption (UEC) | | |
|--|-------------------------------|--------------|-------------|
| | Single-Family | Multi-Family | Mobile Home |
| Primary Conventional Space Heating (kWh) | 1,509 | 622 | 1,193 |
| Primary Heat Pump Space Heating (kWh) | 1,221 | 493 | 980 |
| Primary Heat (therm) | 191 | 67 | 136 |
| Furnace Fan (kWh) | 159 | 55 | 116 |

While these numbers are statewide and include climate zones outside of the South Coast AQMD territory, they provide for a more like-for-like comparison of building usage. The statewide values for different building types in Tables ES-2 and ES-4 would be more appropriate for this analysis.

Further, to get the most accurate consumption values and account for the regionality of energy consumption as well as the different building load usage, the RASS database could be utilized.³³ Although currently unavailable on the CEC website, the RASS 2019 database contains all of the raw data from the RASS study (see footnote 33) to enable a user to search and filter the data usage as needed. The RASS 2019 UEC tables, which calculate energy consumption values of weather sensitive end uses by climate zones and building types, can be utilized to get regional values for different space heating loads depending on the building type.³⁴ This would allow for a more

³³ California Energy Commission, California Residential Appliance Saturation Study Database, <https://rass.dnv.com/sign/in>.

³⁴ California Energy Commission, "2019 California Residential Appliance Saturation Study (RASS) Volume 2: Results," July 2021, <https://rass.dnv.com/envodig/api/site/media/CEC-200-2021-005-RSLTS.pdf>.

accurate like-for-like comparison of the different consumption values between building and space heating types within certain regions.

Due to the relatively smaller sample sizes of the UEC values by climate zone, there is more variation in the results of the data. To have statistically significant data, it is best to use the statewide figures from the RASS 2019 database below, similar to the executive summary tables ES-2 and ES-4:

Table 4: RASS 2019 Statewide Energy Consumption Data

| Building Type | Primary Heat (therm) | Conv. Heat (kWh) | Heat Pump (kWh) |
|--------------------|----------------------|------------------|-----------------|
| Single-Family | 189 | 1,509 | 1,221 |
| Townhome | 83 | 951 | 593 |
| 2-4 Unit Apartment | 69 | 592 | 559 |
| 5+ Unit Apartment | 53 | 582 | 461 |
| Mobile Home | 144 | 1,193 | 980 |

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SoCalGas requested that Ramboll use the statewide data per residential building type in their cost-effectiveness analysis.

f. Cost-effectiveness calculations should include costs of alternative compliance pathways

During the October 3, 2024 South Coast AQMD Public Workshop, several stakeholders raised concerns about the alternative compliance pathways laid out within both rules. Stakeholders voiced concern regarding rental appliance feasibility, noting that this would be incredibly complicated and costly to owners. One commenter acknowledged that for his manufacturing company, ultra-low NOx products are only shipped to and sold in areas in California that have low NOx requirements. Another manufacturer commented that the District should not rely on the market to create a rental program and suggested that the District fund a program similar to what was done to support the TECH program.³⁵ Without such an established program, inventory in the next few years will decline as manufacturers stop producing natural gas units for sale in California. The lack of availability of rental units will impose additional costs on households and could potentially offset emissions reductions if consumers need to utilize higher emitting units because manufacturers stop developing units that meet California's strict emissions standards.

Furthermore, the cost-effectiveness analysis does not include consideration of the additional costs incurred by customers under the alternative compliance options. Staff noted that the alternative compliance options were included as part of the PAR 1111 amendments to address the high upfront cost associated with furnace replacement, since furnace replacement without simultaneous

³⁵ South Coast AQMD October 3, 2024 Public Workshop, stakeholder comments; recording available by request to AQMD staff.

replacement of an AC systems is not cost-effective³⁶. Given 34 percent of homes in the South Coast AQMD region do not have AC, the additional costs of the alternative compliance option will be a reality for many households.³⁷ To account for these costs, the cost-effectiveness analysis should assume that these homeowners will have to pay double the installation, labor, and permitting costs, in addition to rental costs, since rented natural gas-fired furnaces and water heaters will need to be installed and subsequently uninstalled once a heat pump replacement unit has been procured and any necessary upgrades are completed for the heat pump. It is in the public interest to be made aware of these potential additional upfront costs, as it will impose additional financial burden on anyone who will need to utilize these alternative compliance options.

g. Ramboll's cost-effectiveness analysis

Given these findings, SoCalGas asked Ramboll to apply the South Coast AQMD's cost-effectiveness analysis technique as presented by staff for the proposed zero emission standards for PAR 1111 and 1121 (Appendix A). Ramboll calculated the cost-effectiveness in dollars per ton of NO_x reduced for the replacement of residential natural gas appliances with electric heat pump alternatives using the updated data and assumptions as discussed in the comments above. The results are summarized below in **Table 4**. The analysis indicates that the replacement of a single-family home natural gas water heater, single-family home natural gas furnace (only), and multi-family home natural gas furnace (only) with heat pump equipment are not cost-effective, i.e., cost-effectiveness is greater than the threshold of \$349,000. Details of these calculations are presented in Tables B-1, B-2, and B-3 in **Attachment B** for single-family home water heaters, single-family home HVACs, and multi-family home HVACs, respectively.

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³⁶ South Coast AQMD, "Preliminary Draft Staff Report for Proposed Amended Rule 1111 and 1121," September 2024, Page 2-19, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

³⁷ U.S. Census Bureau, "American Housing Survey (AHS) Table Creator," American Housing Survey, https://www.census.gov/programs-surveys/ahs/data/interactive/ahstablecreator.html?s_areas=00000&s_year=2023&s_tablename=TABLE1&s_bygroup1=1&s_bygroup2=1&s_filtergroup1=1&s_filtergroup2=1.

| Table 4: Updated Cost-Effectiveness Comparisons | | | |
|--|--|-------------------------|------------------------|
| Data Source | Cost-Effectiveness for Conversion of Residential Natural Gas Equipment to Electric Heat Pump Equipment | | |
| | (2022\$/ton NO _x) | | |
| | Single-Family Home Water Heater | Single-Family Home HVAC | Multi-Family Home HVAC |
| PAR 1111/1121 Preliminary Draft Staff Report ¹ | 601,000 | 921,000 | (135,000) |
| Cost-effectiveness values calculated based on updated data presented in this comment letter ² | 879,258 | 972,443 | 1,351,118 |
| Cost-effectiveness threshold (\$/ton of NO _x) | 349,000 | | |
| <u>Notes:</u> | | | |
| ¹ South Coast AQMD. Preliminary Draft Staff Report for: Proposed Amended Rule 1111 – Reduction of NO _x Emissions from Natural Gas-Fired Furnaces and Proposed Amended Rule 1121 – Reduction of NO _x emissions from Small Natural Gas-Fired Water Heaters. Available at: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18 . Accessed: October 2024. | | | |
| ² See Attachment B. Analysis includes panel upgrade costs of \$3,000 | | | |
| <u>Abbreviations:</u> | | | |
| \$ - dollar, HVAC – heating ventilation and air conditions, NO _x – oxides of nitrogen | | | |

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Given this, SoCalGas requests that South Coast AQMD staff revisit and refine the assumptions made within the cost-effectiveness analysis. Delay of rule adoption would allow for further investigation and deep-dive discussions between staff and engaged stakeholders to ensure all aspects of this rulemaking have been analyzed and vetted.

4. The Draft Subsequent Environmental Assessment does not sufficiently explain why energy impacts from PAR 1111 and 1121 are less than significant

SoCalGas has had the opportunity to review South Coast AQMD's September 2024 Draft Subsequent Environmental Assessment for PAR 1111 and PAR 1121 (State Clearinghouse No. 2022050287; South Coast AQMD No. 20240924JA/05122022KN) ("Draft SEA").

SoCalGas offers several comments on the Draft SEA's analysis concerning the proposed project, including comments concerning the Draft SEA's air quality and energy impacts analyses, some of these analyses' underlying data and assumptions, and the Draft SEA's discussion of project alternatives. SoCalGas's comments are detailed in Appendix B. However, SoCalGas would like to highlight the following comment:

The Draft SEA's energy impacts analysis, in its concluding section, states that "[t]he cumulative energy impacts from increased electricity and natural gas demand remain significant and unavoidable." (Draft SEA, p. 4-23.) It then continues: "However, the Final Program Environmental Impact Report (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." (*Id.*)

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The Draft SEA leaves unclear how to reconcile these two propositions. The mere passing reference to the 2022 Final (FEIR does not explain how the significant and unavoidable energy demand impacts discussed at length in the preceding pages of the Draft SEA are negated or made less significant by the absence of waste or inefficiency in how this energy is used. In the end, the Draft SEA goes from finding significant and unavoidable impacts to less than significant impacts in the space of just a few sentences, without sufficient explanation.

5. Staff should clarify why they plan to perform a technology check-in after rule implementation

During the October 3, 2024 Public Workshop, South Coast AQMD staff stated that they plan to conduct a technology check-in of the rule amendments by June 2027, ahead of implementation of the rules to consider any issues with the rules as proposed. However, PAR 1121's implementation date is January 1, 2027, for existing buildings. During the comment period, SoCalGas requested clarification as to why the feasibility study would occur after the first implementation date, but South Coast AQMD did not respond to the question. SoCalGas would appreciate if staff could address this inconsistency as it does not benefit customers to have their concerns addressed *after* implementation.

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6. The financial impact of the proposed amendments has not been adequately evaluated and will be burdensome to the everyday customer

California is currently one of the most expensive places to live in the country³⁸ and has experienced one of the highest inflation rates recently.³⁹ According to the Public Policy Institute of California, nearly a third of Californians are living in or near poverty.⁴⁰ Needless to say, affordability is first and foremost on many policymakers' and stakeholders' minds when it comes to living in California.⁴¹

In the long run, SoCalGas believes that the clean energy transition is a great opportunity to raise the living standards for all Californians in an affordable and equitable fashion. To do so, we believe that we need to understand the immediate and direct impact to consumers in advance of any new policy being enacted. Oftentimes, communities and households who are least able to afford certain costs are most burdened with them and receive little recourse from policies and incentives. According to the LA100 Equity Strategies Report, "low-income families, renters, and people of color—face higher energy and transportation burdens, unsafe temperatures, higher impact from extreme heat events, and other negative impacts of historical legacies that are still present in current policies and practices." Specifically, the report found that "between 1999 and 2022, Los Angeles Department of Water and Power invested \$340 million in residential solar installation, \$14 million in residential energy efficiency, and \$5 million in residential electric vehicle incentive programs, but disadvantaged communities only received 38%, 46%, and 23% of those allocations, respectively."⁴²

While we understand that there will be rebates and incentives to help with some costs of compliance, it is concerning that costs can vary significantly. Table 5 below highlights actual costs that consumers will face to comply with PAR 1111 and cost for PAR 1121.⁴³ Similarly, TECH data, which staff utilized for single-family homes, shows that costs to replace a furnace with a heat pump in communities identified as disadvantaged can range from \$3,800 to \$56,000.⁴⁴ Given that there may be additional upfront costs when replacing with electric instead of gas appliances (e.g., \$5,200 vs. \$3,000 for water heaters, \$18,550 vs. \$10,000 for space heating, based on South

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³⁸ Missouri Economic Research and Information Center, "Cost of Living Data Series", retrieved on Oct. 8, 2024, <https://meric.mo.gov/data/cost-living-data-series>.

³⁹ Paul Davidson, "The 5 states with the highest inflation and the 5 with the lowest," *USA Today*, April 9, 2024, <https://www.usatoday.com/story/money/2024/04/09/states-highest-lowest-inflation/73184932007/>.

⁴⁰ Public Policy Institute of California, "Poverty in California (October 2023 Factsheet)," last modified in 2023, <https://www.ppic.org/publication/poverty-in-california/>.

⁴¹ California Public Utilities Commission (CPUC), "Affordability Rulemaking," last modified in 2023, <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/affordability>.

⁴² National Renewable Energy Laboratory, "LA100: The Los Angeles 100% Renewable Energy Study and Equity Strategies," <https://maps.nrel.gov/la100/equity-strategies/recognizing-inequities#key-findings>.

⁴³ Costs for PAR 1111 provided by regional HVAC contractor; costs for PAR 1121 from LA BizFed analysis available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/los-angeles-county-business-federation.pdf?sfvrsn=6>.

⁴⁴ September 2024 TECH Working Dataset_Multifamily & TECH Working Dataset_Single-Family Spreadsheets.

Coast AQMD estimates and both excluding the cost of panel upgrades and other potential costs⁴⁵), we urge South Coast AQMD to be judicious in its cost-effectiveness analysis, to be up-front and clear about how much this will cost the individual consumer, and to provide additional clarification in a cost-effectiveness workshop to help the public understand the assumptions used and the potential impact of these rules on our communities -- households and businesses. Additionally, SoCalGas looks forward to reviewing the Socioeconomic Impact Assessment once it is released later this year.

Table 5: Appliance Replacement Costs

| Natural Gas Space Heater | Replacement Cost |
|---------------------------------|-------------------------|
| Floor Heater | \$4,910 |
| Wall Heater | \$3,200 |
| Central Furnace | \$6,750 |

| Heat Pump Space Heater | Replacement Cost |
|---|-------------------------|
| Floor/Wall Heater Replacement with Panel Upgrade | \$32,099 |
| Floor/Wall Heater Replacement without Panel Upgrade | \$27,099 |
| Central Heating Without AC | \$23,750 |

| Water Heaters | Replacement Cost |
|-----------------------------|-------------------------|
| Natural Gas Water Heater | \$1,700 |
| 120V Heat Pump Water Heater | \$4,000 - \$15,000 |
| 240V Heat Pump Water Heater | \$30,000 - \$80,000 |

Conclusion

SoCalGas has been an active participant in the South Coast AQMD rulemaking on PAR 1111 and 1121 and appreciates staff's efforts in updating this regulation; however, SoCalGas and other stakeholders continue to have serious concerns.⁴⁶ While SoCalGas supports emission reduction efforts, PAR 1111 and 1121 effectively ban gas-fired space and water heaters, disregarding the potential emissions reductions that can be achieved through technological advancements in ultra-low-NOx gas technologies, hydrogen-enriched natural gas systems, and hybrid solutions. These alternatives have the potential to achieve meaningful emissions reductions while maintaining reliable, affordable, and efficient options for residents and consumers. Allowing for ultra-low-NOx alternatives will be far more effective than a zero-NOx mandate that requires residents to spend thousands of dollars modifying their homes to install electric heat pumps.

⁴⁵ South Coast AQMD, "Proposed Amended Rules 1111 and 1121 Working Group Meeting #2," November 28, 2023, Slide 11, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-wgm2-november-2023.pdf?sfvrsn=14>.

⁴⁶ South Coast AQMD October 3, 2024 Public Workshop, stakeholder comments; recording available by request to AQMD staff.

We urge South Coast AQMD to delay adoption of these rules and take the time to wholistically and appropriately evaluate their impacts. Given the earliest compliance deadline for existing buildings is not until January 1, 2027, we feel there is an opportunity for the South Coast AQMD to conduct public outreach to inform property owners and tenants within its jurisdiction of this rulemaking. It is crucial to recognize that homeowners and renters, rather than industry, will be the ones forced to reach deep into their pockets to comply with these rules. Historically, the South Coast AQMD granted extensions to manufacturers under Rule 1121 to meet lower NOx emission limits, acknowledging the challenges they faced with compliance costs. Similarly, we believe it is reasonable to allow more time in this rulemaking process, considering the significant financial impact to homeowners and businesses and the challenges they will likely face with rule implementation. We urge the South Coast AQMD to schedule an additional public workshop to ensure all considerations have been included in the cost-effectiveness values presented to the public. This will also help homeowners and businesses within your jurisdiction to plan their future finances accordingly. SoCalGas, looks forward to collaborating on California's shared goal of advancing air quality objectives.

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Respectfully,

/s/ Kevin Barker

Kevin Barker
Senior Manager
Energy and Environmental Policy

Appendix A



ENVIRONMENT
& HEALTH

MEMORANDUM

To: Kevin Barker
Southern California Gas Company

From: Varalakshmi Jayaram & Tony Wang
Ramboll Americas Engineering Solutions, Inc.

Subject: **COMMENTS ON SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT'S (SOUTH COAST AQMD'S) COST-EFFECTIVENESS CALCULATIONS FOR PROPOSED AMENDED RULES (PAR) 1111 AND 1121**

1. It is unclear how South Coast AQMD arrived at the cost-effectiveness values that they presented in the Preliminary Draft Staff Report for PAR 1111/1121.

Ramboll calculated the cost-effectiveness (CE) in dollars per ton of NO_x (oxides of nitrogen) reduced for the replacement of residential natural gas (NG) appliances with electric heat pump alternatives using the data and assumptions presented by South Coast AQMD in the preliminary draft staff report¹ and Working Group Meetings (WGMs)² for PAR 1111/1121. Details of these calculation are presented in Tables A-1, A-2, and A-3 in **Attachment A** for single-family home water heaters, single-family home heating ventilation and air conditioning (HVAC) systems, and multi-family home HVAC systems respectively. As summarized in **Table 1** below, Ramboll's calculated CE values are substantially different from those presented by South Coast AQMD for most of the replacement scenarios.

We understand that staff has made multiple updates to their CE calculations after their initial presentation of assumptions in WGMs #2 and #3. Ramboll has accounted for these updates in our calculations presented in **Attachment A** by incorporating the information provided in the presentation materials for subsequent WGMs and the preliminary draft staff report. However, our results still do not align with those presented in the preliminary draft staff report. We therefore request staff to provide a summary of their current assumptions and methodology for the CE calculations that were used to arrive at these

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¹ South Coast AQMD. Preliminary Draft Staff Report for: Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces and Proposed Amended Rule 1121 – Reduction of NO_x emissions from Small Natural Gas-Fired Water Heaters. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

² South Coast AQMD Presentation Materials for Working Group Meetings for PAR 1111/1121. Available at: <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1111-and-rule-1121>. Accessed: October 2024.



cost-effectiveness values. We are happy to provide a Microsoft Excel version of our detailed calculations that are presented in **Attachment A**, as needed.

| Table 1. Comparison of Cost-Effectiveness | | | | | |
|--|---|--------------------------------|---------------------|-------------------------------|---------------------|
| Data Source | Cost-Effectiveness for Conversion of Residential Natural Gas Equipment to Electric Heat Pump Equipment (2022\$/ton NO_x) | | | | |
| | Single-Family Home Water Heater | Single-Family Home HVAC | | Multi-Family Home HVAC | |
| | | Furnace + AC | Furnace Only | Furnace + AC | Furnace Only |
| PAR 1111/1121 Preliminary Draft Staff Report ¹ | 601,000 | (183,000) | 921,000 | (2,633,000) | (135,000) |
| Cost-Effectiveness Values calculated based on South Coast AQMD Data ² | 750,345 | (174,683) | 1,483,017 | (1,455,633) | (363,058) |
| Notes: ¹ South Coast AQMD. Preliminary Draft Staff Report for: Proposed Amended Rule 1111 – Reduction of NO _x Emissions from Natural Gas-Fired Furnaces and Proposed Amended Rule 1121 – Reduction of NO _x emissions from Small Natural Gas-Fired Water Heaters. Available at: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18 . Accessed: October 2024. ² See Attachment A. Abbreviations: \$ - dollar, AC – air conditioner, HVAC – heating ventilation and air conditions, NO _x – oxides of nitrogen | | | | | |

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2. South Coast AQMD's assumptions for electric heat pump efficiencies are substantially higher than those reported for residential heat pumps that are available in the market.

The energy consumption data for heat pumps and the natural gas appliances presented by South Coast AQMD staff in WGM#2³ indicates that the heat pumps are approximately 5-7 times more efficient than the natural gas appliances they replace. Specifically, the electric heat pump space heater is assumed to be 6.8 times⁴ more efficient than a conventional natural gas furnace and the

³ South Coast AQMD Working Group Meetings for Proposed Amended Rules 1111 - Reduction of NO_x Emissions from Natural-Gas-Fired Furnaces and 1121 - Reduction of NO_x Emissions from Residential Type, Natural-Gas-Fired Water Heaters. Available at: <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1111-and-rule-1121>. Accessed: October 2024.

⁴ South Coast AQMD assumed an annual energy use of 3,822 kWh (127 therm NG for furnace + 101 kWh electricity for furnace fan) from a conventional gas furnace and 565 kWh for a HVAC heat pump to be 565 kWh, in WGM#2, Slide 12, and did not distinguish single family-and multi-family use. This indicates that the heat pump HVAC is 6.8 (3,822÷565) times more efficient than the conventional natural gas furnace.



electric heat pump water heater is assumed to be at least 5.3 times⁵ more efficient than a conventional natural gas water heater.

While South Coast AQMD staff claimed the energy consumption data of the natural gas furnace and HVAC heat pumps were obtained from the 2019 California Residential Appliance Saturation Study (2019 RASS)⁶, staff used incorrect values from the RASS by mixing the single- and multi-family space heating energy consumptions. **Table 2** below summarizes the space heating Unit Energy Consumption (UEC) for natural gas furnaces (i.e., Primary Heat + Furnace Fan) and heat pump space heaters (i.e., Primary Heat Pump Space Heating) that are listed in the 2019 RASS. We recommend staff uses these UEC values to revise their CE analysis.

| Table 2. UEC from the 2019 RASS | | | |
|--|----------------------|---------------------|-------------|
| Equipment | Single-Family | Multi-Family | Unit |
| Primary Heat ¹ | 191 | 67 | therms/year |
| Furnace Fan ² | 159 | 55 | kWh/year |
| Primary Heat Pump Space Heating ² | 1,221 | 493 | kWh/year |
| ¹ Data obtained from Table 33 in Volume 2 of the 2019 California RASS. Available at: https://www.energy.ca.gov/sites/default/files/2021-08/CEC-200-2021-005-RSLTS.pdf . Accessed: October 2024. Multi-family UEC data are the average the UECs for townhomes, 2-4 unit apartments, and 5+ unit apartments. ² Data obtained from Table 11 in Volume 2 of the 2019 California RASS. Available at: https://www.energy.ca.gov/sites/default/files/2021-08/CEC-200-2021-005-RSLTS.pdf . Accessed: October 2024. Multi-family UEC data are the average the UECs for townhomes, 2-4 unit apartments, and 5+ unit apartments. | | | |

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Additionally, we would like to point out that the energy efficiency values South Coast AQMD staff used are also significantly higher than the efficiencies of residential heat pumps appliances that are available in the market. For instance, the Coefficient of Performance (COP) of certified Air-Source Heat Pumps (ASHP, or heat pump space heaters) in the ENERGY STAR program's database range from 1.8 to 2.9 (average 2.0).⁷ This indicates that residential heat pump space heaters in the market are approximately 2 time more efficient than a conventional NG furnace.

The ENERGY STAR website⁸ also indicates that certified heat pump water heaters are 3.5 to 4.4 times more efficient than a traditional NG water heater. Additionally, South Coast AQMD staff

⁵ South Coast AQMD assumed an annual energy use of 190 therms NG (5,567 kWh) for a conventional gas water heater and 1,036 kWh for an equivalent heat pump water heater, in the Preliminary Draft Staff Report. This indicates that the heat pump water heater would be at least 5.3 times (5,567÷1,036) more efficient than the conventional gas water heater.

⁶ South Coast AQMD assumed an annual energy use of 3,822 kWh (127 therm NG for furnace + 101 kWh electricity for furnace fan) from a conventional gas furnace and 565 kWh for a HVAC heat pump to be 565 kWh, in WGM#2, Slide 12.

⁷ ENERGY STAR Certified Air-Source Heat Pumps. Available at: https://data.energystar.gov/Active-Specifications/ENERGY-STAR-Certified-Air-Source-Heat-Pumps/w7cv-9xjt/about_data. Accessed: October 2024.

⁸ ENERGY STAR- What is Uniform Energy Factor and Why Does it Matter?. Available at: <https://www.energystar.gov/products/ask-the-experts/what-uniform-energy-factor-and-why-does-it-matter>. Accessed: October 2024. Note this article reported that the UEF (i.e., Uniform Energy Factor) for a traditional gas water heater is 0.93, while ENERGY STAR certified heat pump water heaters typically have UEF ratings in the range of 3.3 to 4.1. Ramboll calculated the ratio and summarized the efficiency improvement to be 3.5-4.4 times.



have also stated that the heat pump water heater is 4.6 more efficient than a Type 1 NG water heater in the in WGM#3 for PAR 1146.2.⁹ While the water heaters subject to Rule 1146.2 are larger than the residential water heaters that would be subject to PAR 1111/1121, the relative efficiency of heat pump water heater to a natural gas water heater should still be similar for both small and large water heaters.

Therefore, we request staff review and update the energy consumption assumptions for the natural gas and residential heat pump appliances that are used in their cost-effectiveness evaluations for PAR 1111/1121.

3. South Coast AQMD should consider changing the panel upgrade cost for each equipment from \$750 to \$3,000 to reflect an accurate estimation of infrastructure costs.

South Coast AQMD proposes reducing the panel upgrade cost from \$3,000 to \$1,500, assuming a longer useful panel life compared to the equipment's 15-year lifespan. Staff also assumed that this cost would be shared by both the space heaters and water heaters, resulting in an infrastructure cost of \$750 each, as noted in WGM #2, slide 16. However, it is not valid to implement a lower infrastructure cost from an assumed longer panel lifespan because the investment for the panel upgrade must be fully made at the time of purchase, and not at the end of the equipment life. Additionally, space heaters and water heaters have varying lifetimes; therefore, it is invalid to assume all homes will install electric water heaters and space heaters simultaneously to share the panel upgrade cost. Hence, we recommend that staff use a panel upgrade cost to be \$3,000 for each equipment replacement project.

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4. South Coast AQMD used inconsistent data sources for the capital costs of natural gas appliances and heat pump appliances, leading to uncertainty in the CE analysis.

South Coast AQMD staff utilized capital cost data for NG equipment from the 2019 E3 Residential Building Study (E3 Study)¹⁰, while the capital costs for heat pump equipment were obtained from the TECH Clean California program (TECH)¹¹. We are concerned about the discrepancies between these two data sources and the resulting uncertainty in the CE analysis.

For instance, the E3 Study models costs for three types of homes: pre-1978 homes, which typically require electric panel upgrades, 1990s homes, and new construction that complies with California's 2019 Title 24 building code. In contrast, the TECH data only covers electrification projects for existing homes, excluding new construction entirely.

Additionally, the sample size in the TECH dataset varies greatly by home type. Specifically, it includes over 10,000 single-family project records in the South Coast (i.e., water heating and space heating projects in Los Angeles, Riverside, Orange, and San Bernardino counties) but only about 1,000 multi-family projects. This suggests that the TECH data is dominated by single-family projects and may not adequately represent multi-family projects.

⁹ South Coast AQMD Working Group Meeting #3: Proposed Amended Rule 1146.2 – Controls of Oxides of Nitrogen from Large Water Heaters, Small Boilers, and Process Heaters. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-1146-1146.1-and-1146.2/par-1146-2-wgm3-august-2023.pdf?sfvrsn=14>. Accessed: October 2024.

¹⁰ Energy+Environmental Economics (E3). Residential Building Electrification in California. Available at: <https://www.ethree.com/e3-quantifies-the-consumer-and-emissions-impacts-of-electrifying-california-homes/>. Accessed: October 2024.

¹¹ TECH Clean California. Heat Pump Data. Available at: <https://techcleanca.com/heat-pump-data/>. Accessed: October 2024.



Given these discrepancies, we recommend that South Coast AQMD staff revise their CE analysis by using E3 Study data for both natural gas and heat pump equipment costs to ensure consistency and accuracy.

5. The CE analysis should use the average electricity and natural gas prices over the equipment lifetime instead of the current-year electricity and natural gas prices.

The preliminary draft staff report¹² states that the CE analysis relied on the fuel price estimates which are based on a combination of the 2023 Integrated Energy Policy Report (2023 IEPR) and Energy Information Administration national level forecasts. While the staff report does not provide the values of the fuel price estimates that were actually used in the analysis, slide 25 in WGM #4 presentation indicated that these values are 0.0566 \$/kWh and 0.2639 \$/ kWh for natural gas and electricity, respectively. However, it is not clear how AQMD staff arrived at these values.

The proposed initial implementation year for PAR 1111/1121 starts from 2026, and the expected equipment lifespan for water heater and space heater are 15 years and 25 years, respectively. Additionally, we note that the 2023 IEPR provides electricity price forecasts only till 2040. Hence, we suggest that Staff use the average of the fuel price forecasts from 2026 to 2040 (a 15-year period) in their CE analysis. Ramboll has estimated these fuel price forecasts as described below:

- Ramboll used the price forecasts in the 2023 IEPR¹³ to calculate the following 2026 to 2040 average electricity prices for Southern California Edison (SCE) and Los Angeles Department of Water and Power (LADWP): 0.2959 2022\$/kWh for SCE and 0.2919 2022\$/kWh for LADWP. We then estimated a population weighted average electricity price of 0.2950 2022\$/kWh (0.77 x SCE price + 0.23 x LADWP price) for the South Coast Air Basin following the methodology described in the preliminary draft staff report.
- Ramboll received a copy of the California Energy Commission's (CEC's) projected residential rates for Southern California Gas Company (SCG) from SCG. While this data included natural gas base rate projections till 2050, in order to maintain consistency with the approach for estimating the electricity prices, we propose using the 2026 to 2040 average natural gas price of 2.2372 2023\$/therm, i.e., 0.07314 2022\$/kWh¹⁴.

We recommend that staff review our estimates for fuel prices and use these in the CE analysis.

6. Once all suggested revisions related to CE analysis are incorporated, the CE analysis of PAR 1111 and 1121 to mandate the switch toward electric water heaters and space heaters will no longer be cost-effective for most scenarios.

Ramboll calculated the CE in dollars per ton of NO_x reduced for the replacement of residential NG appliances with electric heat pump alternatives using the updated data and assumptions as discussed in the comments above. These are summarized below in **Table 3**. Our analysis indicates that the replacement of a single-family home natural gas water heater, single-family home natural gas furnace (only), and multi-family home natural gas furnace (only) with heat pump equipment are

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¹² South Coast AQMD. Preliminary Draft Staff Report for: Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces and Proposed Amended Rule 1121 – Reduction of NO_x emissions from Small Natural Gas-Fired Water Heaters. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹³ California Energy Demand Forecast, 2023-2040. Electricity Rate Forecast and Supporting Data. Available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=253591>. Accessed: October 2024.

¹⁴ 2023\$ were converted to 2022\$ using a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2023. CPI data available at: <https://www.dir.ca.gov/oprl/CPI/EntireCCPI.PDF>. Accessed: October 2024.



not cost-effective, i.e., CE is greater than the threshold of \$349,000. Details of these calculation are presented in Tables B-1, B-2, and B-3 in **Attachment B** for single-family home water heaters, single-family home HVACs, and multi-family home HVACs respectively.

Table 3: Updated Cost-Effectiveness Comparisons

| Data Source | Cost-Effectiveness for Conversion of Residential Natural Gas Equipment to Electric Heat Pump Equipment (2022\$/ton NO _x) | | | | |
|--|---|-------------------------|--------------|------------------------|--------------|
| | Single-Family Home Water Heater | Single-family Home HVAC | | Multi-family Home HVAC | |
| | | Furnace + AC | Furnace Only | Furnace + AC | Furnace Only |
| PAR 1111/1121 Preliminary Draft Staff Report ¹ | 601,000 | (183,000) | 921,000 | (2,633,000) | (135,000) |
| Cost-Effectiveness Values Calculated based on Updated Data presented in this Comment Letter ² | 879,258 | (220,761) | 972,443 | 91,831 | 1,351,118 |
| Cost-effectiveness Threshold (\$/ton of NO _x) | 349,000 | | | | |

Notes:

¹ South Coast AQMD. Preliminary Draft Staff Report for: Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces and Proposed Amended Rule 1121 – Reduction of NO_x emissions from Small Natural Gas-Fired Water Heaters. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

² See Attachment B.

Abbreviations:

\$ - dollar, AC – air conditioner, HVAC – heating ventilation and air conditions, NO_x – oxides of nitrogen

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ATTACHMENT A
COST-EFFECTIVENESS CALCULATIONS
BASED ON SOUTH COAST AQMD DATA

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Table A1. Cost-Effectiveness Calculations for the Replacement of a Residential Single-Family Home Natural Gas Water Heater based on Data presented by South Coast AQMD

| | Natural Gas Water Heater | Electric Heat Pump Water Heater | Units |
|---|--------------------------|---------------------------------|-------------------|
| NOx Emissions | | | |
| NOx Emission Factor | 10.0 | 0.0 | ng/l |
| Annual Energy Use by Technology Type ¹ | 5,567 | 1,036 | kWh |
| Equipment Useful Life | 15 | 15 | years |
| Total Lifetime NOx Emissions ² | 3.3E-03 | 0.0E+00 | tons |
| Capital Costs | | | |
| Capital Costs ³ | 3,000 | 5,200 | 2022\$ |
| Infrastructure | -- | 750 | 2022\$ |
| Total Capital Costs | 3,000 | 5,950 | 2022\$ |
| Operation and Maintenance (O&M) Costs | | | |
| Electricity/Fuel Prices ⁴ | 0.0566 | 0.2639 | 2022\$/kWh |
| Annual Electricity/Fuel Costs ⁵ | 315 | 273 | 2022\$/yr |
| Total Lifetime O&M Costs ⁶ | 3,503 | 3,040 | 2022\$ |
| Cost-Effectiveness | | | |
| Lifetime NOx Emission Reductions ⁷ | -- | 3.3E-03 | tons |
| Incremental Capital Costs ⁸ | -- | 2,950 | 2022\$ |
| Incremental Lifetime Operation and Maintenance Costs ⁸ | -- | (464) | 2022\$ |
| Incremental Lifetime Equipment Costs ⁸ | -- | 2,486 | 2022\$ |
| NOx Cost-Effectiveness⁸ | -- | 750,345 | 2022\$/ton |
| South Coast AQMD Reported Cost-Effectiveness¹⁰ | | 601,000 | 2022\$/ton |
| South Coast AQMD NOx Cost-Effectiveness Threshold | 349,000 | 349,000 | 2022\$/ton |

Abbreviations:

AQMD - Air Quality Management District
COP - coefficient of performance
hr - hour
kg - kilogram
kW - kilowatt
kWh - kilowatt hour
J - joule
MMBtu - million British thermal units
NOx - oxides of nitrogen
ng - nanogram
yr - year

Constants:

Present Value Factor¹¹ 11.118
Real Interest Rate 4%

Conversion Factors:

8,760 hr/yr
29.3 kWh/therm
2,000 lbs/ton
2.78E-07 kWh/l
1.0.E+09 ng/g

Notes:

¹ Annual Energy Use obtained from Page 2-20 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

² Total Lifetime NOx emissions are estimated as the Annual Energy Use multiplied by the Equipment Useful Life, and the NOx Emission Factor.

³ Capital Costs obtained from Page 2-20 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

⁴ Electricity/fuel prices (\$/kWh) data obtained from South Coast AQMD Working Group Meeting #4: Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired Furnaces and PAR 1121 - Reduction of NOx Emissions from Residential Type, Natural-Gas-Fired Water Heaters. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm4-april-2024.pdf?sfvrsn=14>. Accessed: October 2024. It appears that updates were made to the methodology used to estimate these prices in the Preliminary Draft Staff Report, however, the exact values that were used for the calculations in the staff report are not presented in the report.

⁵ Annual Electricity/Fuel Costs is estimated as the product of the Annual Energy Use and the Electricity/Fuel Prices.

⁶ Lifetime O&M Costs are estimated as the Annual Electricity/Fuel Costs multiplied by the Present Value Factor.

⁷ Lifetime NOx Emission Reductions are calculated as the difference in Lifetime NOx emissions for the natural gas unit and the electric unit.

⁸ Incremental Costs are calculated as the difference in cost compared to the natural gas unit.

⁹ NOx Cost-Effectiveness is calculated as the Incremental Lifetime Equipment Costs divided by the Lifetime NOx Emission Reductions

¹⁰ Data obtained from Page 2-20 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹¹ The Present Value Factor is part of the Discounted Cash Flow Method that uses expected future cash flows in conjunction with a discount rate to estimate present fair value. Based on South Coast AQMD Working Group Meeting #3 presentation slides. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>. Accessed: October 2024.

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Table A2. Cost-Effectiveness Calculations for the Replacement of a Residential Single-Family Home Natural Gas Furnace based on Data Presented by South Coast AQMD

| Parameters for Cost-Effectiveness Analysis | Space Heating and Cooling | | Space Heating Only | | Units |
|---|---------------------------------------|-------------------------|---------------------|-------------------------|------------|
| | Natural Gas Furnace + Air Conditioner | Electric Heat Pump HVAC | Natural Gas Furnace | Electric Heat Pump HVAC | |
| NOx Emissions | | | | | |
| NOx Emission Factor | 14.0 | 0.0 | 14.0 | 0.0 | ng/l |
| Annual Energy Use by Technology Type ¹ | 3,822 | 565 | 3,822 | 565 | kWh |
| Equipment Useful Life | 25 | 25 | 25 | 25 | years |
| Total Lifetime NOx Emissions ² | 5.3E-03 | 0.0E+00 | 5.3E-03 | 0.0E+00 | tons |
| Capital Costs | | | | | |
| Capital Costs ³ | 18,800 | 18,500 | 10,000 | 18,500 | 2022\$ |
| Infrastructure | -- | 750 | -- | 750 | 2022\$ |
| Total Capital Costs | 18,800 | 19,250 | 10,000 | 19,250 | 2022\$ |
| Operation and Maintenance (O&M) Costs | | | | | |
| Electricity Prices ⁴ | 0.2639 | 0.2639 | 0.2639 | 0.2639 | 2022\$/kWh |
| Natural Gas Prices ⁴ | 0.0566 | | 0.0566 | | 2022\$/kWh |
| Annual Electricity/Fuel Costs ⁵ | 237 | 149 | 237 | 149 | 2022\$/yr |
| Total Lifetime O&M Costs ⁶ | 3,707 | 2,329 | 3,707 | 2,329 | 2022\$ |
| Cost-Effectiveness | | | | | |
| Lifetime NOx Emission Reductions ⁷ | -- | 5.3E-03 | -- | 5.3E-03 | tons |
| Incremental Capital Costs ⁸ | -- | 450 | -- | 9,250 | 2022\$ |
| Incremental Lifetime Operation and Maintenance Costs ⁸ | -- | (1,377) | -- | (1,377) | 2022\$ |
| Incremental Lifetime Equipment Costs ⁸ | -- | (927) | -- | 7,873 | 2022\$ |
| NOx Cost-Effectiveness ⁹ | -- | (174,683) | -- | 1,483,017 | 2022\$/ton |
| South Coast AQMD Reported Cost-Effectiveness ¹⁰ | | (183,000) | | 921,000 | 2022\$/ton |
| South Coast AQMD NOx Cost-Effectiveness Threshold | 349,000 | 349,000 | 349,000 | 349,000 | 2022\$/ton |

Abbreviations:

AQMD - Air Quality Management District
 COP - coefficient of performance
 hr - hour
 kg - kilogram
 kW - kilowatt
 kWh - kilowatt hour
 J - joule
 MMBtu - million British thermal units
 NOx - oxides of nitrogen
 ng - nanogram
 yr - year

Constants:

Present Value Factor¹² 15.622
 Real Interest Rate 4%

Conversion Factors:

8,760 hr/yr
 29.3 kWh/therm
 2,000 lbs/ton
 2.78E-07 kWh/l
 1.0E+09 ng/g

Notes:

¹ Annual Energy Use obtained from South Coast AQMD Working Group Meetings #2: Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired Furnaces and PAR 1121 - Reduction of NOx Emissions from Residential Type, Natural-Gas-Fired Water Heaters, Slide 12. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm2-november-2023.pdf>. Accessed: October 2024.

² Total Lifetime NOx emissions are estimated as the Annual Energy Use multiplied by the Equipment Useful Life, and the NOx Emission Factor.

³ Capital Costs obtained from Page 2-18 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

⁴ Electricity/natural gas prices (\$/kWh) data obtained from South Coast AQMD Working Group Meeting #4: Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired Furnaces and PAR 1121 - Reduction of NOx Emissions from Residential Type, Natural-Gas-Fired Water Heaters. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm4-april-2024.pdf?sfvrsn=14>. Accessed: October 2024. It appears that updates were made to the methodology used to estimate these prices in the Preliminary Draft Staff Report, however, the exact values that were used for the calculations in the staff report are not presented in the report.

⁵ Annual Electricity/Fuel Costs is estimated as the product of the Annual Energy Use and the Electricity/Fuel Prices.

⁶ Lifetime O&M Costs are estimated as the Annual Electricity/Fuel Costs multiplied by the Present Value Factor.

⁷ Lifetime NOx Emission Reductions are calculated as the difference in Lifetime NOx emissions for the natural gas unit and the electric unit.

⁸ Incremental Costs are calculated as the difference in cost compared to the natural gas unit.

⁹ NOx Cost-Effectiveness is calculated as the Incremental Lifetime Equipment Costs divided by the Lifetime NOx Emission Reductions

¹⁰ Data obtained from Page 2-18 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹² The Present Value Factor is part of the Discounted Cash Flow Method that uses expected future cash flows in conjunction with a discount rate to estimate present fair value. Based on South Coast AQMD Working Group Meeting #3 presentation slides. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>. Accessed: October 2024.

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Table A3. Cost-Effectiveness Calculations for the Replacement of a Multi-Family Home Residential Natural Gas Furnace based on Data Presented by South Coast AQMD

| Parameters for Cost-Effectiveness Analysis | Space Heating and Cooling | | Space Heating Only | | Units |
|---|---------------------------------------|-------------------------|---------------------|-------------------------|------------|
| | Natural Gas Furnace + Air Conditioner | Electric Heat Pump HVAC | Natural Gas Furnace | Electric Heat Pump HVAC | |
| NOx Emissions | | | | | |
| NOx Emission Factor | 14.0 | 0.0 | 14.0 | 0.0 | ng/l |
| Annual Energy Use by Technology Type ³ | 3,822 | 565 | 3,822 | 565 | kWh |
| Equipment Useful Life | 25 | 25 | 25 | 25 | years |
| Total Lifetime NOx Emissions ² | 5.3E-03 | 0.0E+00 | 5.3E-03 | 0.0E+00 | kg |
| Capital Costs | | | | | |
| Capital Costs ³ | 12,400 | 5,300 | 6,600 | 5,300 | 2022\$ |
| Infrastructure | --- | 750 | --- | 750 | 2022\$ |
| Total Capital Costs | 12,400 | 6,050 | 6,600 | 6,050 | 2022\$ |
| Operation and Maintenance (O&M) Costs | | | | | |
| Electricity Prices ⁴ | 0.2639 | 0.2639 | 0.2639 | 0.2639 | 2022\$/kWh |
| Natural Gas Prices ⁴ | 0.0566 | | 0.0566 | | 2022\$/kWh |
| Annual Electricity/Fuel Costs ⁵ | 237 | 149 | 237 | 149 | 2022\$/yr |
| Total Lifetime O&M Costs ⁶ | 3,707 | 2,329 | 3,707 | 2,329 | 2022\$ |
| Cost-Effectiveness | | | | | |
| Lifetime NOx Emission Reductions ⁷ | --- | 5.3E-03 | --- | 5.3E-03 | tons |
| Incremental Capital Costs ⁸ | --- | (6,350) | --- | (550) | 2022\$ |
| Incremental Lifetime Operation and Maintenance Costs ⁸ | --- | (1,377) | --- | (1,377) | 2022\$ |
| Incremental Lifetime Equipment Costs ⁸ | --- | (7,727) | --- | (1,927) | 2022\$ |
| NOx Cost-Effectiveness ⁹ | --- | (1,455,633) | --- | (363,058) | 2022\$/ton |
| South Coast AQMD Reported Cost-Effectiveness ¹⁰ | | (2,633,000) | | (135,000) | 2022\$/ton |
| South Coast AQMD NOx Cost-Effectiveness Threshold | 349,000 | 349,000 | 349,000 | 349,000 | 2022\$/ton |

Abbreviations:

AQMD - Air Quality Management District

COP - coefficient of performance

hr - hour

kg - kilogram

kW - kilowatt

kWh - kilowatt hour

J - joule

MMBtu - million British thermal units

NOx - oxides of nitrogen

ng - nanogram

yr - year

Constants:Present Value Factor¹¹ 15.622

Real Interest Rate 4%

Conversion Factors:

8,760 hr/yr

29.3 kWh/therm

2,000 lbs/ton

2.78E-07 kWh/l

1.0E+09 ng/g

Notes:

¹ Annual Energy Use obtained from South Coast AQMD Working Group Meetings #2: Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired Furnaces and PAR 1121 - Reduction of NOx Emissions from Residential Type, Natural-Gas-Fired Water Heaters, Slide 12. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-wgm2-november-2023.pdf>. Accessed: October 2024.

² Total Lifetime NOx emissions are estimated as the Annual Energy Use multiplied by the Equipment Useful Life, and the NOx Emission Factor.

³ Capital Costs obtained from Page 2-19 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

⁴ Electricity/natural gas prices (\$/kWh) data obtained from South Coast AQMD Working Group Meeting #4: Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired Furnaces and PAR 1121 - Reduction of NOx Emissions from Residential Type, Natural-Gas-Fired Water Heaters. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-wgm4-april-2024.pdf?sfvrsn=14>. Accessed: October 2024. It appears that updates were made to the methodology used to estimate these prices in the Preliminary Draft Staff Report, however, the exact values that were used for the calculations in the staff report are not presented in the report.

⁵ Annual Electricity/Fuel Costs is estimated at the product of the Annual Energy Use and the Electricity/Fuel Prices.

⁶ Lifetime O&M Costs are estimated as the Annual Electricity/Fuel Costs multiplied by the Present Value Factor.

⁷ Lifetime NOx Emission Reductions are calculated as the difference in Lifetime NOx emissions for the natural gas unit and the electric unit.

⁸ Incremental Costs are calculated as the difference in cost compared to the natural gas unit.

⁹ NOx Cost-Effectiveness is calculated as the Incremental Lifetime Equipment Costs divided by the Lifetime NOx Emission Reductions

¹⁰ Data obtained from Page 2-19 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹¹ The Present Value Factor is part of the Discounted Cash Flow Method that uses expected future cash flows in conjunction with a discount rate to estimate present fair value. Based on South Coast AQMD Working Group Meeting #3 presentation slides. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>. Accessed: October 2024.

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ATTACHMENT B
COST-EFFECTIVENESS CALCULATIONS
BASED ON UPDATED DATA PRESENTED IN
THIS COMMENT LETTER

37-8

Table B1. Cost-Effectiveness Calculations for the Replacement of a Residential Single-Family Home Natural Gas Water Heater

| Parameters for Cost-Effectiveness Analysis | Natural Gas Water Heater | Electric Heat Pump Water Heater | Units |
|---|--------------------------|---------------------------------|------------|
| NOx Emissions | | | |
| NOx Emission Factor | 10.0 | 0.0 | ng/l |
| Annual Energy Use by Technology Type ¹ | 7,618 | 1,905 | kWh |
| Equipment Useful Life | 15 | 15 | years |
| Total Lifetime NOx Emissions ² | 4.5E-03 | 0.0E+00 | tons |
| Capital Costs | | | |
| Capital Costs ³ | 3,676 | 4,611 | 2022\$ |
| Infrastructure | -- | 3,000 | 2022\$ |
| Total Capital Costs | 3,676 | 7,611 | 2022\$ |
| Operation and Maintenance (O&M) Costs | | | |
| Electricity/Fuel Prices ^{4,5} | 0.0731 | 0.2950 | 2022\$/kWh |
| Annual Electricity/Fuel Costs ⁶ | 557 | 562 | 2022\$/yr |
| Total Lifetime O&M Costs ⁷ | 6,195 | 6,247 | \$ |
| Cost-Effectiveness | | | |
| Lifetime NOx Emission Reductions ⁸ | -- | 4.5E-03 | tons |
| Incremental Capital Costs ⁹ | -- | 3,935 | 2022\$ |
| Incremental Lifetime Operation and Maintenance Costs ⁹ | -- | 52 | 2022\$ |
| Incremental Lifetime Equipment Costs ⁹ | -- | 3,987 | 2022\$ |
| NOx Cost-Effectiveness ¹⁰ | -- | 879,258 | 2022\$/ton |
| South Coast AQMD Reported Cost-Effectiveness ¹¹ | -- | 601,000 | 2022\$/ton |
| South Coast AQMD NOx Cost-Effectiveness Threshold | 349,000 | 349,000 | 2022\$/ton |

Abbreviations:

AQMD - Air Quality Management District
 COP - coefficient of performance
 hr - hour
 kg - kilogram
 kW - kilowatt
 kWh - kilowatt hour
 J - joule
 MMBtu - million British thermal units
 NOx - oxides of nitrogen
 ng - nanogram
 yr - year

Constants:

Present Value Factor¹² 11.118
 Real Interest Rate 4%

Conversion Factors:

8,760 hr/yr
 29.3 kWh/therm
 2,000 lbs/ton
 2.78E-07 kWh/l
 1.0.E+09 ng/g

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Notes:

¹ Energy consumption of the natural gas water heater was obtained from Table 33 of the 2019 California Residential Appliance Saturation Study (RASS). Available at: <https://www.energy.ca.gov/publications/2019/2019-california-residential-appliance-saturation-study-rass>. Accessed: October 2024.

For the electric heat pump water heater energy consumption, Ramboll assumed it to be 4 times more efficient than the natural gas water heater based on this article: <https://www.energystar.gov/products/ask-the-experts/what-uniform-energy-factor-and-why-does-it-matter>. Accessed: October 2024.

² Total Lifetime NOx Emissions are estimated as the Annual Energy Use multiplied by the Equipment Useful Life, and the NOx Emission Factor.

³ Capital Costs were derived based on Capital Cost Data of Zones 6, 9 and 10 from the E3 study, "Residential Building Electrification in California." Available at: <https://www.ethree.com/e3-quantifies-the-consumer-and-emissions-impacts-of-electrifying-california-homes/>. Accessed: October 2024.
 The costs were also converted from 2018\$ to 2022\$ based on a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2018. CPI data available at: <https://www.dir.ca.gov/opri/CPI/EntireCCPI.PDF>. Accessed: October 2024.

⁴ As noted in the preliminary draft staff report (Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024), the electricity price is calculated as a population weighted average of 2026 to 2040 projected price averages for SCE and LADWP, i.e., 0.77 x SCE price + 0.23 x LADWP price. The 2026 to 2040 projected average price averages for SCE and LADWP were obtained from the 2023 IEPR. Available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=253591>. Accessed: October 2024.

⁵ Natural gas price was estimated as the average of the 2026 to 2040 residential baseline rates from CEC. Note, these rates were provided in 2023\$ and converted to 2022\$ using a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2023. CPI data available at: <https://www.dir.ca.gov/opri/CPI/EntireCCPI.PDF>. Accessed: October 2024.

⁶ Annual Electricity/Fuel Costs are estimated as the product of the Annual Energy Use and the Electricity/Fuel Prices.

⁷ Total Lifetime O&M Costs are estimated as the Annual Electricity/Fuel Costs multiplied by the Present Value Factor.

⁸ Lifetime NOx Emission Reductions are calculated as the difference in Lifetime NOx Emissions for the natural gas unit and the electric unit.

⁹ Incremental Costs are calculated as the difference in cost compared to the natural gas unit.

¹⁰ NOx Cost-Effectiveness is calculated as the Incremental Lifetime Equipment Costs divided by the Lifetime NOx Emission Reductions.

¹¹ Data obtained from Page 2-20 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹² The Present Value Factor is part of the Discounted Cash Flow Method that uses expected future cash flows in conjunction with a discount rate to estimate present fair value. Based on South Coast AQMD Working Group Meeting #3 presentation slides. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>. Accessed: October 2024.

Table B2. Cost-Effectiveness Calculations for the Replacement of a Residential Single-Family Home Natural Gas Furnace

| Parameters for Cost-Effectiveness Analysis | Space Heating and Cooling | | Space Heating Only | | Units |
|---|---------------------------------------|-------------------------|---------------------|-------------------------|------------|
| | Natural Gas Furnace + Air Conditioner | Electric Heat Pump HVAC | Natural Gas Furnace | Electric Heat Pump HVAC | |
| NOx Emissions | | | | | |
| NOx Emission Factor | 14.0 | 0.0 | 14.0 | 0.0 | ng/l |
| Annual Energy Use by Technology Type ⁵ | 5,755 | 1,221 | 5,755 | 1,221 | kWh |
| Equipment Useful Life | 25 | 25 | 25 | 25 | years |
| Total Lifetime NOx Emissions ⁶ | 8.0E-03 | 0.0E+00 | 8.0E-03 | 0.0E+00 | tons |
| Capital Costs | | | | | |
| Capital Costs ⁷ | 19,495 | 16,230 | 9,957 | 16,230 | 2022\$ |
| Infrastructure | — | 3,000 | — | 3,000 | 2022\$ |
| Total Capital Costs | 19,495 | 19,230 | 9,957 | 19,230 | 2022\$ |
| Operation and Maintenance (O&M) Costs | | | | | |
| Electricity Prices ⁸ | 0.2950 | 0.2950 | 0.2950 | 0.2950 | 2022\$/kWh |
| Natural Gas Prices ⁸ | 0.0731 | — | 0.0731 | — | 2022\$/kWh |
| Annual Electricity/Fuel Costs ⁹ | 456 | 360 | 456 | 360 | 2022\$/yr |
| Total Lifetime O&M Costs ⁷ | 7,127 | 5,627 | 7,127 | 5,627 | 2022\$ |
| Cost-Effectiveness | | | | | |
| Lifetime NOx Emission Reductions ⁸ | — | 8.0E-03 | — | 8.0E-03 | tons |
| Incremental Capital Costs ⁸ | — | (265) | — | 9,273 | 2022\$ |
| Incremental Lifetime Operation and Maintenance Costs ⁸ | — | (1,500) | — | (1,500) | 2022\$ |
| Incremental Lifetime Equipment Costs ⁸ | — | (1,765) | — | 7,773 | 2022\$ |
| NOx Cost-Effectiveness¹⁰ | — | (220,761) | — | 972,443 | 2022\$/ton |
| South Coast AQMD Reported Cost-Effectiveness¹¹ | — | (183,000) | — | 921,000 | 2022\$/ton |
| South Coast AQMD NOx Cost-Effectiveness Threshold | 349,000 | 349,000 | 349,000 | 349,000 | 2022\$/ton |

Abbreviations:

AQMD - Air Quality Management District
 COP - coefficient of performance
 hr - hour
 kg - kilogram
 kW - kilowatt
 kWh - kilowatt hour
 J - joule
 MBtu - million British thermal units
 NOx - oxides of nitrogen
 ng - nanogram
 yr - year

Constants:

Present Value Factor¹² 15.622
 Real Interest Rate 4%

Conversion Factors:

8,760 hr/yr
 29.3 kWh/therm
 2,000 lbs/ton
 2.78E-07 kWh/J
 1.0.E+09 ng/g

Notes:

¹ Energy consumptions of the natural gas and heat pump space heaters were obtained from the 2019 California Residential Appliance Saturation Study (RASS), Table 11 and Table 33. Natural gas furnace energy consumption includes 191 therms of natural gas per year and 159 kWh of electricity per year for the furnace fan. Available at: <https://www.energy.ca.gov/publications/2021/2019-california-residential-appliance-saturation-study-rass>. Accessed: October 2024.

² Total Lifetime NOx Emissions are estimated as the Annual Energy Use multiplied by the Equipment Useful Life, and the NOx Emission Factor.

³ Capital Costs were derived based on Capital Cost Data of Zones 6, 9 and 10 from the E3 study, "Residential Building Electrification in California." Available at: <https://www.ethree.com/e3-quantifies-the-consumer-and-emissions-impacts-of-electrifying-california-homes/>. Accessed: October 2024. The costs were also converted from 2018\$ to 2022\$ based on a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2018. CPI data available at: <https://www.dir.ca.gov/opri/CPI/EntireCPI.PDF>. Accessed: October 2024.

⁴ As noted in the preliminary draft staff report (Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024), the electricity price is calculated as a population weighted average of 2026 to 2040 projected price averages for SCE and LADWP, i.e., 0.77 x SCE price + 0.23 x LADWP price. The 2026 to 2040 projected average price averages for SCE and LADWP were obtained from the 2023 IEPR. Available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=253591>. Accessed: October 2024.

⁵ Natural gas price was estimated as the average of the 2026 to 2040 residential baseline rates from CEC. Note, these rates were provided in 2023\$ and converted to 2022\$ using a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2023. CPI data available at: <https://www.dir.ca.gov/opri/CPI/EntireCPI.PDF>. Accessed: October 2024.

⁶ Annual Electricity/Fuel Costs are estimated as the product of the Annual Energy Use and the Electricity/Fuel Prices.

⁷ Total Lifetime O&M Costs are estimated as the Annual Electricity/Fuel Costs multiplied by the Present Value Factor.

⁸ Lifetime NOx Emission Reductions are calculated as the difference in Lifetime NOx Emissions for the natural gas unit and the electric unit.

⁹ Incremental Costs are calculated as the difference in cost compared to the natural gas unit.

¹⁰ NOx Cost-Effectiveness is calculated as the Incremental Lifetime Equipment Costs divided by the Lifetime NOx Emission Reductions.

¹¹ Data obtained from Page 2-18 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹² The Present Value Factor is part of the Discounted Cash Flow Method that uses expected future cash flows in conjunction with a discount rate to estimate present fair value. Based on South Coast AQMD Working Group Meeting #3 presentation slides. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>. Accessed: October 2024.

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Table B3. Cost-Effectiveness Calculations for the Replacement of a Residential Multi-Family Home Natural Gas Furnace

| Parameters for Cost-Effectiveness Analysis | Space Heating and Cooling | | Space Heating Only | | Units |
|---|---------------------------------------|-------------------------|---------------------|-------------------------|------------|
| | Natural Gas Furnace + Air Conditioner | Electric Heat Pump HVAC | Natural Gas Furnace | Electric Heat Pump HVAC | |
| NOx Emissions | | | | | |
| NOx Emission Factor | 14.0 | 0.0 | 14.0 | 0.0 | ng/l |
| Annual Energy Use by Technology Type ¹ | 2,039 | 537.67 | 2,039 | 537.67 | kWh |
| Equipment Useful Life | 25 | 25 | 25 | 25 | years |
| Total Lifetime NOx Emissions ² | 2.8E-03 | 0.0E+00 | 2.8E-03 | 0.0E+00 | kg |
| Capital Costs | | | | | |
| Capital Costs ³ | 13,542 | 11,078 | 6,857 | 11,078 | 2022\$ |
| Infrastructure | --- | 3,000 | --- | 3,000 | 2022\$ |
| Total Capital Costs | 13,542 | 14,078 | 6,857 | 14,078 | 2022\$ |
| Operation and Maintenance (O&M) Costs | | | | | |
| Electricity Prices ⁴ | 0.2950 | 0.2950 | 0.2950 | 0.2950 | 2022\$/kWh |
| Natural Gas Prices ⁵ | 0.0731 | --- | 0.0731 | --- | 2022\$/kWh |
| Annual Electricity/Fuel Costs ⁶ | 162 | 159 | 162 | 159 | 2022\$/yr |
| Total Lifetime O&M Costs ⁷ | 2,526 | 2,478 | 2,526 | 2,478 | 2022\$ |
| Cost-Effectiveness | | | | | |
| Lifetime NOx Emission Reductions ⁸ | --- | 5.3E-03 | --- | 5.3E-03 | tons |
| Incremental Capital Costs ⁹ | --- | 536 | --- | 7,221 | 2022\$ |
| Incremental Lifetime Operation and Maintenance Costs ⁶ | --- | (49) | --- | (49) | 2022\$ |
| Incremental Lifetime Equipment Costs ⁹ | --- | 487 | --- | 7,172 | 2022\$ |
| NOx Cost-Effectiveness¹⁰ | --- | 91,831 | --- | 1,351,118 | 2022\$/ton |
| South Coast AQMD Reported Cost-Effectiveness¹¹ | | (2,633,000) | | (135,000) | 2022\$/ton |
| South Coast AQMD NOx Cost-Effectiveness Threshold | 349,000 | 349,000 | 349,000 | 349,000 | 2022\$/ton |

Abbreviations:

AQMD - Air Quality Management District
 COP - coefficient of performance
 hr - hour
 kg - kilogram
 kW - kilowatt
 kWh - kilowatt hour
 J - joule
 MMBtu - million British thermal units
 NOx - oxides of nitrogen
 ng - nanogram
 yr - year

Constants:

Present Value Factor¹² 15.622
 Real Interest Rate 4%

Conversion Factors:

8,760 hr/yr
 29.3 kWh/therm
 2,000 lbs/ton
 2.78E-07 kWh/l
 1.0.E+09 ng/g

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Notes:

¹ Energy consumptions of the natural gas and heat pump space heaters were obtained from the 2019 California Residential Appliance Saturation Study (RASS), Table 11 and Table 33. Averages of townhomes, 2-4 unit apartment, and 5-unit apartment energy consumptions were used. Natural Gas furnace energy consumption includes 67.7 therms of natural gas per year and 56.7 kWh electricity per year for the furnace fan. Available at: <https://www.energy.ca.gov/publications/2021/2019-california-residential-appliance-saturation-study-rass>. Accessed: October 2024.

² Total Lifetime NOx emissions are estimated as the Annual Energy Use multiplied by the Equipment Useful Life, and the NOx Emission Factor.

³ Capital Costs were derived based on Capital Cost Data of Zones 6, 9 and 10 from the E3 study, "Residential Building Electrification in California." Available at: <https://www.e3three.com/e3-quantifies-the-consumer-and-emissions-impacts-of-electrifying-california-homes/>. Accessed: October 2024. The costs were also converted from 2018\$ to 2022\$ based on a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2018. CPI data available at: <https://www.dir.ca.gov/opr/CPI/EntireCCPI.PDF>. Accessed: October 2024.

⁴ As noted in the preliminary draft staff report (Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024), the electricity price is calculated as a population weighted average of 2026 to 2040 projected price averages for SCE and LADWP, i.e., 0.77 x SCE price + 0.23 x LADWP price. The 2026 to 2040 projected average price averages for SCE and LADWP were obtained from the 2023 IEP. Available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=253591>. Accessed: October 2024.

⁵ Natural gas price was estimated as the average of the 2026 to 2040 residential baseline rates from CEC. Note, these rates were provided in 2023\$ and converted to 2022\$ using a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2023. CPI data available at: <https://www.dir.ca.gov/opr/CPI/EntireCCPI.PDF>. Accessed: October 2024.

⁶ Annual Electricity/Fuel Costs are estimated as the product of the Annual Energy Use and the Electricity/Fuel Prices.

⁷ Total Lifetime O&M Costs are estimated as the Annual Electricity/Fuel Costs multiplied by the Present Value Factor.

⁸ Lifetime NOx Emission Reductions are calculated as the difference in Lifetime NOx Emissions for the natural gas unit and the electric unit.

⁹ Incremental Costs are calculated as the difference in cost compared to the natural gas unit.

¹⁰ NOx Cost-Effectiveness is calculated as the Incremental Lifetime Equipment Costs divided by the Lifetime NOx Emission Reductions.

¹¹ Data obtained from Page 2-19 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹² The Present Value Factor is part of the Discounted Cash Flow Method that uses expected future cash flows in conjunction with a discount rate to estimate present fair value. Based on South Coast AQMD Working Group Meeting #3 presentation slides. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>. Accessed: January 2024.

Appendix B

Comments on Draft Subsequent Environmental Assessment

1. The Draft SEA's air quality impacts analysis compares potential increases in electricity use under South Coast AQMD's 2022 Air Quality Management Plan with those under the proposed project. In doing so, the Draft SEA assumes that space heaters will operate 4 hours per day on 100 days per year when the temperature is below 70°F. (Draft SEA, Table 4-3, fn. 3.) However, the Draft SEA does not identify the source of this data, making it difficult for a reader to verify the reasonableness of the assumption. Additionally, Table 4-3 cites to the website of Silicon Valley Power of the City of Santa Clara for its estimates of zero-emission water heaters' and low-NOx space heaters' electricity use. (Draft SEA, Table 4-3, fn. 1.) However, the Draft SEA leaves unclear why it relies on data from Northern California in its analysis of anticipated electricity use for such appliances within South Coast AQMD's Southern California jurisdictional area, and whether electricity use in the two areas might differ. South Coast AQMD could rely on the Residential Appliance Saturation Survey (RASS) for energy consumption by appliance in various utility territories.¹

37-9

2. The Draft SEA's energy impacts analysis, in its concluding section, states that "[t]he cumulative energy impacts from increased electricity and natural gas demand remain significant and unavoidable." (Draft SEA, p. 4-23.) It then continues: "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." (*Id.*)

37-10

The Draft SEA leaves unclear how to reconcile these two propositions. The mere passing reference to the 2022 FEIR does not explain how the significant and unavoidable energy demand impacts discussed at length in the preceding pages of the Draft SEA are negated or made less significant by the absence of waste or inefficiency in how this energy is used. In the end, the Draft SEA goes from finding significant and unavoidable impacts to less than significant impacts in the space of just a few sentences, without sufficient explanation.

3. The Draft SEA's energy impacts analysis incorporates the same assumption that that space heaters will operate 4 hours per day on 100 days per year when the temperature is below 70°F as the Draft SEA's air quality impacts analysis. (Draft SEA, Table 4-6, fn. 3.) And this energy impacts analysis relies on the same source for comparing potential increases in electricity use under South Coast AQMD's 2022 Air Quality Management Plan and under the proposed project as does the Draft SEA's air quality impacts analysis (Silicon Valley Power). (Draft SEA, Table 4-6, fn. 1.) As discussed in Paragraph 1 above, this analysis leaves unclear the source of data for the former proposition and the applicability of electricity use in Northern California for the latter comparison; SoCalGas recommends use of the RASS energy consumption datasets instead.

37-11

4. The Draft SEA's discussion of those potential impacts found not to be significant appears to contain an inconsistency. The Draft SEA's analysis of some of these impact areas assumes that installation of new furnaces and water heaters will not require construction activities. (See, e.g.,

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¹ California Energy Commission, California Residential Appliance Saturation Study, <https://rass.dnr.com/sign/in>

pp. 4-25 [Aesthetics, Agriculture and Forestry Resources], 4-26 [Geology and Soils].) Yet the Draft SEA's discussion of other impact areas appears to assume at least the possibility of new construction. (See Draft SEA, p. 4-26 [Cultural and Tribal Resources: "In addition, if any new residential buildings are to be constructed, the project would be subject to project-level review,"].) To the extent the Draft SEA relies on inconsistent assumptions about whether and how much new construction the proposed project might entail, it does not explain this inconsistency.

37-12

5. The Draft SEA's discussion of potential Population and Housing impacts (Draft SEA, p. 4-31) does not address whether owners of rental properties might pass the costs of new furnaces or space heaters on to tenants, thus potentially driving up rental rates. CEQA requires lead agencies, in analyzing Population and Housing impacts, to examine whether the proposed project will "displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere." (See CEQA Guidelines, Appendix G, § XIV(b).) The Draft SEA should address whether implementation of the project might result in renters within the South Coast Basin experiencing rent increases and moving to more affordable rental properties elsewhere as a result. Or, if South Coast AQMD views such a housing impact as insignificant, the Draft SEA should explain why.

37-13

6. The Draft SEA's project alternatives analysis includes a purportedly "Less Stringent Alternative" ("Alternative C"). Under Alternative C, the suggested reduction in stringency comes from allowing the replacement of equipment in existing buildings with low NOx heaters in situations where alternative compliance options would be necessary under the proposed project. (Draft SEA, p. 5-2.) SoCalGas questions why South Coast AQMD's analysis of alternatives to the proposed project does not also incorporate into this "Less Stringent Proposed Project" delayed dates for implementation of the proposed project's required compliance dates. "Alternative B – More Stringent Proposed Project" sets compliance dates 12 months earlier than the proposed project. (See Draft SEA, p. 5-2.) Including a proposed project alternative that would instead defer these dates across the board would allow for a more like-to-like comparison with Alternative B.

37-14

Moreover, including an alternative with delayed compliance dates would be particularly helpful given some of the near-term environmental impacts that the Draft SEA identifies. For example, the Draft SEA's analysis of Alternative B explains that this alternative could cause more significant air quality impacts due to its compressed timeframe for implementation, based on the likelihood of more equipment replacement projects occurring on a peak day. (Draft SEA, p. 5-4.) Similarly, in analyzing Alternative B's potential energy impacts, the Draft SEA explains that "Alternative B would result in an earlier increase in electricity demand which is driven by the earlier deployment of zero-emission technologies." (Draft SEA, p. 5-6.) An alternative that incorporates deferred rather than accelerated compliance dates would allow a better comparison between its potential air quality and energy impacts and those of both the proposed project and alternatives like Alternative B.

SoCalGas acknowledges the proposition that a lead agency "need not consider every conceivable alternative to a project" (Cal. Code Regs., tit. 16, § 15126.6), as the Draft SEA states. But analyzing

a project alternative that includes delayed compliance dates would make the Draft SEA a more informative document for the public and for decision makers.

37-14

Response to Comment Letter #37 and Its Appendices A&B*Response to Comment 37-1:*

Staff appreciates SoCalGas' comments on PAR 1111 and PAR 1121. PAR 1111 and PAR 1121 are not preempted by the EPCA.

Furthermore, the new concept for PAR 1111 and PAR 1121, released on February 7, 2025, and discussed at Working Group Meeting on February 13, 2025, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Please see Response to General Comment 9 for more details on EPCA preemption.

Response to Comment 37-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff appreciates the comment on public outreach, cost to residents, and publishing comment letters on the website. Staff recognizes the importance of publishing comment letters so that all parties can view them in a timely manner and makes an effort to publish each letter upon receipt. To view comment letters, please find the PAR 1111 and PAR 1121 webpage linked here:

<https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1111-and-rule-1121/comment-letters>

Staff understands the need for engagement with members of the public including residents and small businesses and has been reaching out to various stakeholders through a number of channels, including but not limited to: eNewsletter distribution list, which reaches individual residents and small businesses as well as various associations who distribute information to their members; physical newspapers and mailouts; articles and rule updates in the South Coast AQMD Advisor; reaching out to various associations for meetings to explain the rule process and proposed amended rules; reaching out to Community Choice Aggregators; outreach through participation in CARB listening sessions and BAAD Implementation Working Group meetings. Please refer to Response to General Comment 5 for further discussion on outreach. If the proposed amended rules are adopted by our Governing Board, staff will continue to conduct outreach using the options listed above and other channels including emails, social media, and services supported by the Legislative, Public Affairs, and Media (LPAM) department. However, staff recognizes SoCalGas' concern that the level of outreach may not cover the large population of 17 million people in the region, given that the proposed amended rules may impact up to 10 million units. Staff has been developing further public-friendly outreach materials including flyers and brochures which provide links to relevant webpages for more information and believes with the outreach channels available to the LPAM department, these materials will provide another method of communication with members of the public. The Go Zero incentive program outreach will also provide an opportunity to conduct further outreach on PAR 1111 and PAR 1121, with \$1 million funding dedicated to this

outreach effort. Staff also recognizes that the public outreach for building appliances rules, including PAR 1111 and PAR 1121, began prior to the December 2022 adoption of the 2022 AQMP when the control measures for commercial and residential furnaces and residential water heaters were presented and discussed. Extensive public outreach and feedback followed, with comments and letters from residents and businesses embedded in the public process. That plan was approved by the Governing Board, which provided staff the directive to amend and propose zero-emissions standards in PARs 1111 and 1121.

Staff worked closely with manufacturers, distributors, retailers, resellers, and installers as PAR 1111 and 1121 are enforced through the supply chain, which means they are subject to enforcement for any violation of the rules. However, the cost-effectiveness analysis discussed in Chapter 2 was based on the cost of unit installations that would be the responsibility of the property owner or resident to bear if they elect to install zero-NOx emission units. Further, the Socioeconomic Impact Assessment specifically considers how costs or savings will be passed on from the applicable supply chain to households. Please see Response to General Comment 6 for more on the assessment.

Staff conducted an analysis on cold climate applications and reached out to stakeholders in mountain communities for the rule development and implementation. Cold climate heat pump technology is currently utilized in cold climates successfully. More specific information regarding cold climate heat pump installations has been included in Chapter 2 of this report and Response to General Comment 8. Through previous rulemakings, staff gathered a list of installers for mountain communities. Those installers have been notified for all public meetings or documents released for this rulemaking. Further, staff reached out to certain individual high-altitude installers to ensure their participation. Finally, staff has and will continue to conduct site visits to mountain communities and work with high-altitude installers for implementation.

Response to Comment 37-3:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff appreciates the review of the cost-effectiveness analysis for installations of zero-NOx emission units. The data sources used in the staff analysis was discussed in working group meetings and explained in Chapter 2 of this report. The details of the cost-effectiveness assessment was discussed during working group meetings two, three, four, and six held between November 28, 2023 and August 15, 2024, prior to the submittal of this comment letter. At that time staff invited engagement and discussion on the assumptions used in the assessment and offered to have individual meetings with stakeholders to have more detailed conversations.

For any update to the cost-effectiveness, staff provided explanations in the working group meetings. For example, staff described the residential cost-effectiveness update by presentation slide #27 at the working group meeting held on April 4, 2024. The change of heat pump water heater cost-effectiveness to \$246,000 was due to the use of newest IEPR rates released on January 1, 2024, and the change from average costs to median costs from TECH data. Staff estimated panel upgrade cost as discussed in Chapter 2. This cost-effectiveness was further updated to \$299,000 due to the change of efficiency from 95 to

75 percent as a conservative approach. The cost-effectiveness of \$327,000 per ton is the weighted average based on 9 percent of homes requiring a panel upgrade, which was explained in the preliminary draft staff report released on September 19, 2024. More update to cost-effectiveness was most recently provided in the Public Consultation meeting on March 6, 2025.

Staff reviewed the attached Ramboll analysis and have identified areas where Ramboll's calculations differ from staff's calculations. Ramboll does not use the gas and electricity costs listed in the staff report, but instead attempted to base their rates on a slide in Working Group Meeting #4 that listed the difference in 2024 rates between the 2021 and 2023 IEPR. Staff will move the discussion of the IEPR rates from the discussion on grid reliability in Chapter 2 to the cost-effectiveness analysis in Chapter 2 to clarify the costs staff relied on for the cost-effectiveness assessment. Staff notes Ramboll appears to have later developed their own rates based on the IEPR which nearly match those developed by staff, but Ramboll did not use it in their initial cost-effectiveness calculations. The second difference is not considering input versus output efficiency, which affects the lifetime NOx emissions from the units. The fuel use will match the input of the furnace or water heater, but both Rule 1111 and Rule 1121 regulate the NOx emissions based on the *output*, not the input. Staff used an efficiency rating of 75 percent, which was used in previous rulemaking, to estimate the overall emissions from the unit (staff considered using an efficiency of 95 percent in line with modern condensing furnaces and water heaters, however this change would tend to make the cost per ton lower, so staff kept the 75 percent efficiency as a conservative assumption).

For data sources, staff preferred to use data from actual installations in the South Coast AQMD region wherever possible. This resulted in favoring the use of the TECH Clean California installation database, which based on statements made by the TECH team tends to overinflate the cost of heat pumps due to efficiency requirements of the program, and RASS, which gives higher fuel savings than expected given a simple efficiency comparison. This efficiency boost holds true even when considering single family homes in the different climate zones in the South Coast AQMD region, rather than focusing on the SCE/SoCalGas region. This increased energy savings is present in other field studies as well, such as the New Buildings Institute's 120V Heat Pump Water Heater field study, which reported heat pump water heater energy usage as 49 kWh per month, compared to 325 kWh for gas units, a 6.6-fold improvement. Staff believes this is due to factors that are not typically accounted for in a standard COP, such as the mild climate in Southern California.

SoCalGas requested the panel upgrade cost applied to the cost-effectiveness analysis be increased from \$750 to \$3,000 to reflect it being an upfront cost. However, the cost-effectiveness analysis is intended to account for upfront costs and costs incurred over the lifetime of the unit. In the South Coast AQMD, approximately 87 percent of residents already have and operate AC units. If a residence has the electrical capacity to operate an AC, it will not require a panel upgrade to operate a heat pump and therefore staff did not include panel upgrade costs for every household. Based on the TECH dataset, this was 4 percent of homes for space heating and 9 percent of homes for water heating. Additionally, because of the similar timelines of PAR 1111 and PAR 1121, it is unlikely that a house that requires a panel upgrade to replace one of the two appliances will subsequently need it for

the next one. In the recent update to cost-effectiveness, staff explained that the TECH data set for project costs have included electrical upgrade cost which are real-world costs reflected in the updated cost-effectiveness. Staff also believes that Ramboll's approach of assuming that a \$3,000 panel upgrade is necessary for every home for each appliance is flawed, as it will tend to vastly overinflate the cost per ton. This is clearly shown in the analysis for single family home water heating, where Ramboll's reported cost-effectiveness is \$879,258 per ton, but removing the \$3,000 panel upgrade cost would reduce this to approximately \$219,000 per ton. While SoCalGas does not approve of the use of the TECH Clean California database, they do not provide any data to support their analysis that 100 percent of homes in the South Coast AQMD would require two panel upgrades due to these proposed amendments.

Response to Comment 37-4:

This comment contains remarks regarding the Draft Subsequent Environmental Assessment (SEA) and the analysis of the environmental impacts associated with implementing PAR 1111 and PAR 1121. This comment also refers to Appendix B of Comment Letter 37 which provides more detailed comments on the Draft SEA. Upon its release, please see Appendix D of the Final SEA which contains this comment letter relabeled as Comment Letter #2, and the Response to Comment 37-4 relabeled as Response to Comment 2-4.

Response to Comment 37-5:

During the Stationary Source Committee meeting on October 18, 2024, it was announced that the status update/technology check-in for PAR 1111 and PAR 1121 would occur in December 2026 instead of June 2027. Staff anticipates regular updates to the Stationary Source Committee prior to major milestones in the rules and will continue to monitor the market and technology development.

Response to Comment 37-6:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Regarding consumers who install zero-emission units, staff acknowledges the impact of the increased upfront cost, although actual installation costs from the TECH database indicates the costs provided in Table 5 of the comment letter are the exception rather than the norm. Staff also recognizes that increased market adoption of these technologies and increased familiarity both from consumers and installers will drive the costs down over time.

State and local incentives could also offset a large portion of the upfront costs, including the Go Zero incentive program which will be applicable to PAR 1111 and PAR 1121 units. Go Zero will be funded by \$21 million for the pilot program, with 75 percent of funding for overburdened communities, and there is potential for a fivefold funding increase for future phases of the program. The new rule concept also includes a mitigation fee for NOx-emitting space and water heating appliances that will provide a revenue stream to fund Go Zero. Go Zero will provide rebates for single family, multifamily, and small businesses, along with installer training to support and expand the growing workforce, and application

assistance and outreach funding which will provide guidance on the rebate process for program applicants. The Go Zero outreach will also provide an opportunity to conduct further outreach on PAR 1111 and PAR 1121. Staff anticipates that Go Zero rebates may be layered with other available rebate and incentive programs, and the application assistance portion will provide further guidance to program applicants on the incentive stacking process.

The Socioeconomic Impact Assessment evaluates how costs or savings from transitioning to zero-emission technologies will affect residential households. This includes assessing incremental expenses related to purchasing zero-emission HVAC and water heating units, retrofitting buildings, upgrading electrical panels, and the energy costs associated with these changes. These costs are used to evaluate the potential socioeconomic impacts of both directly and indirectly impacted entities including households, multifamily property owners, and their tenants. The assessment specifically examines the impacts of PAR 1111 and PAR 1121 considering probable costs or savings, effects on small businesses, employment, and the overall regional economy.

Response to Comment 37-7:

Comment 37-7 seeks request to delay the adoption of PAR 1111 and PAR 1121. This request was granted by the South Coast AQMD Governing Board at the Public Hearing held on November 1, 2024. At the time, the Public Hearing was moved to February 7, 2025. Currently, the Public Hearing is scheduled on May 2, 2025 (subject to change).

Response to Comment 37-8:

Detailed analysis for the cost-effectiveness calculations can be found in Chapter 2 of the Draft Staff Report. Notably, staff does not use appliance efficiencies to calculate fuel switching costs, but rather fuel use data taken from the 2019 California Residential Appliance Saturation Study⁽²⁶⁾. Project costs for both PAR 1111 and PAR 1121 are derived from the TECH Clean California Installation Data, where the cost of electrical service upgrades are included in the project costs.

Please refer to Response to Comment 37-3 that covers points made under this comment for cost-effectiveness calculation.

Response to Comment 37-9:

This comment contains remarks regarding the Draft SEA and the analysis of the environmental impacts associated with implementing PAR 1111 and PAR 1121. Upon its release, please see Appendix D of the Final SEA which contains this comment letter relabeled as Comment Letter #2, and the Response to Comment 37-9 relabeled as Response to Comment 2-9.

Response to Comment 37-10:

This comment contains remarks regarding the Draft SEA and the analysis of the environmental impacts associated with implementing PAR 1111 and PAR 1121. Upon the release of the Final SEA, see Appendix D, where this comment letter is relabeled as

⁽²⁶⁾2019 California Residential Appliance Saturation Study (RASS),
<https://www.energy.ca.gov/publications/2021/2019-california-residential-appliance-saturation-study-rass>

Comment Letter #2, and the response to Comment 37-10 is relabeled as Response to Comment 2-10.

Response to Comment 37-11:

This comment contains remarks regarding the Draft SEA and the analysis of the environmental impacts associated with implementing PAR 1111 and PAR 1121. Upon the release of the Final SEA, see Appendix D, where this comment letter is relabeled as Comment Letter #2, and the response to Comment 37-11 is relabeled as Response to Comment 2-11.

Response to Comment 37-12:

This comment contains remarks regarding the Draft SEA and the analysis of the environmental impacts associated with implementing PAR 1111 and PAR 1121. Upon the release of the Final SEA, see Appendix D, where this comment letter is relabeled as Comment Letter #2, and the response to Comment 37-12 is relabeled as Response to Comment 2-10.

Response to Comment 37-13:

This comment contains remarks regarding the Draft SEA and the analysis of the environmental impacts associated with implementing PAR 1111 and PAR 1121. Upon the release of the Final SEA, see Appendix D, where this comment letter is relabeled as Comment Letter #2, and the Response to Comment 37-13 is relabeled as Response to Comment 2-13.

Response to Comment 37-14:

This comment contains remarks regarding the Draft SEA and the analysis of the environmental impacts associated with implementing PAR 1111 and PAR 1121. Upon the release of the Final SEA, see Appendix D, where this comment letter is relabeled as Comment Letter #2, and the Response to Comment 37-14 is relabeled as Response to Comment 2-14.

COMMENT LETTER #38: NAI CAPITAL

Comment Letter #38

SCAQMD PAR 1111 and PAR 1121

October 29, 2024

Mr. Peter Campbell
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Email: pcampbell@aqmd.gov

Re: Comments on PAR 1111 and PAR 1121

Dear Mr. Campbell:

NAI Capital Commercial appreciates the opportunity to provide comments on the South Coast Air Quality Management District proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces (PAR 1111) and Proposed Amended Rule 1121 – Reduction of NOx Emissions from Small Natural Gas-Fired Water Heaters (PAR 1121).

Our company manages and leases commercial real estate. We are committed to reducing our carbon footprint while meeting the needs of our tenants. Installation of energy efficient lighting controls, compliance with outdoor water conservation requirements, and other energy-reducing measures can be found throughout our properties.

We are concerned that the proposed rules do not take into account issues facing industrial and commercial real estate property owners and our tenants. For example, some areas do not have the proper electrical to put an ELECTRIC FURNACE OR ELECTRIC WATER HEATER.

We would respectfully request that the District defer consideration of the proposed rules until February 2025 or later, in order to provide a sufficient amount of time to engage the industrial and commercial real estate industry and issues specific to our industry and tenants.

Thank you for taking into consideration our concerns. Please contact me if you have any questions.

Sincerely,

Chris Jackson
CEO
NAI Capital Commercial

38-1

Response to Comment Letter #38*Response to Comment 38-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

The new rule concept also revised the proposed applicability and will not expand to larger size spacing heating units. PAR 1111 and PAR 1121 will be applicable to small size units, typically installed for residential use; however, the rules are based on unit size so would not preclude a consumers' individual choices to install small residential-size units in commercial properties.

Please see Response to General Comment 3 for further discussion on the electric grid and Response to General Comment 5 for further discussion on outreach. PAR 1111 and PAR 1121 will be presented to the South Coast AQMD Governing Board in 2025.

COMMENT LETTER #39: NEWCASTLE PARTNERS



Comment Letter #39

SCAQMD PAR 1111 and PAR 1121

October 29, 2024

Mr. Peter Campbell
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Email: pcampbell@aqmd.gov

Re: Comments on PAR 1111 and PAR 1121

Dear Mr. Campbell:

Newcastle Partners appreciates the opportunity to provide comments on the South Coast Air Quality Management District proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces (PAR 1111) and Proposed Amended Rule 1121 – Reduction of NO_x Emissions from Small Natural Gas-Fired Water Heaters (PAR 1121).

Our company is a small, commercial developer based exclusively in southern California. We are committed to reducing our carbon footprint while meeting the needs of our tenants. Installation of energy efficient lighting controls, compliance with outdoor water conservation requirements, and other energy-reducing measures can be found throughout our properties.

We are concerned that the proposed rules do not take into account issues facing industrial and commercial real estate property owners and our tenants. For example, shifting from natural gas equipment to electrical equipment will place additional strain on our current electrical infrastructure. Many electrical utility providers may not be prepared to meet the increased demand created by these changes, which could result in delays for new electrical hook-ups. Such delays could have a substantial negative impact on the occupancy timelines for commercial and industrial properties.

We would respectfully request that the District defer consideration of the proposed rules until February 2025 or later, in order to provide a sufficient amount of time to engage the industrial and commercial real estate industry and issues specific to our industry and tenants.

Thank you for taking into consideration our concerns. Please contact Courtney Wing with any questions.

Sincerely,

A handwritten signature in cursive script that reads "Courtney Wing".

Courtney Wing
Development Manager
Newcastle Partners
courtnev@newcastlepartners.com

4740 Green River Road, Suite 110 • Corona, CA 92880
phone 951.582.9800 • fax 951.278.4740

39-1

Response to Comment Letter #39:*Response to Comment 39-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

The new rule concept also revised the proposed applicability and will not expand to larger size spacing heating units. PAR 1111 and PAR 1121 will be applicable to small size units typical for installed for residential use; however, the rules do not preclude the consumers' individual choices to install small residential-sized units in industrial or commercial properties.

Please see Response to General Comment 3 for further discussion on the electric grid and Response to General Comment 5 for further discussion on outreach. PAR 1111 and PAR 1121 will be presented to the South Coast AQMD Governing Board in 2025.

COMMENT LETTER #40: DAIKIN COMFORT TECHNOLOGIES**DAIKIN COMFORT TECHNOLOGIES MANUFACTURING, L.P.**19001 Kermier Road
Waller, TX 77484Tel: 713-861-2500
www.northamerica-daikin.comSUBMITTED VIA EMAIL to yzhu1@aqmd.gov

October 31, 2024

Ms. Yanrong Zhu
Program Supervisor
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Proposed Amended Rule 1111: Reduction of NO_x Emissions from Natural Gas-Fired Furnaces

Dear Ms. Zhu,

Daikin Comfort Technologies Manufacturing, L.P. (formerly Goodman Manufacturing Company, L.P.) ("Daikin") submits the following comments to the South Coast Air Quality Management District ("SCAQMD") in response to the proposed amendments to Rule 1111: Reduction of NO_x Emissions from Natural Gas-Fired Furnaces.

Daikin is a member of Daikin Group, the largest heating, ventilation, and air conditioning ("HVAC") manufacturer in the world. Daikin is headquartered in Waller, Texas, and employs thousands of workers across the United States. The company manufactures residential and light commercial heating and cooling equipment, and its products are sold and installed by contractors in every American state and territory, as well as in Canada.

Daikin acknowledges the need for SCAQMD to address air quality issues within the District, and the proposed amendments to Rule 1111 are one way to help the District attain the desired results. However, there are several potential flaws with the proposed amendments as were noted during the Public Meeting on October 3, 2024. These comments are to support the verbal comments made during that meeting.

Section (h)(3) notes specific wording that shall be used concerning the effective dates as the information is presented in quotation marks. Daikin does not make manufactured home furnaces and therefore the wording on this label is extraneous and provides no value to Daikin customers. Can the regulation wording be adjusted to delete the quotation marks and allow a manufacturer to create wording to meet the intent of the requirements that fits their products? Example, a Daikin label might state "If installed in South Coast AQMD: 1) After January 1, 2026, shall not be sold for installation in new buildings and 2) After January 1, 2028, not compliant for use and installation in South Coast AQMD."

40-1



There is also another issue with this labeling requirement. Since these proposed amendments allow for an alternative compliance option for short-term rentals, this labeling requirement in Section (h)(3) is contradictory. Stating that the product is not compliant for use or installation in South Coast AQMD beyond a specific date, but then allowing it to be installed on a rental basis beyond this same specific date are conflicting statements. This needs to be addressed to avoid confusion.

40-2

Daikin has previously noted our concerns about the proposed amendments making the new compliance dates based on installation date. BAAQMD Reg 9 Rule 4, which has completed the implementation of similar 0.0 ng/J NO_x regulations currently uses "manufactured date" for compliance. Daikin urges SCAQMD to also adopt "manufactured date" for compliance. Since ULN products are only sold in three AQMDs in CA, there is a greater likelihood of stranded inventory if an installed date is used for compliance. These products cannot simply be sent to other markets for sale. Daikin recommends SCAQMD Staff to reconsider this portion of the regulation and rewrite it based on "manufactured date" compliance.

40-3

Daikin is also concerned about the equations in Section (e)(2). Both of these equations use the value of "E" in the calculation, but E is defined as AFUE, percent. This is fine for the current definitions of central gas-fired furnaces, but with these proposed amendments, SCAQMD is adding commercial furnaces (>225,000 Btuh), wall furnaces and floor furnaces. None of these other products are included in the scope of ASHRAE 103 and therefore cannot be tested to this standard to measure AFUE. The equations must be revisited by staff to correct this error.

40-4

Daikin noted a concern over the requirements for annual reporting requirements in Section (h)(5) during the public meeting. If a manufacturer does not sell any furnaces into the district, why would there be any reporting requirements? This section does not provide any exceptions to the reporting requirements for no sales.

40-5

Daikin appreciates the opportunity to provide these comments. If you have any questions regarding this submission, please do not hesitate to contact me.

Sincerely,

Robert S. Glass
Director Regulatory Affairs
Tel: 205/759-9638
Email: Robert.Glass@daikincomfort.com

Response to Comment Letter #40:*Response to Comment 40-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

Staff has revised the labeling provision to address commenter's concern on manufactured homes and provide flexibility for manufacturers to create labeling wording. For more discussion on labeling, please refer to Response to Appendix C Comment 27-4.

Response to Comment 40-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

By this new rule concept, consumers may opt to purchase NOx emitting natural gas units if installing zero-NOx emission units is too costly or challenging for emergency replacements. Short-term replacement with rental equipment is no longer needed and thus removed from the proposed amended rules.

Response to Comment 40-3:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on installation date, please refer to Response to Appendix C Comment PW-14.

Response to Comment 40-4:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. The scope of the rule applicability for PAR 1111 has been changed in the new rule concept.

For discussion on AFUE, please refer to Response to Appendix C Comment PW-14

Response to Comment 40-5:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

The revised PAR 1111 and PAR 1121 no longer include the report requirement mentioned in the comment.

COMMENT LETTER #41: BIZFED

October 31, 2024

By Email: jafshar@aqmd.gov

Jivar Afshar
Air Quality Specialist
South Coast Air Quality Management District
21865 Copley Dr, Diamond Bar, CA 91765

Re: Comments on Draft Supplemental Environmental Assessment for Proposed Amended Regulations 1111 and 1121

Dear Ms. Afshar:

We write on behalf of BizFed, the Los Angeles County Business Federation, an alliance of more than 200 business organizations representing more than 400,000 employers in Los Angeles County, including large and small businesses in a wide range of industries throughout the South Coast Air Basin (SCAB). We are writing regarding Proposed Amended Rule (PAR) 1111 – Reduction of NO_x Emissions From Natural Gas-Fired Furnaces and PAR 1121 – Reduction of NO_x Emissions From Natural Gas-Fired Water Heaters (collectively, Rules), specifically in regards to the Draft Supplemental Environmental Assessment (a Supplemental Environmental Impact Report (EIR)-equivalent document prepared under the California Environmental Quality Act (CEQA) by the South Coast Air Quality Management District (SCAQMD) pursuant to its Certified Regulatory Program) (Draft SEA). The Draft SEA was released for public comment on September 26, 2024.

As we are sure you are aware, we have previously submitted comments and provided extensive information addressing the impacts on the business community as a whole, as well as the specific concerns of our diverse membership, regarding the Rules. We continue to be concerned about these impacts and, as outlined more fully below, we do not believe that the Draft SEA satisfies the requirements of CEQA. In particular the Draft SEA fails to contain the required analysis of socioeconomic impacts proximately caused by, or resulting from, adoption of the Rules. The Draft SEA also does not include a legally sufficient alternatives analysis. In addition, the Draft SEA fails to mitigate significant energy impacts.

Background and Prior CEQA Analysis

As you know, and as described in the Draft SEA, PAR 1121 is intended to implement 2022 Air Quality Management Plan (2022 AQMP) Control Measure R-CMB-01. PAR 1111 is intended to implement 2022 AQMP Control Measures R-CMB-02 and C-CMB-02. (These three 2022 AQMP Control Measures are referred to collectively as the Control Measures in the remainder of this letter). The Control Measures were evaluated in an Environmental

41-1

Impact Report for the 2022 AQMP (2022 Final Program EIR).¹ The 2022 Final Program EIR describes the Control Measures as follows:

41

“R-CMB-01: Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Water Heating: This control measure seeks to reduce NOx emissions from residential building water heating sources that are subject to Rule 1121 – Control of Oxides of Nitrogen (NOx) from Residential Type, Natural Gas-Fired Water Heaters. The measure proposes to 1) develop a rule to require zero emission water heating units for installations in both new and existing residences; and 2) allow low NOx technologies as a transitional alternative when installing a zero-emission unit is determined to be infeasible (e.g., colder climate zones, or architecture design obstacles). This control measure would include incentive funds to facilitate the transition to zero emission technologies and promote further emission reductions earlier than required. A primary zero emission residential water heating technology is currently available with the all-electric heat pump water heater.

R-CMB-02: Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Space Heating: This control measure seeks to reduce NOx emissions from residential space heating sources regulated by Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces (Rule 1111). This control measure proposes to 1) develop a rule to require zero emission space heating units for installations in both new and existing residences; and 2) allowing low NOx technologies as a transitional alternative when installing a zero-emission unit is determined to be infeasible. This control measure would also provide incentive funds to facilitate adoption of zero emission technologies that would promote further emission reductions earlier than required.

C-CMB-02: Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Commercial Space Heating: This control measure seeks to reduce NOx emissions from commercial building space heating sources. (i.e., forced air furnaces) with a rated heat input capacity between 175,000 and 2,000,000 British Thermal Units per hour (BTU/hr). Those sources are currently not subject to the South Coast AQMD NOx rules. The measure proposes to 1) develop rules to require zero emission commercial space heating units for installations in both new and existing buildings; and 2) allow low NOx technologies as a transitional alternative when installing a zero-emission unit is determined to be infeasible. This control measure would also provide incentive funds to facilitate adoption of zero emission technologies that would promote further emission reductions earlier than required. Heat pumps have been broadly applied in commercial applications as the primary zero emission technology.” 2022 Final Program EIR, pgs. 2-16 – 2-17.

Control Measures R-CMB-01 and R-CMB-02 were expected to affect 2 million residential water and space heaters, respectively, and were evaluated with an implementation date of

¹ Final Program Environmental Impact Report for Proposed 2022 Air Quality Management Plan, November 2022, State Clearinghouse No, 2022050287.

2029 in the 2022 Final Program EIR. See, 2022 Final Program EIR, Table 4.2-6, pg. 4.2-32 and Table 2.7-1, pg. 2-14. Control Measure C-CMB-02 was expected to affect 200,000 commercial space heaters and was evaluated with an implementation date of 2031. See, 2022 Final Program EIR, Table 4.2-6, pg. 4.2-32 and Table 2.7-1, pg. 2-14. The 2022 Final Program EIR concluded that implementation of the Control Measures would have potentially significant adverse air quality impacts from construction necessary to install lower and zero emission units, and from operational energy impacts related to electricity demand and increased use of natural gas to generate electricity caused by electrifying space and water heating appliances that are currently natural gas-fired. 2022 Final Program EIR pgs. 4.3-10 – 4.3-11.

41-1

As described in the Draft SEA, which tiers off of the 2022 Final Program EIR, PAR 1111 is expected to affect 5,350,000 space heaters. Draft SEA, pg. 1-16. PAR 1111 requires zero-NOx space heaters in new construction starting on January 1, 2026, and zero-NOx replacement space heaters at the end of appliance life starting on January 1, 2028 for units in existing buildings. PAR 1121 is expected to affect 5,128,000 water heaters. Draft SEA, pg. 1-16. PAR 1121 requires zero-NOx water heaters in new construction starting on January 1, 2026, and zero-NOx replacement water heaters at the end of appliance life starting on January 1, 2028 for units in existing buildings. Thus, together, the Rules are expected to affect nearly 10.5 million natural gas-fired appliances in the SCAB.

The Draft SEA analysis concludes that the potentially significant adverse air quality impacts from construction and from energy impacts due to electricity and natural gas demand found in the 2022 Final Program EIR “will be substantially made more severe if [the Rules] are implemented.” Draft SEA, pg. 1-5. For the types of physical changes resulting from the implementing of the Rules, the Draft SEA attributes the increase in severity to the increased number of units affected. Draft SEA pg. 1-16. However, the Draft SEA fails to fully acknowledge that some of the increased severity of the environmental impacts is due to accelerating implementation of low- and zero-NOx appliance replacements compared to implementing the Control Measures as analyzed in the 2022 Final Program EIR. As set forth more fully below, this failure results in the Draft SEA failing to comport with the requirements of CEQA.

The Draft SEA Fails To Analyze Impacts Reasonably Foreseeable from Implementing the Rules

CEQA requires an analysis of socioeconomic impacts when proximately caused by, or resulting from, an agency action.² Urban decay, or blight, is required to be evaluated by SCAQMD and the absence of this analysis is a fatal flaw in the Draft SEA for the Rules. The proposed rules impose billions of dollars of unfunded mandates on owners of residential and commercial properties, as well as landlords – who are legally entitled to pass these costs on to renters. Owners of structures who are unable or unwilling to pay these costs will be operating illegal structures, which insurance policies and mortgage covenants prohibit –

41-2

² *Bakersfield Citizens for Local Control v City of Bakersfield* (2004) 124 Cal.App.4th 1184; *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173.

resulting in foreclosures, uninsured structures, and blight from vacant or underutilized properties. This blight outcome extends to both commercial and residential structures.

41-2

The commercial market is already staggering with vacancies from hybrid/remote work and job losses in critical industries such as entertainment; the retail market is similarly staggering with the ever-increasing volumes of e-commerce. Large commercial structures are already defaulting on loans, and other structures are selling at steep discounts with uncertain future utilization rates. Just a small fraction of the largest commercial property defaults is reported in this recently published article.³

Housing is even more challenging. The median price of a California home (not simply a home in a coastal county) now exceeds \$900,000 – 10 times more than median income; a healthy housing market includes ample supplies of homes priced at 3-5 times median income.⁴ Average monthly rents in Los Angeles County are already \$2,452, and a chronic and growing shortage of less expensive housing, made worse by the continued growth of the homeless population, has caused about 59% of LA households to pay more than 30% of their income on rent⁵ – a level considered unaffordable by federal government standards. There are about 650,000 apartments covered by rent control, and hundreds of thousands of newer apartments not covered by rent control. All of the older apartments, and most of the new apartments, will eventually need costly retrofits to comply with the ban on gas-fired appliances contained in the Rules. And the evidence is clear: landlords and lenders do not have the resources to make the extraordinarily costly modifications needed to comply with the Rules. In a 2024 article,⁶ for example, it is reported that multi-family housing is already struggling to renew loans. Construction of new multi-family units have slowed significantly in markets like Los Angeles – data reflects that by the end of the first half of 2024, there was a decline of 34.6% in the completion of new apartments, and the sale volumes for multi-family apartment buildings worth more than \$5 million have dropped by 40%.⁷

The Rules also assume massive increases in electric supplies, and electric transmission, distribution, and substation equipment – none of which is funded, and all of which will further burden ratepayers who already pay among the highest electricity costs in the nation. There continues to be a shortfall of electric supplies, and a shortage of critical infrastructure needed to bring supplies to where people live and work. Imposing a premature transition to all-electric appliances will foreseeably result in brownouts and blackouts that have caused catastrophic public safety and health consequences, especially to sensitive needs

41-3

³ <https://therealdeal.com/la/2024/01/02/brookfield-dtla-towers-lead-socals-top-defaults-in-2023/>

⁴ <https://www.metroabundance.org/what-would-it-look-like-to-take-an-outcome-oriented-approach-to-housing-abundance/>

⁵ <https://laist.com/news/housing-homelessness/los-angeles-housing-rent-control-increase-caps-rso-limits-economic-roundtable-report>

⁶ <https://www.globest.com/2024/08/14/refinancing-hurdles-and-market-slowdown-in-la-multifamily-sector/?slreturn=20241030133840>

⁷ <https://www2.naicapital.com/l-a-county-multifamily-market-shifts-as-vacancies-rise-and-rents-reach-new-highs-offering-opportunities-for-capital-ready-investors/#:~:text=Elevated%20interest%20rates%20have%20made.Recently%2C%20Blackstone%20Inc.>

populations dependent on critical medical equipment.⁸ The Draft SEA analysis ignores this immediate adverse health consequence while asserting via “models” purported health benefits of removing gas-fired appliances from people’s homes. These appliances have been safely operated for a century or more.

41-3

The unfunded mandates represented by the Rules impose billions of dollars of cost burdens on a region already suffering from unaffordable cost burdens. Imposing these unfunded mandates will make the housing crisis worse, drive even more commercial and retail businesses out of the region (and eliminate associated jobs), and result in vacant and underutilized buildings, reduce the tax revenues needed for critical public services like fire, public safety and medical care, and cause disproportionate harms to already distressed disadvantaged communities. It is fiscally, socially and environmentally reckless to impose these costs to obtain the miniscule fraction of NOx reductions attributable to these widespread retrofits mandated by the Rules.

41-4

Our region has many pressing needs, but we are at the end of an era where each special interest agency can, within its own silo, unilaterally impose billions of dollars of unfunded mandates without considering the adverse consequences to health, safety, and critical crises like our housing, homeless and poverty crises. The CEQA analysis performed by SCAQMD for the Rules is fundamentally flawed, and must be revised to acknowledge, analyze, and mitigate for these consequences – and importantly must include a thorough alternatives analysis that includes achieving the purported health benefits of removing safe gas appliances from structures through other, far less damaging and costly, methods.

The Draft SEA Fails To Analyze Adequate Alternatives

The Draft SEA is further inadequate because it fails to properly analyze a reasonable range of alternatives. Under CEQA, a proper analysis of alternatives is essential to comply with CEQA’s mandate that significant environmental impacts be avoided or substantially lessened where feasible.⁹ The analysis of alternatives lies at the “core of an EIR,”¹⁰ and an EIR must “ensure that all reasonable alternatives to proposed projects are thoroughly assessed by the responsible official.”¹¹

41-5

The purpose of the requirement to contemplate alternatives is to identify ways to mitigate or avoid the significant effects of a project.¹² “[A]n agency may not approve a proposed project if feasible alternatives exist that would substantially lessen its significant

⁸ <https://pinkerton.com/our-insights/blog/the-impact-of-power-outages#:~:text=Power%20outages%20and%20impact%20on,heat%20stroke%2C%20and%20food%20insecurity>.

⁹ Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15002(a)(3), 15021(a)(2), 15126(d); *Citizens for Quality Growth v. City of Mount Shasta* (1988) 198 Cal.App.3d 433, 443–45.

¹⁰ *Citizens of Goleta Valley v. Bd. of Supervisors* (1990) 52 Cal.3d 553, 564.

¹¹ *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 735; see also Pub. Resources Code, § 21002.1(a).

¹² Pub. Resources Code, § 21002.1.

environmental effects.”¹³ The alternatives discussion must be “meaningful” and must “contain analysis sufficient to allow informed decision making.”¹⁴ The alternatives analysis is critical to the integrity of an EIR.¹⁵ An EIR must “ensure that all reasonable alternatives to proposed projects are thoroughly assessed by the responsible official.”¹⁶ An alternatives analysis under CEQA must focus on potentially feasible alternatives to the project, even if these alternatives would impede to some degree the attainment of project objectives, or would be more costly.¹⁷

As noted above, the 2022 Final Program EIR concluded that implementing the Control Measures would result in significant and unavoidable impacts in the environmental topic areas of air quality and energy. The Draft SEA concludes that implementing the Rules would make those impacts substantially more severe. As noted above, the Draft SEA attributes that increased severity to the greater number of units affected by the Rules.

In addition to the “No Project” alternative (“Alternative A”) required to be analyzed under CEQA, the Draft SEA evaluates three other alternatives – “Alternative B” is described as the “more stringent” alternative (advances the compliance date for new construction to January 1, 2025 for PAR 1111 and mandates changeout of existing appliances by the compliance date at which end of life replacements would occur under the Rules as drafted); “Alternative C” is described as the “less stringent” alternative (keeps same compliance dates and structure as the Rules as drafted, but allows replacement of existing units with low-NOx (rather than zero-NOx) units where the Rules as drafted allow temporary alternative compliance options (estimated to be 50% of replacements)); and “Alternative D” (keeps the compliance dates and rule structure the same as the Rules as drafted, but provides additional incentive funding which is estimated to result in about 1% (rather than .5%) of existing units being changed out before the end of useful life).

Notably, none of the alternatives examines the effect of a compliance date later than January 1, 2028 for space heaters and January 1, 2030 for water heaters. This is the case despite the fact that The 2022 Final Program EIR analyzed 2029 and 2031 compliance dates for these appliances respectively. This is a fundamental failure to present an adequate and legally

¹³ *Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503, 52 (citations omitted); see also Pub. Resources Code, §21081(a); CEQA Guidelines, §15091(a)(3); *Cal. Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 1002.

¹⁴ *Laurel Heights Improvement Association of San Francisco, Inc. v. Regents of the University of California* (1988) 47 Cal.3d 376 at 403-04.

¹⁵ *In re Bay-Delta Programmatic Env'tl. Impact Report Coordinated Proceedings*, 43 Cal.4th 1143, 1162 (2008) (“The EIR is the heart of CEQA, and the mitigation and alternatives discussion forms the core of the EIR.”).

¹⁶ *San Joaquin Raptor/Wildlife Rescue Center, supra*, 27 Cal.App.4th at 735; see also Pub. Resources Code, § 21002.1(a).

¹⁷ CEQA Guidelines, § 15126.6(b), (f); see also Pub. Resources Code, § 21102.1(a) (“The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided.”).

sufficient alternatives analysis that examines all reasonable alternatives to inform the public and the responsible officials of feasible alternatives as required by CEQA.¹⁸

41-5

Moreover, although the Draft SEA acknowledges that the impacts on natural gas demand that the Draft SEA finds severe and unavoidable will diminish as renewable energy use grows and reliance on natural gas for heating appliances decreases (Draft SEA, pg. 5-6), no alternative is analyzed that takes this into account. Indeed, California Senate Bill 100 (2018) established a goal for grid power of 60% renewable and zero-carbon resources by 2030. In light of this fact, a legally sufficient alternatives analysis would include at least one alternative that examines whether extending the compliance date until more renewables are available on the grid would ameliorate some or all of the severe and unavoidable impacts found. For example, an alternative that tied the compliance date to the accomplishment of a defined level of renewable power on the grid would inform decision makers and the public about the important trade-offs inherent in the decision making around the Rules as required by CEQA. Whether these or other reasonable and feasible alternatives would decrease the impacts of the Rules cannot be known because the Draft SEA fails in its fundamental purpose to present them for consideration. The Draft SEA for the Rules is fundamentally flawed and must be revised to properly analyze all reasonable and feasible alternatives as outlined above. The Revised SEA must then be recirculated for public comment before it and the Rules can be further considered by SCAQMD.

The Draft SEA Fails to Mitigate Significant Energy Impacts

41-6

The discussion of a proposed project's environmental impacts is an essential component of an EIR.¹⁹ The fundamental purpose of CEQA is to "inform the public and its responsible officials of the environmental consequences of their decisions before they are made."²⁰ To do so, an EIR must contain facts and analysis, not just an agency's bare conclusions.²¹

CEQA also requires an EIR to describe and adopt all feasible mitigation measures to address a project's significant environmental impacts.²² Mitigation measures must be "fully enforceable through permit conditions, agreements, or other legally binding instruments."²³ Generally, the "[f]ormulation of mitigation measures should not be deferred until some future time."²⁴ As an exception, "measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way."²⁵ Crucially, there is a "distinction between stating a generalized goal and

¹⁸ That these later compliance dates are reasonable and feasible alternatives is further demonstrated by the fact that the Bay Area Air Quality Management District (Bay Area AQMD) adopted amendments in March of 2023 to its Regulation 9, Rule 6 which sets forth a zero-NOx compliance date of January 1, 2031 for typical residential water heaters, and its Regulation 9, Rule 4 which contains a zero-NOx compliance date of January 1, 2029 for furnaces.

¹⁹ See CEQA Guidelines, § 15126.2(a) ("An EIR *shall* identify and focus on the significant effects of the proposed project on the environment.") (emphasis added).

²⁰ *Laurel Heights*, *supra*, 6 Cal.4th at 1123.

²¹ *Citizens of Goleta Valley*, *supra*, 52 Cal.3d at 568.

²² Pub. Resources Code, § 21002; CEQA Guidelines, § 15126.4(a)(1).

²³ CEQA Guidelines, § 15126.4(a)(1)(B), (a)(2).

²⁴ CEQA Guidelines, § 15126.4(a)(1)(B).

²⁵ *King & Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814, 856.

41-6

adopting specific performance criteria,” and “[s]imply stating a generalized goal for mitigating an impact does not allow the measure to qualify for the exception to the general rule against the deferred formulation of mitigation measures.”²⁶ Further, even where the deferred formulation of mitigation might be allowable, there is a point beyond which delayed implementation is not allowed: “[o]nce the project reaches the point where activity will have a significant adverse effect on the environment, the mitigation measures must be in place.”²⁷ “Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified.”²⁸

All of the mitigation for energy impacts identified in the Draft SEA are lifted from the 2022 Final Program EIR. The Draft SEA states as follows:

“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.”

Draft SEA, pgs. 4-20 – 4-21.

None of these mitigation measures were adequate when they were included in the 2022 Final Program EIR and they remain inadequate in the context of the Draft SEA. Even a cursory examination of these “measures” reveals that they express aspirational goals at best. None of the measures are enforceable, as required by CEQA, through “permit conditions, agreements, or other binding instruments” by South Coast AQMD or anyone else. In addition, none of these measures specifies any sort of performance standard that could lead to formulation of appropriate mitigation in the future. Moreover, other than explaining that

²⁶ *Id.* at 856.

²⁷ *Id.* at 860, quoting *POET, LLC v. Cal. Air Resources Bd.* (2013) 218 Cal.App.4th 681, 738.

²⁸ CEQA Guidelines, § 15126.4(a)(1)(B).

some of the measures that were included in the 2022 Final Program EIR are inapplicable to mitigating energy impacts, the Draft SEA provides no explanation for the assertion that these specific measures will address the energy impacts that the Draft SEA describes as more severe than the impacts found in the 2022 Final Program EIR. See Draft SEA, pg. 4-20. In short, the mitigation measures identified in the Draft SEA that purport to reduce the potential electricity demand impacts that have been identified are wholly inadequate under CEQA. To address this inadequacy, the Draft SEA must be revised to identify and analyze appropriate mitigation measures for energy impact. The revised Draft SEA must then be recirculated for public comment before it and the Rules can be further considered by SCAQMD.

41-6

For the reasons set forth above, we urge SCAQMD to revise its analysis, prepare and circulate a revised Draft SEA, and, ultimately, to reject the Rules. We reserve the right to identify new issues, provide additional information, and propose additional mitigation measures during SCAQMD's ongoing decision-making process for the Rules.

Thank you for your thoughtful consideration of these critical issues.

Sincerely,



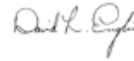
Fran Inman
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Majestic Realty



David Fleming
BizFed Founding Chair



Tracy Hernandez
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CC: Governing Board

BizFed Association Members

Action Apartment Association
Advanced Medical Technology Association
Alhambra Chamber
American Beverage Association
Antelope Valley Chamber formerly Lancaster Chamber of Commerce
Apartment Association of Greater Los Angeles
Apartment Association of Orange County
Apartment Association, CA Southern Cities, Inc.
Apartment Association of California
Arcadia Association of Realtors
AREAA North Los Angeles SPV SCV
Armenian American Business Association
Armenian Trade & Labor Association
Arts District Los Angeles
ASCM Inland Empire Chapter
Associated Builders & Contractors SoCal (ABC SoCal)
Associated General Contractors
Association of Independent Commercial Producers
AV Edge California
Azusa Chamber
Bell Chamber
Beverly Hills Chamber
BioCom
Black Business Association
Black Professional Network

Boyle Heights Chamber of Commerce
Bridge Compton Org
Building Industry Association - LA/Ventura Counties
Building Industry Association of Southern California
Building Industry Association- Baldyview
Building Owners & Managers Association of Greater Los Angeles
Burbank Association of Realtors
Burbank Chamber of Commerce
Business and Industry Council for Emergency Planning and Preparedness
Business Resource Group
CalAsian Chamber
CalChamber
California African American Chamber of Commerce
California Apartment Association- Los Angeles
California Asphalt Pavement Association
California Bankers Association
California Black Chamber of Commerce
California Business Properties
California Business Roundtable
California Cleaners Association
California Contract Cities Association
California Council for Environmental & Economic Balance (CCEEB)
California Fuels & Convenience Alliance- Formerly

California Independent Oil Marketers Association (CIOA)
California Gaming Association
California Grocers Association
California Hispanic Chamber
California Hotel & Lodging Association
California Independent Petroleum Association
California Infrastructure Delivery Coalition
California Life Sciences Association
California Manufacturers & Technology Association
California Metals Coalition
California Natural Gas Producers Association
California Restaurant Association
California Retailers Association
California Self Storage Association
California Small Business Alliance
California Travel Association (CalTravel)
California Trucking Association
Californians For Smarter Sustainability
Carson Chamber of Commerce
Carson Dominguez Employers Alliance
Central City Association
Century City Chamber of Commerce
Chatsworth Porter Ranch Chamber of Commerce
Citrus Valley Association of Realtors
Civil Justice Association of California CJAC
Claremont Chamber of Commerce

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Commerce Business Council formerly Commercial
Industrial Council/Chamber of Commerce
Compton Chamber of Commerce
Compton Community Development Corporation
Compton Entertainment Chamber of Commerce
Construction Industry Air Quality Coalition
Construction Industry Coalition on Water Quality
Council of Infill Builders
Crenshaw Chamber of Commerce
Culver City Chamber of Commerce
Downey Chamber of Commerce
Downtown Alliance
Downtown Long Beach Alliance
DTLA Chamber of Commerce
El Monte/South El Monte Chamber
El Salvador Corridor Association
El Segundo Chamber of Commerce
Employers Group
Energy Independence Now EIN
Engineering Contractor's Association
EXP The Opportunity Engine
FastLink DTLA
Filipino American Chamber of Commerce
Friends of Hollywood Central Park
FuturePorts
Gardena Valley Chamber
Gateway to LA
Glendale Association of Realtors
Glendale Chamber
Glendora Chamber
Greater Antelope Valley AOR
Greater Bakersfield Chamber of Commerce
Greater Coachella Valley Chamber of Commerce
Greater Downey Association of REALTORS
Greater Lakewood Chamber of Commerce
Greater Leimert Park Crenshaw Corridor BID
Greater Los Angeles African American Chamber
Greater Los Angeles Association of Realtors
Greater Los Angeles New Car Dealers Association
Greater San Fernando Valley Chamber
Harbor Association of Industry and Commerce
Harbor Trucking Association
Historic Core BID of Downtown Los Angeles
Hollywood Chamber
Hospital Association of Southern California
Hotel Association of Los Angeles
ICBWA- International Cannabis Women Business
Association
Independent Cities Association
Independent Hospitality Coalition
Industrial Environmental Association
Industry Business Council
Inglewood Board of Realtors
Inland Empire Economic Partnership
Irwindale Chamber of Commerce
Kombucha Brewers International
La Cañada Flintridge Chamber
LA County Medical Association
LA Fashion District BID
LA South Chamber of Commerce
Larchmont Boulevard Association
Latin Business Association
Latino Food Industry Association
Latino Golfers Association
Latino Restaurant Association
LAX Coastal Area Chamber
Licensed Adult Residential Care Association-
LARCA
Long Beach Area Chamber
Long Beach Economic Partnership
Long Beach Major Arts Consortium
Los Angeles Area Chamber
Los Angeles Economic Development Center
Los Angeles Gateway Chamber of Commerce
Los Angeles Latino Chamber
Los Angeles LGBTQ Chamber of Commerce
Los Angeles Parking Association
Los Angeles Regional Food Bank
MADIA Tech Launch
Malibu Chamber of Commerce
Manhattan Beach Chamber of Commerce
Manhattan Beach Downtown Business &
Professional Association
Marina Del Rey Leases Association
Marketplace Industry Association
Monrovia Chamber
Motion Picture Association of America, Inc.
MoveLA
MultiCultural Business Alliance
NAIOP Southern California Chapter
NAREIT
National Association of Minority Contractors
National Association of Theatre Owners
CA/Nevada
National Association of Women Business Owners
National Association of Women Business Owners -
LA
National Association of Women Business Owners-
California
National Federation of Independent Business

Owners California
National Hookah
National Latina Business Women's Association
Norwegian American Chamber of Commerce
Ofiso Community Foundation
Orange County Business Council
Orange County Hispanic Chamber of Commerce
Pacific Merchant Shipping Association
Panorama City Chamber of Commerce
Paramount Chamber of Commerce
Pasadena Chamber
Pasadena Foothills Association of Realtors
PGA
Pharmaceutical Care Management Association
PHRMA
Pico Rivera Chamber of Commerce
Pomona Chamber
Rancho Southeast REALTORS
ReadyNation California
Recording Industry Association of America
Regional CAL Black Chamber, SVF
Regional Hispanic Chambers
San Gabriel Valley Economic Partnership
San Pedro Peninsula Chamber of Commerce
Santa Clarita Valley Chamber
Santa Clarita Valley Economic Development Corp.
Santa Monica Chamber of Commerce
Secure Water Alliance
Sherman Oaks Chamber
Signal Hill Chamber
South Bay Association of Chambers
South Bay Association of Realtors
South Gate Chamber of Commerce
Southern California Contractors Association
Southern California Golf Association
Southern California Grantmakers
Southern California KFC Franchise
Southern California Leadership Council
Southern California Minority Suppliers
Development Council Inc.
Southern California Water Coalition
Southland Regional Association of Realtors
Specialty Equipment Market Association
Structural Engineers Association of Southern
California
Sunland/Tujunga Chamber
Sunset Strip Business Improvement District
Swiss American Chamber of Commerce
Thai American Chamber of Commerce
The Bridge Network
The LA Coalition for the Economy & Jobs
The Los Angeles Taxpayers Association
The Two Hundred for Homeownership
Torrance Area Chamber
Tri-Counties Association of Realtors
United Chambers – San Fernando Valley & Region
United Contractors
United States-Mexico Chamber
Unmanned Autonomous Vehicle Systems
Association
Urban Business Council
US Green Building Council
US Resiliency Council
Valley Economic Alliance, The
Valley Industry & Commerce Association
Venice Chamber of Commerce
Vermont Slauson Economic Development
Corporation
Veterans in Business
Vietnamese American Chamber
Village of Sherman Oaks BID
Warner Center Association
West Covina Chamber
West Hollywood Chamber
West Hollywood Design District
West Los Angeles Chamber
West San Gabriel Valley Association of Realtors
West Valley/Warner Center Chamber
Westchester BID
Western Electrical Contractors Association
Western Manufactured Housing Association
Western Propane Gas Association
Western States Petroleum Association
Westside Council of Chambers
Westwood Community Council
Whittier Chamber of Commerce
Wilmington Chamber
World Trade Center
Yes in My Backyard
7-Eleven Franchise Owners Association of
Southern California

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Response to Comment Letter #41:*Response to Comment 41-1 through 41-6:*

This comment letter contains remarks regarding the Draft SEA and the analysis of the environmental impacts associated with implementing PAR 1111 and PAR 1121. Upon its release, please see Appendix D of the Final SEA which contains this comment letter relabeled as Comment Letter #3, and the responses relabeled as 3-1 through 3-6.

COMMENT LETTER #42: ASIAN PACIFIC ENVIRONMENTAL NETWORK

Mr. Krause and Ms. Farr
 South Coast Air Quality Management District (South Coast AQMD)
 21865 Copley Drive
 Diamond Bar, CA 91765
 Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

On behalf of the Asian Pacific Environmental Network, we write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NO_x reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,

Elle C. Chen
 Legislative Director
 Asian Pacific Environmental Network

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

42-1

Response to Comment Letter #42:*Response to Comment 42-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #43: CALIFORNIA SAFE SCHOOLS

December 6, 2024

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

On behalf of California Safe Schools, we write to support South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "the only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹

Given the serious pollution in this region, the health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

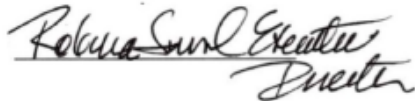
We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

43-1

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,

A handwritten signature in black ink, appearing to read "Robina Suwol Executive Director".

Robina Suwol
Executive Director, California Safe Schools
PO Box 2756
Toluca Lake, California 91610

Response to Comment Letter #43:

Response to Comment 43-1:

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #44: CALIFORNIA COMMUNITIES AGAINST TOXICS

California Communities Against Toxics
PO Box 2050 *Rosamond, CA 93560

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

On behalf of California Communities Against Toxics, a coalition of environmental groups who have worked to reduce air pollution for over 30 years in California we are writing to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious air pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is being weakened by delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

Our members face the health consequences daily of poor air quality and need our regulatory agencies to take concrete action to reduce pollution. Especially in areas of the South Coast Basin that are most highly impacted from multiple sources of pollution, we need to create incentives for early adopters of new zero emission technologies like microgrids, heat pumps, and other zero emissions technologies.

This is why we are so pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be vital in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of transitioning away from combustion in our homes and our businesses.

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

44-1

Sincerely,

Jane Williams
Executive Director
California Communities Against Toxics

Response to Comment Letter #44:

Response to Comment 44-1:

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #45: GENGHMUN ENG

Updated 12/10/2024 Public Comment:
Justification for Proposed Amendment to PAR-1121
 Submitted by: (Dr.) Genghmun Eng ("Citizen")
 5215 Lenore St., Torrance, CA 90503

According to Google(R), the percent of Los Angeles County Housing Units built before 1960 is only about 3.6% of all Housing Units. (see attached page at end). Many of these pre-1960 Units are Single-Family Residences (SFR), which contribute significantly to the overall character and desirability of many neighborhoods.

45-1

SFR Units built before 1960, with no Air Conditioning (A/C) is likely to be even a smaller percentage. To help preserve the historical nature of these residences and their surrounding neighborhoods, Citizen proposes that an exemption to the proposed NOx Zero-Emission Requirements for replacement Water Heaters be allowed, which still preserves the Table 2 requirements as a 96+% solution to the desired NOx reductions. This can be accomplished by modifying the PAR-1121 Table 2 note, to read:

** Excluding Mobile Home Water Heaters, and Water Heaters for Single-Family Residences without Air-Conditioning that were constructed before 1960, in order to preserve the character of many Los Angeles historical neighborhoods.*

Additionally, a typical residential gas water heater uses between 20-50 therms of gas per month, which translates to roughly 2,000-5,000 BTUs per hour depending on its size and usage frequency; a "therm" is a unit of measurement for natural gas equaling 100,000 BTUs.

Key points about residential gas water heater usage:

Average consumption: Most homes use between 20 and 50 therms of gas per month for hot water.

BTU rating: A typical residential gas water heater BTU rating is 30,000-40,000 BTUs per hour

Factors affecting usage: The amount of hot water used, water temperature settings, and the size of the water heater tank all influence gas consumption.

To convert a measurement in Joules to a measurement in british thermal units (BTU), multiply the energy by the following conversion ratio: **0.000948 british thermal units/Joule**. The energy in british thermal units is equal to the energy in joules multiplied by 0.000948. To convert BTUs to Joules, multiply by **1054.85232**. Therefore:

1 'NOx' ng/J = 1 ng/[1J (.000948 BTU/J)] = 1054.85 ng/BTU = 1.05485 ug/BTU.

10 'NOx' ng/J = 10548.5 ng/BTU = 10.5485 ug/BTU=1.05485 gms/(therm).

50 therms/month = 600 therms/year = 632.911 gms 'NOx' per year for an average household.

At 453.592 grams per pound, this is 1.39633 pounds of 'NOx' per year for an average household.

The Valero-Ultramar facility has an 'NOx' allocation of 472,716 pounds per year, which is equivalent to 338,785 average residences. Given 3,785,720 total housing units in Los Angeles County as of 2023, with a total of 132,193 built before 1960, exempting all housing units built before 1960 would still only be 39% of the 'NOx' allocation for this one large industrial polluting facility.

In unincorporated Los Angeles County, the most common household size is two people (25.5%), and the second most common is three people (18.3%). Assuming the remainder is a one-person household would then be 56.2%, for an average occupancy of at least 1.62 persons per household. Using 1.62 as representative of SFR occupancy for homes built before 1960 gives 214,417 affected human persons.

On this scale, the full Valero-Ultramar 'NOx' allocation would be equivalent to the expected 'NOx' water heater load expected from 549,800 human persons, occupying the SFR units. Thus, having a pre-1960 SFR exception is well justified.

◆ AI Overview

As of July 1, 2023, Los Angeles County had 3,675,720 housing units. ⓘ

Los Angeles County has a significant shortage of affordable housing, with some estimates suggesting that the county is 270,000 units short. The county is also losing affordable housing units at an alarming rate, with some 3,500 units at risk of losing their affordability terms. ⓘ

Some of the challenges facing the county's housing market include:

High housing costs

Renters in Los Angeles County need to earn \$48.04 per hour to afford the average monthly asking rent of \$2,498. ⓘ

Low production rate

The production rate for affordable housing is at its lowest in over a decade. ⓘ

Homelessness

In 2023, there were only 39,752 beds available for people experiencing homelessness. ⓘ

◆ AI Overview

The number of housing units built in Los Angeles County before 1960 was 132,193 units in the 1950s. In the 1960s, the number of houses built increased by 76% to 232,379. ⓘ

Los Angeles's housing stock includes 1,373,864 units, with 506,115 owner-occupied and 867,749 renter-occupied. The city's goal is to build more than 450,000 homes by 2029 to meet state housing requirements. ⓘ

**Fraction of LA County Housing Units
built before 1960 is only 3.6% of present-day total:
 $(132,193) / (3,675,720) = 3.6 \%$**

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.

PAR 1121 - 5

Response to Comment Letter #45:

Response to Comment 45-1:

Staff appreciate your comment and analysis. Please see Response to General Comment 10 for staff response.

COMMENT LETTER #46: BAN SUP (SINGLE USE PLASTIC)

December 10, 2024

Mr. Krause and Ms. Farr
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr,

Ban SUP (Single Use Plastic), an organization that focuses on reduction of single use plastic and associated global greenhouse gas emissions with over 400 members, applauds South Coast AQMD's efforts to clean up appliance pollution with amendments to Rules 1111 and 1121.

We are excited this recommendation could reduce more emissions than other initiatives passed in the last three decades. This is especially important since California is slated to miss all of our climate goals.

46-1

According to Edison International, California wants to reduce greenhouse gases 40% below 1990 levels by 2030 but the state could miss the mark by 30 to 90 million metric tons if specific steps are not made to significantly bring down carbon emissions. We think that may be underestimated. Therefore, it is imperative that this amendment passes soon.

We need to make sure that these rules go to the Governing Board quickly with strong wording in order to be adopted in February to try to meet our climate goals, especially since other entities are failing.

Thanks for AQMD's focus and efforts on these proposed amendments.

Sincerely,

Cheryl Auger
President
Ban SUP (Single Use Plastic)

Response to Comment Letter #46:

Response to Comment 46-1:

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #47: STEPHANIE PINCETL

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

On behalf of myself, Stephanie Pincetl, Professor at the UCLA Institute of the Environment and Sustainability, I write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. I am deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

My research with colleagues at UCLA shows that indoor air quality through the burning of fossil gas, is measurable and detrimental to public health. We also have conducted numerous telephone interviews with renters in disadvantaged communities and find that people are open to electrification, even of their stoves. Obviously the biggest obstacle is cost. But public health benefits are significant, and electrification of home appliances can be conducted with existing technologies.

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,

Stephanie Pincetl
Professor at UCLA's Institute for the Environment and Sustainability, writing on my own behalf.

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

Response to Comment Letter #47:*Response to Comment 47-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

47-1

COMMENT LETTER #48: CLIMATE ACTION SANTA MONICA

Mr. Krause and Ms. Farr
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121s

Dear Mr. Krause and Ms. Farr:

Climate Action Santa Monica supports the South Coast Air Quality Management District's (SCAQMD) proposal to reduce appliance air pollution to improve public health by adopting Rule 1111 and 1121 amendments requiring that all new and replacement water heaters and furnaces be electric. We urge the adoption of strong requirements with minimal exemptions that take effect when currently proposed. We also support the approval of \$100 million in incentives to support the implementation of these amendments, especially for lower income residents, through SCAQMD's Go Zero program.

The City of Santa Monica has adopted a Title 24 Reach Code encouraging the use of electric water and space heating in new buildings and is working on an existing building ordinance for larger structures. Therefore the proposed Rule 1111 and 1121 amendments would help the City achieve its goals.

As a community organization, we know that many community members are working on electrifying their homes to improve indoor air quality and their health, and to reduce greenhouse gases. The proposed Rule 1111 and 1121 amendments would help both contractors and homeowners by spurring the further development of the markets and skills needed to facilitate the economical and timely execution of electrification projects.

Please adopt the Rule 1111 and 1121 amendments with urgency to expedite the transition away from hazardous air emissions in our homes and communities.

Sincerely,

Laurene von Klan – Executive Director and Co-Chair
Kent Strumpell – Co-Chair

48-1

Response to Comment Letter #48:*Response to Comment 48-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #49: SHARED STREETS**SHARED STREETS**

Youth Activists for Safer Streets

Board of Directors

Michelle Kim
Edward Duong
Laboni Hoq
Dorothy Wong
Jack Sheng
Ken Lei
Edward Kim
Ringo Suen

Student Leaders

Thomas Kim
Eric Qiu
Andrew Le
Edwin Suen

Mr. Krause and Ms. Farr

South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

49-1

On behalf of **Shared Streets**, we write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources." Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

Appliance pollution, specifically from gas-powered appliances such as furnaces and water heaters, is a significant contributor to poor air quality in our homes and communities. The emissions from these appliances are responsible for substantial levels of nitrogen oxides (NOx) and other harmful pollutants that worsen respiratory conditions like asthma and disproportionately impact vulnerable populations, including children and the elderly. Transitioning to zero-emission appliances is not just a necessary step for climate action—it is an urgent public health measure to protect our communities from the harmful effects of indoor and outdoor air pollution.

www.shared-streets.orginfo@shared-streets.org

(626) 394-6248

**SHARED STREETS**

Youth Activists for Safer Streets

Page 2

49-1

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,

Michelle Kim
Executive Director
Shared Streets
mkim@shared-streets.org

www.shared-streets.orginfo@shared-streets.org

(626) 394-6248

Response to Comment #49:*Response to Comment 49-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #50: PASADENA CHAMBER OF COMMERCE AND CIVIC ASSOCIATION

December 12, 2024

Mr. Peter Campbell and Governing Board Members
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
VIA Email: pcampbell@aqmd.gov

RE: SCAQMD PAR 1111 and PAR 1121

Dear Mr. Campbell, Governing Board and Committee Members,

The Board of Directors of the Pasadena Chamber of Commerce and Civic Association has significant concerns related to the implementation of South Coast Air Quality Management District PAR 1111 and PAR 1121 which would phase in all-electric appliance regulations.

Here are our concerns:

1. Implementation of these rules will have negligible impact on clean air or our environment.
2. Costs to consumers, businesses and the public will be expensive, especially for those who will be required to switch from gas appliances to electric.
3. These rules are being considered without adequate input from the public which is mostly unaware of these proposed changes.

50-1

50-2

50-3

The Board of the Pasadena Chamber of Commerce regularly supports measures that are environmentally friendly, often putting us at odds with other business organizations. In this instance, however, we believe the potential costs and burden on businesses, residents and consumers do not justify these new regulations.

Please reject these new regulations. There are better ways to achieve your goals.

Thank you,



Paul Little
President and Chief Executive Officer

Response to Comment Letter #50:*Response to Comment 50-1:*

Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

Response to Comment 50-2:

The new rule concept for Proposed Amended Rules 1111 and 1121 released February 7, 2025, which includes zero-NOx emission sales targets for manufacturers will further address the cost concern for zero-NOx emission units. The new rule proposal allows the sale of both zero-NOx emission electric units and NOx-emitting natural gas-fired units, allowing consumers to make individual decisions on the type of unit to install.

Please refer to General Response to Comment 2.

Response to Comment 50-3:

Please refer to General Response to Comment 5.

COMMENT LETTER #51: ACTIVESGV



activeSGV.org #ActiveSGV

BOARD

Vincent Chang

David Diaz

Rafael Gonzalez

Stephanie Ramirez

Wesley Rautimann

December 13, 2024

Mr. Krause and Ms. Farr
 South Coast Air Quality Management District (South Coast AQMD)
 21865 Copley Drive
 Diamond Bar, CA 9176

RE: SUPPORT | Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

51-1

As a community-based organization committed to realizing a more sustainable, equitable, and livable San Gabriel Valley, ActiveSGV strongly supports evidence-based efforts to reduce air pollution, including Rules 1111 and 1121. The proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The rulemaking is also a key step towards implementing the 2022 Air Quality Management Plan (AQMP), which determined that **"[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."**

Given the serious pollution in the region, which remains an extreme nonattainment zone, timely adoption of zero-emission technology is desperately needed. Fortunately zero-emission appliances are quickly becoming a best practice, with the rapid adoption of the technology around the world over the past decade. In light of this track record and the need to accelerate the switch, ActiveSGV is concerned by any attempts to weaken the proposal via delayed compliance deadlines or other loopholes. It is critical that these rules go to the Governing Board in a strong form and be adopted in February 2025.

ActiveSGV is also pleased to see the South Coast AQMD's Go Zero program take form. Targeted incentives are essential to realizing an equitable transition to zero emission buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. We applaud this effort and urge the Board to endorse an allocation of \$100 million to the new program.

As a public health organization headquartered in El Monte, one of the most pollution-burdened communities in California, ActiveSGV is acutely aware of the health impacts associated with air pollution. **The outcomes of our poor air quality in southern California are devastating. High rates of asthma and other respiratory illnesses, as well as cognitive impairments, some cancers, and even obesity have all been linked to exposure to high levels of air pollution.** The cost of these health disparities -- particularly long-term, chronic illnesses such as asthma -- is billions in associated healthcare and diminished productivity to Los Angeles County.

The time is now to adopt clear rules and take a significant step towards implementing the 2022 AQMP. ActiveSGV thanks AQMD staff's extensive work in developing the proposed amendments to Rules 1111 and 1121. We urge the Board and staff to wrap up this rulemaking process as soon as possible, so we can begin the work of eliminating dangerous air pollution from buildings.

If you have any questions regarding this matter, please contact me at david@activesgv.org. Thank you for your time and consideration.

David Diaz, MPH
 Executive Director

ActiveSGV's mission is to support a more sustainable, equitable, and livable San Gabriel Valley.
 Jeff Seymour Center • 10900 Mulhall Street El Monte, CA 91731

Response to Comment Letter #51:*Response to Comment 51-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #52: AMERICAN LUNG ASSOCIATION



December 12, 2024

Mr. Krause and Ms. Farr
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Via Email: mkrause@aqmd.gov; hfarr@aqmd.gov

American Lung Association Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

52-1

The American Lung Association writes in support of the South Coast Air Quality Management District's efforts to further reduce pollution from appliances through amendments to strengthen Rules 1111 and 1121. This proposed regulatory package and focus on zero-emission, non-combustion technologies will provide significant relief to the region's air quality and public health challenges. We urge approval of these lifesaving proposals without further delay.

The South Coast region is home to the most difficult air pollution challenges in the United States, ranking as the nation's most ozone-impacted metropolitan region in our "State of the Air" 2024 report. The health impacts of ozone pollution are well known and represent a serious concern for the millions of residents in the region living with asthma and other respiratory and cardiovascular illnesses, children, seniors, residents with lower incomes, people of color and others at greater risk due to unhealthy air.

At a minimum, the proposed amendments to Rules 1111 and 1121 are needed to achieve clean air standards in the region but can also serve as a strong model framework for a statewide program – both local and statewide actions are vital for public health. The district's estimated benefits demonstrate that the proposals represent an important public health intervention to save lives and reduce suffering throughout the region, including:

- 4,000 lives saved over the course of implementation,
- 16,000 cases of asthma avoided, and
- 4,000 emergency room visits avoided.

To bring these potential health benefits online in communities throughout the South Coast region, the American Lung Association supports timely adoption and implementation of the strongest possible 1111 and 1121 rules without further delay. We also appreciate and support the district's efforts to expand the "Go Zero" incentive funding available to accelerate the transition away from combustion and toward zero-emission technologies with an emphasis on equitable outcomes. Please contact Will Barrett at William.Barrett@Lung.org with any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "Will Barrett".

Will Barrett
Senior Director
Nationwide Advocacy, Clean Air

1531 I Street, Suite 200 | Sacramento, CA 95814 | 916-554-5864 | Lung.org

Response to Comment #52:*Response to Comment 52-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #53: INDUSTRIOUS LABS

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

On behalf of Industrious Labs, I write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

53-1

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,

Evan Gillespie
Partner
Industrious Labs

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

Response to Comment #53:*Response to Comment 53-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #54: CLIMATE REALITY PROJECT



Mr. Krause and Ms. Farr
 South Coast Air Quality Management District (South Coast AQMD)
 21865 Copley Drive
 Diamond Bar, CA 91765
 Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

54-1

On behalf of our three chapters of the Climate Reality Project, we write in **support of the South Coast AQMD's Proposed Amended Rules 1111 and 1121**, which would set zero-emission standards for gas furnaces and water heaters, and in **opposition to weakening the rules by changing their future effective dates for existing buildings**.

The proposal as currently drafted requires new water heaters installed in existing buildings to achieve zero NOx emissions beginning on January 1, 2027, and requires new furnaces installed in existing buildings to achieve zero emissions beginning on January 1, 2028. We oppose changing these dates to January 1, 2029 for several reasons.

Delayed implementation delays the rules' health and climate benefits. This proposed regulatory package will achieve more emissions reductions than any effort in the past three decades, but with the 15 to 25 year life of these appliances and alternative compliance options staff has included, the rules will take decades to be fully effective. Given the time lag of these rules and the serious pollution in this region, an implementation delay would needlessly delay desperately-needed health gains from millions of people in the region. A delay means that even more residents will be tethered to greenhouse gas-emitting methane-burning appliances well into the 2050s and well past the year California plans to reach carbon neutrality.

Delayed implementation is not supported by evidence. Several exceptions have already been included in the proposal, including mobile homes, high elevation communities, and installations that require construction. These exceptions were based on staff's assessment of currently available technology and cost benefit calculations. No similar analysis has been given to support a broader delay of the rules. No explanation has been given as to why water heater rules should be delayed two years while furnace rules should be delayed one year. Narrow, targeted alternative compliance options are preferable to broad and unsupported delays. In fact, staff has already proposed a separate new implementation delay for central furnaces where paired air conditioners are less than 10 years old, with justification from staff's new, more conservative cost benefit analysis.

Delayed implementation delays market impacts. Heat pumps outsold both gas furnaces and gas water heaters in the United States last year and are on pace to do so again this year. With increased popularity and incentive support, heat pump manufacturers are offering more models that fill in more use cases. These rules will accelerate this innovation from

54-1

manufacturers and hasten installer workforce development. Delaying implementation would delay these benefits.

Delayed implementation delays legal clarity. Unfortunately, we know that litigation over the rules is likely, if not inevitable. A blanket delay of two years could be followed by a court stay that results in continued emissions and negative health impacts for the region's residents. While AQMD cannot prevent litigation, keeping the current, earlier implementation dates will mean swifter legal clarity that benefits both residents and businesses.

Technology check-ins can provide another opportunity to add alternative compliance options if needed. We are confident in the market's ability to meet demand, and willing to support justified compromises to make sure the rule is both strong and fair. We would support adding a second technology check-in at the end of 2027 and using the check-ins to assess supply chain and cost changes and address any exceptionally challenging installations not covered in the current proposal.

We would also support increasing the budget for South Coast AQMD's Go Zero pilot program to \$100 million, which will multiply the impact of this program nearly fivefold.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital to give clarity to the region's homeowners, landlords, tenants, and appliance manufacturers and installers.

Sincerely,

Charles Miller
Chapter Chair
Los Angeles Climate Reality Project

Lisa Swanson
Policy Chair
Climate Reality Project Orange County Chapter

Sharon Ungersma
Chapter Chair
San Fernando Valley Climate Reality Project

Response to Comment #54:

Response to Comment 54-1:

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #55: COALITION FOR CLEAN AIR

December 11, 2024

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

55-1

Coalition for Clean Air writes in support of the South Coast AQMD's efforts to clean up building emissions through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emission reductions than any other effort passed by the district in over three decades. These rules are also key components of the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ It is important to note that, as proposed, these amendments are technology-neutral and only create zero-emissions standards for these appliances. These standards would be phased in, starting in 2026 through 2029, and would be prospective – meaning existing units would not need to be proactively decommissioned.

Southern California is home to the smoggiest air in the nation. The tens of millions of breathers in Southern California desperately need these rules and their associated public health benefits. We are deeply concerned, however, that the opponents' tactics of delaying and weakening these proposals are succeeding. The opponents' last-minute demand to delay consideration of these rules is merely a time-tested canard to further sow misinformation and confusion about these rule amendments. While public outreach and transparency are essential parts of the rulemaking process, the opposition are setting an unreasonable standard that is impossible to satisfy.

Without a doubt, the opponents will move the goal posts again, barring a complete capitulation by South Coast AQMD. Already, opponents of this rule are proposing to delay implementation by three years until 2029, which staff is actively considering. We urge both staff and the Governing Board to reject efforts to delay this rule and reduce its efficacy. It is vital that these rules go to the Governing Board in a strong form and be adopted in February. Failure to pass these rules would not only call into question South Coast AQMD's commitment to the AQMP but would also greatly encourage further bad faith tactics from polluters.

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

55-1

With that said, we remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be instrumental in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We understand that the rulemaking process is difficult, and we appreciate South Coast AQMD staff's work on the proposed amendments to Rules 1111 and 1121. Yet, public health in Southern California is on the line. South Coast AQMD must implement all feasible measures to meet health-protective air quality standards. Failure to do so would jeopardize public health and invite severe Federal sanctions for our continued violations of the Clean Air Act.

For these reasons, we urge you to keep the proposed amendments to Rule 1111 and 1121 on track for passage in February.

Sincerely,



Chris Chavez
Deputy Policy Director

Response to Comment Letter #55:

Response to Comment 55-1:

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #56: SEAN ARMSTRONG

From: Sean Armstrong <[REDACTED]>
 Sent: Wednesday, December 11, 2024 4:49 PM
 To: Peter Campbell <[REDACTED]>
 Cc: Melissa Yu <[REDACTED]>; CA Building Decarbonization <[REDACTED]>
 Subject: [EXTERNAL] Comment Letter to SCAQMD re: Affordable Housing support for rules 1111 and 1121

Dear Peter Campbell,

It is not commonly known that:

1. Nationally Affordable Housing essentially began the modern building electrification movement in 2007, when the USDA Rural Development Division began funding hundreds of houses and apartments each year that competitively scored only if they developed all-electric housing with heat pumps. In California, again it has been affordable housing that developed the supermajority of all-electric housing until 2020, when it became popular with utilities and embraced by the CEC's Title 24 Code.
2. Affordable Housing developers have shown me that when replacing an old 50 gallon gas tank water heater, a new \$900 Ultra Low NOx tank is \$200 more expensive than a \$700 No NOx electric resistance tank. In California electric resistance water heating is operationally more expensive than gas (but not so in other states), so an \$1860 No NOx heat pump tank eliminates that concern. It costs \$300,000 to \$800,000 per apartment to purchase a building, so the additional \$1000 marginal cost of using a heat pump is a de minimus (0.3% to 0.12%) financial impact to the ownership cost of a building.
3. Replacing an old gas wall furnace with a new one is more expensive than removing it in favor of a new packaged heat pump. An Energy Star, \$550 packaged heat pump can be installed in a window in under an hour, or in a wall in 3 hours, and also provide life-saving air conditioning. However, a least-cost, apartment-standard \$900 gas wall furnace requires 4+ hours to safely remove, replace and test for combustion safety.

56-1

56-2

56-3

In short, the circumstances that face affordable housing developers has led them to build and retrofit to all-electric to simply save money. With the addition of tax credits and rebates, it makes no financial sense to install gas replacements to gas appliances. Resistance to change is the reason that some developers oppose new, desperately needed air quality regulations, not information derived from a depth of experience and cost comparisons.

56-4

Sincerely,
 Sean Armstrong
 Managing Principal
 Redwood Energy

Response to Comment Letter #56:*Response to Comment 56-1:*

Staff appreciates the comments and information provided about affordable housing.

Response to Comment 56-2:

Staff agrees that although zero-emission water heating appliances may have a higher upfront cost, the cost of operating a zero-emission appliance, specifically highly efficient heat pumps, can be lower than the cost of operating a NOx-emitting appliance. For more information regarding affordability, please refer to Response to General Comment 2.

Response to Comment 56-3:

Staff appreciates the comments and information provided about retrofitting a wall furnace with a packaged heat pump.

Response to Comment 56-4:

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #57: BREATHE SOUTHERN CALIFORNIA



BreatheSoCal.org

5858 Wilshire Blvd., Suite 300

Los Angeles, CA 90036

P: (323) 935-8050

F: (323) 935-1873

December 11, 2024

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

On behalf of Breathe Southern California, we write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

57-1

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,

A handwritten signature in blue ink, appearing to read "Marc Carrel".

Marc Carrel
President and CEO
Breathe Southern California

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

Breathe Easier.™

Response to Comment Letter #57:*Response to Comment 57-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #58: CALIFORNIA ENVIRONMENTAL VOTERS

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hffarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

58-1

California Environmental Voters represents over 135,000 members, with a mission to protect and enhance the environment and the health of all California communities by electing environmental champions, advancing critical priorities, and holding policy makers accountable. As such, EnviroVoters is committed to rules that champion a transition away from polluting appliances in the interest of public health and climate change.

California Environmental Voters is in strong support of South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

The adoption of this rule is necessary to transition households and businesses away from appliances with known health harms. South Coast residents face a significant air pollution burden— tackling NOx emissions will decrease formation of ozone and PM 2.5 in parallel, and is critical in meeting South Coast's climate goals.

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be extremely helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,

A handwritten signature in black ink, appearing to read "Gracyna Mohabir".

Gracyna Mohabir
Clean Air & Energy Regulatory Advocate

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

Response to Comment Letter #58:*Response to Comment 58-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #59: PACIFIC ENVIRONMENT

December 12, 2024

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

59-1

On behalf of Pacific Environment, I write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121.

Pacific Environment is a 501(c)(3) public-benefit corporation, headquartered in San Francisco, with regional offices in Anchorage, Alaska, and Chongqing, China. Founded in 1987, Pacific Environment protects people, wildlife, and ecosystems by promoting grassroots activism, strengthening communities, leading strategic campaigns, and reforming international policies. Pacific Environment has earned rare permanent consultative status at the International Maritime Organization (IMO), the United Nations' entity that sets international shipping law. As a member of the Trade, Health, and Equity (T.H.E.) Impact Project, we collaborate with community-based organizations, eNGOs, and environmental lawyers in the South Coast to reduce emissions from polluting freight and logistic operations that threaten the livelihoods of frontline communities.

This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

The South Coast air basin has been in nonattainment with federal Clean Air Act standards for over two decades, yet we still lack regulations that will get us there and drive the adoption of zero-emission technologies. Other sectors like the San Pedro Bay Ports remain responsible for over 100 tons of nitrogen oxide (NOx) emissions per day; however, there is hope that we can achieve the necessary reductions. Regulatory measures from the South Coast AQMD, like the amendments to Rules 1111 and 1121 and the Indirect Source Rule (ISR) for Marine Ports promise much needed emission reductions and are within the district's jurisdiction to tackle.

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.



59-1

Unfortunately, due to the same repeated objections and unsupported claims from the fossil fuel industry, we have seen delays to these life-saving regulations. We need strong regulations to address these sectors and ensure emission reductions that will get us closer to attainment of federal air quality standards. The South Coast AQMD must stand firm against industry pressure and continue its efforts to enforce regulations that safeguard public health and the environment.

Pacific Environment is pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,

Cristhian Tapia-Delgado
Climate Campaigner, Southern California
Pacific Environment

Response to Comment Letter #59:

Response to Comment 59-1:

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #60: MOVE LA

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121
Cc: Yessenia Moreno – ymoreno@earthjustice.org

Dear Mr. Krause and Ms. Farr:

60-1

On behalf of Move LA, we write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

Move LA builds broad-based coalitions amongst diverse stakeholders seeking bold solutions to the region's biggest challenges—i.e., mobility, affordable housing, air quality, homelessness, and climate change. Move LA advocates for the development of a transportation and goods movement system for Los Angeles County that is zero-emission, that includes of commercial and industrial buildings. We fight for policies to ensure prosperous and healthy neighborhoods free of pollution where people of all ages and incomes can live, work, and thrive.

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,



Eli Lipmen
Executive Director
Move LA
www.moveLA.org
Eli@moveLA.org

Response to Comment Letter #60:

Response to Comment 60-1:

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #61: SIERRA CLUB

December 13, 2024

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: SUPPORT for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

The Sierra Club Angeles Chapter is writing to voice our strong support of Proposed Amended Rules (PAR) 1111 and 1121 to set a zero-NO_x emission limit on gas-powered furnaces and water heaters. With over 33,000 members in Los Angeles and Orange Counties, one issue that impacts our members regardless of where they live, work, or income is that we are all affected by the poor air quality in the region.

We are seeking your leadership to apply zero-NO_x standards on furnaces and water heaters, which is critical for meeting National Ambient Air Quality Standards (NAAQS) and a way to achieve the required nitrogen oxide (NO_x) reductions identified in the 2022 Air Quality Management Plan (AQMP). Understanding that residential gas-burning equipment alone emits more NO_x pollution than all the region's cement production and power generation combined should add urgency to act and support these rules that over time will target and transition more than 10 million methane-burning furnaces and water heaters.

Our staff, volunteers, and community members have been involved in the process of the proposed amendment of these rules for over a year and we strongly believe that these are reasonable rules. We appreciate staffs engaging working group meetings and discussions where feedback has been provided to ensure a rule works for everyone AND is tackling the poor air quality issue we experience.

These rules are ready. The Go Zero Rebate program is also laying a path forward for stronger success for these rules, including funding for additional outreach, ongoing investments in building and developing the workforce, and funding for rebates ahead of the rules compliance dates. The Go Zero Program will continue to drive the market signal and advance technology, which already exists. Additionally, a technology check-in for June 2027 has been added through the rule-making process which will help share the success of the rules and inform the increased market of technology available in the next few years.

61-1



61-1

Energy-efficient heat pumps offer solutions that provide additional significant benefits, such as reduced greenhouse gas emissions and increased access to efficient cooling and air filtration during extreme heat and wildfire events, which are intensified and frequent year after year. The staff has consistently reaffirmed that technology to support this transition exists today and that these measures are feasible, even inviting contractors to present during working group meetings. We have seen heat pumps outsell gas furnaces in the United States for the last two years and a 35% year-over-year growth in the heat pump water heater market last year as well.

The proposal to move these equipment categories to zero-NO_x alternatives is key to meeting the goals in the 2022 AQMP. We support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February. Staff has done great work gathering feedback on achievable compliance dates and supporting an equitable transition. The District must stay the course to deliver on the promise of the 2022 AQMP.

Sincerely,

Kim Orbe
Senior Conservation Program Manager
Sierra Club, Angeles Chapter

Response to Comment Letter #61:

Response to Comment 61-1:

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #62: LA FORWARD INSTITUTE

December 12, 2024

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

62-1

On behalf of LA Forward Institute, I write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NO_x reductions is through extensive use of zero emission technologies across all stationary and mobile sources."

Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is key, so we can work on the important aspects of actually transitioning away from combustion in our homes.

62-1

LA Forward Institute is a multiracial, cross-class, intergenerational community of Angelenos who work for policies that will make our region a fair, flourishing place for everyone. Our civic education, community organizing, and policy advocacy work engages hundreds of thousands of people across Los Angeles County. Addressing air pollution and climate change in a real and comprehensive way is a top interest of our members and the people we engage.

Thank you for your consideration of this important matter.

Sincerely,



David Levitus, Ph.D.
Executive Director
LA Forward Institute

Response to Comment Letter #62:*Response to Comment 62-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #63: DAY ONE



board of directors

natalie salazar
president
executive director crime stoppers

tom coston
vice president
light bringer project

seema satouriam
secretary
social worker
cedar-sinai medical center

lorraine nickels
human resources
southern ca edison

delano yarbough
community activist
retired PUSD principal

lead staff

christy zamani
executive director

claudia morales
environmental prevention services
director

jennifer jimenez
community prevention programs
director

alisha lopez
tobacco control and prevention
director

ashley mercado
special projects director

colin bogart
active transportation
director

December 13, 2024

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

63-1

On behalf of Day One, we write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades.

The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people.

We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to take swift action to safeguard the health and wellness of California residents.

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,

Christy Zamani,
Executive Director, Day One, Inc.

Response to Comment Letter #63:*Response to Comment 63-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #64: EARTHJUSTICE



Michael Krause
Assistant Deputy Executive Officer for Planning, Rule Development & Implementation
Heather Farr
Planning & Rules Manager
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

64-1

On behalf of Earthjustice, we write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. By your own estimates, 10 tons of NOx per day could be avoided once the rules are implemented. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero-emission technologies across all stationary and mobile sources."¹

We cannot overstate the public health benefits of eliminating these dangerous NOx emissions from buildings. NOx emissions are the precursor to ozone pollution and "secondary" PM_{2.5} pollution—harmful pollutants known to trigger respiratory illness and cardiovascular disease, cognitive impairment, and premature death.² Eliminating the pollution from these appliances could help avoid the nearly 76,000 asthma attacks, 30,000 lost school days, 130 premature deaths annually estimated to result from methane gas-burning equipment currently prevalent in our buildings.³ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people.

It is important to understand that these rules are not new; they are the result of years of work. The Air District included this control measure in its 2022 AQMP. The development of that plan involved a public process that lasted over three years and included various outreach activities, such as specialized working groups, regional workshops, public hearings, and the convening of an Advisory Council. Additionally, policy briefs were released on key topics, including one focused on emissions from building appliances.

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

² Coalition for Clean Air and RMI, *Southern California's Hidden Air Pollution Problem: Gas Furnaces & Water Heaters* (December 2024); <https://www.ccair.org/wp-content/uploads/2024/12/South-Coast-Brief.pdf>

³ Id

CALIFORNIA OFFICE 707 WILSHIRE BLVD., SUITE 4300 LOS ANGELES, CA 90017

T: 213.766.1059 F: 213.403.4822 CAOFFICE@EARTHJUSTICE.ORG WWW.EARTHJUSTICE.ORG

Michael Krause
Heather Farr
December 13, 2024
Page 2 of 2

64-1

To further address appliance issues, a specific subgroup on this topic was created during the development of the 2022 AQMP. The rulemaking process for Proposed Amended Rules 1111 and 1121 has been occurring over 14 months and counting. This process included seven working group meetings, a public workshop, and numerous meetings with stakeholders, such as building owners, manufacturers, environmental groups, and energy providers.

Despite this extensive rulemaking process, some stakeholders critical of the regulation have only raised their concerns with the South Coast AQMD in recent months. These late comments have led staff to conduct additional analyses, provide further responses, and, in some cases, suggest modifications to these important rule amendments. As a result, staff have proposed solutions that we may not fully agree with, but we acknowledge that they arise from genuine efforts by staff to address the criticisms regarding the zero-NOx standards.

While we are deeply concerned that the proposal is being weakened by delaying compliance deadlines and offering unnecessary loopholes, rule passage is of paramount importance. It is vital these rules go to the Governing Board in February of 2025 for final adoption. The built-in technology review offers a clear inflection point to strengthen the rules with an implementation track record to inform improvements.

To help with implementation of the rule, we remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will help hasten the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives. We also encourage the South Coast AQMD Board to convene stakeholders to work together to bring more resources to the South Coast Air Basin. Earthjustice wants to work with the Governing Board and your staff to alleviate obstacles to removing combustion of fossil fuels from our homes.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,



Fernando Gaytan
Earthjustice

Response to Comment Letter #64:*Response to Comment 64-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #65: PATRICIA PIPKIN

TO:
Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

65-1

I am writing to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹

Given the serious pollution in our region, the health gains from advancing zero-emissions technology are desperately needed by millions of people. Therefore, it is vital that these rules go to the Governing Board in a strong form and be adopted in February.

The sooner these rules are adopted, the sooner we can begin the process of transitioning away from combustion in our homes.

Sincerely,

Patricia Pipkin
1825 Vistillas Rd.
Altadena, CA 91001
pipkin@earthlink.net

c: Yessenia Moreno, Earthjustice

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

Response to Comment Letter #65:*Response to Comment 65-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #66: SUSTAINABLE CLAREMONT

SUSTAINABLE CLAREMONT

PO Box 1502 | Claremont, CA 91711

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

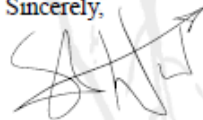
66-1

On behalf of Sustainable Claremont, we write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,



Stuart Wood PhD
Executive Director
Sustainable Claremont

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

Response to Comment Letter #66:*Response to Comment 66-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #67: LOS ANGELES NEIGHBORHOOD LAND TRUST

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

67-1

On behalf of the Los Angeles Neighborhood Land Trust (LANLT), we strongly support the South Coast AQMD's efforts to address appliance pollution through amendments to Rules 1111 and 1121. This regulatory package represents an unprecedented opportunity to achieve significant emissions reductions—aligning with the 2022 Air Quality Management Plan's call for zero-emission technologies across all sources. However, we are concerned about delays and loopholes that may weaken this proposal. To prioritize the health and well-being of millions of residents in the South Coast Air Basin, swift action is needed to finalize a strong rule by February.

As an organization dedicated to creating and enhancing green spaces in underserved communities, we see firsthand the devastating impacts of air pollution on public health, particularly in areas disproportionately burdened by environmental injustices. Cleaner air means healthier communities, where children can play safely and residents can enjoy outdoor spaces without harm.

We commend the AQMD's Go Zero program and the proposed increase in funding from \$21 million to \$100 million for zero-emission incentives. These resources are crucial to advancing equitable access to cleaner technologies, particularly for disadvantaged communities. It is vital the Board endorse this commitment to ensure \$100 million goes towards these incentives.

LANLT appreciates the South Coast AQMD staff's dedication and urges swift adoption of these amendments to continue building resilient, healthy communities across Los Angeles.

Sincerely,

A handwritten signature in black ink, appearing to be "Tori Kjer", written in a cursive style.

Tori Kjer
Executive Director
Los Angeles Neighborhood Land Trust

Response to Comment Letter #67:*Response to Comment 67-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #68: JOBS TO MOVE AMERICA



BOARD OF DIRECTORS

Ed Wytkind, Chair
President, EW Strategies LLC

Carl Kennebrew, Vice-Chair
President, IUE-CWA

Tanya Wallace-Goburn, Vice-Chair
Exec. Director, National Black Worker Center

Robert Puentes, Sec-Treas.
President & CEO, Eno Center for Transportation

Michael Coleman
President, Sheet Metal Workers' International Association (SMART)

John A. Costa
Intl. President, Amalgamated Transit Union

Joe DiMichele
Director, Professional and Industrial IBEW Membership Development

Scott Douglas
Exec. Director, Greater Birmingham Ministries

Cecilia Estolano
CEO and Founder, Estolano Advisors

Ana Garcia-Ashley
Exec. Director, Gamaliel Network

Jacky Grimshaw
Vice President of Government Affairs,
Center for Neighborhood Technology

Tamara L. Lee, Esq.
Assoc. Professor, Labor Studies & Employment Relations, Rutgers University

Mike Miller
Director, Region 6, United Auto Workers Union

Greg Regan
President, Transportation Trades Department, AFL-CIO

John Samuelsen
Intl. President, Transport Workers Union of America

Dr. Beverly Scott
Beverly Scott & Associates

Maria Somma
Organizing Director, United Steelworkers

Christian Sweeney
Deputy Organizing Director, AFL-CIO

Xinge Wang
Deputy Director, Transportation Learning Center

EXECUTIVE DIRECTOR

Madeline Janis, Esq.

DEPUTY DIRECTOR

Miranda Nelson

December 13, 2024

Mr. Krause and Ms. Farr

South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765

Dear Mr. Krause and Ms. Farr:

68-1

On behalf of Jobs to Move America, we write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve significant emissions reductions and spur manufacturers to create a new generation of zero-emission furnaces and water heaters. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution across the region, these regulatory amendments will bring real health gains and more clean manufacturing jobs by advancing zero-emissions when good "high-road" jobs are desperately needed. Our concern however is the proposal to weaken these rules through delaying compliance deadlines and loopholes. We encourage staff to see these efforts as what they are, a ploy to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board without loopholes or delays and be adopted in February.

There is no need to slow the progress of these rules when we no longer have to choose between creating "high road" jobs and reducing pollution from buildings. The current move to zero-emissions is being embraced by manufacturers as evident in the multiple stakeholder meetings, and the conversation is no longer if, but when our buildings become decarbonized. It is in these conversations that we must continue the call for a better class of jobs in the clean energy transition. Any concerns from the furnace and heater supply chain in meeting these goals should be met with collaboration and creativity, especially when workers are on the front lines, manufacturing, selling, installing and maintaining these new technologies.

We remain pleased to see the South Coast AQMD's Go Zero

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

California

Illinois

New York/New Jersey

Alabama

525 S. Hewitt St, Los Angeles, CA 90013 | 213.358.6548 | info@jobstomoveamerica.org | jobstomoveamerica.org

68-1

program take form. These incentives will be really helpful up-grading buildings' with new zero-emission technologies. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. We'd like to see the Board endorse this commitment with a resolution to ensure the over \$100 million will go towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121 and your consideration of the points made in this letter. Wrapping up this rulemaking process as soon as possible is our hope, and we look forward to working on the important aspects of reducing pollution in our homes and increasing workers protections at our jobs.

Sincerely,

Jasmin Vargas
CA Senior Organizer,
Jobs to Move America

California

Illinois

New York/New Jersey

Alabama

525 S. Hewitt St, Los Angeles, CA 90013 | 213.358.6548 | info@jobstomoveamerica.org | jobstomoveamerica.org

Response to Comment Letter #68:*Response to Comment 68-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 which explains the need for the rule amendments and financial incentives.

COMMENT LETTER #69: COMMUNITIES FOR A BETTER ENVIRONMENT (CBE)

12/13/2024

Mr. Krause and Ms. Farr
South Coast Air Quality Management District
(South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

**RE: Support for Proposed Amended Rules 1111 and 1121**

Dear Mr. Krause and Ms. Farr:

69-1

On behalf of Communities for a Better Environment (CBE), we support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed package achieves major and crucial air pollution reductions, necessary to meet health standards in a region with the worst air pollution in the nation.

This effort toward zero emission energy sources was found in the 2022 Air Quality Management Plan (AQMP) as the *only* way to meet health standards in the region, as you know. We need to further expand on this approach, and not step backward.

We are deeply concerned the proposal could be weakened or delayed, and we urge staff to reject such efforts that would reduce rule efficacy. These rules need to go to the Governing Board in a strong form, and adopted in February.

We are pleased that AQMD's Go Zero program incentives are continuing to speed up the transition away from combustion in buildings. We understand that AQMD's Executive Officer committed to a 5-fold increase in the \$21 million allocated to this program, another vitally important issue needing Board endorsement.

Thank you for your significant work on proposed amendments to Rules 1111 and 1121. Wrapping up rulemaking as soon as possible is essential toward transitioning away combustion in our homes.

Sincerely,

Julia May
Communities for a Better Environment (CBE)

Response to Comment Letter #69:*Response to Comment 69-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #70: CLIMATE ACTION CAMPAIGN

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
December 13, 2024
Via Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

70-1

On behalf of Climate Action Campaign, we write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NO_x reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

Air pollution remains a significant threat in the South Coast region, where the dense population and high levels of industrial activity combine to create some of the worst air quality in the nation. The region frequently fails to meet federal and state air quality standards for pollutants like nitrogen oxides (NO_x) and particulate matter (PM), both of which are harmful to public health. Appliance pollution, particularly from gas-fired furnaces, water heaters, and stoves, is a major contributor to these emissions. By transitioning to zero-emissions technologies, we can dramatically reduce harmful pollutants that cause respiratory issues, heart disease, and other chronic health conditions. The impacts of appliance pollution are felt most acutely by vulnerable populations, including low-income communities and communities of color, who disproportionately live near sources of pollution and experience higher rates of asthma, lung disease, and other related illnesses. Strengthening the proposed amendments to Rules 1111 and 1121 will ensure that we take meaningful steps to protect public health and achieve the necessary air quality improvements.

We are pleased to see the South Coast AQMD's Go Zero program take form. These

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

70-1

incentives will help hasten the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a five-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,

David Martinez
Orange County Climate Equity Advocate and Organizer
Climate Action Campaign

Response to Comment Letter #70:*Response to Comment 70-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #71: CENTER FOR COMMUNITY ACTION AND ENVIRONMENTAL JUSTICE (CCA EJ)

CENTER FOR COMMUNITY ACTION AND ENVIRONMENTAL JUSTICE
 “Bringing People Together to Improve Our Social and Natural Environment”

December 13, 2024

Mr. Krause and Ms. Farr
 South Coast Air Quality Management District (South Coast AQMD)
 21865 Copley Drive
 Diamond Bar, CA 91765
 Email: mkrause@aqmd.gov; hfarra@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

I am writing on behalf of the Center for Community Action and Environmental Justice (CCA EJ) to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that “[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources.”¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

As an organization which works in communities facing some of the worst air quality in the nation, CCA EJ is strongly in support of these efforts to address the largest single source of pollution in the region. These rules will be instrumental to cleaning the air and saving lives and we look forward to seeing families, friends, and neighbors living fuller lives for longer.

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure the full \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,



Marven E. Norman, MPA
 Policy Coordinator

CCA EJ is a long-standing community based organization with over 40 years of experience advocating for stronger regulations through strategic campaigns and building a base of community power. Most notably, CCA EJ's founder Penny Newman won a landmark federal case against Stringfellow Construction which resulted in the “Stringfellow Acid Pits” being declared one of the first Superfund sites in the nation. CCA EJ prioritizes community voices as we continue our grassroots efforts to bring lasting environmental justice to the Inland Valley Region.

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

Mailing Address
 PO Box 33124
 Jurupa Valley, CA 92519
www.ccae.org

Response to Comment Letter #71:*Response to Comment 71-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #72: GLENDALE ENVIRONMENTAL COALITION

December 12, 2024

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov, hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

72-1

The Glendale Environmental Coalition supports the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. It is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We strongly urge staff to reject efforts to delay compliance, or create loopholes that reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

Preventing the installation of new gas-powered equipment in the basin is a crucial step in transitioning from a gas-based economy to one that is sustainable and that supports a livable future. Adding new equipment that emits nitrogen oxides and other harmful air pollutants is counterproductive and incompatible with the SCAQMD's goals of achieving meaningful emissions reductions.

We support the SCAQMD's Go Zero Program, and urge the Board to issue a resolution providing for \$100 million to go toward these incentives. And, we urge the SCAQMD to wrap up the rulemaking process as soon as possible to allow the work of transitioning away from combustion in our homes to proceed!

Sincerely,

Elise Kalfayan, Board Member
Glendale Environmental Coalition

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

Response to Comment Letter #72:*Response to Comment 72-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #73: LEAGUE OF WOMEN VOTES OF LOS ANGELES COUNTY

An Inter-League organization: Beach Cities • East San Gabriel Valley • Long Beach Area • Greater Los Angeles
Mt. Baldy Area • Palos Verdes Peninsula/San Pedro • Pasadena Area • Santa Monica • Torrance Area • Whittier

10011 Melgar Drive, Whittier, CA 90603

December 13, 2024

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

73-1

On behalf of the League of Women Voters of Los Angeles County, I am writing to express support for the South Coast AQMD's efforts to reduce appliance pollution through amending Rules 1111 and 1121. These proposed amendments represent a historic opportunity to achieve critical emissions reductions in alignment with the 2022 Air Quality Management Plan (AQMP), which concluded that "[t]he only way to achieve the required NOx reductions is through extensive use of zero-emission technologies across all stationary and mobile sources." In a region facing severe pollution, these health and environmental benefits are urgently needed by millions of residents.

The League of Women Voters has long supported policies and actions promoting the electrification of appliances and vehicles to meet the California Renewable Portfolio Standards. Specifically, the League's **Climate Action Policy** advocates for:

- Mandating all-electric appliances in new construction for homes, offices, and commercial properties;
- Retrofits of municipal and county buildings to rely exclusively on renewable energy; and
- Incentives to retrofit private structures for renewable energy supply and energy efficiency.

We appreciate the inclusion of the Go Zero program, which aligns with these goals. Increasing its funding from \$21 million to \$100 million is critical to support an equitable and timely transition away from combustion in buildings. We urge the Governing Board to endorse this commitment via resolution to ensure its realization.

We are deeply concerned, however, about efforts to weaken the proposal through delayed compliance deadlines and loopholes. To meet the region's health and climate goals, it is vital that Rules 1111 and 1121 go to the Governing Board in February 2025 in their strongest form, without compromises that undermine their efficacy.

The League of Women Voters, a nonpartisan political organization, encourages informed and active participation in government, works to increase understanding of major public policy issues, and influences public policy through education and advocacy.

73-1

Finally, we urge South Coast AQMD to prioritize equity in implementation, ensuring that low-income and underserved communities can access the benefits of cleaner air and improved infrastructure.

We commend AQMD staff for their diligent work on these amendments and encourage swift action to finalize this process. A clear and decisive timeline for rulemaking and implementation will be critical to accelerating the transition to zero-emission technologies.

Respectfully,



Margo A. Reeg
President
League of Women Voters of Los Angeles County
10011 Melgar Drive
Whittier, CA, 90603
Email: margolwv@gmail.com

The League of Women Voters, a nonpartisan political organization, encourages informed and active participation in government, works to increase understanding of major public policy issues, and influences public policy through education and advocacy.

Response to Comment Letter #73:*Response to Comment 73-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #84: WEST LONG BEACH ASSOCIATION

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765

Email: mkrause@aqmd.gov, hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

74-1

On behalf of West Long Beach Association, we write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NO_x reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

The time is now to put human beings lives first by removing all sources of negative health impacts instated of profit margins. Industry must no longer be able to hide industries murderous deeds with in weak rules. At some point the board becomes complicit in industries action. Study after study shows the harm NO_x is doing to communities and yet you are reluctant to move forward with the resolve to move forward to save human lives. Your own reports have shown the results of NO_x pollution are catastrophic, people are dying as a result. The fact is more people are dying from pollution in Los Angeles county than the homicide rate per year in any of the past five years. These reports and other are not read and file, but to read, file and take the accurate action to eliminate their soure or sources of pollution.

[We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in hastening the transition away from combustion in our

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

74-1

buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of transitioning away from combustion in our homes.

Sincerely,

Theral Golden
Treasurer
West Long Beach Association]

Response to Comment Letter #74:*Response to Comment 74-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #75: DEL AMO ACTION COMMITTEE



Staff
Cynthia Babich
Director

Board of Directors
Florence Gharibian
Board Chair

Jan Kalani
Board Member
Homeowner/Resident

Bruce Bansen
Board Member
Homeowner/Resident

Cynthia Medina
Board Member
Homeowner/Resident

Bryan Castro
Board Member

Emeritus Board
Lizabeth Blanco
Homeowner/Resident

In Memoriam
Nick Blanco
Homeowner/Resident

Barbara Stockwell
Homeowner

Brenda Bibee
Board Member

Valerie Medina
Board Member
Resident

Lydia Valdez
Board Member
Homeowner/Resident

December 13, 2024

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

On behalf of Del Amo Action Committee we write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that the only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources. Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

Times have changed and protections must change to meet the needed protections.

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,
Cynthia Babich
Director
Del Amo Action Committee

75-1

967 Torrance Blvd., Torrance, California 90502
P. O. Box 549, Rosamond, California 93560
Office: 661-256-7144 Cell: 310-769-4813

Response to Comment Letter #75:*Response to Comment 75-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #76: CENTER FOR BIOLOGICAL DIVERSITY

CENTER for BIOLOGICAL DIVERSITY

*Because life is good.*December 13th, 2024*Sent via email*

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

76-1

The Center for Biological Diversity supports the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

The Center is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over 1.7 million members and online activists throughout California and the United States. The Center and its members have worked for many years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life in Contra Costa County and the surrounding region.

Air quality is a significant environmental and public health concern in California. Unhealthy, polluted air contributes to and exacerbates many diseases and increases mortality rates. The U.S. government has estimated that between 10 to 12 percent of total health costs can be attributed to air pollution. (VCAPCD 2003.) Greenhouse gases, such as the air pollutant carbon dioxide, which is released by fossil fuel combustion, contribute directly to human-induced climate change (EPA 2016), and in a positive feedback loop, poor air quality that contributes to climate change will in turn worsen the impacts of climate change and attendant air pollution. (BAAQMD 2016.)

Air pollution and its impacts are felt most heavily by young children, the elderly,

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.



76-1

pregnant women and people with existing heart and lung disease. People living in poverty are also more susceptible to air pollution as they are less able to relocate to less polluted areas, and their homes and places of work are more likely to be located near sources of pollution, such as freeways or ports, as these areas are more affordable. (ALA 2022.) Some of the nation's most polluted counties are in Southern California, and San Bernadino County continually tops the list. (ALA 2022.) According to the American Lung Association's 2022 "State of the Air" report, San Bernadino County is the ninth-worst ranked county in the state for both ozone pollution and year-round particulate matter (PM2.5) pollution, with a "Fail" grade and an average number of 180 days per year with ozone levels in the unhealthy range. (Id.)

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in reducing combustion-related pollution in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,

A handwritten signature in black ink, appearing to read "Elizabeth Reid-Wainscoat".

Elizabeth Reid-Wainscoat
Campaigner
Center for Biological Diversity
ereidwainscoat@biologicaldiversity.org

Response to Comment Letter #76:

Response to Comment 76-1:

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #77: HEALING AND JUSTICE CENTER

Mr. Krause and Ms. Farr
 South Coast Air Quality Management District (South Coast AQMD)
 21865 Copley Drive
 Diamond Bar, CA 91765
 Email: mkrause@aqmd.gov; hfarr@aqmd.gov

RE: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

77-1

On behalf of **Healing and Justice Center**, we write to support the South Coast AQMD's efforts to clean up appliance pollution through amending Rules 1111 and 1121. This proposed regulatory package will achieve more emissions reductions than any other effort passed in over three decades. The effort is also consistent with the 2022 Air Quality Management Plan (AQMP), which determined that "[t]he only way to achieve the required NO_x reductions is through extensive use of zero emission technologies across all stationary and mobile sources."¹ Given the serious pollution in this region, these health gains from advancing zero-emissions are desperately needed for millions of people. We are deeply concerned that the proposal is getting weakened through delaying compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy of the rule. It is vital that these rules go to the Governing Board in a strong form and be adopted in February.

The Healing and Justice Center (HJC) is a worker self-directed nonprofit dedicated to fostering collective healing and justice for BIPOC (Black, Indigenous, and People of Color) individuals, communities, and organizations. Our mission is to create safe, connected spaces where community members can access healing-centered strategies that address the physical, mental, and emotional impacts of systemic oppression. Our advocacy efforts focus on dismantling cycles of trauma and burnout through transformative healing justice models. We believe that sustainable social justice requires holistic practices that uplift communities from survival to thriving.

HJC recognizes the clear and vital intersection between environmental justice, housing stability, and the health and well-being of community residents. Pollution in residential areas disproportionately impacts vulnerable communities, often exacerbating health disparities for those already affected by housing insecurity. Our organization is deeply committed to supporting

¹ South Coast AQMD, 2022 AQMP, at Executive Summary.

Info@HealingAndJusticeCenter.org | www.HealingAndJusticeCenter.org



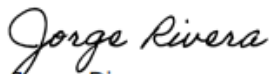
77-1

policy changes that reduce environmental burdens on communities of color, ensure safe and healthy housing, and promote the overall well-being of residents. The proposed amendments to South Coast AQMD Rules 1111 and 1121 present an essential opportunity to reduce pollution at its source and ensure that all residents, particularly those in historically underserved neighborhoods, have access to healthier living environments. The adoption of these rules in their strongest form would support our shared vision of healthy, resilient, and just communities where every person can thrive.

We remain pleased to see the South Coast AQMD's Go Zero program take form. These incentives will be really helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital the Board endorse this commitment via resolution to ensure \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121. Wrapping up this rulemaking process as soon as possible is vital, so we can work on the important aspects of actually transitioning away from combustion in our homes.

Sincerely,



Jorge Rivera
Executive Co-Director
Healing and Justice Center



Response to Comment Letter #77:*Response to Comment 77-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #78: CENTER FOR PROGRESSIVE REFORM

December 13, 2024

Mr. Krause and Ms. Farr
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Drive
Diamond Bar, CA 91765

Re: Support for Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

78-1

My name is Catalina Gonzalez. I am a Los Angeles County resident and a Senior Policy Analyst at the Center for Progressive Reform; we are a nonprofit research and advocacy organization guided by a network of legal scholars and staff with expertise in governance and regulation. On behalf of the Center, I am writing to express our support for the South Coast AQMD's efforts to reduce appliance pollution and, in particular, for amending Rule 1111 and 1121. This proposed regulatory package is consistent with the 2022 Air Quality Management Plan (AQMP) and will achieve more emissions reductions than any other effort passed in over three decades.

On a daily basis, a population of approximately 17 million residents in the South Coast Air Basin are exposed to the most polluted air in the nation, with the highest rankings of smog and particulate matter. This pollution disproportionately impacts environmental justice communities who are primarily low-income communities of color and children. Adopting and implementing standards for zero-NOx water heaters and furnaces under Rules 1111 and 1121 is the next critical step that is needed to begin the process of reducing pollution that will bring health and air quality benefits to millions in the South Coast Air Basin.

We are deeply concerned that the proposal is getting weakened due to delays in compliance deadlines and many loopholes. We encourage staff to reject these efforts to reduce the efficacy

78-1

of the rule. It is vital that the strongest possible version of these rules go to the Governing Board and be adopted in February.

We believe a combination of policy tools and strategies will be needed to achieve the level of pollution and emission reductions needed to protect public health, and we are pleased to see the South Coast AQMD's Go Zero program take form. In combination with zero-Nox standards, these incentives will be helpful in hastening the transition away from combustion in our buildings. It is our understanding that the South Coast AQMD's Executive Officer has committed to a 5-fold increase in the \$21 million allocated to this program. It is vital that the Board endorse this commitment via resolution to ensure that \$100 million goes towards these incentives.

We appreciate AQMD staff's significant work on these proposed amendments to Rules 1111 and 1121 and urge AQMD to adopt and implement strong rules without delay.

Sincerely,

Catalina Gonzalez
Senior Policy Analyst
Center for Progressive Reform

Response to Comment Letter #78:

Response to Comment 78-1:

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #79: LAKE ELSINORE CITY COUNCIL

December 13, 2024

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Opposition to Amendments to Rules 1111 and 1121 Banning Natural Gas as an Energy Option

Dear Coalition Members,

79-1

On behalf of the Lake Elsinore City Council, I am writing to express our *opposition* to the proposed amendments to Rules 1111 and 1121, which would effectively ban natural gas as an energy option. While we recognize and appreciate California's ambitious efforts to combat climate change, including initiatives similar to Senate Bill 100 (2018), removing natural gas from the energy mix is neither practical nor sustainable at this time. Such a policy would have far-reaching consequences, including significantly higher electricity costs for residents and businesses across the state.

The proposed requirement to replace old furnaces and water heaters exclusively with zero-emission alternatives by 2030 presents significant challenges. Natural gas remains a critical component of California's energy landscape, with consumption far exceeding that of other energy resources and renewables. Mandating such a shift would impose undue financial burdens on homeowners and businesses, particularly during emergency repairs to restore essential services like hot water or heating.

Even with proposed incentives, the funding caps would leave a substantial gap between the actual costs and available assistance, disproportionately affecting vulnerable populations, including seniors, low-income families, and small businesses.

In Lake Elsinore, where approximately 11% of our population lives below the poverty line, these policies could result in many residents going without hot water or adequate heating and cooling, particularly during extreme weather conditions. This would seriously harm their quality of life, health, and safety. Moreover, the limited funding for end-user incentives, supply chain issues, and delays in electric equipment availability present further challenges. We also note that the Southern California Gas Company, a leading provider of natural gas in the state, actively supports California's efforts to meet federal air quality standards, decarbonization goals, and net-zero targets.

951.674.3124

130 S. MAIN STREET

LAKE ELSINORE, CA 92530

WWW.LAKE-ELSINORE.ORG

SCAQMD


- 2 -

December 13, 2024

79-1

They are working on innovative solutions to deliver clean, reliable, and affordable energy to residents and businesses. In light of these concerns, we urge you to reconsider the amendments to Rules 1111 and 1121. Policies that force an abrupt transition away from natural gas without addressing the associated costs, infrastructure challenges, and equity impacts will create significant hardships for our community and beyond. Thank you for your consideration.

Sincerely,



Brian Tisdale, Mayor
City of Lake Elsinore

cc: Bob McGee, Mayor Pro Tem
Natasha Johnson, Council Member
Timothy J. Sheridan, Council Member
Jason Simpson, City Manager
Barbara Leibold, City Attorney

951.674.3124
130 S. MAIN STREET
LAKE ELSINORE, CA 92530
WWW.LAKE-ELSINORE.ORG

Response to Comment Letter #79:*Response to Comment 79-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For information regarding sustainability of utility demands, please refer to Response to General Comment 3. For information regarding cost and affordability, please refer to Response to General Comment 2. For the need for rule amendments, please refer to Response to General Comment 10.

COMMENT LETTER #80: ORANGE COUNTY BUSINESS COUNCIL (OCBC)

2 Park Plaza, Suite 100, Irvine, CA 92614 | P 949.476.2242 | F 949.476.0443 | www.ocbc.org

December 18, 2024

South Coast Air Quality Management District Governing Board
21865 Copley Drive
Diamond Bar, CA 91765

Re: OCBC's Opposition to Proposed Amended Rules 1111 & 1121

Dear SCAQMD Board Members:

Orange County Business Council (OCBC), the leading voice of business in Orange County, is writing today to express our strong opposition to Proposed Amended Rules (PAR) 1111 & 1121, and respectfully request that the South Coast Air Quality Management District (SCAQMD) reconsider these burdensome and consequential amendments.

OCBC has long supported sustainable public and private infrastructure that protects public health, facilitates a well-educated public and workforce, and supports a robust economy – all while providing for reliable natural gas and electric transmission, distribution, and storage systems. Further, OCBC fully supports sufficient “green” and open space infrastructure projects that promote quality of life. However, considering what data and information is currently available, we have serious concerns regarding the potential implementation of PARs 1111 & 1121. The overall impact these PARs would have are costly and detrimental to businesses and residents throughout the district.

If these PARs are adopted in their current form, it could have a significantly negative impact on the housing market. This is already a point of contention for Orange County’s resident workforce. Mandating building owners to refurbish their facilities to be in compliance with these regulations, especially when done at scale, will cost owners an excessive amount in costs – which will undoubtedly be passed down to renters. This comes at a time in which the cost of living is at an all-time high across the region.

80-1

These PARs will also have a significant impact on the hospitality industry – which is one of Orange County’s most vibrant and diverse economic sectors. Many in the hospitality industry are still recovering from losses that were experienced during the lockdowns related to the COVID-19 pandemic. Adding expansive regulatory burdens, just a few years removed from the pandemic, could prove to be detrimental to a major sector of our local economy that is still recovering.

80-2

OCBC is strongly opposed to these burdensome and costly proposed amended rules and encourages you to reconsider in the interest of the region’s economic well-being which we are all dependent upon. We will always support a comprehensive approach, with inclusive dialogue, to address the state’s infrastructure needs. We will continue to work with government entities, such as SCAQMD, to ensure that the voice of Orange County’s business community is engaged when discussing comprehensive infrastructure improvements – such as those being considered through PARs 1111 & 1121. Thank you for your time and consideration on this matter.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jeffrey Ball".

Jeffrey Ball
President/CEO

THE LEADING VOICE OF BUSINESS IN ORANGE COUNTY

Response to Comment Letter #80:*Response to Comment 80-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

The new rule concept also revised the proposed applicability and will not expand to larger size spacing heating appliances typically installed at commercial facilities. The revised PAR 1111 and PAR 1121 will be applicable to residential-sized appliances and will have minimal impact to commercial and industrial properties.

For information regarding cost and affordability, please refer to Response to General Comment 2.

Response to Comment 80-2:

Please see above Response to Comment 80-1. In addition, space and water heating in hospitals are unlikely subject to PAR 1111 and PAR 1121. Instead, they may be subject to Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters which was adopted in June 2024 for zero-emission standards. Please refer to the Rule 1146.2 Public Hearing documents which include a staff report and socioeconomic impact assessment which contains an analysis related to costs.⁽²⁷⁾

⁽²⁷⁾ <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2024/2024-Jun7-026.pdf?sfvrsn=6>

COMMENT LETTER #81: HENRY ROGERS

From: [REDACTED] <[REDACTED]>
Sent: Wednesday, December 18, 2024 4:27 PM
To: Peter Campbell <[REDACTED]>
Subject: Contact Form

Contact Form

Name: Henry Rogers

Email: [REDACTED]

Phone: [REDACTED]

Message:

Re: Opposition to Proposed Amended Rules 1111 and 1121 Dear Honorable Committee Members: On behalf of the Harbor Association of Industry & Commerce (HAIC), I am writing to express our opposition to Proposed Amended Rules (PARs) 1111 and 1121, which would set NOx emissions limits at zero for residential and commercial space heating and residential water heating appliances. While HAIC supports efforts to improve air quality and reduce emissions, we have significant concerns about the potential impacts of these proposed amendments on our members and the broader community: 1. Cost Burden: The proposed rules would impose substantial costs on residents and businesses for appliance replacements and electrical upgrades. Many may struggle to afford these changes, particularly in disadvantaged communities. 2. Feasibility Concerns: The timeline for implementation may not allow sufficient time for the market to develop affordable and reliable zero-emission alternatives, potentially leading to supply chain issues and increased costs. 3. Grid Reliability: A rapid shift to all-electric appliances could strain the electrical grid, potentially compromising reliability and resilience. 4. Limited Alternatives: By effectively banning natural gas appliances, the rules may eliminate viable low-emission options, such as ultra-low NOx gas technologies or hydrogen-enriched systems. 5. Economic Impact: The rules could negatively impact businesses in our region, including those involved in natural gas distribution and appliance manufacturing/servicing. 6. Inadequate Cost-Effectiveness Analysis: We believe the cost-effectiveness calculations presented by SCAQMD staff require further scrutiny and transparency. We respectfully request that the Committee consider the following recommendations: 1. Extend the implementation timeline to allow for a more gradual transition. 2. Conduct a comprehensive economic impact study, including effects on low-income households and small businesses. 3. Explore a technology-neutral approach that allows for multiple pathways to emissions reduction. 4. Enhance incentive programs to assist with the costs of compliance. 5. Conduct additional public outreach to ensure all affected

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parties are fully informed. HAIC appreciates the opportunity to provide input on this important matter. We remain committed to working collaboratively with SCAQMD to achieve our shared goals of improved air quality and a thriving regional economy. Thank you for your consideration. Sincerely, Henry Rogers Executive Director Harbor Association of Industry & Commerce

81-11

Response to Comment Letter #81:

Response to Comment 81-1:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For information regarding cost and affordability, please refer to Response to General Comment 2.

Response to Comment 81-2:

Please refer to Response to General Comment 4 for information regarding technology readiness.

Response to Comment 81-3:

Please refer to Response to General Comment 3 for information regarding electricity demand and grid sustainability.

Response to Comment 81-4:

As mentioned in Chapter 2 of this report, Rule 1111 and Rule 1121 are fuel and technology neutral, meaning any technology that can meet the emission limits is compliant with the rules. With the new rule concept, consumers will be able to choose either zero-emission appliance options or NOx-emitting natural gas-fired appliance options in the market. Please refer to Response to General Comment 1 for consumer choice.

Response to Comment 81-5:

Staff is preparing a Draft Socioeconomic Impact Assessment which will be released for public review and comment at least 30 days prior to the Public Hearing for PAR 1111 and PAR 1121 scheduled for 2025. The analysis will consider impact on employment and the regional economy.

Response to Comment 81-6:

Please refer to General Response to Comment 6 for information regarding the cost-effectiveness analysis.

Response to Comment 81-7:

Please see Response to General Comment 10 for the need for rule amendment.

Response to Comment 81-8:

Please see Response to Comment 81-5 relative to the Socioeconomic Impact Assessment, and Response to General Comment 2 relative to cost and affordability.

Response to Comment 81-9:

Please refer to Response to Comment 81-7.

Response to Comment 81-10:

Staff anticipates launching the Go Zero program in 2025 with the opportunity to expand the program in future phases.

Response to Comment 81-11:

For information regarding outreach, please refer to Response to General Comment 5.

COMMENT LETTER #82: HARBOR ASSOCIATION OF INDUSTRY AND COMMERCE

December 18, 2024

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: Comments on Proposed Amended Rules 1111 and 1121

To the Members of the Governing Board:

The Harbor Association of Industry and Commerce (HAIC), representing industrial, maritime, and commercial businesses in the Los Angeles Harbor Area, writes to express significant concerns regarding Proposed Amended Rules 1111 and 1121.

Our primary concerns include:

Cost and Implementation

- Substantial replacement costs ranging from \$18,500-\$21,500 for space heaters and \$5,200-\$8,200 for water heaters
- Significant electrical infrastructure upgrades required for many industrial and commercial properties
- Timeline starting in 2026 poses challenges for capital planning and budgeting
- Current supply chain constraints and workforce limitations could impede compliance

82-1

Industrial Impact

- Many of our members operate large facilities requiring multiple unit replacements
- Electrical capacity concerns for industrial properties
- Operational disruptions during transitions
- Potential impacts on manufacturing processes

82-2

Economic Analysis Concerns

- Cost-effectiveness analysis needs further evaluation for industrial applications
- Infrastructure readiness requires additional study
- Grid capacity assessment needed for industrial areas
- Workforce development considerations for installation and maintenance

82-3

Recommendations:

Harbor Association of Industry and Commerce
6475 E. Pacific Coast Hwy. #400 Long Beach, CA 90803
www.harborassn.com

1. Extend implementation timeline to allow proper infrastructure planning
2. Conduct additional analysis of industrial sector impacts
3. Consider alternative compliance pathways for industrial facilities
4. Develop transition assistance programs
5. Address grid capacity concerns

82-4

While HAIC supports efforts to improve air quality in our region, we believe these rules as proposed would create significant operational and financial challenges for our industrial and maritime businesses. We urge you to address these concerns before proceeding with rule adoption.

Sincerely,



Henry Rogers
Executive Director
Harbor Association of Industry and Commerce

Response to Comment Letter #82:*Response to Comment 82-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

PAR 1111 and PAR 1121 apply at the unit natural turnover when a replacement unit must be installed, often at unit breakdown. The zero emission standards with manufacturer sales targets will start in 2027.

For information regarding cost and affordability, please refer to Response to General Comment 2. For information regarding electricity demand and grid sustainability, please refer to Response to General Comment 3.

Response to Comment 82-2:

The new rule concept also revised the proposed applicability and will not expand to larger size spacing heating units. PAR 1111 and PAR 1121 will be applicable to residential-sized appliances less likely to be installed in industrial settings.

Response to Comment 82-3:

For more information regarding the cost-effectiveness analysis, please refer to Response to General Comment 6. Please also see above Responses to Appendix C Comments 82-1 and 82-2.

Response to Comment 82-4:

Staff appreciates the recommendations and will take recommendations into consideration.

COMMENT LETTER #83: LA VERNE CITY COUNCIL

**CITY OF LA VERNE
CITY HALL**

3660 "D" Street, La Verne, California 91750-3599
www.cityoflaverne.org

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Email: mkrause@aqmd.gov; hfarr@aqmd.gov

Subject: Opposition to Amendments to Rules 1111 and 1121 Banning Natural Gas Appliances

Dear Mr. Krause and Ms. Farr,

On behalf of the La Verne City Council, I am writing to express our strong opposition to the proposed amendments to Rules 1111 and 1121, which mandate zero-emission requirements for residential and commercial space and water heating appliances. While we share SCAQMD's commitment to improving air quality, these amendments pose significant challenges and unintended consequences for our community.

83-1

The proposed rules impose prohibitively high replacement costs for appliances, which could range from \$3,000 to \$21,500 per unit when factoring in necessary electrical panel upgrades. These expenses are especially burdensome for lower-income households and small businesses already struggling with significant financial pressures. Although incentive programs like Go Zero provide some relief, they are rebate-based, requiring low-income households to cover the unreasonable upfront costs before reimbursement. Furthermore, with future funding for such incentives being limited and uncertain, the financial strain on affected households and businesses becomes a lasting issue. These requirements risk deepening existing economic inequities within our community, leaving those most vulnerable to bear a disproportionate burden.

83-2

Furthermore, transitioning to electric appliances will increase electricity demand, potentially straining the energy grid and leading to higher utility costs for residents and businesses. Without adequate financial assistance or incentives, compliance with these requirements will be unattainable for many, creating further disparities.

Although we recognize the environmental objectives of these amendments, there has been insufficient consideration of financial assistance programs or incentives to mitigate the transition costs. Without robust subsidies or rebates, the proposed rules risk alienating the very communities they aim to support and protect.

While we appreciate the intent of these amendments, the proposed rules in their current form are impractical, inequitable, and economically burdensome. We strongly urge SCAQMD to reevaluate the proposals and collaborate with local governments, businesses, and residents to develop more balanced, inclusive solutions that achieve air quality improvements without disproportionate harm to vulnerable populations.

Sincerely,

Tim Hepburn
Mayor

General Administration 909/596-8726 • Water Customer Service 909/596-8744 • Community Services 909/596-8700
Public Works 909/596-8741 • Finance 909/596-8716 • Community Development 909/596-8706 • Building 909/596-8713
Police Department 909/596-1913 • Fire Department 909/596-5991 • General Fax 909/596-8737

Response to Comment Letter #83:*Response to Comment 83-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For information regarding affordability and costs, please refer to Response to General Comment 2.

Response to Comment 83-2:

Please refer to Response to General Comment 3 regarding electricity demand and grid reliability.

COMMENT LETTER #84: EARTHJUSTICE, ACTIVESGV, ET AL.**VIA ELECTRONIC MAIL**

December 18, 2024

Chair McCallon and Members of the Stationary Source Committee
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765
 Email: lmccallon@cityofhighland.org
 Clerk of the Board, clerkofboard@aqmd.gov

**Re: Agenda Item Nos. 1 & 2 - Support for Amendments to Rules 1111 and 1121;
 Opposition to Additional Delays in Rule Adoption**

Dear Chair McCallon and members of the Stationary Source Committee:

On behalf of the undersigned, we submit this letter in strong support of the proposed amendments to Rules 1111 and 1121. These amendments are vital to reducing harmful air pollution from residential and commercial appliances in buildings and advancing the goal of achieving zero emissions across sectors. We are disappointed to see additional delays proposed in bringing these amendments to the Governing Board. In the most recent round of comments that ended on December 13, there was overwhelming support for the proposed rules ranging from the American Lung Association to League of Women Voters Los Angeles to California Enviro Voters to Jobs to Move America, amongst many others. More than 86% of the comments filed in this most recent comment period supported the rules. We urge you to stay the course and move these Zero-NOx standards to a vote in February for the following key reasons:

84-1

December 18, 2024

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84-1

- **These Rule Amendments Protect Public Health.** The early gains in reducing ozone pollution over the past three decades have stagnated recently, and our region still fails to meet any federal ozone standards. This year, the South Coast Air Basin missed yet another deadline for ozone levels—set during the Clinton Administration—continuing a disturbing trend of non-compliance. This regulatory package is designed to significantly reduce Nitrogen Oxide (NOx), a key contributor to ozone pollution, more than any other initiative in over thirty years. In fact, this is the largest emission-reducing regulatory package in over three decades. By eliminating emissions from these appliances over time, we could save billions of dollars in healthcare costs and prevent 76,000 asthma attacks, 30,000 school absences, and 130 premature deaths each year.¹
- **The Rule Amendments are Reasonable.** The Zero-NOx standards are not new; they are the result of years of work. The Air District incorporated this control measure into its 2022 Air Quality Management Plan (AQMP). The rulemaking process for these proposed amendments took over 14 months and included seven working group meetings, a public workshop, and numerous discussions with stakeholders, including building owners, manufacturers, environmental groups, and energy providers. While we have concerns about a compliance delay to 2029 and the exceptions included in the rule package, we believe that these rules are overdue for the Board's adoption. Any further delay in rule adoption, even by a few months, is simply unjustified.
- **Delaying Adoption could Lock in Pollution for Decades.** We urge the Committee to reject any further delays in implementation. Already, the current proposal pushes implementation to 2029. Even by a small amount, delaying the implementation of zero-NOx standards further will have significant long-term consequences for public health and air quality. Furnaces and water heaters typically last 15-20 years. Thus, each delay means another generation of NOx-emitting appliances will be sold and installed in our region. Five months ago, the Board Chair Delgado declared that the agency would "[r]eview where accelerated reductions could be possible, including through rulemaking to achieve emission reductions on a more accelerated timeline than identified in the 2022 AQMP."² That opportunity is here. We trust that you will deliver on that promise.

The passage of the rule amendments means we can focus on attracting more resources for the region for this transition through the Go Zero program. We urge you to support the Executive Officer's commitment to increase the fund fivefold, guaranteeing that at least \$100 million is allocated towards these incentives.

We appreciate your leadership and commitment to reducing air pollution and stand ready to support the adoption and implementation of these critical amendments.

¹ Coalition for Clean Air and RMI, *Southern California's Hidden Air Pollution Problem: Gas Furnaces & Water Heaters* (December 2024); <https://www.ccair.org/wp-content/uploads/2024/12/South-Coast-Brief.pdf>

² South Coast Air Quality Management District, Letter of Commitment, July 22, 2024; https://www.aqmd.gov/docs/default-source/clean-air-plans/aqmd-commitment-letter_7-16-24.pdf?sfvrsn=22

December 18, 2024

Page 3 of 3

Sincerely,

Fernando Gaytan, Senior Attorney, Earthjustice

David Diaz, Executive Director, Active San Gabriel Valley

Jane Williams, Executive Director, California Communities Against Toxics

Robina Suwol, Executive Director, California Safe Schools

Christopher Chavez, Deputy Policy Director, Coalition for Clean Air

Elizabeth Reid-Wainscoat, Urban Wildlands Campaigner, Center for Biological Diversity

Ana Gonzalez, Executive Director, Center for Community Action & Environmental Justice

Lisa Swanson, Policy Chair, Climate Reality Project Orange County Chapter

Laura Gracia-Santiago, Legal Advocate, Communities for a Better Environment

Charles Miller, Chapter Chair, Los Angeles Climate Reality Project

Eli Lipmen, Executive Director, MoveLA

Hilary Firestone, Director, Western Climate & Energy, Natural Resources Defense Council

Cristhian Tapia-Delgado, Climate Campaigner, Southern California, Pacific Environment

Sharon Ungersma, Chapter Chair, San Fernando Valley Climate Reality Project

Kimberly Orbe, Senior Conservation Program Manager, Sierra Club

Anne Pernick, Senior Advisor, SAFE Cities at Stand.earth

Sam Fishman, Sustainability and Resilience Policy Manager, SPUR

Ben Stapleton, Executive Director, USGBC California

Cc: Wayne Nastri, Executive Officer- South Coast Air Quality Management District

Email: WNastri@aqmd.gov

Michael Krause, Assistant Deputy Executive Officer - Planning, Rule Development and Implementation

Email: MKrause@aqmd.gov

Heather Farr, Manager - NOx, SOx, RECLAIM, Rules 3

Email: HFarr@aqmd.gov

Response to Comment Letter #84:*Response to Comment 84-1:*

Staff appreciate the support. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #85: SOUTH BAY ASSOCIATION OF CHAMBERS OF COMMERCE (SBACC)

December 18, 2024

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: Comments on Proposed Amended Rules 1111 and 1121

To the Members of the Governing Board:

The South Bay Association of Chambers of Commerce (SBACC), representing fifteen chambers of commerce and over 60,000 businesses in the South Bay region, writes to express significant concerns regarding Proposed Amended Rules 1111 and 1121.

After careful review of the proposed amendments, we have identified several critical issues that will significantly impact our business community:

Financial Impact

- The estimated replacement costs of \$18,500-\$21,500 for space heaters and \$5,200-\$8,200 for water heaters represent a substantial burden for our businesses
- Many properties will require electrical panel upgrades, adding significant unplanned capital expenses
- These costs will disproportionately affect small businesses and property owners already operating on narrow margins

85-1

Implementation Concerns

- The 2026 timeline does not provide adequate time for businesses to plan and budget for these significant investments
- Current supply chain constraints and workforce limitations could create significant compliance challenges
- The electrical infrastructure requirements for widespread adoption need further assessment

85-2

Economic Analysis

- The cost-effectiveness analysis appears incomplete, particularly regarding multi-family and commercial properties
- Additional study is needed on the economic impact to renters and small businesses
- Infrastructure readiness and grid capacity concerns require further evaluation

85-3

South Bay Association of Chambers of Commerce
390 W 7th St, San Pedro, CA 90731
www.sbacc.com

85-4

We respectfully request that SCAQMD:

1. Extend the implementation timeline to allow for proper planning and financing
2. Conduct additional economic impact analysis
3. Consider alternative compliance pathways
4. Develop incentive programs to assist with transition costs
5. Address infrastructure readiness concerns

While SBACC supports efforts to improve air quality in our region, we believe these rules as currently proposed would create undue hardship for our business community. We urge you to address these concerns before proceeding with rule adoption.

Sincerely,



Kimberly Caceres
Board President
South Bay Association of Chambers of Commerce

Response to Comment Letter #85:

Response to Comment 85-1:

Please refer to Response to Appendix C Comment 82-1.

Response to Comment 85-2:

Please refer to Response to Appendix C Comment 82-2.

Response to Comment 85-3:

Please refer to Response to Appendix C Comment 82-3.

Response to Comment 85-4:

Please refer to Response to Appendix C Comment 82-4.

COMMENT LETTER #86: CITY OF GLENDORA

City of Glendora
116 E. Foothill Blvd.
Glendora, CA 91741

December 18, 2024

South Coast Air Quality Management District
Attn: Stationary Source Committee
21865 Copley Drive
Diamond Bar, CA 91765

SUBJECT: OPPOSITION TO PROPOSED AMENDED RULES 1111 AND 1121

Dear Members of the Stationary Source Committee,

On behalf of the City of Glendora, we write to express our opposition to Proposed Amended Rules (PARs) 1111 and 1121, which would establish zero-NOx emissions limits for residential and commercial space heating and residential water heating. While we commend the South Coast Air Quality Management District (SCAQMD) for its commitment to improving air quality in our region, these proposed amendments present significant concerns for our community, including economic hardships, technological feasibility challenges, environmental trade-offs, and a lack of adequate public engagement.

The proposed rules will impose substantial financial burdens on Glendora residents and businesses. Transitioning to electric heat pump technologies—currently the only available zero-NOx option—requires costly appliance replacements, electric panel upgrades, and infrastructure adjustments. Estimates indicate that replacing a natural gas water heater (\$1,700) with a heat pump water heater could cost up to \$80,000 in some cases, depending on necessary upgrades. Similarly, replacing space heating systems ranges from \$27,099 to \$32,099 for homes requiring panel upgrades. These costs will disproportionately affect low-income households, renters, and small businesses that are least able to absorb such expenses.

86-1

The readiness of electric heat pump technology and supporting infrastructure remains a significant barrier. Many homes in Glendora, particularly older ones, lack the electrical capacity to accommodate these appliances without expensive upgrades. Furthermore, the efficiency rates assumed in the SCAQMD's cost analyses exceed what is achievable with currently available technology. The reliance on overly optimistic assumptions undermines the feasibility and fairness of these proposed rules.

86-2

While we support efforts to reduce NOx emissions, the projected benefits of these rules must be weighed against their costs. The proposed amendments would reduce NOx emissions by only 2.8% in the South Coast Air Basin, while shifting energy demand to the electrical grid, which may still rely on fossil fuel generation. This approach risks undermining the environmental gains by increasing greenhouse gas emissions elsewhere in the energy supply chain. Additionally, the significant upfront costs may delay broader adoption of clean technologies, impeding long-term progress.

86-3





City of Glendora
116 E. Foothill Blvd.
Glendora, CA 91741

The City of Glendora is deeply concerned about the limited public awareness and engagement surrounding these rules. Despite multiple workshops, many residents and small business owners remain unaware of the financial and practical implications of these amendments. Moreover, inconsistencies in the data and assumptions used in cost-effectiveness analyses have hindered stakeholders' ability to accurately assess the impacts of the proposed rules. Transparency and outreach must be improved before moving forward.

86-4

The City of Glendora is committed to collaborating with the SCAQMD to advance air quality improvements in a manner that is equitable, cost-effective, and achievable. We urge the committee to reconsider the proposed amendments and adopt a more balanced approach that addresses the concerns of our residents and businesses.

Thank you for your attention to this critical matter.

Sincerely,

A handwritten signature in blue ink, appearing to read "Mendell L. Thompson".

Mendell L. Thompson
Mayor



Response to Comment Letter #86:*Response to Comment 86-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Please refer to Response to General Comment 2 for cost and affordability.

Response to Comment 86-2:

Please refer to Response to General Comment 4 regarding zero-NOx emission technology readiness. Technologies, such as 120V plug-in heat pump water heaters, can be installed on the existing circuit for the water heater. Additionally, the cost-effectiveness analysis does not use an assumed efficiency rate.

Response to Comment 86-3:

Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

Response to Comment 86-4:

For information regarding outreach efforts, please refer to Response to General Comment 5.

COMMENT LETTER #87: LONG BEACH CHAMBER OF COMMERCE

December 19, 2024

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: Comments on Proposed Amended Rules 1111 and 1121

Dear Members of the Governing Board:

On behalf of the Long Beach Area Chamber of Commerce representing approximately 850 businesses. I am writing to express significant concerns regarding Proposed Amended Rules 1111 and 1121.

While we support the SCAQMD's mission to improve air quality, we have serious concerns about the economic impact and feasibility of these proposed amendments:

1. Economic Burden

- Estimated replacement costs of \$18,500-\$21,500 for space heaters and \$5,200-\$8,200 for water heaters present a significant financial burden
- Many businesses and property owners may require electrical panel upgrades, adding substantial costs
- Small businesses operating on thin margins will be particularly impacted

87-1

2. Implementation Timeline





- The proposed 2026 implementation date does not provide adequate time for businesses to plan and budget for these significant investments
- Supply chain and workforce readiness issues need to be addressed
- Infrastructure requirements for widespread electrification need further assessment

87-2

3. Consumer Impact

- Cost increases will likely be passed on to tenants and consumers
- Limited availability of compliant units could create supply shortages
- Many properties will require significant electrical upgrades

87-3

1 World Trade Center, Suite 101, Long Beach, CA 90831-101
Phone (562) 436-1251 • Fax (562) 436-7099 • info@lbchamber.com
 lbchamber.com  [lbchamber](https://www.facebook.com/lbchamber)  [the1bchamber](https://twitter.com/the1bchamber)  [longbeachchamber](https://www.instagram.com/longbeachchamber)



The Long Beach Business Organization Since 1891.

CATALYST for business growth | CONVENER of leaders and influencers | CHAMPION for a stronger community.

Recommendations:

1. Extend the implementation timeline to allow for proper planning and budgeting
2. Consider a phased approach based on building type and size
3. Develop incentive programs to assist with transition costs
4. Conduct additional economic impact analysis on small businesses
5. Allow for alternative compliance pathways

87-4

We request that SCAQMD carefully consider these impacts and work with the business community to develop a more feasible implementation approach that achieves air quality goals while maintaining economic vitality in our region.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeremy Harris".

Jeremy Harris
President & CEO
Long Beach Area Chamber of Commerce

1 World Trade Center, Suite 101, Long Beach, CA 90831 -101

Phone (562) 436-1251 • Fax (562) 436-7099 • info@lbchamber.com

lbchamber.com lbchamber thelbchamber longbeachchamber

Response to Comment Letter #87:

Response to Comment 87-1:

Please refer to Response to Appendix C Comment 82-1.

Response to Comment 87-2:

Please refer to Response to Appendix C Comment 82-2.

Response to Comment 87-3:

Please refer to Response to Appendix C Comment 82-3.

Response to Comment 87-4:

Please refer to Response to Appendix C Comment 82-4.

COMMENT LETTER #88: A.O. SMITH

December 19, 2024

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765

Re: PAR 1121 Public Working Group 7

To Heather Farr:

A. O. Smith Corporation ("A. O. Smith" or "Company") appreciates the opportunity to provide comments on the 7th Working Group Meeting ("Working Group") held by South Coast Air Quality Management District's ("SCAQMD") December 4, 2024, pertaining to PAR 1111 and 1121: Reduction of NOx Emissions from Natural Gas-Fired Furnaces and Small Water Heaters. The Company's comments are focused specifically on PAR 1121. The Company appreciates the work that SCAQMD staff has invested into the development of this rule and looks forward to publication of this rule. While the Company is supportive of SCAQMD's overarching goals to reduce greenhouse gas ("GHG") emissions in the District, it does have some concerns with the proposed changes to the timing of this rule following feedback on the concepts proposed during the workshop.

I. About A. O. Smith

A. O. Smith Corporation, with global headquarters in Milwaukee, Wisconsin since 1874, applies technology and energy-efficient solutions to products manufactured and marketed worldwide with operations in the U.S., Canada, China, India, Mexico, the Netherlands, and the UK. Listed on the New York Stock Exchange (NYSE: AOS), the Company is one of the world's largest manufacturers of residential and commercial water heating equipment and boilers, as well as a leading manufacturer of water treatment and air purification products. Along with its wholly owned subsidiaries, A. O. Smith is the largest manufacturer and seller of residential and commercial water heating equipment, high efficiency residential and commercial boilers, and pool heaters in North America.

II. Overview

On September 20, 2024, after 6 public working group meetings SCAQMD published PAR 1121 draft rule language proposing zero-NOx requirements for small water heaters with compliance dates of 2026

88-1

88-1

for new construction and 2027 for retrofits.¹ This draft rule language also provided several exceptions and alternate compliance options to address concerns around: mobile homes, emergency replacements, and retrofits that would require construction. Following the publication of this draft rule language SCAQMD staff gathered more diverse stakeholder feedback on the rule and published the Second PAR 1121 Draft Rule language on November 5, 2024.² This second draft rule language maintained the same zero-NOx compliance dates as the initial draft rule language but added in additional compliance pathways for multifamily properties and water heaters for installation or use in existing buildings at High-Altitude. The Second Draft also added in more concrete labeling and record keeping requirements for “Rental Companies”. The Company is supportive the Second Draft rule language.

In the 7th public working group meeting, following the publication of the second draft rule language staff stated that they were considering delaying the compliance date for zero- NOx water heaters to 2029. Staff highlighted comments received from stakeholders about installation costs in multifamily properties and concerns raised around the availability of these products in the district. The Company understands the concerns surrounding multifamily properties and the costs that would be incurred if a central HVAC or water heating system would need to be replaced. However, 1121 is only regulating small residential sized water heaters, which have cost effective and commercially available products.

III. Impacts of the rule on Multifamily

The company acknowledges that Multifamily housing is a more complicated property type to replace gas-fired equipment with electric equipment and has some unique concerns that need to be considered. However, in terms of rule 1121, this property type is limited to properties that utilize in-unit residential water heaters, not larger central domestic hot water plants. This drastically simplifies the cost of a project to be more in-line with a residential retrofit and reduces the need to have large storage tanks and design around an already space limited machine room. In a multifamily building that utilized individual in-unit water heaters there are technology solutions for water heater replacements and their space requirements.

The company does, however, understand that there may be issues with available panel capacity and total electrical service delivered to the building, that may increase the overall installation costs of the project. These costs will not change with an implementation delay of the rule and will need to be addressed in order to make these buildings complaint. SCAQMD staff should ensure that there are adequate compliance pathways to allow both time for the work to be completed to make the building complaint as well as a mechanism for the property owner to spread the cost of the upgrades out and phase in their upgrades without being non-compliant.

¹ <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1121-preliminary-draft-rule-language.pdf>

² <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1121-second-preliminary-draft-rule-language.pdf>

88-1

The SCAQMD jurisdiction also has a unique design in their multifamily buildings in which the water heater is also used as the heat source for a hydronic heating loop. This could add some additional costs to the project if the zero-emission product needs to be upsized to meet the heating demand as well as the water heating load. The Company would encourage SCAQMD Staff to review the impact of these installation as part of their technology review.

A. Installation Costs

On the topic of installation costs, the Company disagrees with the attestation that delaying the rule from 2027 to 2029 will provide a benefit in the installation costs of zero-emissions water heaters. PAR 1121 has been acknowledged by staff as being a leading rule that will drive up the adoption of zero-emission technologies. In the absence of this rule, it is not expected that there will be any noticeable change in the installation costs of these products. There is however risk that a delay in the compliance date of this rule will result in less available rebate funding through the IRA, which has a legislative sunset date of September 20, 2031.³ It is important to note that the federal IRA fund can, and are expected to, run out ahead of the September 20, 2031, date. Additionally, other rebates that are currently being offered may not be available come a 2029 compliance date. Requiring zero-NOx retrofits after these funds run out will lead to an overall increase in costs to comply with this rule.

B. Operating Costs

Deployment of HPWHs in the region is the most cost-effective approach to achieve the air quality standards when compared to other options. In the SCAQMD region water heating accounts for 63% of total household gas usage while space heating only represents 27%.⁴ Given the high gas usage and subsequent NOx emissions, water heating should be prioritized as a cost justified control measure, and not be delayed until 2029. Additionally, HPWH's are a guaranteed bill savings compared to heat pumps for space heating. A minimally complaint gas-fired 40-gallon water heater has a UEF of .58, while an average HPWH has a UEF of 3.75, this means that on average a HPWH is 6.5 times more efficient than a gas water heater. With local utility data, local electric rates are \$0.35/kW and gas rates are \$1.6/therm or \$0.055/kW.^{5,6,7} Comparing the cost of electricity to gas yields a ratio of 6.4, given that this ratio is lower than the efficiency ratio for a heat pump to a gas water heater, the consumer will have a reduced energy bill regardless of their energy usage.

C. Product Availability

³ 42 USC 18795 (a)(1) and 42 USC 18795 (c)(1)

⁴ California Energy Commission. *2019 California Residential Appliance Saturation Study (RASS)*. July 2021 at Figure ES-5.

⁵ 1 Therm is equal to 29.307kW

⁶ <https://www.cpuc.ca.gov/RateComparison>

⁷ <https://fred.stlouisfed.org/series/APUS49A72620>

88-1

Concerns have also been raised regarding the availability of these products, SCAQMD staff analysis shows that the rule would lead to an expected increase in 340,000 zero-emission water heaters annually. With adequate notice of this rule going into effect manufacturers can plan to meet the increased demand on the market. In the case where this demand could not be met, staff would be able to easily identify this deficiency in the technology review ahead of the zero-NOx rule going into effect.

IV. Conclusion

The Company is supportive of SCAQMD's goal to reduce NOx emissions in the District and meet their requirements under the Clean Air Act. The Company believes that Staff properly reviewed concerns raised and added adequate exemptions and alternative compliance pathways to address difficult installations. The Company believes that a successful technology review ahead of the 2027 compliance date will facilitate a successful transition to zero-NOx products, ensuring an adequate supply of compliant products, and meet the district's NOx emissions goals while limiting the burden on its residents.

The Company appreciates the opportunity to comment on the SCAQMD's draft rule language pertaining to zero-NOx standards for small water heaters and looks forward to continuing the dialogue and working with the SCAQMD Staff throughout the rulemaking process.

Please do not hesitate to contact me if you have questions.

Respectfully submitted,



Kyle Bergeron
Manager, Government and Regulatory Affairs
A. O. Smith Corporation
Global Headquarters
11270 West Park Place
(414) 389 7297
Kyle.bergeron@aosmith.com

Response to Comment Letter #88:*Response to Comment 88-1:*

Staff appreciates the information provided in the comment letter and the support for the rules. Staff believes that adoption of the amended rules will send a market signal to manufacturers, which will, in turn, drive overall costs down. Additionally, the market signal can help encourage manufacturers to develop and provide innovative solutions to different scenarios, such as installations in multifamily buildings.

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Please see Response to Comment 10 for more regarding the need for rule amendment.

COMMENT LETTER #89: EVAN TRUBEE

From: [REDACTED] <[REDACTED]>
Sent: Thursday, December 19, 2024 3:11 PM
To: Peter Campbell [REDACTED]
Subject: Contact Form

Contact Form

Name: Evan Trubee

Email: [REDACTED]

Phone: [REDACTED]

Message:

Hello, I am vehemently opposed to the proposed PAR 1111 and 1121. I serve on Palm Desert City Council and I am a business owner, home owner, father and husband. If you choose to prohibit our freedom to choose which mode of heating and cooling our homes as well as how we obtain hot water you will be giving a monopoly to the electric utilities. You would be taking away options to consumers and giving it to utility providers who have not demonstrated a willingness to fairly serve the public. In addition I do not believe the entire premise of global warming and climate change nor do I believe that natural gas is harmful. I am 53 years old and the next climate change prediction that comes true will be the first. I have heard all the dire predictions. I believe that this rule is about behavior control....not about saving the planet. Thank you!

89-1

Response to Comment Letter #89:

Response to Comment 89-1:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Under the new approach, consumers will be able to choose between installing NOx-emitting natural gas-fired appliances and zero-emissions appliances.

Please see Response to General Comment 10 and 11 for the need for rule amendments and incentives.

COMMENT LETTER #90: KAREN HAWLEY

From: Karen Darras Hawley <[REDACTED]>
Sent: Thursday, December 19, 2024 2:04 PM
To: Heather Farr <[REDACTED]>
Subject: [EXTERNAL] Stationary Source Committee

90-1

I am writing as a concerned citizen of California regarding your pending bills for zero NOx emissions for homes and commercial buildings. Bills 1111 & 1121 to change from gas stoves, heat & water heaters to electric. These are Very Expensive changes.

As a retired woman I am on a very fixed income. My home is older and would be very costly to make that change.

I am a native Californian and have watched this state lose many inhabitants because of the Rules and Regulations of Costly taxes and mandates.

How can we afford ALL Electric when we don't have enough electricity for the EV autos that are being sold.

We are Over Regulated and Taxed....

Please do not go further with these bills.

NO on 1111 and 1121.

Sincerely,

Karen Hawley
Palm Desert, CA

Response to Comment Letter #90:*Response to Comment 90-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on the need for rule amendment, please refer to Response to General Comment 10.

Please note that PARs 1111 and 1121 do not apply to stoves, they apply to space and water heating appliances.

COMMENT LETTER #91: ARLENE WOHLGEMUTH

From: Arlene Wohlgemuth <[REDACTED]>

Sent: Thursday, December 19, 2024 4:20 PM

To: Heather Farr <[REDACTED]>

Subject: [EXTERNAL] Rules 1111 and 1121

I object to the passage of these two rules. As a California homeowner and full time resident, I consider these rules an extreme overreach, needlessly expensive, and scientifically foundless. Renewables have failed to meet this state's requirements for electricity. Until it does, removing fossil fuels from our energy portfolio is harmful and cruel to our low-income population. 91-1

Arlene Wohlgemuth
[REDACTED]
[REDACTED]

Response to Comment Letter #91:*Response to Comment 91-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on the need for rule amendment, please refer to Response to General Comment 10.

COMMENT LETTER #92: VALLEY INDUSTRY & COMMERCE ASSOCIATION (VICA)

From: Victor Reyes <[REDACTED]>
Sent: Friday, December 20, 2024 12:59 PM
To: Peter Campbell <[REDACTED]>
Cc: Mikayla Jakubecy-Gibson <[REDACTED]>
Subject: [EXTERNAL] Re: Submission of Letter on Proposed Amendments to Rules 1111 and 1121

Good afternoon Mr. Campbell, happy Friday,

Please see my intended comment at today's AQMD Stationary Source Committee meeting, I had intended to provide public comments though they had cut off public comment, regarding proposed Rule 1111/1121.

"VICA strongly opposes Proposed Amended Rules 1111 and 1121 and urges the South Coast Air Quality Management District Governing Board to delay their adoption.

These rules impose costly and complex mechanical, electrical, and plumbing retrofits on commercial buildings, single-family homes, and multifamily residences, disproportionately impacting small businesses and working families.

92-1

The high compliance costs risk pushing multifamily property owners to sell or redevelop, significantly reducing the region's already strained supply of affordable housing.

While VICA supports efforts to improve air quality, these rules could stifle job creation and further escalate the cost of living in the San Fernando Valley and beyond.

We urge the Board to take additional time for stakeholder outreach and dialogue to address concerns regarding costs, technological feasibility, and potential incentives.

92-2

Thank you for your consideration. VICA stands ready to work collaboratively toward solutions that balance economic growth and environmental goals."

Please reach out if you have any questions/comments.

All the best and happy holidays,

Victor Reyes-Morelos

Legislative Affairs Manager

Valley Industry & Commerce Association

O: [REDACTED]

C: [REDACTED]

From: Victor Reyes

Sent: Friday, September 20, 2024 2:44:02 PM

To: [REDACTED] <[REDACTED]>

Cc: Mikayla Jakubecy-Gibson <[REDACTED]>

Subject: Submission of Letter on Proposed Amendments to Rules 1111 and 1121

Dear Mr. Campbell and SCAQMD Staff,

I hope you are doing well. We are reaching out, with an attached letter regarding the proposed amendments to Rules 1111 and 1121, which discusses the impacts of these changes on residential and commercial space and water heating.

Thank you for considering our input. Please feel free to reach out if you have any questions.

All the best,



Victor Reyes-Morelos

Legislative Affairs Manager

Valley Industry & Commerce Association

O: [REDACTED]

C: [REDACTED]

[REDACTED]

Response to Comment Letter #92:*Response to Comment 92-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

Response to Comment 92-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on technology readiness, please refer to Response to General Comment 4.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the need for rule amendment and incentives, please refer to Response to General Comment 10 and 11.

COMMENT LETTER #93: BARBARA ROHLF

From: [REDACTED] <[REDACTED]>
Sent: Sunday, December 29, 2024 5:24 PM
To: Peter Campbell <[REDACTED]>
Subject: Contact Form

Contact Form

Name: Barbara Rohlf

Email: [REDACTED]

Phone: [REDACTED]

Message:

I wanted to give you input on Rules 1111 and 1121. I'm hoping this is the place to do that. It is just amazing to me these bills are even being considered. CA residents are being so overwhelmed with the cost of housing. These bills will just be a huge unbearable cost with little ability to help air quality. As usual, these costs will be passed on to the people who can least afford them. Rather than try and reexplain my concerns, please refer to article by Don Wagner in the OC Register article in Sunday's 12/29 edition. My feelings are very aligned with what he writes. These are nothing but two more HUGE concerns and reasons why more and more people are leaving or going to leave CA because we just cannot afford to live here any more. Thank you for the opportunity to respond.

93-1

Response to Comment Letter #93:

Response to Comment 93-1:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the need for rule amendment and incentives, please refer to Response to General Comment 10 and 11.

COMMENT LETTER #94: MEL FOLEY

From: [REDACTED] <[REDACTED]>
Sent: Thursday, January 2, 2025 4:18 PM
To: Jennifer Vinh <[REDACTED]>
Subject: Contact Form

Contact Form

Name: Mel Foley

Email: [REDACTED]

Phone: [REDACTED]

Message:

I am totally AGAINST amended rules 1111 and 1121. My electric bills are so high now that I as a senior on fixed income cannot afford any increase in electrical cost, much less the cost to replace gas appliances with electric. The benefits in air quality proposed are minimal. Stop or at least postpone this proposal please

94-1

Response to Comment Letter #94:

Response to Comment 94-1:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the need for rule amendment and incentives, please refer to Response to General Comment 10 and 11.

COMMENT LETTER #95: ARNOLD GREGG

Subject: Natural Gas Restrictions

Date: Thu, 2 Jan 2025 09:31:14 -0800

From: Arnold Gregg <[REDACTED]>

To: [REDACTED]

I recently became aware of a scheme by The South Coast Air Quality Management District (the "AQMD") to mandate the elimination of residential natural gas appliances and heaters starting in 2027. **I am firmly opposed to this overreach** as it will cost property owners countless thousands of dollars in initial outlays and higher operating costs with little or no environmental benefit.

95-1

What is your basis for such financially punishing policies? Where is the cost / benefit analysis? California's electricity rates are already the highest in the nation and the grid is failing to provide reliable service. Since air is fungible, there can be no benefit from these policies as California's global impact is negligible.

The AQMD was not elected by the people. The draconian policies you are proposing are not necessary and extremely costly. I would like a response to my input along with the full economic and environmental analysis for your proposals.

Arnold Gregg

Anaheim, [REDACTED]

Response to Comment Letter #95:*Response to Comment 95-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on the need for rule amendment and incentives, please refer to Response to General Comment 10 and 11.

COMMENT LETTER #96: RAE A'ASELUND

From: Rae Aaselund
[REDACTED]
[REDACTED]
9.10.11
[REDACTED]

To: Mr. Krause + Mr. Farrow
South Coast AQMD

Re: Gas pollution from furnaces
and water heaters.

I am a member of the League
of Women Voters of the Pasadena area.
I support strengthening Rules 1111
and 1121 to reduce emissions of
methane and oxides of nitrogen
from old furnaces and water
heaters by replacing these old
appliances with "cleaner" safer
ones.

The public must be made
aware of the need for change,
and be given incentives to
replace their old appliances.

Sincerely,
Rae Aaselund

96-1

Response to Comment Letter #96:*Response to Comment 96-1:*

Staff appreciates the support for PARs 1111 and 1121. South Coast AQMD's Go Zero incentive program will provide additional funding which can address upfront costs. Please see Response to General Comment 10 and 11 for the need for rule amendment and incentives.

COMMENT LETTER #97: NICOLE AND JIM REYNOLDS

From: James G Reynolds <[REDACTED]>
Sent: Wednesday, January 15, 2025 8:18 AM
To: Yanrong Zhu <[REDACTED]>
Cc: Nicole Felsette Reynolds <[REDACTED]>
Subject: [EXTERNAL] Proposed Amended Rule 1111 and 1121

AQMD,

We can't say it any better than what our friend said;

"I recently became aware of a scheme by The South Coast Air Quality Management District (the "AQMD") to mandate the elimination of residential natural gas appliances and heaters starting in 2027. **I am firmly opposed to this overreach** as it will cost property owners countless thousands of dollars in initial outlays and higher operating costs with little or no environmental benefit.

97-1

What is your basis for such financially punishing policies? Where is the cost / benefit analysis? California's electricity rates are already the highest in the nation and the grid is failing to provide reliable service. Since air is fungible, there can be no benefit from these policies as California's global impact is negligible.

The AQMD was not elected by the people. The draconian policies you are proposing are not necessary and extremely costly. I would like a response to my input along with the full economic and environmental analysis for your proposals."

Thank you,

Nicole and Jim Reynolds

Response to Comment Letter #97:*Response to Comment 97-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on the need for rule amendment and incentives, please refer to Response to General Comment 10 and 11.

COMMENT LETTER #98: SAN BERNARDINO COUNCIL OF GOVERNMENTS**RESOLUTION NO. 25-059****RESOLUTION OF THE BOARD OF DIRECTORS OF THE SAN BERNARDINO COUNCIL OF GOVERNMENTS (SBCOG) IN OPPOSITION TO SCAQMD RULES 1111 AND 1121.**

WHEREAS, The South Coast Air Quality District (SCAQMD) is a regional air pollution control agency representing Los Angeles, Orange, Riverside and San Bernardino counties with responsibility for regulating stationary sources of air pollution;

WHEREAS, The SCAQMD is considering two rules that would have a significant impact on up to 17 million South Coast homeowners, renters and businesses: Rule 1111 would regulate air emissions from gas-powered central furnaces; and Rule 1121 would regulate air emissions from residential-type, natural gas-powered water heaters;

98-1

WHEREAS, Rules 1111 and 1121 would impose high costs to consumers while providing limited measurable air quality benefits for the four-county SCAQMD service area;

WHEREAS, The two rules would ban the use of natural gas-powered furnaces and water heaters in new construction, taking effect in 2026. These rules would phase out existing natural gas furnaces and water heaters in existing single-family homes, multi-family housing, and businesses in 2027;

WHEREAS, Housing affordability is and will remain a top public policy priority for San Bernardino County for the foreseeable future. Local governments are being pressured to build more housing. Specifically, housing people can afford. Any regulations that increase these costs deserve scrutiny to ensure that the increased costs are met with an equal or more significant amount of benefit to the consumer;

WHEREAS, Unlike most SCAQMD rules that regulate large stationary sources of air pollution like oil refineries and warehouses, Rules 1111 and 1121 specifically target individual homeowners, apartment buildings, and businesses large and small, meaning that families and business owners will directly bear the costs of these two rules;

WHEREAS, Rules 1111 and 1121 would require retrofitting homes, apartments, and businesses with electrical panel upgrades, extensive new plumbing, and physical renovations to accommodate compliant units.

WHEREAS, For apartment owners, the cost to replace natural gas water heaters and furnaces with all-electric units will be passed down to tenants, leading to rent increases and placing additional financial pressure on renters in a region already struggling with housing affordability;

WHEREAS, Rules 1111 and 1121 will increase electricity demands. Transitioning to all-electric water heaters and furnaces means an increased demand on an electric grid that has not proven capable of consistently meeting existing demand. Water heaters and furnaces are essential elements in any house, apartment, or business. Millions of new electric water heaters and furnaces would draw power from the grid and raise the risk of power brownouts or outages.

98-2

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of SBCOG:

1. Rules 1111 and 1121 will have a profound impact and impose significant costs on millions of Southern California homeowners, renters and businesses, and
2. SBCOG opposes Proposed Amended Rules 1111 and 1121 and urges the SCAQMD to indefinitely delay or cease consideration of these two anti-consumer regulations immediately.

PASSED AND ADOPTED at a meeting of the San Bernardino Council of Governments held on January 8, 2025.



Ray Marquez, Board President
San Bernardino Council of Governments

ATTEST:



Marleana Roman, Clerk of the Board
San Bernardino Council of Governments

Response to Comment Letter #98:

Response to Comment 98-1:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on the cost-effectiveness analysis, please refer to Response to General Comment 6.

Additional discussion can be found in Response to General Comment 9.

For discussion on need for rule amendments and incentives, please refer to Response to General Comment 10 and 11.

Response to Comment 98-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on the electric grid, please refer to Response to General Comment 3.

COMMENT LETTER #99: CITY OF CHINO HILLS

DocuSign Envelope ID: 7387DE7C-702E-42A8-B236-701DBB3F3D37

RESOLUTION NO. 2025R-003

A RESOLUTION OF THE CITY OF CHINO HILLS, OPPOSING SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) RULES 1111 AND 1121 REGULATING AIR EMISSIONS FROM GAS-POWERED CENTRAL FURNACES AND FROM RESIDENTIAL-TYPE, NATURAL GAS-POWERED WATER HEATERS, RESPECTIVELY

WHEREAS, the South Coast Air Quality District (SCAQMD) is a regional air pollution control agency representing Los Angeles, Orange, Riverside and San Bernardino counties with responsibility for regulating stationary sources of air pollution; and

WHEREAS, the SCAQMD is considering two rules that would have a significant impact on Chino Hills' homeowners, renters and businesses: Rule 1111 would regulate air emissions from gas-powered central furnaces; and Rule 1121 would regulate air emissions from residential-type, natural gas-powered water heaters; and

99-1

WHEREAS, Rules 1111 and 1121 would impose \$20-plus billion in costs to consumers while providing minimal measurable air quality benefits for the four-county SCAQMD service area, which includes the City of Chino Hills; and

WHEREAS, these two rules would ban the use of natural gas-powered furnaces and water heaters in new construction, taking effect in 2026, further elevating construction costs and housing prices, thereby putting homeownership even further out of reach for many Chino Hills' residents. These rules would phase out existing natural gas furnaces and water heaters in existing single-family homes, multi-family housing, and businesses in 2027; and

WHEREAS, housing affordability throughout California is and will remain a top public policy priority for the foreseeable future. Local governments are being pressured to build more housing - specifically, housing that people can afford. Any regulations that increase these costs deserve careful scrutiny to ensure that the increased costs are met with an equal or greater amount of benefit to the consumer; and

WHEREAS, unlike most SCAQMD rules that regulate large stationary sources of air pollution like oil refineries and warehouses, Rules 1111 and 1121 specifically target individual homeowners, apartment buildings, and businesses large and small - meaning that the costs of these two rules will be directly borne by hard-working families and business owners; and

WHEREAS, Rules 1111 and 1121 would require apartment owners, homeowners and businesses to invest not only in expensive all-electric furnaces and water heaters but would also necessitate that they retrofit homes and businesses with expensive electrical panel upgrades, extensive new plumbing, and physical renovations to accommodate

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compliant units - further raising the cost of new housing and likely pricing many potential homeowners and renters out of an already expensive market; and

99-1

WHEREAS, for apartment owners, the mandate to replace natural gas water heaters and furnaces with all-electric units is incredibly expensive. These significant costs will be passed down to tenants - leading to rent increases and placing additional financial pressure on renters in a region already struggling with housing affordability; and

WHEREAS, the SCAQMD's water heater and furnace mandates will impose a significant increase in electricity demand on California's electric grid. Transitioning to all-electric water heaters and furnaces means increased demand on an electric grid that has not proven capable of consistently meeting existing demand. Water heaters and furnaces are essential elements in any house, apartment or business. Millions of new electric water heaters and furnaces would draw power from the grid and raise the risk of power brownouts or outages.

99-2

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF CHINO HILLS DOES RESOLVE, DETERMINE, AND ORDER AS FOLLOWS:

SECTION 1. Rules 1111 and 1121 will have a profound impact and impose significant costs on Chino Hills' homeowners, renters and businesses who are already struggling to make ends meet while providing minimal air quality benefit.

SECTION 2. The City of Chino Hills opposes Proposed Amended Rules 1111 and 1121 and urges the SCAQMD to indefinitely delay or cease consideration of these two anti-consumer regulations immediately.

SECTION 3. The City Clerk shall certify as to the adoption of this resolution.

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PASSED, APPROVED, AND ADOPTED 28th day of January, 2025.

DocuSigned by:

BT9A3678817B42D...

ART BENNETT, MAYOR

ATTEST: 
DocuSigned by:

1044818FA28439...

CHERYL BALZ, CITY CLERK

APPROVED AS TO FORM:

Signed by:

AE4187CDC929422...

MARK D. HENSLEY, CITY ATTORNEY

Docusign Envelope ID: 7387DE7C-702E-42A8-B236-701DBB3F3D37

STATE OF CALIFORNIA)
COUNTY OF SAN BERNARDINO) §
CITY OF CHINO HILLS)


I, CHERYL BALZ, City Clerk of the City of Chino Hills, DO HEREBY CERTIFY that the foregoing Resolution No. 2025R-003 was duly adopted at a regular meeting of the City Council of the City of Chino Hills held on the 28th day of January 2025, by the following vote, to wit:

AYES: COUNCIL MEMBERS: BENNETT, JOHSZ, MARQUEZ, ROGERS

NOES: COUNCIL MEMBERS: NONE

ABSENT: COUNCIL MEMBERS: MORAN

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the City of Chino Hills, California, on the day and year last written below.

DocuSigned by:  DS
104.08918FA20430

CHERYL BALZ, CITY CLERK

1/30/2025

DATE

Response to Comment Letter #99:*Response to Comment 99-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on the cost-effectiveness analysis, please refer to Response to General Comment 6.

Additional discussion can be found in Response to General Comment 9.

For discussion on need for rule amendments and incentives, please refer to Response to General Comment 10 and 11

Response to Comment 99-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on the electric grid, please refer to Response to General Comment 3.

COMMENT LETTER #100: MONA CLARK

From: [REDACTED] <[REDACTED]>
Sent: Saturday, January 4, 2025 10:30 PM
To: Jennifer Vinh <[REDACTED]>
Subject: Contact Form

Contact Form

Name: Mona Clark

Email: [REDACTED]

Phone: [REDACTED]

Message:

No on these proposed amended rules 1111 & 1121, NO NO NO please

100-1

Response to Comment Letter #100:*Response to Comment 100-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NO_x emission sales targets for manufacturers, will allow for both zero-NO_x emission units and NO_x-emitting natural gas-fired units to be sold and installed for use.

For discussion on need for rule amendments and incentives, please refer to Response to General Comment 10 and 11.

COMMENT LETTER #101: TOM QUAST

January 4, 2025

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Dear SCAQMD,

I am a landlord who does not charge market value for my rental units in order to keep housing affordable in my neighborhood and to retain long term tenants. If you impose proposed rules 1111 and 1121, I will have no choice but to substantially increase rents to cover the capital improvement costs SCAQMD imposes when a more affordable alternative exists. Additionally, my tenant's utility expenses will increase due to increased electricity usage while again, a more affordable alternative exists. My expectation is the end result will be an unnecessary increase in capital outlay for myself, loss of affordable housing for my tenants (some of whom have been with me over a decade), and my rental units sitting vacant due to lack of affordability.

101-1

Please do not mandate rules 1111 and 1121, as it will have a substantial impact on small operators such as myself.

Sincerely,



Tom Quast
402 W Main St
San Jacinto, CA 92583

Response to Comment Letter #101:*Response to Comment 101-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on need for rule amendments and incentives, please refer to Response to General Comment 10 and 11.

COMMENT LETTER #102: EDWIN GOW

January 9, 2025

Edwin Gow
25 Falkner Drive
Ladera Ranch, CA 92694

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Dear SCAQMD Board Members,

I am writing as a resident of Ladera Ranch and a small business owner in San Juan Capistrano to express my strong opposition to the proposed amendments to Rules 1111 and 1121, which would require homeowners, landlords, and businesses to replace gas furnaces and water heaters with expensive “zero-emission” electrical units.

While I support efforts to improve regional air quality, these proposals impose significant financial burdens on residents and small business owners, with minimal environmental benefits. According to an editorial published on December 27, 2024 in the Orange County Register, the projected cost of implementing these rules across the SCAQMD service area is at least \$20.4 billion. For many, the upfront costs of upgrading to electric units—potentially tens of thousands of dollars per household or business—are simply unaffordable.

102-1

The editorial also highlighted a serious flaw: California’s electric grid is already under strain, with frequent power outages and reliability issues. Replacing natural gas appliances with electric alternatives will increase demand, potentially worsening grid instability. Forcing residents and businesses to rely solely on electricity without addressing infrastructure vulnerabilities is shortsighted and risks even more frequent brownouts and service disruptions.

102-2

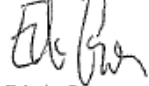
Furthermore, these rules will exacerbate the region’s housing crisis. As Donald Wagner, Chairman of the Orange County Board of Supervisors and a member of the SCAQMD Board, noted, landlords will pass compliance costs to tenants, making rents less affordable. The expense of retrofitting older buildings will discourage the development of affordable housing and further reduce homeownership opportunities.

102-3

The marginal air quality improvements these rules might achieve come at an exorbitant cost, disproportionately affecting middle- and lower-income families and small business owners. I urge the SCAQMD to consider alternative approaches, such as incentivizing cleaner technologies, which would allow for a gradual transition while preserving affordability and reliability.

Thank you for your time and consideration. I trust that the Board will act in the best interests of all residents and businesses within the district.

Sincerely,



Edwin Gow
949-933-0964
edwin.gow@gmail.com

Gow Business Partners, Inc.
Gow Consulting, LLC (The Entrepreneur's Source)
Gow Fitness LLC (The Exercise Coach-San Juan Capistrano)

Response to Comment Letter #102:*Response to Comment 102-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

Response to Comment 102-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on the electric grid, please refer to Response to General Comment 3.

Response to Comment 102-3:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on need for rule amendments and incentives, please refer to Response to General Comment 10 and 11.

COMMENT LETTER #103: CITY OF COLTON

January 16, 2025

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Subject: Opposition to Proposed Amended Rules 1111 and 1121

Dear Members of the South Coast Air Quality Management District (SCAQMD),

The City of Colton has a strong opposition to the proposed amendments to Rules 1111 and 1121, which seek to regulate air emissions from natural gas-powered central furnaces and water heaters in the South Coast Air Quality Management District's (SCAQMD) service area. While we understand and support the SCAQMD's commitment to improving air quality, these rules, if implemented, will impose significant financial burdens on Colton's residents, homeowners, renters, and local businesses, with little measurable benefit to air quality.

These proposed amendments would impact an estimated 17 million people across the four-county SCAQMD service area, including many in our community. Rule 1111 would regulate emissions from gas-powered central furnaces, and Rule 1121 would regulate residential natural gas-powered water heaters. The rules would phase out the use of natural gas-powered units in new construction starting in 2026, with a full phase-out in existing buildings scheduled for 2027. This transition is expected to impose significant costs on homeowners, apartment owners, and businesses.

The City of Colton is committed to addressing affordable housing needs, a priority that continues to grow as local governments face increasing pressure to build more housing, particularly affordable housing. The retrofitting and replacement requirements under these rules will only increase the costs associated with homeownership, rental properties, and small businesses, putting an additional strain on an already struggling community. Housing affordability is a critical issue in our region, and we must ensure that any regulations affecting housing costs provide measurable benefits to offset these increases.

Unlike many SCAQMD rules that regulate large industrial sources of air pollution, such as oil refineries and warehouses, Rules 1111 and 1121 would directly affect individual homeowners, apartment building owners, and small businesses. Property owners will be forced to shoulder the costs of expensive retrofits to meet the new standards, including electrical panel upgrades, new plumbing, and the installation of electric units, which can cost thousands of dollars per property. These additional costs will likely be passed down to renters in the form of rent increases, which will exacerbate the financial pressures on Colton's low- and moderate-income households.

MAYOR

Frank J. Navarro

COUNCIL MEMBERS

David J. Toro
District 1

Kelly J. Chastain
District 2

Dr. Luis S. González
District 3

John R. Echevarria
Mayor Pro Tem
District 4

CITY MANAGER

William R. Smith

CIVIC CENTER
659 N. La Cadena Drive
Colton, CA 92324
(909) 370-5099

103-1

South Coast Air Quality Management District
January 16, 2025
Page 2

Additionally, the transition to electric water heaters and furnaces will significantly increase demand for the already stressed electrical grid. Given that our region has experienced power shortages in recent years, it is concerning that the increased demand from millions of new electric appliances could lead to power brownouts or outages. This could have a particularly detrimental impact on our community, where reliable access to power is essential for daily living, business operations, and public safety.

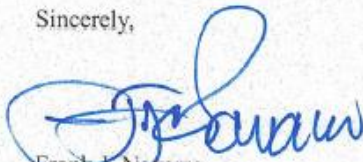
103-2

In summary, while we understand the importance of improving air quality, the proposed rules would result in substantial costs for the residents and businesses in Colton and throughout the SCAQMD service area. The rules would provide limited air quality benefits and could further strain housing affordability and energy infrastructure.

For these reasons, the City of Colton opposes the proposed amendments to Rules 1111 and 1121. We urge the SCAQMD to reconsider these rules and delay or cease their consideration until the full financial, economic, and infrastructure impacts can be thoroughly evaluated.

Thank you for your attention to this critical matter. We look forward to your thoughtful consideration of our concerns.

Sincerely,



Frank J. Navarro
Mayor

Cc: Ray Marquez, Board President San Bernardino Council of Governments
Bill Smith, City Manager City of Colton

Response to Comment Letter #103:

Response to Comment 103-1:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on need for rule amendments and incentives, please refer to Response to General Comment 10 and 11.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on the cost-effectiveness analysis, please refer to Response to General Comment 6.

Additional discussion can be found in Response to General Comment 9.

Response to Comment 103-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on the electric grid, please refer to Response to General Comment 3.

COMMENT LETTER #104: DAVE MOCK

From: [REDACTED] <[REDACTED]>
Sent: Saturday, January 25, 2025 9:31 AM
To: Jennifer Vinh [REDACTED] >
Subject: Contact Form

Contact Form

Name: Dave Mock

Email: [REDACTED]

Phone: [REDACTED]

Message:

I am writing this in opposition to the Amended Rules 1111 and 1121. With the already overextended electrical grid and the cost to homeowners, landlords, and businesses with limited (proven) air quality improvement. If the AQMD thinks over 17 million people can afford to replace all of their natural gas appliances with electric units, you must not be on the same planet as everyday people. Common sense would also make you think that if over 17 million people changed over to electric appliances, there is no way the electrical grid could handle the increase in usage. I implore you to reconsider adopting these two rules. If you pass these rules, you are making millions of people susceptible to undo hardships - such as not being able to charge their cars, cook for their families, take a hot shower, or heat their houses on an already stretched electrical grid.

104-1

Response to Comment Letter #104:*Response to Comment 104-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on need for rule amendments and incentives, please refer to Response to General Comment 10 and 11.

COMMENT LETTER #105: JOANNE GENIS

February 1, 2025

Vanessa Delgado, Chair
And Honorable Governing Board Members
South Coast Air Quality Management District 21865
Copley Drive Diamond Bar, CA 91765

Subject: Comments on Proposed Amendments to Rule 1111 and Rule 1121

Dear Ms. Delgado and Honorable Members of the Governing Board:

I just recently attended a city council meeting and heard for the first time of these two proposed amended Rulings. Has SCAQMD done their due diligence in notifying the 17 million people, which reside in your district, about these proposed changes? Did I perhaps miss a mailer? 105-1

As a homeowner and senior citizen living in SCAQMD's district, I have concerns with the impact that Rule 1111 and Rule 1121 would have on my livelihood. These two Rulings would cause an additional monetary burden on my finances. Appliances that are natural gas-powered are less expensive and more reliable to operate than those using electricity. I can count on my gas-powered water heater to provide hot water when SCE implements their Public Safety Power Shutoff-PSPS, which can last for a few hours to several days. 105-2

How many older homes with 100 amp electrical panels will need to do an upgrade in order to sustain the additional electricity needed? This unexpected cost can range from \$1000 on up. This issue could have a significant impact on people's pocketbooks, especially the senior citizens and low-income families. I read that AQMD is working on an incentive program to provide rebates for residents, building owners, and small businesses, but will that incentive program pay or reimburse the individual for the expense of having to upgrading their electrical panels? I share your commitment to clear air, but enacting Rulings that will only cause financial burdens to many is not the right approach to meet your intended goals. 105-3

It seems that every summer or when there's a heat wave, we deal with power outages due to an overwhelmed power grid. The state's transitioning to electrical appliances and cars will only put an additional strain on the power grid. 105-3

California is second on the list of the highest electricity rates in the nation. And just recently the CPUC approved SCE's request for another rate increase. When is enough enough? 105-4

My husband and I just installed a new gas-powered water heater and the emissions are significant lower than our previous one. Forcing a homeowner to install electrical appliances I believe is taking away from their rights and freedom to choose. 105-4

Thank you for giving me the opportunity to respond.

Sincerely,
Joanne Genis
Chino Hills, CA

Response to Comment Letter #105:*Response to Comment 105-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on outreach, please refer to Response to General Comment 5.

Response to Comment 105-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on the cost-effectiveness analysis, please refer to Response to General Comment 6.

Response to Comment 105-3:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on the electric grid, please refer to Response to General Comment 3.

Response to Comment 105-4:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

COMMENT LETTER #106: REMO HOMES

[323]708-4094
WWW.REMO.HOMES
1519 W. 139TH ST
GARDENA CA 90249

February 6, 2025

Mr. Wayne Natri
Executive Officer
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

POSITION: SUPPORT Amendments to South Coast AQMD Rules 1111 and 1121

Dear Mr. Natri:

In view of the state's goal of achieving carbon neutrality by 2045 (Executive Order B-55-18-2018), amendments to South Coast Air Quality Management District Rules 1111 and 1121 would address the transition to zero-emission appliances and reducing emissions, specifically residential furnaces (Rule 111) and water heaters (Rule 1121).

As the future of home building, [ReMo Homes](#)' innovative and technological advanced clean energy systems include both the clean residential furnace and water heater. More importantly, by transitioning to all-electric systems, we can eliminate these emissions at the source, improving both public health and environmental quality.

For ReMo Homes' factory pre-made material assembled onsite, electrification policies such as South Coast AQMD Rules 1111 and 1121 are critical to accelerating California's transition to safer, more sustainable housing. We urge South Coast AQMD to move forward with the amendments and continue supporting policies that reduce emissions, lower costs, and create a cleaner future for all Californians.

Sincerely,

A handwritten signature in black ink, appearing to read "Vamsi Kotla".

Vamsi Kotla
President & CEO
ReMo Homes

106-1

Response to Comment Letter #106:*Response to Comment 106-1:*

Staff appreciates the support for PARs 1111 and 1121, recognizing the need for emission reductions.

COMMENT LETTER #107: THE CITY COUNCIL OF THE CITY OF LA VERNE, CALIFORNIA**RESOLUTION NO. 25-09**

1
2 A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LA VERNE,
3 CALIFORNIA, OPPOSING PROPOSED AMENDED RULES 1111 AND 1121 OF THE
4 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RELATED TO
5 REGULATION OF NATURAL GAS EMISSIONS DUE TO COSTS TO AFFECTED
6 BUSINESS AND RESIDENTS

7 WHEREAS, the South Coast Air Quality District (SCAQMD) is a regional air
8 pollution control agency representing Los Angeles, Orange, Riverside and San
9 Bernardino counties with responsibility for regulating stationary sources of air pollution;
10 and

11 WHEREAS, the SCAQMD is considering two rules that would have a significant
12 impact on up to 17 million South Coast homeowners, renters and businesses: Rule 1111
13 would regulate air emissions from gas-powered central furnaces; and Rule 1121 would
14 regulate air emissions from residential-type, natural gas-powered water heaters; and

15 WHEREAS, Rules 1111 and 1121 would impose high costs to consumers while
16 providing limited measurable air quality benefits for the four-county SCAQMD service
17 area; and

18 WHEREAS, the two rules would ban the use of natural gas-powered furnaces and
19 water heaters in new construction, taking effect in 2026. These rules would phase out
20 existing natural gas furnaces and water heaters in existing single-family homes, multi-
21 family housing, and businesses in 2027; and

22 WHEREAS, housing affordability is and will remain a top public policy priority for
23 all local governments for the foreseeable future, and local governments are being
24 pressured to build more housing, specifically housing people can afford and maintain.
25 Any regulations that increase these costs deserve scrutiny to ensure that the increased
26 costs are met with an equal or more significant amount of benefit to the consumer; and

27 WHEREAS, unlike most SCAQMD rules that regulate large stationary sources of
28 air pollution like oil refineries and warehouses, Rules 1111 and 1121 specifically target
29

107-1

107-1

individual homeowners, apartment buildings, and businesses large and small, meaning that families and business owners will directly bear the costs of these two rules; and

WHEREAS, Rules 1111 and 1121 would require retrofitting homes, apartments, and businesses with electrical panel upgrades, extensive new plumbing, and physical renovations to accommodate compliant units; and

WHEREAS, on June 7, 2024, SCAQMD's Governing Board approved updates to Rule 1146.2 that will require new and existing residential and commercial buildings to transition to zero-emission (ZE) water heaters, to include natural gas-fired pool heaters, larger water heaters, small commercial water heaters, boilers, and process heaters, starting January 1, 2026; and

WHEREAS, for apartment owners, the cost to replace natural gas water heaters and furnaces with all- electric units will be passed down to tenants, leading to rent increases and placing additional financial pressure on renters; and

WHEREAS, updates to Rule 1146.2 will impact approximately 710,000 natural gas-fired residential pool and spa heaters alone, which will lead to further economic hardship to those pool owners; and

WHEREAS, for homeowners, and especially senior homeowners, of whom the City has a higher percentage than other cities, the costs to retrofit homes could be financially infeasible; and

WHEREAS, the City Council shares the commitment of SCAQMD to clean air and water and other quality of life benefits that draw and retain residents and businesses; however, the current version of Rules 1111 and 1121 will increase the cost of living in La Verne and potentially impact job creation and business retention.

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF LA VERNE THAT:

SECTION 1. Rules 1111 and 1121 will have a profound impact and impose significant costs on thousands of La Verne homeowners and renters and hundreds of businesses; and

SECTION 2. The City Council requests more time to allow for a more robust public outreach process that ensures residents and businesses are properly informed and that questions regarding cost, technology, and the availability of potential incentives are able to be addressed; and

SECTION 3. The City Council of the City of La Verne opposes Proposed Amended Rules 1111 and 1121 and urges the SCAQMD to indefinitely delay or cease consideration of these two regulations.

SECTION 4. That the Mayor shall sign and the Deputy City Clerk shall certify to the passage and adoption of this resolution and thereupon the same shall take effect and be in force.

PASSED, APPROVED, AND ADOPTED this 3rd day of February 2025.


Tim Hepburn, Mayor

ATTEST:

Debra Fritz
Debra Fritz, CMC Deputy City Clerk

1 I hereby certify that the foregoing **Resolution No. 25-09** was introduced and adopted at
2 a regular meeting of the City Council of the City of La Verne held on the **3rd day of**
3 **February 2025**, by the following votes:

4 AYES: Kashifalghita, Lau, Johnson, and Hepburn.
5 NOES: None.
6 ABSENT: Crosby.
7 ABSTAIN: None.
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Debra Fritz, CMC Deputy City Clerk

City of La Verne, City Council Agenda Report



**Approved on 2/3/25 at
the regular meeting of the
La Verne City Council.**

DATE: February 3, 2025
TO: Honorable Mayor and City Council
FROM: Ken Domer, City Manager
SUBJECT: RESOLUTION OPPOSING SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT PROPOSED AMENDED RULES 1111 AND 1121 RELATED TO REGULATION OF AIR EMISSIONS FROM RESIDENTIAL AND BUSINESS NATURAL GAS FURNACES AND WATER HEATERS.

SUMMARY

The South Coast Air Quality Management District (SCAQMD) will consider two Proposed Amended Rules (PARs), Rule 1111 and Rule 1121, regulating the emissions from residential and commercial furnaces and emissions from residential water heaters. The proposed amendments to the rules seek to transition to zero-emission space and water heating appliances, based on future effective dates, when existing appliances need to be replaced. The proposed Resolution seeks to oppose the two rules based on costs to transition and seeks additional time and assistance to affected residents and businesses.

RECOMMENDATION

That the City Council adopt a Resolution titled, "A RESOLUTION OF THE CITY COUNCIL, CITY OF LA VERNE, CALIFORNIA, OPPOSING PROPOSED AMENDED RULES 1111 AND 1121 OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RELATED TO REGULATION OF NATURAL GAS EMISSIONS DUE TO COSTS TO AFFECTED BUSINESS AND RESIDENTS."

DISCUSSION

After being contacted by residents, Mayor Tim Hepburn requested that this item be placed for consideration by the City Council. Previously, on December XX, 2024, the City sent a letter to the South Coast Air Quality Management District (SCAQMD) expressing the City Council's opposition to the Proposed Amended Rules stating that while the City Council shares SCAQMD's commitment to improving air quality, the proposed amendments pose significant challenges and unintended consequences for our community.

One of the functions of SCAQMD is to promulgate rules that assist the region in attaining federal air quality standards. Rule 1111 regulates the emissions from residential and commercial furnaces and Rule 1121 regulates the emissions from residential water heaters. The proposed amendments to the rules seek to transition to zero-emission space and water heating appliances, based on future effective dates, when existing appliances need to be replaced.

There is strong concern over the two Proposed Amended Rules (PARs) due to the costs associated with implementing the regulations upon residents and business owners. Estimates

Resolution Opposing South Coast Air Quality Management District Proposed Amended Rules 1111 and 1121
Related to Regulation of Air Emissions from Residential and Business Natural Gas Furnaces and Water Heaters. ,
Page 2

from a SCAQMD draft staff report on the PARS show replacement costs for space heaters ranging from \$18,500 to \$21,500 in an electric panel upgrade is needed. For water heater replacements, the cost to go electric ranges from approximately \$5,200 to \$8,200. At this time, SCAQMD has not released information on the proposed Go Zero Incentive Plan which is proposed to reimburse residents for the transition. It is important to note that as understood, the Go Zero Incentive Plan is a rebate program so residents would need to provide upfront funding. An example from a SCAQMD presentation shows the cost of a Heat Pump Water Heater at \$5,200 while the incentive rebated is only in the \$1,000 to \$2,000 range, though with longer-term fuel savings derived from the switch.

Previously, on June 7, 2024, SCAQMD's Governing Board approved updates to Rule 1146.2 that will require new and existing residential and commercial buildings to transition to zero-emission (ZE) water heaters, to include natural gas-fired pool heaters, larger water heaters, small commercial water heaters, boilers, and process heaters, starting January 1, 2026.

Concern expressed by industry and resident commenters in meetings held by SCAQMD include that the rules create significant burdens for consumers and will potentially cost billions of dollars to only slightly reduce overall nitrogen oxide (NOx) emissions within the South Coast Air Basin. Based on information contained in a preliminary staff report for the Proposed Amended Rules, that percentage is 10 tons per day out of the total 351 tons per day of NOx emitted by all sources within the basin. As such, there is concern that PARs 1111 and 1121 require significantly more public education and consideration before being promulgated by SCAQMD.

FISCAL ANALYSIS

The consideration and adoption of the Resolution does not have a City fiscal impact.

ENVIRONMENTAL ANALYSIS

Not applicable.

LEGAL REVIEW

The City Attorney has reviewed the proposed Resolution.

ATTACHMENTS

1. Reso No 25-XX SCAQMD Rules 1111 and 1121
2. Rule 1111 and 1121 Factsheet



South Coast AQMD is Conducting Rulemaking that Could Impact Your Home Water Heaters and Furnaces

The rules will reduce emissions from residential furnaces (Rule 1111) and water heaters (Rule 1121) by transitioning to zero-emission appliances.

How Will the Rules Impact You?

Rules will take effect in 2-5 years and will be required only when:

Appliances are voluntarily replaced




Existing appliances break



Health Benefits

Once implemented, these rules will prevent:

 **4,000** premature deaths

 **16,000** cases of newly onset asthma

 **4,000** emergency room visits

Will There be any Flexibility?

Exceptions will be allowed for:



Construction or utility upgrades delays



High-altitude areas



Owners of multifamily buildings



Considering other circumstances

Will Financial Assistance be Available?

South Coast AQMD is working on an incentive program to provide rebates for residents, building owners and small businesses.

More info →



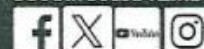
Get Involved

Want to provide feedback on the rules or need more information? Join a working group meeting. More information can be found at: www.aqmd.gov/home/rules-compliance/rules. To receive future updates on rulemaking and incentives via email newsletter: Subscribe by checking the "Building Appliances" box located under Rule Updates: www.aqmd.gov/sign-up.



South Coast Air Quality Management District
21865 Copley Dr. Diamond Bar, CA 91765
www.aqmd.gov • 1-800-CUT-SMOG®

@SouthCoastAQMD



V.1

Response to Comment Letter #107:*Response to Comment 107-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on consumer choice, please refer to Response to General Comment 1.

For discussion on cost, please refer to Response to General Comment 2.

For discussion on the electric grid, please refer to Response to General Comment 3.

For discussion on the cost-effectiveness analysis, please refer to Response to General Comment 6.

Additional discussion can be found in Response to General Comment 9.

For discussion on need for rule amendments and incentives, please refer to Response to general Comment 10 and 11.

Staff will conduct a status update/technology check-in(s) to further assess the market and provide updates to the Stationary Source Committee.

Response to Comment 107-2:

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use.

For discussion on outreach, please refer to Response to General Comment 5.

Comment Letter #108: Alexandria Helmer

From: [REDACTED] <[REDACTED]>
Sent: Monday, February 10, 2025 5:35 PM
To: Jennifer Vinh <[REDACTED]>
Subject: Contact Form

Contact Form

Name: Alexandria Helmer

Email: [REDACTED]

Phone: [REDACTED]

Message:

I am opposed to Rule 1111 and 1121 mandates. Please do not approve.

108-1

Response to Comment Letter #108:*Response to Comment 108-1:*

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NO_x emission sales targets for manufacturers, will allow for both zero-NO_x emission units and NO_x-emitting natural gas-fired units to be sold and installed for use.

Please refer to Response to General Comment 10 for the need for rule amendments.

APPENDIX D TO ATTACHMENT I: FINAL STAFF REPORT

APPENDIX D:

**RESPONSE TO COMMENTS SENT TO BOARD AND
COMMITTEE MEMBERS**

**AS OF MARCH 20, 2025 (CLOSE OF COMMENT
PERIOD)**

COMMENTS RECEIVED BEFORE MARCH 20, 2025 COMMENT LETTERS

Stakeholders have been submitting letters to the Governing Board and Stationary Source Committee Members since September 2024. This appendix contains those letters listed in the tables below that were received by March 20, 2025, the end of comment period. Staff summarized the general characterizations of the comments and provided responses.

COMMENT LETTERS SUPPORTING PAR 1111 AND PAR 1121

The following comments supported the original rule concept and maintained support for the new rule concept that sets manufacturer sales targets and mitigation fees. Many of the letters request to strengthen the rule requirements with higher mitigation fees and higher zero-NOx emission sales targets and support and urge no delay on rule adoption. Staff responses to the key points from those comment letters are included in a later section of this appendix.

Table Appendix D-1 –Support Letters Received before March 20, 2025

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|---|---------------|---|---|------------|--------------|---|
| 1 | 10/30/2024 | Andrea Vidaurre, Charles Miller, David Diaz MPH, Tomas Castro, Lisa Swanson, Christopher Chavez, Christy Zamani, Fernando Gaytan, Jorge Rivera, Charlotte Matthews, Sharon Ungersma, Kim Orbe, Sam Fishman, Stuart Wood PhD, | The People's Collective for Environmental Justice, Los Angeles Climate Reality Project, Active San Gabriel Valley, Climate Action Campaign, Climate Reality Project Orange County Chapter, Coalition for Clean Air, | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-coalition-20241030.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|---|---------------|---|--|------------|--------------|---|
| | | Ben Stapleton | Day One, Earthjustice, Healing and Justice Center, RMI, San Fernando Valley Climate Reality Project, Sierra Club Los Angeles Chapter, SPUR, Sustainable Claremont, USGBC California) | | | |
| 2 | 10/31/2024 | Brendan Brown | Green & Healthy Homes Initiative | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-green-and-healthy-homes-initiatives-20241031.pdf |
| 3 | 12/18/2024 | Christopher Chavez, Charlotte Matthews | Coalition for Clean Air, RMI | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-coalition-202412187dd0ecef2b66f27bf6fff00004a91a9.pdf |
| 4 | 1/9/2025 | Fernando Gaytan, David Diaz, Jane Williams, Robina Suwol, Christopher Chavez, Elizabeth Reid-Wainscoat, | Earthjustice, Active San Gabriel Valley, California Communities Against Toxics, | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-coalition-20250109.pdf |

| Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|---------------|---|---|----------|--------------|------|
| | Ana Gonzalez, David Martinez, Lisa Swanson, Jesse Marquez, Laura Gracia-Santiago, Charles Miller, Eli Lipmen, Hilary Firestone, Christhian Tapia-Delgado, Peter M. Warren, Sharon Ungersma, Kimberly Orbe, Anne Pernick, Sam Fishman, Ben Stapleton, Theral Golden | California Safe Schools, Coalition for Clean Air, Center for Biological Diversity, Center for Community Action & Environmental Justice, OC Policy Advocate Climate Action Campaign, Climate Reality Project Orange County Chapter, Coalition For A Safe Environment, Communities for a Better Environment, Los Angeles Climate Reality Project, MoveLA, Natural Resources | | | |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|---|---------------|------------------|---|-------------|--------------|---|
| | | | Defense Council, Pacific Environment, San Pedro & Peninsula Homeowners Coalition, San Fernando Valley Climate Reality Project, Sierra Club, SAFE Cities at Stand.earth, SPUR, USGBC California, West Long Beach Association | | | |
| 5 | 1/15/2025 | John M. Erickson | City of West Hollywood | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-west-hollywood-20250117.pdf |
| 6 | 1/30/2025 | Gracyna Mohabir | California Environmental Voters | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-california-environmental-voters-20250130.pdf |
| 7 | 1/30/2025 | Adrian Martinez | EarthJustice | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-earthjustice-20250130.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|----------------------------------|---------------------------------------|------------|--------------|---|
| 8 | 2/6/2025 | Jorge Rivera | Healing and Justice Center | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-healing-and-justice-center-20250206.pdf |
| 9 | 2/6/2025 | Chris Chavez | Coalition for Clean Air | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-coalition-for-clean-air-20250206.pdf |
| 10 | 2/7/2025 | Ashley Mercado | Day One | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-day-one-20250207.pdf |
| 11 | 2/11/2025 | Jane Williams | California Communities Against Toxics | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-california-communities-against-toxics-20250211.pdf |
| 12 | 2/13/2025 | Shreyas Sudhakar | Vayu | Business | 1 | http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-shreyas-sudhakar-20250213.pdf |
| 13 | 2/13/2025 | Nathan Taft | Stand.earth | Env. Group | 1 | http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-stand-earth-20250213.pdf |
| 14 | 2/7/2025 | Various | Self | Resident | 31 | http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-various-20250207.pdf |
| 15 | 2/11/2025 | Isabella Ford | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/comment-letter-from-isabella-ford-20250211.pdf?sfvrsn=c31f9f61_3 |
| 16 | 2/18/2025 | Robina Suwol | California Safe Schools | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-california-safe-schools-20250218.pdf |
| 17 | 2/19/2025 | Fernando Gaytan, Adrian Martinez | EarthJustice | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-earthjustice-20250219.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|--|---|------------|--------------|---|
| 18 | 2/19/2025 | Sherry Lear, Alan Weiner, Jack Eidt, Cheryl Auger, Anita Ghazarian, Bill Sive, Dave Shukla, Chris Peck, Regina Banks, Jennifer Tanner, Ruth Richardson, David J Marrett, Phil Glosserman | 350 Southland Legislative Alliance, 350 South Bay Los Angeles, 350 Conejo / San Fernando Valley, SoCal 350 Climate Action, Ban SUP, Indivisible Alta Pasadena, Pink Panthers, Long Beach Alliance for Clean Energy, Urban Ecology Project, Lutheran Office of Public Policy, Indivisible Ca Green Team, Rooted in Resistance (Indivisible), Climate Reality Project Riverside County Chapter, Third | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-coalition-20250219.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|---------------------|-------------------------------------|------------|--------------|---|
| | | | Act SoCal Chapter | | | |
| 19 | 2/14/2025 | Various | Self | Resident | 755 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-various-20250218.pdf |
| 20 | 2/19/2025 | Elise Kalfayan | Glendale Environmental Coalition | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-glendale-environmental-coalition-20250219.pdf |
| 21 | 2/20/2025 | Charles Miller | Los Angeles Climate Reality Project | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-los-angeles-climate-reality-project-20250220.pdf |
| 22 | 2/20/2025 | Eli Lipmen | Move LA | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-move-la-20250220.pdf |
| 23 | 2/20/2025 | Maggie Tsai | Asian Pacific Environmental Network | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-apen-20250220.pdf |
| 24 | 2/20/2025 | Tori Kjer | Los Angeles Neighborhood Land Trust | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-los-angeles-neighborhood-land-trust-20250220.pdf |
| 25 | 2/20/2025 | Teto (Hector) Huevo | Jobs to Move America | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-jobs-to-move-america-20250220.pdf |
| 26 | 2/20/2025 | Tony Sirna | Evergreen Action | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-evergreen-action-20250220.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|-------------------------|---|------------|--------------|---|
| 27 | 2/20/2025 | David Diaz | ActiveSGV | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-activesgv-20250220.pdf |
| 28 | 2/20/2025 | Andrew McNamara | Carbon Zero Buildings | Business | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-carbon-zero-buildings-20250220.pdf |
| 29 | 2/20/2025 | Marven E. Norman | Center for Community Action and Environmental Justice | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-center-for-community-action-and-environmental-justice-20250220.pdf |
| 30 | 2/20/2025 | Michelle Kim | Shared Streets | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-shared-streets-20250220.pdf |
| 31 | 2/21/2025 | Cristhian Tapia-Delgado | Pacific Environment | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-pacific-environment-20250221.pdf |
| 32 | 2/20/2025 | David Levitus | LA Forward Institute | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-lafi-20250220.pdf |
| 33 | 2/19/2025 | Various | Self | Resident | 307 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-various-20250304.pdf |
| 34 | 2/28/2025 | Alex Arellano | Everybody's Long Beach | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-everybodys-long-beach-20250228.pdf |
| 35 | 2/21/2025 | Josh Lowenthal | California's 69th Assembly District | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-asm-lowenthal-20250221.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|--|-----------------------|-------------|--------------|---|
| 36 | 3/6/2025 | Stuart Wood | Sustainable Claremont | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-sustainable-claremont-20250306.pdf |
| 37 | 2/19/2025 | Various | Self | Resident | 312 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-various-20250307.pdf |
| 38 | 2/14/2025 | Claire Broome | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-claire-broome-20250214.pdf |
| 39 | 3/3/2025 | Don Weiden | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/don-weiden-support-march-3-2025.pdf?sfvrsn=be6c9f61_2 |
| 40 | 3/5/2025 | Brenden Kalfus | City of Temecula | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-temecula-20250305.pdf |
| 41 | 3/13/2025 | John M. Erickson (West Hollywood Mayor), Elizabeth Alcantar Loza (Cudahy Mayor), Freddy Puza (Culver City Vice Mayor), Denise Davis (Redlands City Council Member), Jessie Lopaz (Santa Ana Councilwoman), Juan Munoz-Guevara (City of Lynwood) | Elected Officials | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-elected-group-20250313.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|---|--|------------|--------------|---|
| | | Council Member), Susan Sonne (Buena Park Council Member), Yasmine-Imani McMorris (Culver City Council Member) | | | | |
| 42 | 3/18/2025 | Pete Marsh | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-pete-marsh-20250318.pdf |
| 43 | 3/18/2025 | Ciara Morning Star Belardes | Sacred Places Institute for Indigenous Peoples | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-sacred-places-institute-20250318.pdf |
| 44 | 3/19/2025 | David Martinez | Climate Action Campaign | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-climate-action-campaign-20250319.pdf |
| 45 | 3/20/2025 | Amy Luna Capelle | Women for American Values and Ethics | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-wave-20250320.pdf |
| 46 | 3/20/2025 | Tiffany Lwin | Sunrise Movement Orange County | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-sunrise-movement-orange-county-20250320.pdf |
| 47 | 3/20/2025 | Craig Perkins | The Energy Coalition | Env. Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-the-energy-coalition-20250320.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|----------------|------------------|------------|--------------|---|
| 48 | 3/21/2025 | Various | Sierra Club/Self | Env. Group | 624 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-sierra-club-20250320.pdf |

COMMENT LETTERS OPPOSING PAR 1111 AND PAR 1121

The comment letters listed in the table below expressed opposition or concerns. The majority of those comments are based on the original rule concept that contained a future effective zero-NOx emission standard that would only allow for the sale of zero-NOx emission space and water heating appliances, e.g., a mandate to transition to zero-NOx appliances. Some comment letters included in the table below have recognized the new rule concept but expressed some concerns on certain provisions. The opposition and concerns on the original rule concept have been addressed by the new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers and will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. Staff responses to the key points from the comment letters are included in a later section of this appendix. Comment letter #4 of Table Appendix D-2 is identical to the comment letter included in Appendix C as Comment Letter #37, where a detailed response is provided for each point made in the letter.

Table Appendix D-2 –Opposition Letters Received before March 20, 2025

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|---|---------------|---|--|-------------|--------------|---|
| 1 | 9/20/2024 | Tracy Hernandez | BizFed | Business | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-bizfed-20240920.pdf |
| 2 | 9/20/2024 | Stuart Waldman | Valley Industry & Commerce Association | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-valley-industry-commerce-association-20240920.pdf |
| 3 | 10/3/2024 | Fran Inman, David Fleming, Tracy Hernandez, David Englin | BizFed | Business | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/los-angeles-county-business-federation.pdf |
| 4 | 10/17/2024 | Kevin Barker | SoCalGas | Business | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-socalgas-20241017.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|---|--|----------|--------------|---|
| | | | | | | 1121/comment-letter-from-socalgas-20241017.pdf |
| 5 | 10/17/2024 | Whitney Squire | Plumbing Heating Cooling Contractors of California | Business | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-phcc-of-california-20241017.pdf |
| 6 | 10/30/2024 | Fran Inman, David Fleming, Tracy Hernandez, David Englin | BizFed | Business | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-bizfed-20241030.pdf |
| 7 | 10/31/2024 | Sandi Schulz | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-sandi-schulz-20241031.pdf |
| 8 | 10/31/2024 | Julie Peterson | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-julie-peterson-20241030.pdf |
| 9 | 11/3/2024 | Marsha Golden | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-marsha-golden-20241103.pdf |
| 10 | 11/4/2024 | Deborah Knowlton | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-deborah-knowlton-20241104.pdf |
| 11 | 11/8/2024 | Terry Schulz | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-terry-schulz-20241108.pdf |
| 12 | 11/29/2024 | Lawrence Yoo | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-lawrence-yoo-20241129.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|------------------------|---|-------------|--------------|---|
| 13 | 12/18/2024 | Hari Dhiman | Eastvale Chamber of Commerce | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-eastvale-chamber-of-commerce-20241218.pdf |
| 14 | 12/18/2024 | Marnie O'Brien Primmer | Orange County Council of Governments | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-occog-20241216.pdf |
| 15 | 12/18/2024 | Tim Hepburn | San Gabriel Valley Council of Governments | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-sgvcog-20241218.pdf |
| 16 | 12/18/2024 | Mendell L. Thompson | City of Glendora | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-the-city-of-glendora-20241218.pdf |
| 17 | 12/30/2024 | Various | Self | Resident | 86 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-various-20241229.pdf |
| 18 | 12/30/2024 | Various | Self | Resident | 13 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/comment-letter-from-various-20241230.pdf |
| 19 | 12/31/2024 | Miguel Prietto | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/comment-letter-from-miguel-prietto-20241231.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|--|--|-------------|--------------|---|
| 20 | 1/1/2025 | Various | Self | Resident | 7 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-various-20250107.pdf |
| 21 | 1/9/2025 | Various | Self | Resident | 4 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-various-20250109.pdf |
| 22 | 1/17/2025 | Katherine Johansen | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-katherine-johansen-20250117.pdf |
| 23 | 1/7/2025 | Eunice Ulloa | City of Chino | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-chino-20250107.pdf |
| 24 | 1/11/2025 | Various | Self | Resident | 9 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-various-20250111.pdf |
| 25 | 1/23/2025 | Mark Attaway | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/comment-letter-from-mark-attaway-20250123.pdf |
| 26 | 1/28/2025 | Phillip Dupper | City of Loma Linda | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-loma-linda-20250128.pdf |
| 27 | 1/28/2025 | Phillip Dupper, Mayor Popescu, Rigsby, Spencer-Hwang | The City Council of The City of Loma Linda | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-the-city-council-of-the-city-of-loma-linda-20250128.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|----------------|---------------------|-------------|--------------|---|
| 28 | 1/28/2025 | Scott Voigts | City of Lake Forest | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-lake-forest-20250128.pdf |
| 29 | 1/24/2025 | Various | Self | Resident | 16 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-various-20250124.pdf |
| 30 | 1/30/2025 | Blair Stewart | City of Brea | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-brea-20250130.pdf |
| 31 | 2/1/2025 | Various | Self | Resident | 8 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-scott-moody-20250201.pdf |
| 32 | 2/7/2025 | Debra Kamm | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-debra-kamm-20250207.pdf |
| 33 | 2/7/2025 | Various | Self | Resident | 68 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-various-20250211.pdf |
| 34 | 2/14/2025 | Greg Newton | City of Norco | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-norco-20250214.pdf |
| 35 | 2/10/2025 | Various | Self | Resident | 68 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-various-20250214.pdf |
| 36 | 2/14/2025 | Various | Self | Resident | 7 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-various-20250115.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|---|--|-------------|--------------|---|
| 37 | 2/19/2025 | Mayor Warren, Mayor Pro Tem Garcia, Council Members Cothran, Roberts and Sandoval | City of Fontana | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-fontana-20250219.pdf |
| 38 | 2/21/2025 | Kris Murray | Association of California Cities Orange County | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-accoc-20250221.pdf |
| 39 | 2/24/2025 | L. Dennis Michael | City of Rancho Cucamonga | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-rancho-cucamonga-20250224.pdf |
| 40 | 2/21/2025 | Rose Espinoza | City of La Habra | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-la-habra-20250221.pdf |
| 41 | 2/21/2025 | Scott Cutshall | Clay Lacy Aviation | Business | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-clay-lacy-aviation-20250221.pdf |
| 42 | 1/7/2025 | Joe Stapleton | City of Newport Beach | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-newport-beach-20250107.pdf |
| 43 | 2/20/2025 | Various | Self | Resident | 23 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-various-20250306.pdf |
| 44 | 2/17/2025 | Sam Wong, MD | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/sam-wong-comment-letter-feb-17-2025.pdf?sfvrsn=b36c9f61_2 |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|---------------------------|--|----------|--------------|---|
| 45 | 3/11/2025 | Greg Van Dyke | California Consumer Advocates for Affordability and Safety | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-ca-consumer-advocates-20250311.pdf |
| 46 | 3/18/2025 | Sam Wong | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-sam-wong-20250318.pdf |
| 47 | 3/13/2025 | Various | Self | Resident | 9331 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letters-from-residents-in-opposition-20250313.pdf |
| 48 | 3/12/2025 | Bishop Dwight E. Williams | California Senior Alliance | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-california-senior-alliance-20250312.pdf |
| 49 | 3/17/2025 | Adam Briones | California Community Builders | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-california-community-builders-20250317.pdf |
| 50 | 3/17/2025 | Chip Ahlswede | Apartment Association of Orange County | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-apartment-association-of-orange-county-20250317.pdf |
| 51 | 3/18/2025 | Robert Sausedo | Community Build, Inc. | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-community-build-inc-20250318.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|--|---|-------------|--------------|---|
| 52 | 3/20/2025 | Todd Titus | Heating, Air-Conditioning, & Refrigeration Distributors International (HARDI) | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-hardi-20250320.pdf |
| 53 | 3/20/2025 | Jack Miranda | Jesse Miranda Center for Hispanic Leadership | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-jesse-miranda-center-20250320.pdf |
| 54 | 3/20/2025 | Gretchen Gutierrez | Desert Valleys Builders Association | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-desert-valleys-builders-association-20250320.pdf |
| 55 | 3/20/2025 | Laura Halverson, Tim Shaw, Christine Schachter | Tri-Counties of Realtors | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-tri-counties-of-realtors-20250320.pdf |
| 56 | 2/20/2025 | Janice Lim | City of Yorba Linda | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-yorba-linda.pdf |
| 57 | 2/26/2025 | Todd Rogers | City of Lakewood | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-lakewood-20250226.pdf |
| 58 | 3/5/2025 | Ricky Estrada | City of Menifee | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-menifee-20250305.pdf |
| 59 | 3/5/2025 | Daniel R. Slater | City of Orange | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-city-of-orange-20250305.pdf |

| | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----|---------------|--|--|----------|--------------|---|
| | | | | | | 1121/comment-letter-from-city-of-orange-20250305.pdf |
| 60 | 3/10/2025 | Russell Johnson | Associated Builders and Contractors of Southern California | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-associated-builders-and-contractors-of-southern-california-20250310.pdf |
| 61 | 3/19/2025 | Robert Apodaca | The Two Hundred | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/comment-letter-from-the-two-hundred-20250319.pdf |
| 62 | 3/20/2025 | Laura Halverson, Tim Shaw, Christine Schachter | The Pacific West Association of Realtors | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/comment-letter-from-the-pacific-west-association-of-realtors-20250320.pdf |

RESPONSE TO KEY TOPICS IN THE COMMENT LETTERS TO THE GOVERNING BOARD AND COMMITTEE MEMBERS*Rule Mandate*

Opposition letters expressed concern over the original rule concept and the mandate to transition to zero-NOx space and water heating appliances at future effective dates when appliances are replaced. Based on the feedback, staff developed a new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers and will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. The new rule concept is not a mandate, as consumers can choose which units to install in their homes.

Consumer Choice

For discussion on consumer choice, please refer to Response to General Comment 1 in Appendix A.

Cost and Affordability

For discussion on cost and affordability, please refer to Response to General Comment 2 in Appendix A.

Electricity Demand and Grid Sustainability

For discussion on electric grid sustainability for meeting demand and addressing concerns on power outages, please refer to Response to General Comment 3 in Appendix A.

Zero-NOx Emission Technology Readiness

For discussion on zero-NOx emission technology readiness, please refer to Response to General Comment 4 in Appendix A.

Sufficient Outreach, Public Participation, and Rulemaking Schedule

For discussion on outreach and rulemaking schedule, please refer to Response to General Comment 5 in Appendix A. Stakeholders can continue to participate in the rulemaking process at future public meetings, including the Public Hearing.

Cost-Effectiveness Analysis

For discussion on the cost-effectiveness analysis, please refer to Response to General Comment 6 in Appendix A.

Emergency Replacements

For discussion on emergency replacement, please refer to Response to General Comment 7 in Appendix A.

High-Altitude Concerns

For discussion on high-altitude installations, please refer to Response to General Comment 8 in Appendix A.

EPCA

For discussion on EPCA or concerns on banning natural gas, please refer to Response to General Comment 9 in Appendix A.

Need for the Rule Amendments

For discussion on the need for rule amendment, please refer to Response to General Comment 10 in Appendix A. While there may be some co-benefits for indoor air quality, the proposed rule focuses on ambient air quality.

Benefit of NO_x Reduction to Ozone Reduction

NO_x is identified as a criteria pollutant and one of the main precursor pollutants for ozone formation by U.S. EPA. Please refer to Appendix C Response to Comment 11-1 for more regarding the benefit of NO_x reductions from PAR 1111 and PAR 1121 on achieving control on ozone formation.

Incentives to Transition to Zero-NO_x Appliances

For discussion on incentives, please refer to Response to General Comment 11 in Appendix A.

Labeling and Reporting Requirements

For discussion on labeling, please refer to Appendix C Response to Comment 27-4.

For discussion on reporting requirements, please refer to Appendix C Response to Comment 27-9.

Delay January 1, 2027 Compliance Date to 2029

PAR 1121 Table 2 compliance date for existing buildings has been revised from January 1, 2027, to January 1, 2029. Furthermore, the new rule concept will allow for both zero-NO_x emission units and NO_x-emitting natural gas-fired units to be sold and installed for use.

Feasibility of 120V Heat Pump Water Heater

Please refer to Appendix C Response to Comment PW-9 for a similar comment.

Technology Check-In for Rule 1146.2

Staff will conduct a technology check in for Rule 1146.2 and provide update to the Stationary Source Committee prior to the future effective date for the existing building Zero-NO_x emission standard.

Replacement of Units

PAR 1111 and PAR 1121 do not require the replacement of any operational units. PAR 1111 and PAR 1121 apply at the unit natural turnover when a replacement unit must be installed, often at unit breakdown.

Existing Mobile Homes

PAR 1111 and PAR 1121 have been amended to remove the zero-NO_x emission standard for space and water heating appliance installations in existing mobile homes. For more discussion on existing mobile homes, please refer to Appendix B Response to Comment 6-1.

Natural Gas-Fired Stoves, Grills, and Other Cooktops

Discussion regarding natural gas-fired stoves, grills, and other cooktops are outside of the scope of this rulemaking.

Costly for Swimming Pool Heaters Going Electric

Discussion of swimming pool heaters is outside of the scope of this rulemaking. Please refer to South Coast AQMD Rule 1146.2: <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1146-2>.

Motor Vehicles

Discussion of motor vehicles is outside of the scope of this rulemaking. For more information regarding South Coast AQMD's Old-Vehicle Scrapping Program, please refer to: <https://www.aqmd.gov/home/programs/community/old-vehicle-scrapping>.

Improving Public Transportation

Discussion of improving public transportation in South Coast AQMD is outside of the scope of this rulemaking.

High Electric Bill

For discussion on consumer choice, please refer to Response to General Comment 1 in Appendix A. For discussion on cost and affordability, including utility cost, please refer to Response to General Comment 2 in Appendix A.

Tankless Electric Water Heater Electrical Upgrade and Cost

PAR 1121 is for tank type water heaters, tankless water heaters are outside of the scope of this rulemaking. Please refer to South Coast AQMD Rule 1146.2: <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1146-2>.

For discussion on consumer choice, please refer to Response to General Comment 1 in Appendix A. For consumers who choose a zero-NOx unit, an electric panel upgrade is not needed in every case. There are 120v heat pump water heaters available that are plug-in, along with other technologies.

White Papers and Studies

Staff appreciates the studies and analyses. For discussion on consumer choice, please refer to Response to General Comment 1 in Appendix A.

Impact Studies

Staff appreciates the studies and analyses providing data on existing fossil fuel combustion costs, energy costs, household impacts, health impacts, and technology readiness. Also see General Comment Responses 3 through 5. For discussion on impact assessments, including a socioeconomic impact assessment, estimated number of units, and emission reductions, please refer to Chapter 4.

Wildfires

Wildfire emissions are a concern to South Coast AQMD but are outside the scope of PAR 1111 and PAR 1121. The primary concern of wildfires is particulate matter emissions

(PM2.5 and PM10). Rule development for Proposed Rule 444.1 – PM Reductions from Forest Waste for Wildfire Prevention has been initiated. Information for the rulemaking will be posted here: <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-404-and-444-1>. South Coast AQMD is supporting ongoing federal, state, and local efforts in response to the recent devastating Los Angeles wildfires. More information on wildfire response can be found here: <https://www.aqmd.gov/2025-wildfire-response>.

Carbon Footprint

South Coast AQMD is a regional air pollution regulatory agency; the carbon footprint of household natural gas usage is outside of the scope of PAR 1111 and PAR 1121. For discussion on the purpose of PAR 1111 and PAR 1121, please refer to Response to General Comment 10 in Appendix A.

Methane Emissions and Landfills

CARB regulates methane emissions and adopted numerous methane regulations, including a methane regulation for municipal solid waste landfills. South Coast AQMD also has rules for landfills including Rule 1150 – Excavation of Landfill Sites (<https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1150.pdf>), Rule 1150.1 – Control of Gaseous Emissions from Municipal Solid Waste Landfills (<https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1150-1.pdf>), Rule 1150.3 – Emissions of Oxides of Nitrogen from Combustion Equipment at Landfills (<https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1150-3.pdf?sfvrsn=10>), and Rule 1118.1 - Control of Emissions from Non-Refinery Flares (https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/R1118-1.pdf?sfvrsn=d217f161_9).

Lawn Equipment

CARB regulates lawn, garden, and landscape equipment and has not banned gas powered equipment. South Coast AQMD has an incentive program to exchange gasoline or diesel powered commercial lawn and garden equipment for zero-emission battery electric alternatives. For more information regarding South Coast AQMD's Lawn and Garden Program, please refer to: <https://www.aqmd.gov/home/programs/community/electric-lawn-and-garden-programs>.

Pilot Program to Verify Feasibility of Zero-NOx Emission Standard

The comment was based on the original rule concept. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, allows for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. For discussion on technology readiness, please refer to Response to General Comment 4 in Appendix A. Staff will conduct a technology check-in for rule implementation and provide updates to the Stationary Source Committee.

Implementation Schedule

PAR 1111 and PAR 121 are applicable to new installations at end of unit life, or at natural turnover, which means 15-25 years of implementation timeline. The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, allowing both zero-NOx emission

units and NOx-emitting natural gas-fired units further addresses stakeholder concerns regarding insufficient time to transition to zero-NOx emission appliances.

Financial Burden of Mitigation Fee

Both rules previously had mitigation fee alternative compliance options. The mitigation fee in the new rule concept strikes a balance while incentivizing zero-NOx emission units. For more on the mitigation fee, please refer to Appendix B Response to Comment PC-6.

Housing Affordability

The new rule concept for PAR 1111 and PAR 1121 released on February 7, 2025, helps address stakeholder concerns regarding costs and the impacts on housing affordability. For discussion on affordability and cost, please refer to Appendix A Response to General Comment 2. For discussion on rent stabilization and tenant protections, please refer to Chapter 2.

South Coast AQMD Authority

The South Coast AQMD Governing Board has authority to adopt amendments to Rule 1111 and Rule 1121 pursuant to the Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728⁵, and 41508.

PAR 1111 and PAR 1121 Implementation

PAR 1111 and PAR 1121 apply to the product supply chain. Manufacturers have the option to comply with PAR 1111 and PAR 1121 by the ZEM alternative compliance option or compliance schedule for new and existing building according to rule paragraph (d)(2). The proposed ZEM alternative compliance option, in lieu of paragraph (d)(2), intends to provide flexibility for the implementation and addresses the concern for consumer choice and costs. The compliance targets by the proposed ZEM alternative compliance option are not hard targets. If consumer demand results in higher sales of NOx-emitting gas units, the manufacturer may supply those units with a higher mitigation fee. Both rules previously had mitigation fee alternative compliance options and manufacturers, distributors, and contractor/installers have gained experience through similar implementation.

Increase Mitigation Fees

Please refer to Appendix B, Response to Comment - PC-4, Response to Comment 43-1, and Response to Comment 29-2. Fees will be utilized for the Go Zero program. Increasing the fees over time outside CPI, increasing fees for continuously missing targets, ~~eliminating the discount fee~~, or stricter compliance percentage targets would not be in line with the current efforts to strike a balance while incentivizing zero-NOx emission units.

Lower Mitigation Fees

For further discussion on fees, please refer to Appendix – B Response to Comment PC-6.

EPCA Preemption

The new rule concept for Proposed Amended Rules 1111 and 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and

installed for use. For discussion on EPCA or concerns on banning natural gas, please refer to Response to General Comment 9 in Appendix A.

Impact on Schools

The PAR 1111 applicability was revised and no longer includes units with a rated heat input capacity of 175,000 Btu/hr or greater, which would include many furnace sizes for commercial applications such as in schools. The current proposal limits PAR 1111 to furnaces used for indoor heating to less than 175,000 Btu per hour. The rules are not proscriptive, so there may be scenarios where schools choose to install smaller-sized appliance that are subject to PAR 1111 or PAR 1121. The new rule concept for PARs 1111 and 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. For discussion on consumer choice, please refer to Response to General Comment 1 in Appendix A.

Availability of Solar

Discussion regarding the availability and cost of solar power is outside the scope of this rulemaking. Please refer to Chapter 2 for discussion on solar technology for heating, ventilation, and air conditioning.

Conflict with the Dormant Commerce Clause

The new rule concept for Proposed Amended Rules 1111 and 1121 released on February 7, 2025, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. For discussion on consumer choice, please refer to Response to General Comment 1 in Appendix A. For a discussion on the Dormant Commerce Clause please refer to Response to Comment 4-2 in Appendix C.

Attainment of Existing NOx Standards

South Coast Air Basin has been classified as “extreme” nonattainment for the 2015 federal ozone standard. Ozone is formed when NOx and VOC react in the presence of sunlight. While both NOx and VOC contribute to ozone formation, the key to attaining the ozone standard in the Basin is to reduce NOx. For a discussion on the need for the rule amendments, please refer to Response to General Comment 10 in Appendix A.

Accuracy of Health Impacts

Health benefit from the rules is based on NOx emission reductions. Although natural gas combustion is not as emissive as combusting other fossil fuels, the large universe of appliances subject to PAR 1111 and PAR 1121 results in the large emission inventory. PAR 1111 and PAR 1121 will cover over 10 million units emitting an estimated 6.8 tpd NOx emissions. Comparatively for NOx emission, by 2037, staff estimates all utilities emit 2 to 3 tpd, all refineries emit about 4 tpd, and all passenger vehicles emit about 7 tpd. The health benefit from the rules will be significant. For a detailed discussion on the health benefits analysis, please refer to Response to General Comment 10 in Appendix A.

Impact on Gas Stoves

Please note that PARs 1111 and 1121 do not apply to stoves, they apply to space and water heating appliances.

Readiness of Electrical Appliances

For a discussion on the readiness of zero-NOx emission technology and consumer choice, please refer to Response to General Comment 4 and Response to General Comment 1, respectively, in Appendix A.

Impact on Disadvantaged Communities

PARs 1111 and 1121 apply to residential furnaces and water heaters. The NOx emission reductions as a result of implementation of these two proposed amended rules will benefit the air quality in all communities in which these types of equipment operate. Consumers will have the choice to purchase conventional NOx-emitting units when an appliance needs to be replaced at end of unit life. For consumers who choose to pursue zero-NOx emission units, more incentives and lower utility rate would be available for lower income consumers. For discussion on cost, affordability and incentives, please refer to Response to General Comment 2 and Response to General Comment 11 in Appendix A.

Impact on Climate Change

The South Coast AQMD's mission is to improve regional air pollution and to attain state and federal air quality standards. PARs 1111 and 1121 target NOx emission reductions to assist in meeting federal ozone and PM2.5 air quality standards for the region. While there may be co-benefits for greenhouse gas emission reductions via the prevention of natural gas combustion, that is not the direct purview of the South Coast AQMD or the purpose for the proposed rule amendments.

Sales Targets

For comments on assessment of sales targets and potential revisions, please refer to Appendix B - Response to Comment PC-3.

Consistency in Appliance Regulations Across Air Districts

The South Coast AQMD evaluates the air quality impacts of pollution within its geographical jurisdiction. Similar evaluations of other Air Districts within California may determine the necessity of regulations that also reduce NOx emissions from residential furnaces and water heaters and result in air quality benefits. South Coast AQMD has been in communication with CARB, which is considering statewide rulemaking for space and water heating.

Go Zero Program Prioritization of Disadvantaged Communities

An effort will be made to focus rebates on those in overburdened regions, with 75 percent of rebate funding dedicated to overburdened communities for the pilot phase. Staff will monitor the program performance and ensure the prioritization of overburdened communities for future phases. For more information, please refer to Response to Comment 22-1 in Appendix B.

Utility-Funded Loan Program for Zero-Emission Equipment Transition

Staff understand utility companies such as Southern California Edison offer state-administered financing programs that help customers by spreading the cost of qualified installations overtime. In addition to those financing opportunities, South Coast AQMD's Go Zero program will provide a source of funds to incentivize the transition to zero-NOx emission residential furnaces and water heaters. This program will be partially funded by the implementation of mitigation fees for NOx emitting natural gas-fired units sold specified in Proposed Amended Rules 1111 and 1121. For more information, please refer to Appendix A – Response to General Comment 11.

Electrical Upgrades

By the new rule concept, consumers will have the choice to purchase conventional NOx-emitting units when an appliance needs to be replaced at end of unit life. For consumers who choose zero-NOx emission units, the project cost examples listed in the Clearinghouse website include electric upgrade costs (<https://www.aqmd.gov/home/rules-compliance/residential-and-commercial-building-appliances>), which is also included in staff analysis of cost-effectiveness under Chapter 2 of the staff report. For more information on the costs, please refer to Appendix A – Response to General Comment 2.

Applicability Change in PAR 1111

The PAR 1111 applicability was revised and no longer includes units with a rated heat input capacity of 175,000 Btu/hr or greater, units with rated heat input capacity 175,000 Btu/hr and above will be addressed in a future rule development process. For more information, please refer to Appendix B – Response to PC-16.

APPENDIX E TO ATTACHMENT I: FINAL STAFF REPORT

APPENDIX E:

COMMENT LETTERS RECEIVED AFTER CLOSE OF COMMENT PERIOD

Comments Received from March 21, 2025, to ~~March 28, 2025~~
May 16, 2025

COMMENT LETTERS

This appendix contains those letters listed in the tables below that were received from March 21, 2025, to ~~March 28, 2025~~ May 16, 2025. Staff summarized the general characterizations of the comments and provided responses. For the most up to date comment letters, including comment letters received past May 16, 2025, please refer to the following links below:

- [Comment Letters Sent to Staff](#)
 - <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1111-and-rule-1121/comment-letters>
- [Comment Letters Sent to the Board/Committee](#)
 - <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1111-and-rule-1121/comment-letters/comment-letters-to-the-board-committee>

TABLE APPENDIX E-1: COMMENTS RECEIVED FROM MARCH 21, 2025 TO MARCH 28, 2025

| Letter | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|----------|------------------|---------------------------|--|-----------------|--------------|---|
| 1 | 3/23/2025 | Jesse Biebesheimer | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/comment-letter-from-jesse-biebesheimer-20250323.pdf?sfvrsn=1e1d9f61_2 |
| 2 | 3/26/2025 | Faith Bautista | National Diversity Coalition | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/ndc-letter-to-vanessa-delgado.pdf?sfvrsn=c31b9f61_3 |
| 3 | 3/21/2025 | Roy Profitt | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/comment-letter-from-roy-profitt-20250321.pdf?sfvrsn=3b009f61_3 |
| 4 | | Various | Self | Resident | 116 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/comment-letter-from-various-20250326.pdf?sfvrsn=d80e9f61_2 |
| 5 | 3/27/2025 | Stuart Waldman | Valley Industry & Commerce Association | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/comment-letter-from-vica-20250327.pdf?sfvrsn=b17f9f61_2 |
| 6 | 3/28/2025 | Leah Skinner | Carson Chamber of Commerce | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/comment-letter-from-carson-chamber-of-commerce-20250328.pdf?sfvrsn=8f7f9f61_2 |
| 7 | 3/28/2025 | Paul Little | Pasadena Chamber of Commerce and Civic Association | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/comment-letter-from-pasadena-chamber-of-commerce-20250328.pdf?sfvrsn=a67c9f61_2 |
| 8 | 3/21/2025 | Erin Pak | Kheir Clinic | Business | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/amended-rule-1111-oppose-kheir-2025-03-21.pdf?sfvrsn=ba8e9e61_2 |
| <u>9</u> | <u>3/29/2025</u> | <u>Katherine Johansen</u> | <u>Self</u> | <u>Resident</u> | <u>1</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/par-1111-and-par-1121-public-comment-katherine-johansen.pdf?sfvrsn=9b579f61_2 |

| Letter | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|---------------------------|---|---------------------------------------|---|--|----------------------------|---|
| <u>10</u> | <u>4/4/2025</u> | <u>Various</u> | = | = | <u>2</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(2-in-support).pdf?sfvrsn=4f079e61_2 |
| <u>11</u> | <u>3/30/2025-4/8/2025</u> | <u>Various</u> | = | = | <u>217</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(217-in-opposition)d7ba3c1a-fdb8-4736-8ad0-7892b7118c5e.pdf?sfvrsn=348d9d61_3 |
| <u>12</u> | <u>4/11/2025</u> | <u>John C. Heintz</u> | <u>Regulatory Flexibility Group (RFG)</u> | <u>Other</u> | <u>1</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/regulatory-flexibility-group.pdf?sfvrsn=55399e61_7 |
| <u>13</u> | <u>4/9/2025-4/14/2025</u> | <u>Various</u> | = | = | <u>21</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(21-in-opposition).pdf?sfvrsn=501e9e61_3 |
| <u>14</u> | <u>4/14/2025</u> | <u>Robert Helbing</u> | <u>Air-Tro</u> | <u>Business</u> | <u>1</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/oppose---air-tro-comment-letter.pdf?sfvrsn=5b1e9e61_3 |
| <u>15</u> | <u>4/14/2025</u> | <u>Kyle Bergeron</u> | <u>A.O. Smith</u> | <u>Manufacturer</u> | <u>1</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/ao-smith-041425.pdf?sfvrsn=917f9e61_3 |
| <u>16</u> | <u>4/9/2025</u> | <u>Matt Vespa</u> | <u>Earthjustice, California Environmental Voters, Coalition for Clean Air and Sierra Club Angeles Chapter</u> | <u>Environmental Group</u> | <u>1</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/earthjustice-040925.pdf?sfvrsn=6e1e9e61_9 |
| <u>17</u> | <u>3/20/2025</u> | <u>Aziz Amiri</u> | <u>Regional Chamber of Commerce San Gabriel Valley</u> | <u>Business</u> | <u>1</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/opposition-letter-aqmd.pdf?sfvrsn=a8579f61_2 |
| <u>18</u> | <u>4/2/2025</u> | <u>Bill Velto</u> | <u>City of Upland</u> | <u>City/County</u> | <u>1</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/letter-of-opposition---scaqmd.pdf?sfvrsn=b38e9e61_2 |

| Letter | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|--------------------|------------------------------------|----------------------------------|---|-----------------------------|--------------------|---|
| 19 | 4/2/2025 | Bill Velto | City of Upland | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/6819-scaqmd-resolution-2-10-25.pdf?sfvrsn=bb8e9e61_2 |
| 20 | 4/2/205 | Various | = | = | 10 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/april-scaqmd-par-1111-1121---public-opposition-letters-03-27-25.pdf?sfvrsn=a18e9e61_2 |
| 21 | 3/30/2025-4/8/2025 | Various | = | = | 91 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-to-board-(91-in-opposition).pdf?sfvrsn=48cb9e61_2 |
| 22 | 4/7/2025 | Steven Shepherd | Shepherd Architects | Business | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/steven-c-shepherd.pdf?sfvrsn=ecb9e61_2 |
| 23 | 4/4/2025 | Paul J. Miller | NESCAUM | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/nescaum.pdf?sfvrsn=31159e61_4 |
| 24 | 4/9/2025 | Various | = | = | 38 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou---scqamd-resident-letters-(38-in-opposition).pdf?sfvrsn=10119e61_3 |
| 25 | 3/21/2025 | = | SCAQMD Local Government & Small Business Assistance Advisory Group | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/board-oppose---3-21-25-lgsba-opposition-letter.pdf?sfvrsn=38119e61_3 |
| 26 | 4/10/2025 | Various | Amigos Properties, L.P., Huntington Gardens L.P., Solteros Apartments L.P., and Trident Properties L.P. | Other | 4 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(4-in-opposition).pdf?sfvrsn=1119e61_3 |
| 27 | 4/9/2025 | L. Anthony Beall | City of Rancho Santa Margarita | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/board-oppose---city-of-rancho-santa-margarita---anthony-beall.pdf?sfvrsn=31119e61_3 |
| 28 | 4/10/2025 | Kevin Barker | SoCalGas | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/board- |

| Letter | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|---------------------------|-------------------------------------|-------------------------------------|---|-------------------------------------|--------------------|---|
| | | | | | | oppose---socialgas-041025.pdf?sfvrsn=26119e61_3 |
| <u>29</u> | 4/4/2025-4/14/2025 | Various | - | - | 18 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(18-in-opposition).pdf?sfvrsn=4a119e61_3 |
| <u>30</u> | 4/15/2025 | Terry W. Trombatore | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/terry-w-trombatore-041525.pdf?sfvrsn=807f9e61_3 |
| <u>31</u> | 4/16/2025 | Stacia Nadelman | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/stacia-nadelman-041625.pdf?sfvrsn=aa7f9e61_3 |
| <u>32</u> | 4/16/2025 | Jo Dee Preston | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/jo-dee-preston-041625.pdf?sfvrsn=d87f9e61_3 |
| <u>33</u> | 4/16/2025 | Cindy Warren | City of Murrieta | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/cindy-warren---mayor-of-murrieta-041625.pdf?sfvrsn=bb7f9e61_3 |
| <u>34</u> | 4/17/2025 | Wynn Tucker | Green & Healthy Homes Initiative (GHHI) | Environmental Group | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/green-healthy-homes-initiative-(ghhi)-041725.pdf?sfvrsn=8f429e61_3 |
| <u>35</u> | 4/18/2025-4/22/2025 | Various | - | - | 10 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(10-in-opposition).pdf?sfvrsn=25439e61_4 |
| <u>36</u> | 4/22/2025-4/25/2025 | Various | - | - | 63 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(63-in-opposition)-042225-042525.pdf?sfvrsn=859e9d61_3 |
| <u>37</u> | 4/23/2025-4/24/2025 | Various | - | | 6 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(6-in-support)-042325-042425.pdf?sfvrsn=acac9d61_7 |
| <u>38</u> | 4/29/2025 | Jim Steiner | City of Corona | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/city-of-corona-042425.pdf?sfvrsn=989e9d61_3 |

| Letter | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|---------------------------|--|---|--|------------------------------------|---------------------------|---|
| <u>39</u> | <u>4/18/2025-4/25/2025</u> | <u>Various</u> | <u>=</u> | <u>=</u> | <u>16</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(16-in-opposition)-0418-042525.pdf?sfvrsn=c2af9d61_3 |
| <u>40</u> | <u>4/22/2025</u> | | <u>City of Anaheim</u> | <u>City/County</u> | <u>1</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/city-of-anaheim-042225.pdf?sfvrsn=d1af9d61_3 |
| <u>41</u> | <u>4/22/2025</u> | | <u>City of Tustin</u> | <u>City/County</u> | <u>1</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/city-of-tustin-042225.pdf?sfvrsn=f0af9d61_3 |
| <u>42</u> | <u>4/4/2025-4/23/2025</u> | <u>Various</u> | <u>=</u> | <u>=</u> | <u>11</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(11-in-opposition)-20250404-20250423.pdf?sfvrsn=62e09d61_3 |
| <u>43</u> | <u>4/30/2025</u> | <u>Rosalie Barcinas</u> | <u>Southern California Edison</u> | <u>Other</u> | <u>1</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/sce-20250430.pdf?sfvrsn=a6e19d61_3 |
| <u>44</u> | <u>5/1/2025</u> | <u>Mel Smith</u> | <u>Mel Smith Electric, Inc</u> | <u>Business</u> | <u>1</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/mel-smith-electric-20250501.pdf?sfvrsn=6fe19d61_3 |
| <u>45</u> | <u>5/1/2/2025-5/2/2025</u> | <u>Various</u> | <u>=</u> | <u>=</u> | <u>12</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(12-in-opposition)-20250501-20250502.pdf?sfvrsn=79d69d61_3 |
| <u>46</u> | <u>5/5/2025-5/6/2025</u> | <u>Various</u> | <u>=</u> | <u>=</u> | <u>15</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(15-in-opposition-from-geary-pacific)-20250505-20250506.pdf?sfvrsn=37cd9d61_3 |
| <u>47</u> | <u>5/2/2025-5/7/2025</u> | <u>Various</u> | <u>=</u> | <u>=</u> | <u>32</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(32-in-opposition)-20250502-20250507.pdf?sfvrsn=2aca9d61_2 |
| <u>48</u> | <u>5/7/2025</u> | <u>Oscar Ortiz</u> | <u>Coachella Valley Association of Governments</u> | <u>City/County</u> | <u>1</u> | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/cvag-oscar-ortiz-20250507.pdf?sfvrsn=faca9d61_2 |

| Letter | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|--------------------|-------------------------------------|---------------------------------|---|------------------------------|--------------------|---|
| 49 | 5/7/2025 | Ted Weill | Coachella Valley Association of Governments | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/cvag-ted-weill-20250507.pdf?sfvrsn=9cca9d61_2 |
| 50 | 5/5/2025 | Brina Simon | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/brina-simon-20250505.pdf?sfvrsn=d8cd9d61_6 |
| 51 | 5/5/2025-5/7/2025 | Various | = | = | 66 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/various-(66-in-opposition)-20250505-20250507.pdf?sfvrsn=e5369d61_2 |
| 52 | 5/5/2025-5/6/2025 | Various | = | = | 2 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/various-(2-in-support)-20250505-20250506.pdf?sfvrsn=59369d61_2 |
| 53 | 5/6/2025-5/8/2025 | Various | = | = | 31 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/various-(31-in-opposition)-20250506-20250508.pdf?sfvrsn=c83a9d61_2 |
| 54 | 4/22/2025-4/25/2025 | Various | = | = | 60 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/various-(60-in-opposition)-042225-042525.pdf?sfvrsn=2b859d61_3 |
| 55 | 4/23/2025 | Jerry Buchanan | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/jerry-buchanan-20250423.pdf?sfvrsn=37f29d61_3 |
| 56 | 4/25/2025 | Clelia Svoboda | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/clelia-svoboda-20250425.pdf?sfvrsn=84f29d61_3 |
| 55 | 4/25/2025 | Christy Willman | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/christy-willman-20250425.pdf?sfvrsn=d5f29d61_3 |
| 56 | 4/28/2025 | Tom Gervais | Bradford White Corporation | Manufacturer | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/bradford-white-corporation-20250428.pdf?sfvrsn=aff39d61_3 |
| 57 | 4/25/2025-4/29/2025 | Various | = | = | 3 | <a 198="" 540="" 916="" 940"="" data-label="Page-Footer" href="https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/various-(3-</td></tr> </table> </div> <div data-bbox=">PAR 1111 & PAR 1121 Final Staff Report Appendix E-7 |

| Letter | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|--------------------|-------------------------------------|-------------------------------------|---|-------------------------------------|---------------------|---|
| | | | | | | in-opposition)-20250425-20250429.pdf?sfvrsn=dbff9d61_3 |
| 58 | 4/25/2025-4/29/2025 | Various | = | = | 45 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(45-in-opposition)-20250425-20250429.pdf?sfvrsn=f1fd9d61_3 |
| 59 | 4/29/2025-5/1/2025 | Various | = | = | 16 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(16-in-opposition)-20250429-20250501.pdf?sfvrsn=e7e59d61_31 |
| 60 | 3/21/2025 | Sierra Club Members | Sierra Club | Environmental Group | 624 | https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/comment-letter-from-sierra-club-20250320.pdf?sfvrsn=9f79f61_6 |
| 61 | 4/3/2025 | Erin A. Morton | United Way of Greater Los Angeles | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/erin-morton--united-way-040325.pdf?sfvrsn=c57f9e61_3 |
| 62 | 4/4/2025 | Janice Lim | City of Yorba Linda | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/city-of-yorba-linda-040425.pdf?sfvrsn=b3a49d61_3 |
| 63 | 3/30/2025-4/8/2025 | Various | = | = | 88 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(88-in-opposition).pdf?sfvrsn=55a49d61_4 |
| 64 | 4/8/2025 | Connie Perez Moreno | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/connie-perez-moreno-04-08-25.pdf?sfvrsn=ed7f9e61_3 |
| 65 | 4/15/2025 | Jed Holtzman | RMI | Environmental | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/rmi-041525.pdf?sfvrsn=e8429e61_5 |
| 66 | 4/18/2025 | Various | Self | Resident | 283 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou---scaqmd-resident-letters-(283-opposition)-4-18-25.pdf?sfvrsn=fbaf9d61_3 |

| Letter | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|--------------------|-------------------------------------|------------------------------------|---|--------------------------|---------------------|---|
| 67 | 4/22/2025 | Sandra Van Etten | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/sandra-van-etten-042225.pdf?sfvrsn=f4f59d61_3 |
| 68 | 4/25/2025 | John Cruikshank | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/john-cruikshank-20250425.pdf?sfvrsn=b1f29d61_3 |
| 69 | 4/25/2025 | Phillip Delaney | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/phillip-delaney-20250425.pdf?sfvrsn=5f29d61_3 |
| 70 | 4/25/2025 | Tom Eccles | Self | Resident | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/tom-eccles-20250425.pdf?sfvrsn=5cf29d61_3 |
| 71 | 4/11/2025-4/20/2025 | Various | = | = | 9 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/various-(9-in-support)-20250411-20250420.pdf?sfvrsn=28f39d61_3 |
| 72 | 4/11/2025 | Various | = | = | 7 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/various-(7-in-opposition)-20250411-20250422.pdf?sfvrsn=3f39d61_3 |
| 73 | 4/22/2025 | Various | = | = | 760 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/various-(760-in-support)-20250422.pdf?sfvrsn=54f39d61_3 |
| 74 | 4/28/2025 | Various | = | = | 45 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/various-(45-in-opposition)-20250428.pdf?sfvrsn=80f39d61_3 |
| 75 | 4/29/2025 | Katherine Johansen | Trident Management LLC | Business | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/katherine-johansen-20250429.pdf?sfvrsn=32fc9d61_3 |
| 76 | 4/30/2025 | George O'Hara | Cypress Chamber of Commerce | Business | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/cypress-chamber-of-commerce-20250501.pdf?sfvrsn=db29d61_3 |
| 77 | 4/30/2025 | Gloria Pruyne | Eagle Forum of Orange | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/eagle-forum-20250430.pdf?sfvrsn=86e29d61_3 |

| Letter | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|--------------------|------------------------------------|------------------------------------|---|-----------------------------|--------------------|---|
| 78 | 4/26/2025-5/1/2025 | Various | - | - | 12 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/various-(12-in-opposition)-20250426-20250501.pdf?sfvrsn=32e39d61_3 |
| 79 | 4/21/2025 | Daniel M. Yukelson | Apartment Association of Los Angeles County, Inc. | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/aagla-20250421.pdf?sfvrsn=f9e19d61_3 |
| 80 | 4/25/2025 | Sean H. Mill | City of Riverside | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/city-of-riverside-20250425.pdf?sfvrsn=24ee9d61_3 |
| 81 | 5/6/2025 | L. Dennis Michael | City of Rancho Cucamonga | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/city-of-rancho-cucamonga-20250506.pdf?sfvrsn=95cd9d61_3 |
| 82 | 5/6/2025 | David L. Bradley | City of Rancho Palos Verdes | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/city-of-rancho-palos-verdes-20250506.pdf?sfvrsn=46ca9d61_2 |
| 83 | 5/6/2025 | Various | - | - | 4 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/various-(4-in-opposition)-20250506.pdf?sfvrsn=1369d61_2 |
| 84 | 5/7/2025 | Amy Garrett | The Law Office of Amy York Garrett | Other | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/the-law-office-of-amy-york-garrett-20250507.pdf?sfvrsn=c3369d61_2 |
| 85 | 5/6/2025 | Jamey Federico | Association of California Cities Orange County | City/County | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/association-of-california-cities-orange-county-20250506.pdf?sfvrsn=c93d9d61_2 |
| 86 | 5/8/2025 | Ed Molina | Orange County Realtors | Business | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/orange-county-realtors-20250508.pdf?sfvrsn=273a9d61_2 |
| 87 | 5/1/2025 | Various | - | - | 1 | https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/various-(9-in-opposition)-20250501.pdf?sfvrsn=793a9d61_2 |

| Letter | Date Received | Commentor Name | Representing | Category | # of Letters | Link |
|---------------------------|---|---|---|---------------------------------|----------------------------|--|
| <u>88</u> | <u>5/8/2025</u> | <u>Various</u> | <u>=</u> | <u>=</u> | <u>127</u> | <u>https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(127-in-opposition)-20250508.pdf?sfvrsn=573a9d61_2</u> |
| <u>89</u> | <u>5/9/2025</u> | <u>Jonathan Zimmerman</u> | <u>Self</u> | <u>Resident</u> | <u>1</u> | <u>https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/jonathan-zimmerman-20250509.pdf?sfvrsn=af3a9d61_2</u> |
| <u>90</u> | <u>5/7/2025-5/13/2025</u> | <u>Various</u> | <u>=</u> | <u>=</u> | <u>22</u> | <u>https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(22-in-opposition)-20250507-20250513.pdf?sfvrsn=9e149d61_2</u> |
| <u>91</u> | <u>5/9/2025-5/13/2025</u> | <u>Various</u> | <u>=</u> | <u>=</u> | <u>11</u> | <u>https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(11-in-opposition)-20250509-20250513.pdf?sfvrsn=40149d61_2</u> |
| <u>92</u> | <u>5/2/2025-5/9/2025</u> | <u>Various</u> | <u>=</u> | <u>=</u> | <u>7</u> | <u>https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(7-in-opposition)-20250502-20250509.pdf?sfvrsn=f4149d61_2</u> |
| <u>93</u> | <u>5/2/2025-5/8/2025</u> | <u>Various</u> | <u>=</u> | <u>=</u> | <u>3</u> | <u>https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/variou-(3-in-support)-20250502-20250508.pdf?sfvrsn=d2149d61_2</u> |
| <u>94</u> | <u>5/13/2025</u> | <u>Ben Granholm</u> | <u>Cost of Living Council</u> | <u>Other</u> | <u>73</u> | <u>https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/cost-of-living-council-20250513.pdf?sfvrsn=6a149d61_2</u> |
| <u>95</u> | <u>5/14/2025</u> | <u>Alex Gilderman</u> | <u>Gilderman Apartments</u> | <u>Business</u> | <u>1</u> | <u>https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/gilderman-apartments-20250514.pdf?sfvrsn=d3139d61_2</u> |

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RESPONSE TO KEY TOPICS IN THE COMMENT LETTERS

Need for Rule Amendments

For discussion regarding the need for the rule amendments, please refer to Response to General Comment 10 in Appendix A.

Rule Mandate

Opposition letters suggested the rule proposal is a mandate. While the previous version requires all new and replaced units to meet a zero-NOx emission standard, the revised version with the new rule concept removed the zero-NOx emission mandate. The new rule concept includes zero-NOx emission sales targets for manufacturers and will allow for both zero-NOx emission units and NOx-emitting natural gas-fired units to be sold and installed for use. The new rule concept is not a mandate, as consumers can choose which units to install in their homes.

Consumer Choice

For discussion on consumer choice, please refer to Response to General Comment 1 in Appendix A.

Cost and Affordability

Commenters expressed concern on cost and affordability. Some stated the rules are projected to impose more than \$300 million in additional annual expenses in residents, totaling approximately \$7.7 billion over the average 25-year appliance lifespan. For discussion on cost and affordability, please refer to Response to General Comment 2 in Appendix A. Included in the discussion, staff conducted a socioeconomic impact assessment that estimated \$5.14 billion and \$2.68 billion cost savings over the forecast period (i.e., 2027 to 2060), with a discount rate of 1 percent and 4 percent for the present value.

Upfront Cost of Zero-NOx Emission Appliances

Several commenters expressed concern on the upfront cost of zero-NOx appliances citing an upfront cost of \$47,000 to replace zero-NOx emission appliances. Staff relied on the real-world cost data from the TECH Clean California (TECH). TECH is a collection of state funded incentive programs and has collected data on the installation costs for retrofitting heat pumps. Based on the TECH data with thousands of installations in the South Coast AQMD region, combined median costs in 2024 for a zero-NOx emission HVAC and water heater is \$25,000 for a single family home and \$9,000 to \$17,000 for a multi-family home. When assessing the impacts of the rules, staff considers the incremental cost increase of installing a NOx emitting appliance and zero-NOx appliance because the rule only applies at natural appliance replacement. In the case of an HVAC, the replacement costs are equivalent, meaning PAR 1111 would have no cost increase in those instances. A homeowner replacing only a NOx emitting furnace would incur a \$8,000 increase to install a heat pump but gets the added benefit of cooling. A homeowner replacing a NOx emitting water heater with a heat pump water heater would incur a \$2,000 increase; however, incentives and rebates are available and lifetime utility cost savings will help offset the upfront costs. This means the combined incremental cost of both rules would be \$2,000 to \$10,000, lower with incentives.

Electricity Demand and Grid Sustainability

For discussion on electric grid sustainability for meeting demand and addressing concerns on power outages, please refer to Response to General Comment 3 in Appendix A. In addition, staff has held many discussions on the grid with investor-owned utilities, publicly owned utilities, community choice aggregators, and relevant agencies. Southern California Edison conducted a

[projecting potential impacts of these proposed amended rules and similar rulemaking by California Air Resources Board on electricity demand. A discussion with the Imperial Irrigation District revealed multiple ongoing grid improvement projects to address future demand expectations, with space and water heating appliances expected to contribute no immediate concern.](#)

Zero-NOx Emission Technology Readiness

[For discussion on zero-NOx emission technology readiness, please refer to Response to General Comment 4 in Appendix A.](#)

Sufficient Outreach, Public Participation, and Rulemaking Schedule

[For discussion on outreach and rulemaking schedule, please refer to Response to General Comment 5 in Appendix A. Stakeholders can continue to participate in the rulemaking process at future public meetings, including the Public Hearing.](#)

Cost-Effectiveness Analysis

[For discussion on the cost-effectiveness analysis, please refer to Response to General Comment 6 in Appendix A.](#)

EPCA

[EPCA does not preempt the rules. EPCA expressly preempts regulations concerning the energy efficiency or energy use of products for which a federal energy efficiency standard is in place. 42 U.S.C. § 6297\(c\). The Ninth Circuit Court of Appeals recently issued a “very narrow” holding in *California Restaurant Association v. City of Berkeley*, 89 F.4th 1094, 1101, 1106 \(9th Cir. 2024\), that EPCA preempted a local building code prohibiting the installation of natural gas infrastructure in new buildings. The court in Berkeley reasoned that the building code concerned the energy use of covered appliances by regulating the quantity of natural gas they could use. Id. at 1101-02. The court repeatedly emphasized that its holding was “limited” only to building codes that regulate the gas usage of certain consumer appliances. Id. at 1101, 1103, 1106. Indeed, as Judge Baker explained in his concurrence, “EPCA preemption is unlikely to reach a host of state and local regulations that incidentally impact ‘the quantity of natural gas’ directly consumed by a \[covered\] product at point of use.” Id. at 1117.](#)

[Unlike Berkeley’s regulation, PARs 1111 and 1121 are health- and safety-based NOx emission limits on appliances, not regulations of the type of energy appliances may use. The rules are in furtherance of Congress’s direction to the states to attain the National Ambient Air Quality Standards in section 110 of the Clean Air Act by regulating emission sources other than mobile sources. The rules are not building codes, and they do not ban natural gas or otherwise regulate the amount of natural gas used by covered appliances.](#)

[The rules do not prohibit the sale of natural gas-fired units or force a reduction in the number of units sold. Indeed, the rules do not target natural gas-fired units at all, but instead are aimed at reducing the emissions of NOx from appliances, without regard for the type of fuel they use. Equipment that meets the NOx emission limits, regardless of the energy source, is permitted under PARs 1111 and 1121. In fact, the South Coast AQMD has contemplated that natural gas fuel cells could comply with the rule. See PAR 1111 & 1121 Final Staff Report at 2-12. Because the rules do not regulate the quantity of natural gas appliances use, let alone eliminate the use of natural gas as an energy source for appliances, they do not fall within the scope of EPCA preemption as interpreted by the court in CRA. See CRA, 89 F.4th -at 1101.](#)

Contrary to the commenter's argument, the alternative compliance method in PARs 1111 and 1121 also does not effectively ban natural gas appliances. Instead, it allows manufacturers to continue producing non-zero emission appliances, including natural gas appliances, and for consumers to continue purchasing non-zero emission appliances so long as they pay the corresponding mitigation fee. Furthermore, the mitigation fee does not raise the price on non-compliant products to the point that they become unavailable. To the contrary, it preserves consumer choice by continuing to make these appliances available for a fee.

By regulating emissions from appliances, the South Coast AQMD is not "doing indirectly" that which it is preempted from doing directly. Instead, the Rules directly regulate a quantity of emissions from appliances, as the South Coast AQMD has done for decades. EPCA does not preempt regulations that only incidentally impact the quantity of natural gas appliances use. CRA, 89 F.4th at 1117 (Baker, J., concurring).

For discussion on EPCA or concerns on banning natural gas, please refer to Response to General Comment 9 in Appendix A.

Need Stronger Sales Targets for More Emission Reductions

For comments on assessment of sales targets and potential revisions, please refer to Appendix B Response to Comment PC-3.

Delay the Consideration of Rule Adoption

Stakeholders suggest delaying the rule until a thorough feasibility study of lower-NOx alternative, including fuel-neutral pathways, is completed. Please refer to Appendix A Response to General Comment 10. The 2022 AQMP's objective is to transition to zero-emission technologies, wherever feasible, and staff identified technically feasible zero-NOx emission control options for equipment subject to Rules 1111 and 1121. Staff has also met with manufacturers and understand all original equipment manufacturers have both NOx-emitting and zero-NOx emission space and water heating units for the market. Many manufacturers expressed no development plan for lower NOx emission technology when they have zero-NOx emission units to sell. Staff does not agree with the recommendation to delay rule adoption but will assess the zero-NOx emission unit market adoption after each annual reporting cycle from the ZEM alternative compliance option.

Cost-Effective Alternatives

Commenters recommended staff to hold an additional public workshop to provide stakeholders with more opportunities to review and discuss cost-effective alternatives that protect both air quality goals and consumer affordability. Staff recognized that cost-effectiveness for implementing zero-NOx emission limit is high for some cases. -At the Working Group Meeting #8 on February 13, 2025, staff introduced the ZEM alternative compliance option with compliance targets that will allow the sales of both zero-emission electric units and NOx-emitting natural gas-fired units. The discussion of the ZEM alternative compliance option has been conducted in every public meeting since February 13, 2025, including Public Consultation meetings on March 6, 2025 where staff discuss the rule concept and cost assessments for over four hours, the Stationary Source Committee Meetings, and outreach presentations in public meetings of many cities and various organizations.

Manufacturer to Pay the Mitigation Fees for All Sales (Zero-NOx Emission and NOx-emitting)

The original rule concept proposed very limited use of NOx-emitting natural gas units by alternative compliance options, -and manufacturers would be mandated to sell zero-NOx emission units. The new rule concept with the ZEM alternative compliance provides flexibility to

manufacturers for the sales, where mitigation fees will only apply when manufacturers choose to sell NOx-emitting units. There is no fee for manufacturers selling zero-NOx emission units. The alternative compliance option addresses consumer choice, affordability, and allows a gradual transition to new technologies.

Impact of Mitigation Fee on Consumers

Stakeholders suggested that mitigation fees would raise the cost of NOx-emitting natural gas products, making them unaffordable. The mitigation fees are to be paid by the manufacturer; therefore, staff cannot fully predict how the cost will be passed down to consumers for NOx-emitting units. The cost of the base mitigation fee is less than one percent of the estimated installation and equipment cost of a NOx-emitting unit. For the over the target mitigation fee, this is less than 10 percent of the installation and equipment cost of a NOx-emitting unit. For consumers electing to install NOx-emitting units, the SoCalGas energy efficiency program provides incentives for customers to continue to install gas-fired appliances that could offset mitigation fee costs. For consumers electing to install zero-NOx emission appliances, incentives from various programs, including the Go Zero program, will help offset upfront costs making them more affordable. As more consumers install zero-NOx emission appliances, upfront costs are anticipated to decrease.

Charge Mitigation Fee at the Point of Sale or Installation

Manufacturers suggested having the fee applicable at the point of sale or installation for greater business certainty to manufacturers and transparency of the cost to consumers. The mitigation fee is associated with the alternative compliance option. If manufacturers opt-in to the ZEM alternative compliance option, the mitigation fee will be applicable. If manufacturers sell more NOx-emitting units going above the sales targets, the over target higher fee will apply. It is reasonable for manufacturers to pay the mitigation fee according to their compliance decision. Moreover, PAR 1111 and PAR 1121 align with the mitigation fee alternative compliance option utilized in both Rules 1111 and 1121 previously, when manufacturers paid mitigation fees based on their sales. Previous implementation of mitigation fee alternative compliance options proved the feasibility of the proposed mitigation fee structure. Staff believes charging mitigation fees at the point of sale or installation would not be feasible, which could also make enforcement, reporting, recordkeeping, and tracking sales targets less effective.

Flat Mitigation Fee vs. Tiered Base and Over Target Mitigation Fees

Manufacturers suggested having a flat mitigation fee for greater business certainty. A two-tiered approach provides flexibility to allow manufacturers to sell NOx-emitting units over the sales targets. Exceeding targets is not a rule violation, and targets are not hard caps. However, the higher over target fee will incentivizes manufacturers not to exceed the NOx-emitting unit sales target. A flat mitigation fee would not encourage manufacturers to meet the sales targets, it would just maintain a business as usual for the sale of space and water heating appliances.

Tiered Penalty Structure for Over Target Mitigation Fee

Environmental stakeholders suggested to incorporate a tiered non-compliance penalty structure that tiers penalties to the degree of non-compliance for up to \$1,000 fee per unit, to ensure reasonable assurance that their health benefits are realized. Please refer to Appendix B, Response to Comment - PC-4, Response to Comment 43-1, and Response to Comment 29-2. Staff believes the current fee structure strikes a balance between emissions reductions and incentivizing zero-NOx emission units without putting unnecessary hardship on the manufacturers, distributors, retailers, resellers, installers, and consumers. Moreover, the mitigation fee is not a penalty, but

rather a means of recovering part of the cost of offsetting the emissions from a NOX-emitting unit by incentivizing the sale of more zero-emission units, and thus does not exceed the reasonable cost of providing the manufacturer with the benefit of not having to sell exclusively zero-emissions units.

Further Guidance and Regulatory Reporting Requirements

Manufacturers suggested further guidance and regulatory reporting requirements will need to be established to ensure a uniform reporting structure that all impacted manufacturers must follow. Manufacturers are required to submit a report to the Executive Officer and maintain records of the units sold into the South Coast AQMD. For more information regarding the specific requirements for reporting, please refer to the rule language provided along with this staff report. Staff will work with manufacturers to ensure a feasible reporting structure is established.

Impact on Climate Change

For discussion on impact to climate change, please refer to Response to Impact on Climate Change in Appendix D.

Wildfires

For discussion on wildfires, please refer to Appendix D – Wildfires.

Natural Gas-Fired Stoves, Grills, and Other Cooktops

Discussion regarding natural gas-fired stoves, grills, and other cooktops are outside of the scope of this rulemaking.

Natural Gas-Fired Dryers

Discussion regarding natural gas-fired dryers and appliances other than furnaces and water heaters are outside of the scope of this rulemaking.

Electricity Generation with Natural Gas

Staff recognizes that there are externalities for both electric and natural gas production and distribution. Staff also recognizes the need for regulation of emissions from electricity generation. For example, South Coast AQMD Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities, is a rule that aims to lower emissions from electricity generation.

Regarding natural gas systems, natural gas leaks into the atmosphere from natural gas wells, storage tanks, pipelines, and processing plants. In 2020, methane emissions from natural gas and petroleum systems and from abandoned oil and natural gas wells were the source of approximately 33 percent of U.S. methane emissions and approximately four percent of U.S. greenhouse gas emissions. In the South Coast AQMD region, there have been examples of large leaks such as Aliso Canyon, where 109,000 metric tons of methane emissions were released between October 2015 and February 2016.

For this rulemaking, staff did not conduct lifecycle analyses related to the BARCT assessment for either the electricity or natural gas systems as a lifecycle analysis is not required under California Health and Safety Code Section 40406 for a BARCT assessment. However, other organizations have conducted lifecycle analyses which show overall NOx reductions when moving to zero-emissions. A 2021 Northeast States for Coordinated Air Use Management (NESCAUM) study estimating NOx reductions for residential scenarios where fossil fuel-burning furnaces are replaced with heat pumps found significant reductions in NOx along with sulfur dioxide and carbon

dioxide.¹ A 2023 NESCAUM study also found emission reductions for different scenarios.² A 2022 Energy Innovation Policy & Technology study found that switching to heat pumps for industrial processes reduces NOx emissions.³ Due to the high efficiency of zero-NOx emission units, the stricter NOx emission limits for electricity generating facilities, and the increased renewable energy on the California electrical grid, emissions from electrical generation will continue to decline.

Effect of the Rules on Ozone

For discussion on the impact of the proposed amended rules on ground-level ozone formation, please refer to Response to Comment 11-1 in Appendix C.

Securing Permits and Waiting Months Without Hot Water

Please see Response to Appendix A, Response to General Comment 1. The ZEM alternative compliance option allows consumers to choose to install NOx-emitting appliances, where installation of zero-NOx emission appliances may be cost-prohibitive.

Housing Affordability

For discussion on affordability and cost, please refer to Appendix A Response to General Comment 2. For information regarding rent stabilization and tenant protections, please refer to Chapter 3 of the Staff Report.

Rule 1146.2

The proposed rule amendments are for Rule 1111 and Rule 1121.

Use of Natural Gas Appliances During Power Outages

For discussion on use of NOx-emitting appliances during a power outage, please refer to Appendix A, Response to General Comment 3.

Mitigation Fee is a Tax

The proposed fee in the rules' alternative compliance method is not a tax. The California Constitution states that any charge that a government agency imposes on a payor is a tax requiring voter approval unless it comes within an exception. Cal. Const. art. XIII §1(e). However, the fee in the PARs is a purely voluntary alternative to complying with the zero-emission standard in the rules. In other words, contrary to the commenter's assertion that manufacturers will be coerced into paying the fee, they will have the choice to sell zero-emission appliances and avoid the fee, or sell non-emitting appliances so long as they pay the fee. Because manufacturers must choose to pay the fee, it is an in-lieu fee. As such, the South Coast AQMD need not show that the fee qualifies for an exception under Prop. 26. See *Cal. Bldg. Indus. Ass'n v. City of San Jose*, 61 Cal.4th 435, 477 (2015); *616 Croft Ave., LLC v. City of W. Hollywood*, 3 Cal. App. 5th 621, 628–29 (2016).

Nevertheless, the fee *does* fit within an exception to Prop 26's definition of tax. In particular, the fee qualifies as one "imposed for a special benefit conferred or privilege granted directly to the

¹ NESCAUM, Estimating the Emissions Benefits of Switching to Heat Pumps for Residential Heating, <https://otcair.org/upload/Documents/Reports/nascaum-otc-emission-reduction-analysis-for-residential-heating-202106.pdf>

² NESCAUM and OTC, Residential Building Electrification in the Northeast and Mid-Atlantic, <https://otcair.org/upload/Documents/Reports/Residential%20Building%20Electrification%20Final%20Report%20August%202023.pdf>

³ Energy Innovation Policy & Technology LLC, <https://energyinnovation.org/wp-content/uploads/2022/10/Decarbonizing-Low-Temperature-Industrial-Heat-In-The-U.S.-Report-2.pdf>

payor that is not provided to those not charged, and which does not exceed the reasonable costs to the local government of conferring the benefit or granting the privilege.” Cal. Const. art. XIII § 1(e)(1). The amount of the fee may be “no more than necessary to cover the reasonable costs of the governmental activity,” and the costs allocated to the payor must bear a “fair or reasonable relationship” to the benefits the payor receives. Cal. Const. art. XIII.

The proposed fee in PARs 1111 and 1121 satisfies each of these requirements. First, it will be charged only to those who receive the privilege of avoiding the zero-emission limit and continuing to sell NOx-emitting appliances. Second, the amount of the fee in aggregate is less than the aggregate cost of the “government activity”—namely, providing subsidies to purchase zero-emission appliances to offset the NOx-emissions generated by the fee payors. See *Great Oaks Water Co. v. Santa Clara Valley Water Dist.*, 110 Cal. App. 5th 260, 2025 WL 969510 at *14-17 (Feb. 28, 2025). The commenter asserts that the amount of the fee is too high relative to the cost of the appliances. The South Coast AQMD disagrees, as the fee is less than 1% of typical installation costs. But, in any event, that is not the relevant inquiry, and here the fee satisfies the relevant requirement. And third, the costs are fairly allocated across the manufacturers who elect to participate in the alternative compliance method, as the fees will be paid for each non-zero emission appliance sold.

Updating the Discount Rate for the Socioeconomic Analysis

During the discussion of PAR 1111 and PAR 1121 at the April 18, 2025 Stationary Source Committee meeting, there was a question about why the interest rate range of 1%-4% was relied upon in the Draft Socioeconomic Impact Assessment.⁴ It is important to clarify that the real interest rate range of 1%-4%, is not outdated because it takes into account the average real interest rate in the U.S. over the last thirty years and its fluctuation over time.

This comment appears to confuse interest rates with discount rates. Interest rates and discount rates are two different financial concepts. An interest rate represents the percentage charged or earned on money over time, while a discount rate is used to determine the present value of future cash flows. Further, the 3%-7% interest rates mentioned in this comment are referring to nominal interest rates.

To understand the relationship between real interest rates and nominal interest rates, please refer to the following equation:

$$\text{Nominal Interest Rate} = \text{Real Interest Rate} + \text{Inflation Rate}$$

For example, the nominal interest rate range of 4%-7% is the result of adding the real interest rate range of 1%-4% to the 3% inflation rate for California in 2024.

Nominal interest rates are published rates such as those advertised by a bank, on websites, for a mortgage, etc. As such, the 4%-7% nominal interest rates represent the current rates available on the market. All the costs in the Socioeconomic Impact Assessment are presented in real terms, adjusted for inflation to 2024 dollars; the real interest rates are used in the amortization or annualization process. For projects which have long implementation timelines, which is the case with PAR 1111 and PAR 1121, there is no reliable way to forecast inflation rates. For this reason,

⁴ Agenda No. 21, Stationary Source Meeting Minutes – April 18, 2025, Update on Proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces and Proposed Amended Rule 1121 – Reduction of NOx Emissions from Residential Type, Natural Gas-Fired Water Heaters, <https://www.aqmd.gov/docs/default-source/agendas/governing-board/2025/2025-apr4-021.pdf>, accessed May 2025.

the analysis in the Socioeconomic Impact Assessment relies on real costs adjusted for inflation and real interest rates in the process of amortization.

In addition, the analysis in the Socioeconomic Impact Assessment relies on discount rates which consider the real rate of return on long-term U.S. government debt, risk and the long period of analysis among others, which is consistent with guidance provided in Circular No. A-4.⁵

Mitigation Fee Hard to Implement

Rules 1111 and Rule 1121 have implemented a mitigation fee when reducing the emissions limits from 40 ng/J to 14 ng/J for Rule 1111 and to 10 ng/J for Rule 1121. The mitigation fee would be implemented and enforced in a similar way as previously done.

Rule Will Ban Gas Products if a Manufacturer Doesn't Participate in the Alternative Pathway

All manufacturers currently sell both natural gas units and zero-NOx emission units. Through discussions with manufacturers, staff understands that manufacturers will provide products based on market demand. If there is demand for gas products, manufacturers will participate in the alternative compliance option.

Lack of Health Benefit

For a discussion on health benefits, please refer to the section titled, “Macroeconomic Impacts on the Regional Economy,” of the Socioeconomic Impact Report. This section includes a health benefits subsection, which includes the analysis and explanation of methodologies. Briefly, PAR 1111 and PAR 1121 are anticipated to prevent approximately 2,490 premature mortalities, which is an estimated monetized present value of \$25.43 billion.

Residents are Forced to Change Out Their Space and Water Heating Units Upon Rule Adoption

PAR 1111 and PAR 1121 are regulated through the supply chain, i.e., manufacturer, distributor, and installer. Residents are only impacted by the rules when they need to replace their space and water heating appliances, e.g., at the end of the equipment lifetime. For instance, if a resident owns and operates a NOx-emitting furnace and/or water heater beyond the compliance dates, they can continue to use the furnace and/or water heater until it needs to be replaced (e.g., due to breakdown). Residents are not forced to change out their space and water heating units at any time. In addition, PAR 1111 and PAR 1121 provide residents with the option to choose between NOx-emitting gas units and zero-NOx emission units when residents need to change their space and water heating units.

Mountain Communities at High Altitudes

For discussion on mountain communities and high altitude, please refer to Appendix A Response to Comment 8.

Labor Shortages in the HVAC Industry

Because of the ZEM alternative compliance option, both installers of NOx-emitting and zero-NOx emission appliances will be able to continue to conduct business in the HVAC industry. As the adoption of zero-NOx emission appliances increases, installers within the HVAC industry may also increase to adjust with the transition. Manufacturers provide installer training for their newer technologies and the Go Zero Incentive Program also has an upcoming installer training portion to better prepare the workforce for zero-NOx emission appliance installations.

⁵ Circular No. A-4, Regulatory Analysis - November 9, 2023, p.76, <https://whitehouse.gov/wp-content/uploads/2023/11/CircularA-4.pdf>, accessed May 2025.

Rules Will Have Positive Impact on Local Air Pollution

PAR 1111 and PAR 1121 is estimated to reduce NOx emissions by about 6 tons per day at full implementation. For health impacts associated with the emissions reductions, please refer to Attachment K, Final Socioeconomic Impact Assessment.

Staff Report Fails to Include Cost of Electrical Upgrades

Chapter 3 of the staff report includes project costs, which includes any equipment, installation, and any electrical service upgrades needed for installation.

The following letters were included in the Draft Staff Report released on April 1, 2025. The letters have been struck out here, added to the table at the beginning of this Appendix, and provided responses above.

~~COMMENT LETTER #1: JESSE BIEBESHEIMER~~

Marissa Poon

From: Jennifer Vinh
Sent: Tuesday, March 25, 2025 8:32 AM
To: [REDACTED]
Subject: FW: Contact Form

From: South Coast AQMD <[REDACTED]>
Sent: Sunday, March 23, 2025 4:01 PM
To: Jennifer Vinh <jvinh@aqmd.gov>
Subject: Contact Form

Contact Form

Name: Jesse Biebesheimer

Email: [REDACTED]

Phone: [REDACTED]

Message:

As a long time resident of Huntington Beach, I am writing to voice my opposition to the Proposed Amended Rules 1111 and 1121. I already live in an area subject to the SCAQMD's strict requirements for Ultra-low NOx emitting water heaters and furnaces. I am opposed to further banning or restricting gas-fueled appliances for existing homes, as is proposed. Furnaces and water heaters are essential appliances in every household. Driving the costs higher though mandates and bans is

not fair to lower-income residents. Consumers should be incentivized to adopt these theoretically lower-emission technologies, but they should not be mandated to do so, and traditional gas-fueled products should not be "banned" or removed from the market. This simply serves to limit choice and drive up consumer prices. Furthermore, when such an appliance breaks down, replacement is typically urgent, stressful, and already very costly. It is not appropriate to force homeowners in need of an urgent replacement to suddenly have to search for electrical contractors to simultaneously replace their electrical panels and wiring in order to accomplish the installation of an electric water heater, furnace, or heat pump. Consumers should have the freedom to do a like-for-like replacement when one of these products breaks down and needs replacement. Even an exception for repairs is not sufficient -- it will drive homeowners to continue to "put bandaids" on problems, when a more cost effective long-term solution is replacement with a brand new similar unit. It may be reasonable to mandate these changes in brand new construction, but not for existing homes making periodic maintenance replacements. Thank you for your consideration of this viewpoint. Regards, Jesse Biebesheimer Homeowner Huntington Beach, California

COMMENT LETTER #2: NATIONAL DIVERSITY COALITION

March 26, 2025

Hon. Vanessa Delgado, Chair
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: OPPOSE – Proposed Amended Rules 1111 & 1121 - as released February 28

Dear Chair Delgado and Governing Board Members:

On behalf of the National Diversity Coalition, we write to express our opposition to the proposed amendments to Rules 1111 and 1121. National Diversity Coalition is an empowering voice for our nation's minority and low-income communities, particularly in California, at every level of government and within the business community.

While the latest rule concept attempts to move in the right direction, it fails to address many of the fundamental concerns we have with the proposed amendments.

Beyond the initial cost of the appliances, the amendments do not account for fo on homeowners, renters, and business owners—many of whom can least afford it.

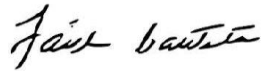
Additionally, we are deeply concerned about the increased strain these rules will place on an already aging electrical grid. This grid not only relies on nonrenewable sources, such as natural gas to generate power, but is also ill-equipped to handle excessive new demand, posing a significant public safety risk. Residents have already endured frequent blackouts and service interruptions, and since 2015, electric power lines have caused six of the 20 most devastating wildfires in our community. Furthermore, numerous residential and commercial projects are currently on hold due to a lack of available power.

Many Southern California families are already struggling with high living costs, and mandating costly retrofits or replacements will only exacerbate financial hardships. These rules disproportionately impact lower-income households, which are the least able to afford such expenses.

While we understand and support the Air District's efforts to improve air quality, the proposed amendments would impose an undue and significant burden on homeowners, renters, and small businesses.

Thank you for your time and consideration. We respectfully urge the Board to explore alternative approaches that balance air quality improvements with economic feasibility for all residents.

Sincerely,



Faith Bautista

President & Chief Executive Officer, National Diversity Coalition

Email: faith@nationaldiversitycoalition.org

COMMENT LETTER #3: ROY PROFITT**Marissa Poon**

From: Emily Yen
Sent: Thursday, March 27, 2025 8:58 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: FW: Contact Form

From: [REDACTED] <[REDACTED]>
Sent: Friday, March 21, 2025 6:59 PM
To: Emily Yen <EYen@aqmd.gov>
Subject: Contact Form

Contact Form

Name: ROY PROFITT

Email: [REDACTED]

Phone: [REDACTED]

Message:

I urge a NO vote. There isn't a climate emergency, our state is ran by fruits and nuts. They continue to imagine foolish and strange conditions which don't exist in our world. Our governor has tried to make the once Golden State a 3rd world country. We have homeless people everywhere (that is a concern), we can't get medical appointments for several months, illegals are living here,

and some people want to ban gas water heaters (don't be deceived). Do the morally right thing and VOTE NO!

COMMENT LETTER #4: VARIOUS

To: Carlos Rodriguez, Curt Hagman, Larry McCallon, Manuel Perez, Michael Cacciotti, Patricia Lock Dawson, Vanessa Delgado, Janet Nguyen, Brenda Olmos, Jennifer Vinh

Subject: URGENT: Please Oppose Rules 1111 & 1121

I am writing as a South Coast Air Basin resident in strong opposition to Proposed Amended Rules 1111 & 1121. These rules directly affect the general public, not just large facilities or industries but homeowners and renters, like me.

Under newly amended proposed Rules 1111 and 1121, the consumer will still be left with a higher price tag, and in this case, it will be the renters and homeowners who bear the brunt of the manufacturer's fee at the end of the day.

Additionally, upgrading buildings with new electric appliances and wiring is a costly process, which I understand is very likely in excess of \$30,000 or more per unit. These high costs will likely lead to rent increases, placing additional financial pressure on tenants in a region already struggling with housing affordability. At a time when the housing market is already under strain, increased costs and the potential for tenant displacement will only make it more challenging for renters and landlords alike, worsening Southern California's housing affordability crisis.

With this added ruling, SCAQMD just added to the cost of living crisis by creating an impossible scenario where Southern California residents must decide between 1) having to install a more costly electric heat pump with an estimated price tag of \$6,000 or 2) replacing their current gas water heater at an average cost of ~~\$1500 or more plus additional fees!~~

Beyond the higher purchase cost, consumers will also need to secure permits if they choose the electric route, which could mean waiting for months without hot water or having to rent a temporary heat pump in the meantime. These rules apply not only to water heaters but also to space heating, adding to the burdens already imposed by recent rules on pool heaters.

Finally, I know my friends, neighbors, and most residents are unaware of the upcoming requirements and the significant costs involved. Despite holding public workshops, the SCAQMD has not conducted sufficient outreach to inform and engage the broader community. Without targeted communication through mainstream media and other accessible channels, residents who are directly impacted have not and will not have an adequate opportunity to understand or voice concerns about these extremely expensive rules.

Thank you for your time and consideration.

I respectfully urge the Board to oppose Rules 1111 & 1121.

| FIRST NAME | LAST NAME | ADDRESS | CITY | ZIP | EMAIL |
|------------|-------------------|------------|------------------|-------|------------|
| Vanessa | Cisneros | [REDACTED] | Walnut | 91789 | [REDACTED] |
| Jessica | Coonrod | [REDACTED] | Chino | 91710 | [REDACTED] |
| Kim Joseph | Cousins | [REDACTED] | Lake Elsinore | 92530 | [REDACTED] |
| Cesar | Khandjian | [REDACTED] | Temecula | 92592 | [REDACTED] |
| Luis | Garcia | [REDACTED] | San Bernardino | 92410 | [REDACTED] |
| Elena | Fowler | [REDACTED] | PALM DESERT | 92260 | [REDACTED] |
| John | Weithas | [REDACTED] | Pasadena | 91105 | [REDACTED] |
| Samantha | Argosino | [REDACTED] | Chino Hills | 91709 | [REDACTED] |
| Tina | Javid | [REDACTED] | Chino Hills | 91709 | [REDACTED] |
| Craig | Snow | [REDACTED] | Redondo Beach | 90277 | [REDACTED] |
| Craig | Michael | [REDACTED] | Chino Hills | 91709 | [REDACTED] |
| Mae | Gentry | [REDACTED] | Burbank | 91501 | [REDACTED] |
| Monica | Lopez | [REDACTED] | San Bernardino | 92408 | [REDACTED] |
| ROBERT | EVANS | [REDACTED] | laguna hills | 92653 | [REDACTED] |
| VICKIE | TALLEY | [REDACTED] | Laguna Hills | 92653 | [REDACTED] |
| Gerry | Gutierrez | [REDACTED] | Pico Rivera | 90660 | [REDACTED] |
| Lisa | Gutierrez | [REDACTED] | Pico Rivera | 90660 | [REDACTED] |
| Eric | Rivera | [REDACTED] | Pico Rivera | 90660 | [REDACTED] |
| Bianca | Rivera | [REDACTED] | Whittier | 90605 | [REDACTED] |
| Kristine | Scott | [REDACTED] | Rancho Cucamonga | 91730 | [REDACTED] |
| Ron | Henderson | [REDACTED] | West Hills | 91304 | [REDACTED] |
| Louisa | Henry | [REDACTED] | Newhall | 91321 | [REDACTED] |
| Kelly | Laird | [REDACTED] | Seal Beach | 90740 | [REDACTED] |
| Denny | Rockwell | [REDACTED] | Placentia | 92870 | [REDACTED] |
| Darci | Castillejos | [REDACTED] | Menifee | 92585 | [REDACTED] |
| Tracey | Garamone | [REDACTED] | Murrieta | 92563 | [REDACTED] |
| Wenjiao | Ma | [REDACTED] | Irvine | 92602 | [REDACTED] |
| Mary | King-Batiste | [REDACTED] | Bellflower | 90706 | [REDACTED] |
| Nancy | Lulejian Starczyk | [REDACTED] | Los Angeles | 91326 | [REDACTED] |
| Robin | Clinch | [REDACTED] | Long Beach | 90804 | [REDACTED] |
| Hanh | Truong | [REDACTED] | Moreno Valley | 92551 | [REDACTED] |
| Connie | Berduo | [REDACTED] | Whittier | 90606 | [REDACTED] |

| | | | | | |
|---------|----------------|------------|------------------|-------|------------|
| Wendy | Lin | [REDACTED] | Placentia | 92870 | [REDACTED] |
| Renate | Holloway | [REDACTED] | Anaheim | 92801 | [REDACTED] |
| Sally | Ragan | [REDACTED] | Diamond Bar | 91765 | [REDACTED] |
| Julia | Huntsman | [REDACTED] | Long Beach | 90809 | [REDACTED] |
| Lou | Thomas | [REDACTED] | Yorba Linda | 92886 | [REDACTED] |
| Donald | Rabbitt | [REDACTED] | Yorba Linda | 92887 | [REDACTED] |
| Cheri | Kelley | [REDACTED] | Norwalk | 90650 | [REDACTED] |
| Ron | Berger | [REDACTED] | Manteca | 95336 | [REDACTED] |
| Will | Alarcon | [REDACTED] | Walnut | 91710 | [REDACTED] |
| Shirley | Yeh | [REDACTED] | Chino | 91710 | [REDACTED] |
| Carlos | Barron | [REDACTED] | La Mirada | 90638 | [REDACTED] |
| Celia | Rangel | [REDACTED] | Orange | 92867 | [REDACTED] |
| cesar | Llanes | [REDACTED] | Walnut | 91789 | [REDACTED] |
| Neal | Gagliano | [REDACTED] | Huntington Beach | 92649 | [REDACTED] |
| Joe | Liuzzi | [REDACTED] | Orange | 92869 | [REDACTED] |
| xiomara | vasquez | [REDACTED] | Chino Hill | 91709 | [REDACTED] |
| Cesar | Caballero | [REDACTED] | La Habra | 90831 | [REDACTED] |
| Elvia | Alvarez | [REDACTED] | 18726 Aguiro St | 91748 | [REDACTED] |
| Diane | Todd | [REDACTED] | Menifee | 92586 | [REDACTED] |
| Sylvia | Cruz-Ron | [REDACTED] | Chino Hills | 91709 | [REDACTED] |
| patrick | chen | [REDACTED] | walnut | 91789 | [REDACTED] |
| Nittaya | Pichedvanichok | [REDACTED] | Irvine | 92602 | [REDACTED] |
| SUE-HWA | LIU | [REDACTED] | Tustin | 92780 | [REDACTED] |
| Bob | Arneal | [REDACTED] | Anaheim Hills | 92807 | [REDACTED] |
| Laura | Greene | [REDACTED] | Rancho Cucamonga | 91701 | [REDACTED] |
| Raul | Lozano | [REDACTED] | Fontana | 92337 | [REDACTED] |
| Lucy | Ramirez | [REDACTED] | Santa Ana | 92704 | [REDACTED] |
| Carl | NALBONE | [REDACTED] | Long Beach | 90803 | [REDACTED] |
| Dominic | Nguyen | [REDACTED] | Pomona | 91766 | [REDACTED] |
| Scott | Chaplin | [REDACTED] | Orange | 92867 | [REDACTED] |
| Lin | Yann | [REDACTED] | Anaheim | 92804 | [REDACTED] |
| Shannon | Sternagle | [REDACTED] | Long Beach | 90808 | [REDACTED] |
| Kelly | McConnell | [REDACTED] | Santa Ana, CA | 92706 | [REDACTED] |
| Desiree | Jones | [REDACTED] | Laguna Niguel | 92677 | [REDACTED] |

| | | | | |
|----------------------|------------|------------------|-------|------------|
| Heidi Burns | [REDACTED] | Long beach | 90853 | [REDACTED] |
| Carol Laughlin | [REDACTED] | Yorba Linda | 92886 | [REDACTED] |
| Nancy Lucia | [REDACTED] | Tustin | 92780 | [REDACTED] |
| Jennifer Pilon | [REDACTED] | Fullerton | 92831 | [REDACTED] |
| Theresa Miller | [REDACTED] | Bellflower | 90706 | [REDACTED] |
| Raymond Sonoda | [REDACTED] | Lakewood | 90713 | [REDACTED] |
| sharon tai | [REDACTED] | la mirada | 90638 | [REDACTED] |
| Graciela Ricaud | [REDACTED] | Fullerton | 92833 | [REDACTED] |
| WEN KAI SUNG | [REDACTED] | Walnut | 91789 | [REDACTED] |
| Bruce Wen | [REDACTED] | TORRANCE | 90501 | [REDACTED] |
| Rosalina Laguna | [REDACTED] | Montclair | 91763 | [REDACTED] |
| Patricia LaFosse | [REDACTED] | Covina | 91724 | [REDACTED] |
| CathyLyn Brooks | [REDACTED] | Huntington Beach | 92649 | [REDACTED] |
| Debra Greco | [REDACTED] | Long Beach | 90803 | [REDACTED] |
| Lisa Dunn | [REDACTED] | Long Beach | 90807 | [REDACTED] |
| Marina RL | [REDACTED] | Diamond Bar | 91765 | [REDACTED] |
| Suzanne Daley | [REDACTED] | Temecula | 92592 | [REDACTED] |
| Beena Khakhria | [REDACTED] | Phillips Ranch | 91766 | [REDACTED] |
| Kate Johansen | [REDACTED] | Tustin | 92780 | [REDACTED] |
| Clervil Heraux | [REDACTED] | Signal Hill | 90755 | [REDACTED] |
| AMIE CHEN | [REDACTED] | Hacienda Heights | 91745 | [REDACTED] |
| JACQUELYN WILSON | [REDACTED] | West Covina | 91790 | [REDACTED] |
| Phil Schaefer | [REDACTED] | Santa Ana | 92706 | [REDACTED] |
| Matt Mayo | [REDACTED] | Long Beach | 90804 | [REDACTED] |
| JUDY BARR | [REDACTED] | ORANGE | 92869 | [REDACTED] |
| Raymond Daitch | [REDACTED] | Irvine | 92612 | [REDACTED] |
| Melvin Steiner | [REDACTED] | Santa Ana | 92706 | [REDACTED] |
| Loree Swanenburg | [REDACTED] | Rossmoor | 90720 | [REDACTED] |
| John Villaescusa | [REDACTED] | NORWALK | 90650 | [REDACTED] |
| Marvin Byrne | [REDACTED] | Whittier | 90601 | [REDACTED] |
| Amanda Lazo | [REDACTED] | Loma Linda | 92354 | [REDACTED] |
| Matt Brown | [REDACTED] | Grand Terrace | 92313 | [REDACTED] |
| Cooper Strull | [REDACTED] | Newport Beach | 92660 | [REDACTED] |
| Kate Yust | [REDACTED] | Tustin | 92780 | [REDACTED] |
| Lori Carraway | [REDACTED] | Tustin | 92780 | [REDACTED] |
| James Larsen | [REDACTED] | Loma Linda | 92373 | [REDACTED] |
| Ranae Larsen | [REDACTED] | Loma Linda | 92373 | [REDACTED] |
| Anne Larsen | [REDACTED] | Loma Linda | 92354 | [REDACTED] |
| Jessica Rood | [REDACTED] | San Clemente | 92672 | [REDACTED] |
| Michaeljohn Martinez | [REDACTED] | Chino | 91710 | [REDACTED] |

| | | | | | |
|------------|------------|------------|----------------|-------|------------|
| Jacqueline | Fernandez | [REDACTED] | Chino | 91710 | [REDACTED] |
| Cherie | Pondoff | [REDACTED] | Murrieta | 92563 | [REDACTED] |
| Nicole | Suydam | [REDACTED] | Aliso Viejo | 92656 | [REDACTED] |
| Michelle | Murphy | [REDACTED] | Irvine | 92614 | [REDACTED] |
| Steve | Horn | [REDACTED] | San Diego | 92129 | [REDACTED] |
| Frances | Dunn | [REDACTED] | Villa park | 92861 | [REDACTED] |
| Russell | Tao | [REDACTED] | Whittier | 90603 | [REDACTED] |
| Kelly | Turbeville | [REDACTED] | Trabuco Canyon | 92679 | [REDACTED] |
| Galen | Alldrin | [REDACTED] | Ballico | 95303 | [REDACTED] |
| Danielle | Corliss | [REDACTED] | Dove Canyon | 92679 | [REDACTED] |

COMMENT LETTER #5: VALLEY INDUSTRY & COMMERCE ASSOCIATION

March 27, 2025

Hon. Vanessa Delgado, Chair
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

SUBJECT: OPPOSE – Proposed Amended Rules 1111 & 1121 - as released February 28

Dear Chair Delgado and Governing Board Members,

On behalf of the Valley Industry & Commerce Association (VICA), we write to express our strong opposition to Proposed Amended Rules (PAR) 1111 and 1121. Our concerns are based on the revised language released on February 28, 2025, and the negative impact these rules pose for the region's economic vitality.

While we understand and support efforts to improve air quality, the current amendments create disproportionate and unnecessary financial burdens for businesses and working families—particularly in the form of increased compliance costs, higher consumer prices, and costly retrofits.

The amended rules would either require consumers to switch to significantly more expensive "all-electric" space and water heaters or face increased costs passed down by manufacturers paying compliance fees to continue offering natural gas appliances. These policies ignore market realities and affordability challenges, placing businesses—especially small businesses and property owners—in an impossible position.

Projected to cost over \$300 million annually, or \$7.7 billion over 25 years, these rules will severely impact businesses that are already operating on thin margins. This is especially concerning in a region like Southern California, where commercial tenants and landlords are already grappling with high energy bills, inflationary pressures, and a challenging regulatory environment.

An alternative path—such as establishing ultra-low NOx emission standards for natural gas appliances—could achieve meaningful environmental outcomes without forcing costly technology shifts or disrupting established markets. This approach would also allow manufacturers and businesses to innovate within existing infrastructure, avoiding unnecessary grid strain and capital expenditures.

Moreover, the amendments fail to consider the massive retrofitting costs that would fall on commercial property owners, multifamily housing operators, and small businesses occupying older structures. These infrastructure changes could cost tens of thousands of dollars per building and pose significant logistical challenges in areas with outdated electrical systems or limited power access.

The additional burden on California's aging and overstressed electrical grid also raises major concerns. Many business developments are already delayed due to energy constraints, and these rules will only exacerbate the issue by accelerating demand without sufficient infrastructure investment. As we've seen, unreliable power supply leads to operational disruptions, safety hazards, and even contributes to catastrophic wildfires.

Southern California businesses are working hard to remain competitive in a high-cost environment. Saddling them with aggressive mandates that offer limited flexibility and significant expense undermines economic development, workforce stability, and our region's ability to grow sustainably.

Valley Industry & Commerce Association • 16600 Sherman Way, Suite 170 Van Nuys, CA 91406 • phone: 818.817.0545 • fax: 818.907.7934 • www.vica.com



VICA urges the Board to reconsider this one-size-fits-all regulatory approach and instead engage with stakeholders to develop pragmatic solutions that protect both the environment and our local economy.

Sincerely,

A handwritten signature in black ink, appearing to read 'Stuart Waldman', is written over a horizontal line.

Stuart Waldman
VICA President

Valley Industry & Commerce Association • 16600 Sherman Way, Suite 170 Van Nuys, CA 91406 • phone:
818.817.0545 • fax: 818.907.7934 • www.vica.com

COMMENT LETTER #6: CARSON CHAMBER OF COMMERCE

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Premier Printing & Graphics

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Andy Stanley
Morgan Stanley

Vice Chair, Government Affairs
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Watson Land Company

Vice Chair, Leadership Carson

Kubi Karul
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Dignity Health Sports Park

**Vice Chair, Economic
Development**

Michael Stewart
M & B Associates

Vice Chair, Special Events
Lena Whittaker

Magnificent Events

Directors

Jean Bell
CM Ministerial Consulting

Ben Brower
Ineos Polypropylene

Norwood Clark
Darrow's New Orleans Grill

Ralph Felix
California Water Service Co.

Julio Flores
DoubleTree by Hilton Carson

Lyman Fox
Kaiser Permanente, South Bay

Victor Ibarra
Marathon

Tami Lorenzen-Fanselow
Price Transfer, Inc.

Derrick Mims
CSU Dominguez Hills

Shannon Moody
Air Products & Chemicals

Mariane Torhus
IKEA US West, Inc

March 28, 2025

Hon. Vanessa Delgado, Chair
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: OPPOSE – Proposed Amended Rules 1111 & 1121 - as released February 28

Dear Chair Delgado and Governing Board Members:

On behalf of Carson Chamber of Commerce, we write to express our opposition to Proposed Amended Rules (PAR) 1111 and 1121. Our opposition is reflective of the revised language officially released on February 28, 2025, and discussed at subsequent hearings.

While the latest amendments attempt to move in the right direction, they fail to address many of the fundamental concerns we have with the proposed amendments.

SCAQMD Amended Rules 1111 and 1121 mandate higher costs on consumers. Both amended rules force consumers to choose a much more expensive option of "all-electric" space and water heaters that cost thousands more than natural gas appliances or require consumers to pay higher costs, through the fees imposed on manufacturers, to continue using natural gas furnaces and water heaters.

These amended rules will burden consumers with over \$300 million annually or \$7.7 billion over the 25-year life of these appliances. With California's soaring cost of living and many consumers struggling to keep up, now is not the time to impose additional costs on consumers.

A better approach to reducing NOx emissions would be to impose ultra-low NOx emission standards to make natural gas appliances even more environmentally friendly at no additional cost to consumers.

Beyond the initial cost of the appliances, the amendments do not account for the substantial ~~retrofit and infrastructure upgrade expenses that owners of older homes will have to bear to~~ accommodate the new technology. These costs could amount to tens of thousands of dollars, placing an undue financial burden on homeowners, renters, and business owners, many of whom can least afford it.

Additionally, we are deeply concerned about the increased strain these rules will place on an already aging electrical grid. This grid not only relies on nonrenewable sources, such as natural gas, to generate power, but is also ill-equipped to handle excessive new demand, posing a significant public safety risk. Residents have already endured frequent blackouts and service interruptions, and since 2015, electric power lines have caused six of the 20 most devastating wildfires in our community. Furthermore, numerous residential and commercial projects are currently on hold due to a lack of available power.

Many Southern California families are already struggling with high living costs, and mandating costly retrofits or replacements will only exacerbate financial hardships. These rules disproportionately impact lower-income households, which are the least able to afford such expenses.

While we understand and support the Air District's efforts to improve air quality, the proposed amendments would impose an undue and significant burden on homeowners, renters, and small businesses.

Thank you for your time and consideration. We respectfully urge the Board to oppose Proposed Amended Rules 1111 and 1121 and explore alternative approaches that balance air quality improvements with economic feasibility for all residents.

Sincerely,

A handwritten signature in blue ink that reads 'Leah Skinner'.

President

Working Together for Growth and Prosperity
530 E Del Amo Blvd., Carson, CA 90746 (310) 217-4590
www.CarsonChamber.com

~~COMMENT LETTER #7: PASADENA CHAMBER OF COMMERCE AND CIVIC ASSOCIATION~~

March 28, 2025

Hon. Vanessa Delgado, Chair
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: PLEASE OPPOSE – Proposed Amended Rules 1111 and 1121 - February 28 Versions

Dear Chair Delgado and Governing Board Members,

The Board of Directors of the Pasadena Chamber of Commerce and Civic Association opposes the proposed Amended Rules PAR 1111 and PAR 1112.

Despite the changes to the rules we remain opposed. While we do appreciate the amendments, they are simply not enough for us to support or even remain neutral about Rules 1111 and 1121.

SCAQMD Amended Rules 1111 and 1121 force higher costs on consumers. When people are faced with increasing costs for everyday needs, imposing rules that would significantly increase costs for heaters seems almost punitive.

We all recognize the impacts climate change is having on Southern California. We also understand that we all need to amplify our efforts to reduce greenhouse gas emissions. But, we need to balance that with cost considerations and an understanding of the impacts to everyday people and their household economies.

Thank you for your service to Southern California. Your time and expertise is very much appreciated.

The Board of Directors of the Pasadena Chamber of Commerce and Civic Association respectfully urges the AQMD Board to explore different approaches that balance air quality improvements with economic reality facing residents.

Sincerely,

A blue ink signature of Paul Little, consisting of a stylized, flowing line.

Paul Little
President and Chief Executive Officer

cc: Members of the AQMD Governing Board

44 North Mentor Avenue ■ Pasadena, California 91106-1745
626-795-3355 ph ■ 626-795-5603 fax ■ www.pasadena-chamber.org

COMMENT LETTER #8: ERIN PAK (KHEIR CLINIC)

March 21, 2025

Stationary Source Committee, South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Proposed Amended Rule 1111 & Amended Rule 1121 - OPPOSE

Dear Members of the Stationary Source Committee,

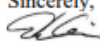
On behalf of nearly 22,000 indigent residents of Los Angeles we serve at Kheir Clinic, we are writing to express our opposition to the Proposed Amended Rules 1111 and 1121. While we recognize that this legislation is regional in scope, the Proposed Rule Concept and Mitigation Fees will have a disproportionate impact on low-income and underserved communities. The rules appear to heavily favor zero-NOX equipment adoption, which often defaults to electric options, without fully accounting for infrastructure readiness, consumer preference, or the resulting financial burden. Kheir is a 501(c)(3) non-profit service agency, providing critical culturally and linguistically sensitive healthcare and social services to the uninsured and under-insured working poor of Los Angeles.

We believe our patients and residents of Southern California should retain the right to choose from a full range of safe, reliable, and affordable energy sources and appliances for their homes and businesses. We further believe there are more balanced and cost effective strategies available to improve air quality and protect the environment without creating additional hardships for vulnerable communities.

Southern California faces unprecedented affordability challenges: the costs of housing, transportation, and energy continue to rise. Every day, we care for patients struggling with food insecurity, unemployment, and housing instability—all of which significantly impact their health outcomes and overall safety. It is unreasonable to expect that all households and small businesses will be able to bear the expense of switching to zero-NOX appliances—whether electric or otherwise—without encountering financial strain. For homeowners and landlords, these changes often come with additional costs, such as electric panel and wiring upgrades. For renters, these costs are typically passed on in the form of higher rents. Moreover, households that rely exclusively on electric appliances currently face energy bills averaging over \$1,100 more annually than those using mixed-fuel systems.

Additionally, past events such as the Camp Fire, Kincade Fire, Woolsey Fire, and Eaton Fire have demonstrated vulnerabilities in California's utility infrastructure, including safety lapses linked to electric utilities. Until our regional energy infrastructure can provide safe, comprehensive, and reliable service, it is premature to limit residents to primarily electric or zero-NOX alternatives. The proposed rules erode consumer choice and concentrate risk by eliminating energy diversity. In the event of power outages or service interruptions—whether due to natural disasters or utility failures—residents will face the dangerous prospect of being entirely without energy for critical needs such as cooking, heating, and hot water.

For these reasons, we respectfully oppose the Proposed Amended Rules 1111 and 1121.

Sincerely,

Erin Pak

CC: Supervisor Holly Mitchell, Committee Vice Chair

Kheir Clinic is committed to providing linguistically and culturally sensitive quality primary healthcare and human services support to the underserved and uninsured residents of Southern California.

ATTACHMENT J

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Subsequent Environmental Assessment for:

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

June 2025

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

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Planning, Rule Development and Area Sources

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Barbara Radlein

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| | Yanrong Zhu | Program Supervisor |
| | Heather Farr | Planning and Rules Manager |
| | Josephine Lee | Principal Deputy District Counsel |
| | Kathryn Roberts | Principal Deputy District Counsel |
| | Barbara Baird | Chief Deputy Counsel |

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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VACANT
Governor's Appointee

EXECUTIVE OFFICER:
WAYNE NASTRI

PREFACE

This document constitutes the Final Subsequent Environmental Assessment (SEA) for Proposed Amended Rule (PAR) 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces, and PAR 1121 – Reduction of NO_x Emissions from Residential Type Natural Gas-Fired Water Heaters. The Draft SEA was circulated for a 46-day public review and comment period from September 27, 2024 to November 12, 2024. Three comment letters were received during the comment period. The comments and responses relative to the Draft SEA are included in Appendix B of this Final SEA.

Subsequent to the release of the Draft SEA for public review and comment, modifications were made to PAR 1111 and PAR 1121 which reduce previously estimated environmental impacts. The Draft SEA had analyzed rule concepts presented in the October 3, 2024 public workshop, referred herein as the “Original Rule Concept”; and the Final SEA updates the analysis according to the revised rule concepts presented at and since the February 13, 2025 public working group meeting, referred herein as the “Revised Rule Concept.”

Under the Original Rule Concept, the applicability of PAR 1111 included all natural gas-fired furnaces with a rated heat input capacity up to 2,000,000 British thermal units per hour (Btu/hr). Under the Revised Rule Concept, the applicability for PAR 1111 is similar to the current Rule 1111, covering central furnaces with a rated heat input capacity of less than 175,000 Btu/hr, or, for combination heating and cooling units, a cooling rate of less than 65,000 Btu/hr; but expanded to include floor and wall furnaces with the same rated heat input capacity threshold. Under the Original Rule Concept for PAR 1111, NO_x emission limits were proposed for the Commercial Fan-Type Central Furnace equipment category. Under the Revised Rule Concept for PAR 1111, this equipment category has been removed because PAR 1111 no longer implements Control Measure C-CMB-02 of the 2022 AQMP.

Under the Original Rule Concept for PAR 1111 and PAR 1121, alternative compliance options were provided for emergency replacements and installations requiring specific types of construction. However, under Revised Rule Concept for PAR 1111 and PAR 1121, a Zero-NO_x Manufacturer (ZEM) alternative compliance option is proposed that establishes compliance targets for the sale of NO_x-emitting and zero-NO_x emission appliances except for mobile home units. The targets change over time to transition the market to zero-NO_x emission appliances. The ZEM alternative compliance option also includes fees for the sale of all NO_x-emitting appliances, with higher fees for the NO_x-emitting appliances sold over the NO_x-emitting unit sales target. The fees increase annually to reflect the consumer price index after 2027. Mobile home units for installations in existing buildings and master-metered mobile home parks are exempted from zero-NO_x emission limits. Large condensing or non-condensing furnaces greater than 100,000 Btu/hr for high-altitude installation are no longer exempted, effective at the date of rule adoption.

Under the Original Rule Concept, full implementation was expected by 2055 for PAR 1111, and 2045 for PAR 1121; under the Revised Rule Concept, full implementation is expected by 2061 for both rules.

In summary, PAR 1111 and PAR 1121 have undergone clarifications and updates, including restructuring the rules, removing obsolete language, and streamlining labeling, recordkeeping, and reporting requirements. To facilitate identification of the changes between the Draft SEA and the Final SEA, modifications to the document are included as underlined text and text removed from

the document is indicated by ~~strikethrough text~~. To avoid confusion, minor formatting changes are not shown in underline or strikethrough mode.

South Coast AQMD staff has evaluated the modifications made to PAR 1111 and PAR 1121 after the release of the Draft SEA for public review and comment and concluded that none of the revisions constitute significant new information, because: 1) no new significant environmental impacts would result from the proposed project; 2) there is no substantial increase in the severity of any environmental impact; 3) no other feasible project alternative or mitigation measure was identified that would clearly lessen the environmental impacts of the proposed project and that was considerably different from others previously analyzed, and 4) the Draft SEA did not deprive the public from meaningful review and comment. Consequently, revisions to PAR 1111 and PAR 1121 and the analysis in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft SEA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft SEA has been revised to include the aforementioned modifications such that it is now the Final SEA.

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CHAPTER 1

EXECUTIVE SUMMARY

Introduction

California Environmental Quality Act

Previous CEQA Documentation

Intended Uses of this Document

Areas of Controversy

Executive Summary

1.0 INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (South Coast AQMD) in 1977¹ as the agency responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin and portions of the Salton Sea Air Basin and Mojave Desert Air Basin. In 1977, amendments to the federal Clean Air Act (CAA) included requirements for submitting State Implementation Plans (SIPs) for nonattainment areas that fail to meet all federal ambient air quality standards [CAA Section 172], and similar requirements exist in state law [Health and Safety Code Section 40462]. The federal CAA was amended in 1990 to specify attainment dates and SIP requirements for ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), and particulate matter with an aerodynamic diameter of less than 10 microns (PM₁₀). In 1997, the United States Environmental Protection Agency (U.S. EPA) promulgated ambient air quality standards for particulate matter with an aerodynamic diameter less than 2.5 microns (PM_{2.5}). The U.S. EPA is required to periodically update the national ambient air quality standards (NAAQS).

In addition, the California Clean Air Act (CCAA), adopted in 1988, requires the South Coast AQMD to achieve and maintain state ambient air quality standards for ozone, CO, sulfur dioxide, and NO₂ by the earliest practicable date [Health and Safety Code Section 40910]. The CCAA also requires a three-year plan review, and, if necessary, an update to the SIP. The CCAA requires air districts to achieve and maintain state standards by the earliest practicable date and for extreme non-attainment areas, to include all feasible measures pursuant to Health and Safety Code Sections 40913, 40914, and 40920.5. The term “feasible” is defined in the California Environmental Quality Act (CEQA) Guidelines² 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 AQMP⁵ 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 (NO_x) and volatile organic compound (VOC) emissions need to be addressed, with the emphasis that NO_x emission reductions are more effective to reduce the formation of ozone and PM_{2.5}. Ozone is a criteria pollutant shown to adversely affect human health and is formed when VOCs react with NO_x in the atmosphere. NO_x is a precursor to the formation of ozone and PM_{2.5}, and NO_x emission reductions are necessary to achieve the ozone standard attainment. NO_x emission reductions also contribute to attainment of PM_{2.5} standards. In particular, the 2022 AQMP includes Control Measures R-CMB-02 – Emission Reductions from Replacement with Zero Emission or Low NO_x Appliances – Residential Space Heating, ~~and C-CMB-02 – Emission Reductions from Replacement with Zero Emission or Low NO_x Appliances – Commercial Space~~

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>.

~~Heating~~, which identifies Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces, as having the potential to achieve additional NO_x 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 NO_x 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 NO_x emission reductions from this equipment category.

Rule 1111 regulates NO_x 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 NO_x 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 NO_x 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 NO_x 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 NO_x 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 NO_x emission limit of 10 ng/J, except for mobile home water heaters that are subject to a NO_x emission limit of 40 ng/J.

Proposed Amended Rule 1111 – Reduction of NO_x 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 include previously unregulated wall and floor furnaces with a rated heat input capacity of less than ~~or equal to 175,000~~ 2,000,000 Btu/hr. PAR 1111 categorizes ~~these~~ units into ~~four~~ three groups: 1) residential fan-type central furnaces, 2) ~~commercial fan-type central furnaces~~, 2) mobile home furnaces, and 3) wall furnaces and floor furnaces. Each category has zero-NO_x emission limits based on future effective dates for new installations at natural turnover. The zero-NO_x 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 NO_x Emissions From ~~Small~~ Residential Type, Natural Gas-Fired Water Heaters (PAR 1121), implements 2022 AQMP Control Measure R-CMB-01 and proposes zero-NO_x 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.~~

Space and water heating appliances for existing mobile homes and any mobile home in master-metered mobile home parks will be exempt from the zero-NOx emission standards, and mobile home appliances will transition to zero-NOx emission appliances in new mobile homes or when existing mobile homes are replaced with new mobile homes. Space and water heating appliances that will be installed or used in new buildings with building permit issued prior to the date of rule adoption are also exempted from zero-NOx emission standards. Downflow space heating furnaces for high-altitude installation are exempted from 14 ng/J NOx limit and zero-NOx emission standards.

A Zero-NOx Manufacturer (ZEM) alternative compliance option is provided that establishes compliance targets for the sale of NOx-emitting and Zero-NOx emission appliances. The targets change over time to transition the market to zero-NOx emission appliances. The ZEM alternative compliance option also includes fees for the sale of all NOx-emitting appliances, with higher fees for the NOx-emitting appliances sold over the NOx-emitting unit sales target. The fees increase annually to reflect the consumer price index after 2027.

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, incorporating the ZEM alternative compliance option, PAR 1111 will reduce NOx emissions by 4.05 ~~7.7~~ tons per day (tpd), and PAR 1121 will reduce NOx emissions by 2.07 ~~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 and floor furnaces, ~~and commercial furnaces~~ with a rated heat input capacity ~~up to 2,000,000~~ less than 175,000 British Thermal Units per hour (Btu/hr); and 2) establish ~~four~~ three categories for the applicable units, each with zero-NOx emission limits for new installations based

on future effective dates. PAR 1121 proposes to include zero-NO_x emission limits for new installations based on future effective dates. PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-NO_x emission compliance dates for units installed in new or existing buildings; 2) provide Zero-NO_x Manufacturer (ZEM) alternative compliance option that establishes compliance targets for the sale of NO_x-emitting and Zero-NO_x emission appliances alternative compliance options for emergency replacement and installations requiring specific type of construction; 3) introduce informative materials, labeling, recordkeeping, and reporting requirements; 4) provide an exemption from zero-NO_x emission requirements for mobile homes in a-master-metered mobile home parks, existing mobile homes, and units for new buildings with building permit issued prior to the date of rule adoption; and 5) update and clarify rule language. Replacements 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 by 2061, emission reductions of NO_x up to 7.7 tons per day by 2055 for PAR 1111 and PAR 1121 are expected to reduce NO_x emissions by up to 4.05 tpd, and 2.07 tpd 2.3 tons per day, respectively. by 2045 for PAR 1121, are expected. The Draft Final 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 and R-CMB-02, and C-CMB-02 in the 2022 AQMP is to reduce NO_x emissions from residential ~~and commercial~~ heating sources. These control measures committed to: 1) developing rules to require zero-NO_x emission heating units for installations in both new and existing residences ~~and commercial buildings~~; 2) allowing low NO_x technologies as a transitional alternative when installing a zero-NO_x emission unit is determined to be infeasible; and 3) providing incentive funds to facilitate the transition to zero-NO_x emission technologies and promotion of further emission reductions earlier than required. The Final Program EIR for the 2022 AQMP⁶, which was certified by the South Coast AQMD Governing Board on December 2, 2022, determined that implementation of Control Measures R-CMB-01 and 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-NO_x emission and low NO_x 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

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>

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 and 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 and 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 and 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 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~~ has been released and circulated for a 46-day public review and comment period from September 27, 2024 to November 12, 2024. ~~Any~~ Three comments on the analysis presented in ~~the this~~ Draft SEA were received during the public comment period, which are will ~~be~~ responded to and included in ~~an~~ Appendix B of ~~the this~~ Final SEA.

The Final Program EIR for the 2022 AQMP (State Clearinghouse (SCH) No. 2022050287) upon which this SEA relies and the adopted Findings, Statement of Overriding Considerations and Mitigation, Monitoring, and Reporting Plan, are incorporated by reference pursuant to CEQA Guidelines Section 15150 and is available from the South Coast AQMD's website at:

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 for the 2022 AQMP
<https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-attachment1toresolution.pdf>

The above documents 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 Lisa Tanaka O'Malley ~~Derrik Alatorre~~ - Deputy Executive Officer/Public Advisor, South Coast AQMD, 21865 Copley Drive, Diamond Bar, CA 91765, (909) 396-3327 ~~(909) 396-2432~~, PublicAdvisor@aqmd.gov.

South Coast AQMD staff has reviewed the modifications made to PAR 1111 and PAR 1121 after the release of the Draft SEA for public review and comment and concluded that none of the revisions constitute significant new information, because: 1) no new significant environmental impacts would result from proposed project; 2) there is no substantial increase in the severity of an environmental impact; 3) no other feasible project alternative or mitigation measure was identified that would clearly lessen the environmental impacts of the project and was considerably different from others previously analyzed; and 4) the Draft SEA did not deprive the public from meaningful review and comment. In addition, revisions to the proposed project and analysis in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft SEA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft SEA has been revised to include the aforementioned modifications such that it is now the Final SEA.

Prior to making a decision on the adoption of the proposed project, the South Coast AQMD Governing Board must review and certify the Final SEA, including responses to comments, as

providing adequate information on the potential adverse environmental impacts that may occur as a result of adopting PAR 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 NO_x 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 NO_x 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 and 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 and floor furnaces, ~~and commercial furnaces~~ with a rated heat input capacity ~~up to 2,000,000~~ less than 175,000 British Thermal Units per hour (Btu/hr); and 2) establish three ~~four~~ categories for the applicable units, each with zero-NO_x emission limits for new installations based on future effective dates. PAR 1121 proposes to include zero-NO_x emission limits for new installations based on future effective dates. PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-NO_x emission compliance dates for units installed in new or existing buildings; 2) provide Zero-NO_x Manufacturer (ZEM) alternative compliance option that establishes compliance targets for the sale of NO_x-emitting and Zero-NO_x emission appliances ~~alternative compliance options for emergency replacement and installations requiring specific type of construction~~; 3) introduce informative materials, labeling, recordkeeping, and reporting requirements; 4) provide an exemption from zero-NO_x emission requirements for mobile homes in ~~a master-metered mobile home parks, existing mobile homes, and units for new buildings with building permit issued prior to the date of rule adoption~~; and 5) update and clarify rule language. Replacements 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 by 2061, emission reductions of oxides of nitrogen (NO_x) up to 7.7 tons per day by 2055 for PAR 1111 and PAR 1121 are expected to reduce NO_x emissions by up to 4.05 tpd, and 2.07 tpd ~~2.3 tons per day, respectively. by 2045 for PAR 1121, are expected.~~ The environmental impacts of the control measures in the 2022 AQMP, including Control Measures R-CMB-01 and 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 and 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 NO_x 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 NO_x 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 for the 2022 AQMP: <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:

Lisa Tanaka O'Malley ~~Derriek Alatorre~~, Deputy Executive Officer/Public Advisor
South Coast AQMD 21865 Copley Drive, Diamond Bar, CA 91765
Phone: (909) 396-3327 ~~(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. | <ul style="list-style-type: none"> 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 for space heating will be expected to operate during winter, while peak electricity demand for California occurs during summer. <u>Heat pump HVAC provide cooling in summer that are more efficient than conventional AC (powered by electricity) and can relieve summer peak electricity demanding for cooling.</u> PAR 1121 units will be expected to operate year-round but will consume less electricity than PAR 1111 units. In the Pathway to 2045 document⁷, 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 <u>The proposed ZEM alternative compliance option will allow the sales of both NOx-emitting and zero-NOx emission units. This alternative compliance option provides a gradual transition and more time for the grid infrastructure advancement.</u> Staff will continue to monitor any issue related to grid reliability during the rule implementation and technology check-in by June 2027 <u>the third quarter of 2028</u> 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- <u>NOx</u> emission units. | <ul style="list-style-type: none"> For PAR 1111, most homes (876) 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-<u>NOx</u> 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. <u>The proposed ZEM alternative compliance option will allow the sales of both NOx-emitting and zero-NOx emission units. Consumers may choose NOx-emitting units when the cost of installing zero-NOx emission units is a concern to them.</u> |
| 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 | <ul style="list-style-type: none"> 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 |
|----------|-----------------------------------|--|---|
| 3. 4. | Mobile Homes: Electrical Capacity | Mobile homes do not have the electrical capacity to support zero- <u>NOx</u> emission appliances for space and water heating. | <ul style="list-style-type: none"> • 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-<u>NOx</u> 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. |
| 4. 5. | Cost of Adoption | 1) Operating costs of zero- <u>NOx</u> emission appliances is more costly than their natural gas counterpart 2) Capital costs of zero- <u>NOx</u> emission appliances are higher than their natural gas counterpart | <ul style="list-style-type: none"> • 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-<u>NOx</u> 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. |
| 5. | <u>Consumer choice</u> | <u>The rules will require consumers to replace their existing gas appliances with electric appliances</u> | <ul style="list-style-type: none"> • <u>The rules only apply to appliances being sold, and does not require the replacement of existing appliances</u> • <u>The Zero-NOx Manufacturer (ZEM) alternative compliance option allows NOx emitting appliances to continue to be sold albeit with a mitigation fee</u> |

Table 1-1 (concluded)
Areas of Controversy

| | Area of Controversy | Topics Raised by the Public | South Coast AQMD Evaluation |
|----|---------------------------------|--|--|
| 6. | <u>Mitigation fee</u> | <u>Mitigation fees associated with ZEM alternative compliance option cause affordability concern</u> | <ul style="list-style-type: none"> • <u>Staff proposed low mitigation fees to address affordability concern</u> • <u>Higher fees only apply for units sold above the manufacturer targets</u> • <u>Fees help fund Go Zero incentive program to lower cost of compliant installations, which will have 75% of funds allocated to residents who need the most help.</u> |
| 7. | <u>Mitigation fee structure</u> | <u>Environmental stakeholders advocating to increase the mitigation fees for appliances sold over the sales targets to encourage the manufacturers to meet the sales targets</u> | <ul style="list-style-type: none"> • <u>Proposed tiered fees would be more complicated for manufacturers to implement</u> • <u>Current mitigation fee structure intended to strike balance between affordability and encouraging sales target goals.</u> |

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 and R-CMB-02, ~~and C-CMB-02~~ committed to achieving NO_x emission reductions of 1.25 tpd and 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-NO_x emission heating units for installations in both new and existing residences ~~and commercial buildings~~; 2) allow low NO_x technologies as a transitional alternative when installing a zero-NO_x emission unit is determined to be infeasible; and 3) provide incentive funds to facilitate the transition to zero-NO_x emission technologies and promote further emission reductions earlier than required. As a result of Control Measures R-CMB-01 and R-CMB-02, ~~and C-CMB-02~~, South Coast AQMD staff has proposed amendments to Rules 1111 and 1121 to introduce zero-NO_x 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-NO_x 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, and floor furnaces, ~~and commercial furnaces~~ with a rated heat input capacity ~~up to 2,000,000~~ less than 175,000 Btu/hr; and 2) establish ~~four~~ three categories for the applicable units, each with zero-NO_x emission limits for new installations based on future effective dates. PAR 1121 proposes to include zero-NO_x emission limits for new installations based on future effective dates. PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-NO_x emission compliance dates for units installed in new or existing buildings; 2) provide a Zero-NO_x Manufacturer (ZEM) alternative compliance option that establishes compliance targets for the sale of NO_x-emitting and Zero-NO_x emission appliances ~~alternative compliance options for emergency replacement and installations requiring specific type of construction~~; 3) introduce informative materials, labeling,

recordkeeping, and reporting requirements; 4) provide an exemption from zero-NO_x emission requirements for mobile homes in a master-metered mobile home parks, existing mobile homes, and units for new buildings with building permit issued prior to the date of rule adoption; and 5) update and clarify rule language. Replacements 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 by 2061, emission reductions of NO_x up to 7.7 tpd by 2055 for PAR 1111 and PAR 1121 are expected to reduce NO_x emissions by up to 4.05 tpd, and 2.07 tpd, respectively. 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 and 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 NO_x 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 was 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~~ Final 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 NO_x emissions by introducing zero-NO_x 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 and floor furnaces, ~~and commercial furnaces~~ with a rated heat input capacity ~~up to 2,000,000~~ less than 175,000 British Thermal Units per hour (Btu/hr); ~~and~~ 2) establish ~~four~~ three categories for the applicable units, each with zero-NO_x emission limits for new installations based on future effective dates. ~~PAR 1121 proposes to~~ 3) include zero-NO_x emission limits for new installations based on future effective dates. PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-NO_x emission compliance dates for units installed in new or existing buildings; 2) provide a Zero-NO_x Manufacturer (ZEM) alternative compliance option that establishes compliance targets for the sale of NO_x-emitting and Zero-NO_x emission appliances ~~alternative compliance options for emergency replacement and installations requiring specific type of construction~~; 3) introduce informative materials, labeling, recordkeeping, and reporting requirements; 4) provide an exemption from zero-NO_x emission requirements for mobile homes in a master-metered mobile home parks, existing mobile homes, and units for new buildings with building permit issued prior to the date of rule adoption; and 5) update and clarify rule language. Replacements 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 by 2061, ~~emission reductions of oxides of nitrogen (NO_x) up to 7.7 tons per day by 2055 for PAR 1111 and PAR 1121 are expected to reduce NO_x emissions by up to 4.05 tpd, and 2.07 tpd~~ 2.3 tons per day, respectively, by 2045 for PAR 1121, are expected. The ~~Draft~~ Final 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 and 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 5,237,000 ~~5,350,000~~ 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 and floor furnaces, ~~and commercial~~ furnaces with a rated heat input capacity up to 2,000,000 less than 175,000 Btu/hr that are currently unregulated; and 2) ~~divide the applicable units into four~~ establish three categories for the applicable units, each with zero-NO_x 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-NO_x 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-NO_x emission compliance dates for units installed in new or existing buildings; 2) provide a Zero-NO_x Manufacturer (ZEM) alternative compliance option that establishes compliance targets for the sale of NO_x-emitting and Zero-NO_x emission appliances ~~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 informative materials, labeling, recordkeeping, and reporting requirements; 4) provide an exemption from zero-NO_x emission requirements for mobile homes in a master-metered mobile home parks, existing mobile homes, and units for new buildings with building permit issued prior to the date of rule adoption; and 5) update and clarify rule language. Replacements 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. Upon full implementation by 2061, ~~of~~ PAR 1111 and PAR 1121 are estimated to reduce NO_x emissions by up to 4.05 tpd ~~7.7 tpd after full implementation by 2055,~~ and 2.07 ~~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 | Buildi ng Type | Original Rule Concepts Proposed Project: PAR 1111 | Revised Rule Concepts Proposed Project: PAR 1111* | 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-NOx Emission at End of Life by on and after 1/1/2026 | <u>Zero-NOx Emission on and after 1/1/2027</u> | 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-NOx emission technologies wherever possible. | Zero-NOx Emission at End of Life by on and after 1/1/2026 2025 | Zero-NOx Emission at End of Life by on and after 1/1/2027 2026 | Zero-NOx Emission at End of Life by on and after 1/1/2027 2026 |
| | Existing | Zero-NOx Emission at End of Life by on and after 1/1/2028 | <u>Zero-NOx Emission at end of life on and after 1/1/2029</u> | | Zero-NOx Emission Required by on and after 1/1/2029 2028 | Zero-NOx Emission at End of Life by on and after 1/1/2029 2028 | Zero-NOx Emission at End of Life by on and after 1/1/2029 2028 |
| | | 0.5% of equipment estimated to be replaced before end of useful lifetime | <u>0.5% of equipment estimated to be replaced before end of useful lifetime</u> | | | 50% of residences will be zero-NOx 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-NOx Emission at End of Life by on and after 1/1/2026 | <u>Commercial Fan-Type Central Furnace has been completely removed from PAR 1111.</u> | | 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-NOx Emission at End of Life by on and after 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-NOx Emission at End of Life by on and after 1/1/2026 | <u>Zero-NOx Emission on and after 1/1/2027</u> | | Zero-NOx Emission at End of Life by on and after 1/1/2026 2025 | Zero-NOx Emission at End of Life by on and after 1/1/2027 2026 | Zero-NOx Emission at End of Life by on and after 1/1/2027 2026 |
| | Existing | Zero-NOx Emission at End of Life by on and after 1/1/2030 | <u>Exempt from Zero-NOx Emission standards in PAR 1111</u> | | 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 (continued)
Summary of the Proposed Project (PAR 1111 and PAR 1121) and Alternatives*

| Categories with Proposed Changes | Building Type | Original Rule Concepts Proposed Project: PAR 1111 | Revised Rule Concepts Proposed Project: PAR 1111* | 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 | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2026</i> | <i>Zero-NO_x Emission on and after 1/1/2027</i> | NO _x emission limits would not be implemented. This means the projected reductions in NO _x emissions would not be achieved, failing to meet the objectives of PAR 1111 and PAR 1121, which aim to reduce NO _x 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 NO _x emissions and transition zero-NO _x emission technologies wherever possible. | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2026 2025</i> | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2027 2026</i> | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2027 2026</i> |
| | Existing | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2028</i> | <i>Zero-NO_x Emission at end of life on and after 1/1/2029</i> | | <i>Zero-NO_x Emission Required by on and after 1/1/2029 2028</i> | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2029 2028</i> | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2029 2028</i> |
| | | <i>0.5% of equipment estimated to be replaced before end of useful lifetime</i> | <i>0.5% of equipment estimated to be replaced before end of useful lifetime</i> | | | <i>50% of buildings will be zero-NO_x emission and 50% will be low NO_x equipment</i> | <i>1% of equipment estimated to be replaced before end of useful lifetime</i> |

*In lieu of above new and existing building requirements provided in paragraph (d)(2) of rule language, any a manufacturer of furnaces, other than mobile home furnaces, subject to Rule 1111 may elect to comply with the ZEM alternative compliance option, which sets sales targets for zero-NO_x emission and NO_x emitting units and associated mitigation fee, for sales on and after 1/1/2027. The ZEM alternative compliance option includes four implementation phases: 1) 30% zero-NO_x and 70% low NO_x by 2028, 2) 50% zero-NO_x and 50% low NO_x by 2032, 3) 75% zero-NO_x and 25% low NO_x by 2035, and 4) 90% zero-NO_x and 10% low NO_x 2036 and after.

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

| Categories with Proposed Changes | Building Type | Original Rule Concepts Proposed Project: PAR 1121 | Revised Rule Concepts Proposed Project: 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 Water Heater | New | Zero-NO_x Emission at End of Life by on and after 1/1/2026 | <u>Zero-NO_x Emission by 1/1/2027</u> | NO _x emission limits would not be implemented. This means the projected reductions in NO _x emissions would not be achieved, failing to meet the objectives of PAR 1111 and PAR 1121, which aim to reduce NO _x 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 NO _x emissions and transition zero-NO _x emission technologies wherever possible. | Zero-NO_x Emission at End of Life by 1/1/2026 2025 | Zero-NO_x Emission at End of Life by on and after 1/1/2027 2026 | Zero-NO_x Emission at End of Life by on and after 1/1/2027 2026 |
| | Existing | Zero-NO_x Emission at End of Life by on and after 1/1/2027 | <u>Zero-NO_x emission at end of life on and after 1/1/2029</u> | | Zero-NO_x Emission Required by on and after 1/1/2029 2027 | Zero-NO_x Emission at End of Life by on and after 1/1/2029 2027 | Zero-NO_x Emission at End of Life by on and after 1/1/2029 2027 |
| | | 0.5% of equipment estimated to be replaced before end of useful lifetime | <u>0.5% of equipment estimated to be replaced before end of useful lifetime</u> | | | 50% of buildings will be zero-NO _x emission and 50% will be low NO _x equipment | 1% of equipment estimated to be replaced before end of useful lifetime |
| Mobile Home Water Heater | New | Zero-NO_x Emission at End of Life by on and after 1/1/2026 | <u>Zero-NO_x Emission on and after 1/1/2027</u> | Zero-NO_x Emission at End of Life by on and after 1/1/2026 2025 | Zero-NO_x Emission at End of Life by on and after 1/1/2027 2026 | Zero-NO_x Emission at End of Life by on and after 1/1/2027 2026 | |
| | Existing | Zero-NO_x Emission at End of Life by on and after 1/1/2030 | <u>Exempt from Zero-NO_x Emission standards set in PAR 1121</u> | 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 NO _x equipment | 1% of equipment estimated to be replaced before end of useful lifetime | |

**In lieu of above new and existing building requirements provided in paragraph (d)(2) of rule language, any a manufacturer of Water Heaters, other than Mobile Home Water Heaters, subject to Rule 1121 may elect to comply with the ZEM alternative compliance option, which sets sales targets for zero-NOx emission and NOx emitting units and associated mitigation fee, for sales on and after 1/1/2027. The ZEM alternative compliance option includes four implementation phases: 1) 30% zero-NOx and 70% low NOx by 2028, 2) 50% zero-NOx and 50% low NOx by 2032, 3) 75% zero-NOx and 25% low NOx by 2035, and 4) 90% zero-NOx and 10% low NOx 2036 and after.

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 | <p>Potentially Significant Air Quality Impacts During Construction due to:</p> <ul style="list-style-type: none"> 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 <u>residential</u> buildings | <p>No Impacts Since Alternative A involves no construction activities to transition from existing natural gas-fired equipment to zero-NOx emission units, no impacts to air quality during construction are expected.</p> | <p>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.</p> | <p>Potentially Significant Air Quality Impacts During Construction Construction impacts from the installation of low NOx heaters are expected to be similar to zero-<u>NOx</u> 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.</p> | <p>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.</p> |

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 | <p>Potentially Significant Energy Impacts due to:</p> <ul style="list-style-type: none"> 34.6 31.6% increase in operational electricity demand compared to the 2018 baseline; and 32.2 30.3% increase in operational electricity compared to 2022 baseline. | <p>No Impacts</p> <p>Since PAR 1111 and PAR 1121 would not be implemented under Alternative A, no impacts related to increased electricity demand will occur.</p> | <p>Potentially Significant Energy Impacts</p> <p>Compared to proposed project, Alternative B will result in an earlier increase in operational electricity due to earlier installation of zero-NOx emission technologies. <u>Although the same number of equipment units would be replaced under both scenarios, the more condensed timeline under Alternative B would shift the energy demand to an earlier period. As such, operational electricity impacts would remain significant, consistent with the proposed project, but would occur sooner in the implementation schedule. It is anticipated that Alternative B would result in the same significant impacts for operational electricity demand.</u></p> | <p>Potentially Significant Energy Impacts</p> <p>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-NOx emission technologies.</p> | <p>Potentially Significant Energy Impacts</p> <p>Alternative D will result in potentially significant impacts for electricity demand, earlier than the proposed project due to the accelerated deployment of zero-NOx emission technologies due to incentive funding.</p> |
| Natural Gas Demand | <p>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-NOx emission technologies.</p> | <p>No Impacts</p> <p>Since PAR 1111 and PAR 1121 would not be implemented under Alternative A, no impacts to increased demand for natural gas will occur.</p> | <p>Potentially Significant Energy Impacts</p> <p>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- NOx emission technologies. <u>While the total natural gas demand is expected to be similar to the proposed project, the more condensed implementation timeline under Alternative B would shift this demand to an earlier period. Therefore, operational natural gas impacts would remain significant, as with the proposed project, but would occur earlier in the implementation schedule until electricity is supplied by renewable resources. 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.</u></p> | <p>Potentially Significant Energy Impacts</p> <p>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.</p> | <p>Potentially Significant Energy Impacts</p> <p>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- NOx emission technologies due to incentive funding.</p> |

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.

Appendix B

This appendix contains comment letters received on the Draft SEA and responses to comments.

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).

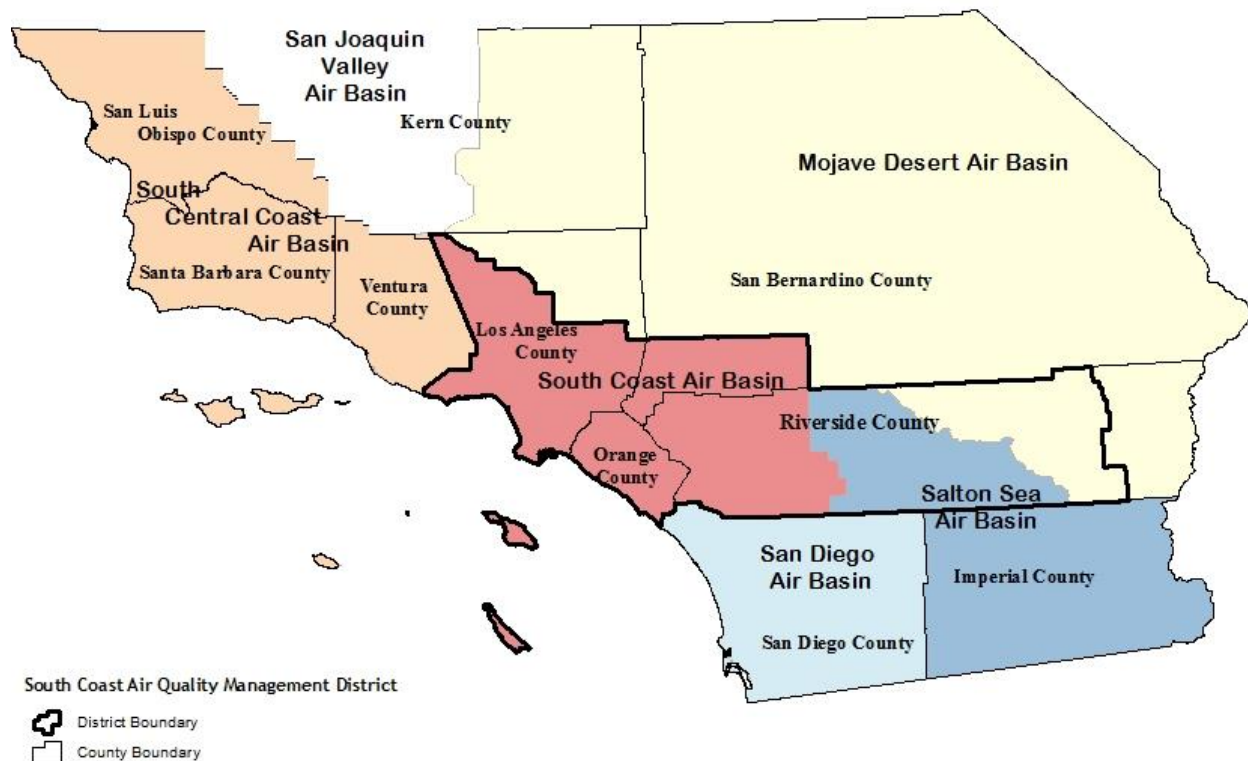


Figure 2-1
Southern California Air Basins and South Coast AQMD's Jurisdiction

2.2 PROJECT BACKGROUND

Rule 1111 regulates NO_x 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 NO_x 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 NO_x 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 NO_x 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 NO_x 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 NO_x emission limit of 10 ng/J, except for mobile home water heaters that are subject to a NO_x emission limit of 40 ng/J.

In the 2022 AQMP, Control Measures R-CMB-01 and R-CMB-02, ~~and C-CMB-02~~ committed to achieving NO_x emission reductions of 1.25 tpd and 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-NO_x emission heating units for installations in both new and existing residences ~~and commercial buildings~~; 2) allow low NO_x technologies as a transitional alternative when installing a zero-NO_x emission unit is determined to be infeasible; and 3) provide incentive funds to facilitate the transition to zero-NO_x emission technologies and promote further emission reductions earlier than required. As a result of Control Measures R-CMB-01 and R-CMB-02, ~~and C-CMB-02~~, South Coast AQMD staff has proposed amendments to Rules 1111 and 1121 to introduce zero-NO_x 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-NO_x 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 NO_x emissions by 4.05 ~~7.7~~ tpd, and PAR 1121 will reduce NO_x emissions by 2.07 ~~2.3~~ tpd.

2.3 PROJECT OBJECTIVES

The main objectives of the proposed project are to: 1) reduce NO_x emissions from residential water heaters and residential ~~and commercial~~ space heaters, by proposing NO_x limits that represent BARCT for the applicable equipment; 2) address challenges with installation of zero-NO_x 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-NO_x 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 and floor furnaces, ~~and commercial furnaces~~ with a rated heat input capacity ~~up to~~

~~2,000,000 less than 175,000 Btu/hr; and~~ 2) establish ~~four~~ three categories for the applicable units, each with zero-NOx emission limits for new installations based on future effective dates. PAR 1121 proposes to include zero-NOx emission limits for new installations based on future effective dates. PAR 1111 and PAR 1121 propose to: 1) differentiate the zero-NOx emission compliance dates for units installed in new or existing buildings; 2) provide the Zero-NOx Manufacturer (ZEM) alternative compliance option that establishes compliance targets for the sale of NOx-emitting and Zero-NOx emission appliances alternative compliance options for emergency replacement and installations requiring specific type of construction; 3) introduce informative materials, labeling, recordkeeping, and reporting requirements; 4) provide an exemption from zero-NOx emission requirements for mobile homes in ~~a~~ master-metered mobile home parks, existing mobile homes, and units for new buildings with building permit issued prior to the date of rule adoption; and 5) update and clarify rule language. Replacements 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 by 2061, emission reductions of NOx up to 7.7 tpd by 2055 for PAR 1111 and PAR 1121 are expected to reduce NOx emissions by 4.05 tpd and 2.07 2.3 tpd, respectively by 2045 for PAR 1121, are expected. The ~~Draft~~ Final 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 <u>Alternative Compliance Options</u> |
| (g) | Exemptions | Alternative Compliance Options <u>Informative Materials, Labeling, Recordkeeping, and Reporting</u> |
| (h) | (N/A) | Labeling, Recordkeeping, and Reporting <u>Exemptions</u> |
| (i) | (N/A) Severability | Exemptions Severability |

PAR 1111 (a) - Purpose

The purpose of PAR 1111 is to reduce NOx emission from NOx-emitting ~~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 175,000 2,000,000 Btu/hr used for comfort heating or a cooling rate of 65,000 Btu/hr for combination heating and cooling units.

The applicability is expanded from fan-type central furnaces to include floor and wall 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~~
- Consumer Price Index (CPI)
- Existing Building
- Floor Furnace
- Furnace
- High-Altitude
- Informative Materials
- Install
- Installer
- Master-Metered Mobile Home Park
- New Building
- Non-Condensing Furnace
- Reseller
- Residential Fan-Type Central Furnace
- Wall Furnace
- Zero-NOx Emission Unit

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, floor 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 term for high-altitude is defined to accommodate the revision and streamlining of the existing high-altitude provisions. Informative materials is defined to clarify the information needed in subdivision (f). Master-metered mobile home parks are defined as installations in master-metered mobile home parks are exempted from Zero-NOx emission standards. Zero-NOx emission unit is defined to clarify what appliances for space heating have zero-NOx emissions, which will be used in the new provision for the manufacturer alternative compliance option. Consumer Price Index (CPI) is defined, and the California annual average increase is used for mitigation fee adjustment as specified in the rule.

The following definitions have been revised in PAR 1111:

- Condensing Furnace
- Downflow Furnace
- Heat Input
- Mobile Home
- 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. Heat input, NOx emissions and rated heat input capacity are revised to align with amended Rule 1146.2 (Adopted June 7, 2024). Mobile home definition is revised to align with the definitions by California Energy Commission and Federal Department of Housing and Urban Development.

The following definitions have been removed from Rule 1111, as they are obsolete or unnecessary 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 (gf) 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 paragraph (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).

PAR 1111 Table 1 limits are applicable prior to PAR 1111 Table 2 zero-NOx emission limit compliance date, except for mobile home furnaces in existing buildings. PAR 1111 does not propose zero-NOx emission limit for mobile home furnaces in existing buildings, which will remain subject to their Table 1 limit.

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~~ following 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 Residential Fan-Type Central Furnace NOx Limits
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~~ a person shall only 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.~~ a zero-NOx emission unit by the Table 2 compliance dates, unless the NOx-emitting Furnace is included in the ZEM manufacturer alternative compliance option pursuant to paragraph (f)(2) as indicated in the informative materials for the water heater pursuant to subparagraph (g)(1)(C). The applicable Table 2 compliance dates for new buildings shall be determined based on the construction or alteration completion date. The construction or alteration completion means finishing all the installation to ensure the functionality and aesthetics of the space as specified in the approved building permit. Mobile home furnaces for installation in existing buildings are not subject to zero-NOx emission limit.

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

| Equipment Category | NO _x Emission Limit (ng/J*) | Building Type | Compliance Date |
|--|--|---------------------|--------------------------------|
| Residential Fan-Type Central Furnace** | 0-0 | New | January 1, <u>2027</u> 2026 |
| | | Existing | January 1, <u>2029</u> 2028 |
| Commercial Fan-Type Central Furnace | 0-0 | New | January 1, <u>2026</u> |
| | | Existing | January 1, 2028 |
| Mobile Home Furnace | 0-0 | New | January 1, <u>2027</u> 2026 |
| | | Existing | January 1, <u>2030</u> |
| Wall Furnaces, Floor Furnaces, and Others | 0-0 | New | January 1, <u>2027</u> 2026 |
| | | Existing | January 1, <u>2029</u> 2028 |

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

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)(2) – Determining NO_x Emissions

Paragraph (e)(2) was edited to clarify the equations to be used to determine the nanograms of NO_x per joule of useful heat to the delivered space. Other edits made are to clarify nomenclature.

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)(3) ~~(e)(4)~~ no more than 180 days after the date of source test identified in subparagraph (e)(3)(D) ~~(e)(4)(D)~~. This was added to align with the certification requirements of Rule 1121.

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

Former PAR 1111 (e) – Identification of Compliant Units

Staff relocated the requirements in existing subdivision (e) and included them in subdivision (g) – Informative Materials, Labeling, Recordkeeping, and Reporting, because the provision were all for labeling requirements

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 NO_x 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 (fg) – Alternative Compliance Options

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

Paragraph (g)(1) – Mitigation Fee Alternative Compliance Option for Mobile Home Furnaces

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 NO_x emission limit in lieu of the 14 ng/J NO_x emission limit. This mitigation fee option ends on September 30, 2025.

The manufacturer must comply with the following requirements:

- Pay a per unit mitigation fee of \$150 for each mobile home furnace distributed or sold into or within the South Coast AQMD until September 30, 2025;
 - On and after October 1, 2025, the per unit mitigation fee is \$100 for each mobile home furnace distributed or sold into or within the South Coast AQMD

- Submit an alternative compliance plan, no later than 60 days prior to the applicable ~~compliance date, for to~~ each 12-month compliance time period after the applicable Table 4 compliance date, that begins on October 1st, during which the manufacturer elects to pay the mitigation fee in lieu of meeting the NOX emission limit;
 - Clauses (f)(1)(B)(i) to (f)(1)(B)(iv) ~~(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 no later than 90 days after the end of each 12-month mitigation fee alternate compliance period. The report shall, for the applicable 12-month alternate compliance period, identifying by each model number, and the quantity of mobile home furnaces distributed or sold into or within the South Coast AQMD; and include the 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 (f)(2) – Zero-NOx Emission Manufacturer (ZEM) Alternative Compliance Option
In lieu of complying with paragraph (d)(2) a manufacturer of furnaces, other than mobile home furnaces, can elect to comply with the ZEM alternative compliance option. This alternative compliance option allows for the sale of NOx emitting furnaces, including residential fan-type central furnaces certified to emit 14ng/J of NOx or less or wall or floor furnaces, given:

- The manufacturer submits an alternative compliance plan no later than November 1, 2026, detailing the requirements in paragraph (f)(2)(A);
- The manufacturer sells, or enables distributors, retailers, resellers, or installs to sell Zero-NOx emission units into or within the South Coast AQMD at a percentage greater than or equal to the Zero-NOx emission unit sales targets specified in PAR 1111 Table 3 (presented as Table 2-4 in this document);
- Equations are provided for calculating zero-NOx emission unit and furnace sales percentages. Each zero-NOx emission unit that utilizes ductwork to distribute heated air through the home or does not utilize ductwork for heat distribution but is a multiple zone system with one outdoor unit will be counted as one unit for the calculation. Each zero-NOx emission unit that does not utilize ductwork to distribute heated air through the home (e.g., a mini-split) shall be counted as a half unit.
- The manufacturer pays a \$100 mitigation fee for each furnace sold in 2027 and adjusted by the CPI annual percent increase for each subsequent year after 2027. If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year; and the manufacturer submits a report and mitigation fee payment pursuant to paragraph (g)(2) no later than 90 days after the end of each calendar year utilizing this alternative compliance option.
- The manufacturer submits a report and mitigation fee payment pursuant to paragraph (g)(2) no later than 90 days after the end of each calendar year utilizing this alternative compliance option.

- The manufacturer complies with the informative material requirements pursuant to paragraph (g)(1)

Table 2-4: PAR 1111 Table 3 ZEM Alternative Compliance Option Targets

| <u>Compliance Phase</u> | <u>Phase 1</u> | <u>Phase 2</u> | <u>Phase 3</u> | <u>Phase 4</u> |
|--|--------------------|--------------------|-------------------|-----------------------|
| <u>Calendar Years</u> | <u>2027 - 2028</u> | <u>2029 - 2032</u> | <u>2033-2035</u> | <u>2036 and after</u> |
| <u>Zero-NOx Emission Unit Sales Target¹</u> | <u>30 percent</u> | <u>50 percent</u> | <u>75 percent</u> | <u>90 percent</u> |
| <u>Furnace Sales Target</u> | <u>70 percent</u> | <u>50 percent</u> | <u>25 percent</u> | <u>10 percent</u> |

Paragraph (f)(3) – ZEM Alternative Compliance Option Sales Target Deviation

Any furnace manufacturer that elects to comply with the ZEM alternative compliance option and sells more NOx-emitting furnaces than Furnace Sales Target in PAR 1111 Table 3 (presented as Table 2-4 in this document) in one calendar year must pay the per unit mitigation fee outlined in Table 3 for each unit sold above the sales target. The mitigation fee for each furnace sold over target is \$500 for the calendar year 2027 and adjusted by the CPI annual percent increase for each subsequent year after 2027. If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year.

Below are some examples for determining the mitigation fee when a manufacturer sold more NOx-emitting furnaces than Furnace Sales Target.

Example 1:

From January 1, 2027, to December 31, 2027, a manufacturer sold 1,000 units with sales for NOx emitting furnaces and zero-NOx emission units 800 (80 percent) and 200 (20 percent) respectively. Since the 2027 NOx-emitting furnaces sales were over the 70 percent furnace sales target, the mitigation fee should be calculated as below:

- Number of NOx-emitting furnaces within the target = $1,000 \times 70\% = 700$
- Mitigation fee for units within the target per PAR 1111 subparagraph (f)(2)(F) = $\$100 \times 700 = \$70,000$
- Mitigation fee for furnaces sold over target = $\$500 \times (800 - 700) = \$50,000$
- Total mitigation fee this manufacture should pay for 2027 = $\$70,000 + \$50,000 = \$120,000$

Example 2:

From January 1, 2028, to December 31, 2028, a manufacturer sold 1,000 units with sales for NOx emitting furnaces and zero-NOx emission units 750 (75 percent) and 250 (25 percent) respectively.

Since the 2028 NOx-emitting furnaces sales were over the furnace sales target that is 70 percent, the mitigation fee should be calculated as below:

- Number of NOx-emitting furnaces within the target = $1,000 \times 70\% = 700$
- Since it is after 2027, the mitigation fee rates should be CPI adjusted. Assuming California CPI annual percent increase for 2028 is 2.8 percent, within target mitigation fee rate is adjusted to $\$100 \times (1+2.8\%) = \102.8 ; over target mitigation fee rate is adjusted to $\$500 \times (1+2.8\%) = \514.0 • Mitigation fee for units within the target per PAR 1111 subparagraph (f)(2)(F) = $\$102.8 \times 700 = \$71,960$
- Mitigation fee for furnaces sold over target = $\$514 \times (750-700) = \$25,700$
- Total mitigation fee this manufacture should pay for 2028 = $\$71,960 + \$25,700 = \$97,660$

Example 3:

From January 1, 2029, to December 31, 2029, a manufacturer sold 1,000 units with sales for NOx emitting furnaces and zero-NOx emission units 600 (60 percent) and 400 (40 percent) respectively.

Since the 2029 NOx-emitting furnaces sales were over the furnace sales target that is 50 percent, the mitigation fee should be calculated as below:

- Number of NOx-emitting furnaces within the target = $1,000 \times 50\% = 500$
- Since it is after 2027, the mitigation fee rates should be CPI adjusted. Assuming California CPI annual percent increase is 2.8 percent for 2028 and 3.5 percent for 2029, we will use 3.0 percent for 2029 CPI adjustment since it is higher than 3.0 percent. Within target mitigation fee rate is adjusted to $\$100 \times (1+2.8\%)(1+3.0\%) = \105.9 ; over target mitigation fee rate is adjusted to $\$500 \times (1+2.8\%)(1+3.0\%) = \529.4
- Mitigation fee for units within the target per PAR 1111 subparagraph (f)(2)(F) = $\$105.9 \times 500 = \$52,950$
- Mitigation fee for furnaces sold over target = $\$529.4 \times (600-500) = \$52,940$
- Total mitigation fee this manufacture should pay for 2028 = $\$52,950 + \$52,940 = \$105,890$

~~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 (gh) – Information Materials, Labeling, Recordkeeping, and Reporting

Subdivision (gh) is a new subdivision that details the information materials, labeling, recordkeeping, and annual reporting requirements. Information materials and 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) – Informative Materials for Furnaces

Three types of NO_x-emitting furnaces are subject to this provision for informative materials, which are:

- Any mobile home furnace that is for distribution or sale inside of the South Coast AQMD that is using an alternative compliance plan in lieu of meeting the 14 ng/J certification limit;

- Any furnace that is for distribution or sale inside of the South Coast AQMD for installation at high-altitude in a downflow configuration pursuant to paragraph (h)(3); and
- Any furnace sold under the ZEM alternative compliance option pursuant to paragraph (f)(2) in lieu of complying with paragraph (d)(2).

Those furnaces that are for distribution or sale inside of the South Coast AQMD shall distribute or publish informative materials that clearly display the language outlined in paragraph (g)(1). Informative materials include: the consumer brochure for the furnace, technical specification sheet for the furnace, and the manufacturer’s website that promotes, discusses, or lists the furnace. The manufacturer may use alternative language to the language in subparagraph (g)(1)(A), (g)(1)(B), or (g)(1)(C), provided that the language is similar, and is approved.

Paragraph (g)(2) – Reporting and Recordkeeping Requirements for ZEM Alternative Compliance Option

The manufacturer of a furnace supplied or offered for use within the South Coast AQMD in accordance with the ZEM alternative compliance option shall submit to the Executive Officer a report, signed by the responsible official for the manufacturer no later than 90 days after the end of each calendar year using the alternative compliance option. The report shall include the model number and quantity of zero-NOx emissions units and furnaces distributed or sold into or within the South Coast AQMD for the applicable calendar year.

The manufacturer shall also maintain records for at least five years, including, but not limited to, the information listed in clause (g)(2)(B)(i).

Paragraph (g)(3) ~~(h)(1)~~ – ~~Propane Conversion Kit Furnace Labeling and Reporting for Propane Conversion Kit Furnace~~

This provision is an existing requirement. The manufacturer, distributor, or installer of any furnace that elects to use the exemption in paragraph ~~(h)(1)~~ ~~(i)(1)~~ for furnaces to be installed with a propane conversion kit 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 (g)(4)(3) – New and Existing Building Labeling Requirements

A manufacturer can elect to comply with paragraph (d)(2) directly or through alternative compliance option by paragraph (f)(2). This provision specifies labeling requirement for any manufacturer that is not electing to comply using alternative compliance option by paragraph (f)(2). As specified in paragraph (d)(2), the manufacturer will be subject to the zero-NOx emission compliance date for new buildings on January 1, 2027, for existing buildings on January 1, 2029, except for mobile home furnaces.

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 furnace, except for mobile home furnaces.

~~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 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.” 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.~~

Subparagraph (g)(4)(A) specifies the labeling language. Subparagraph (g)(4)(B) allows manufacturers flexibility in the labeling by posting alternative language as long as the language is similar to subparagraph (g)(4)(A) and approved.

Clause (g)(4)(B)(ii) requires the manufacturer to use the language in subparagraph (g)(4)(A) if the alternative language is not approved.

Table 2-4: PAR 1111 Table 3 Labeling Schedule

| Furnace's Compliance Schedule | Labeling Requirements | |
|--------------------------------------|------------------------------|-----------------|
| | <u>Start Date</u> | <u>End Date</u> |
| 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 sold 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.~~

Paragraph (gk)(5) – Identification of Furnaces Complying with Subdivisions (d) and (e)

This provision is an existing requirement, as paragraph (e)(1) in current rule. It requires manufacturers of NOx emitting furnaces to display the model number, heat input capacity, applicable NOx emission limit, and date of manufacturer or date code.

Paragraph (gh)(6) – Identification of Non-Certified Furnaces

This provision is an existing requirement, as paragraph (e)(2) in current rule. It requires any non-certified 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 as not certified for use in the South Coast AQMD.

PAR 1111 (hi) – Exemptions

Subdivision (hi) was previously subdivision (g) in Rule 1111. After rule structure streamlining and removal of obsolete paragraphs, subdivision (h) specifies exemptions for propane-fire furnaces, zero-NOx emission limit, and downflow furnaces for high-altitude installations. 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 (hi)(1) – Propane-Fired Furnaces

This is an existing exemption in Rule 1111 paragraph (g)(4). ~~¶~~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 paragraph (g)(3) (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 (g)(3) (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 (h)(2) (i)(3) – Exemption from Zero-NOx Emission Limit ~~Master Metered Mobile Home Exemption~~

Three types of NOx-emitting furnaces are subject to this provision for exemption from zero-NOx emission limit, which are:

- Mobile home furnaces in compliance with paragraph (d)(1) for installation in existing buildings;

- Mobile home furnaces in compliance with paragraph (d)(1) for installation or use in new buildings or existing buildings located 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; and
- Furnaces in compliance with paragraph (d)(1) that will be installed or used in new buildings with building permit issued prior to [Date of Adoption] by the appropriate enforcement agency.

Mobile home furnaces in existing mobile homes are exempt from zero-NOx emission requirements due to unique challenges on zero-NOx emission implementation for mobile homes as discussed in Chapter 2 of the Draft Staff Report.

With the consideration that master-metered mobile homes may currently not have sufficient electrical service to install-emission appliances, subparagraph (h)(2)(B) this provision provides them an exemption from zero-NOx 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 2030.¹¹ When mobile homes are converted, they are no longer be exempt by this provision.

Due to potentially long timelines between building permit approval and actual installation of a furnace, subparagraph (h)(2)(C) exempts installations in new buildings if the furnace permit was granted prior to the date of rule adoption. The building permit must be issued by the appropriate enforcing agency according to the California Building Code, either city, county, or state. For example, if a building is in the process of being constructed and the building owner obtains a permit from the city to install a furnace that complies with the current Rule 1111 NOx limit of 14 ng/J, but the furnace is not installed until after the PAR 1111 zero-emission effective date of January 1, 2027, the furnace would be exempt from the zero-emission limit and allowed to be installed.

Paragraph (h)(3) – Downflow furnaces for High Altitude

Existing Rule 111 paragraph (i)(3) provides an exemption from 14 ng/J NOx limit for downflow furnaces rated less than 175,000 Btu/hr and condensing or non-condensing furnaces greater than 100,000 Btu/hr installed at high-altitude. As suggested by stakeholders of high-altitude communities, staff will retain the downflow furnace exemption in PAR 1111 for high-altitude installation. Downflow furnaces certified to meet the 40 ng/J NOx limit are exempted from 14 ng/J NOx and zero-NOx emission standards. Large condensing or non-condensing furnaces greater than 100,000 Btu/hr for high-altitude installation are no longer exempted, effective at the date of rule adoption.

PAR 1111 (i) – Severability

Subdivision (i) was added regarding rule implementation if a lawsuit would be filed after the rule adoption. If any provision is invalidated by a judicial order, such order will not affect the implementation of the remainder of the rule according to this rule provision.

¹¹ <https://www.cpuc.ca.gov/regulatory-services/safety/mhp/mobilehome-park-utility-upgrade-program>

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 | <u>Informative Materials, Labeling, Recordkeeping, and Reporting</u> |
| (h) | Final Progress Report | Exemptions |
| (i) | Program Administration | (N/A) <u>Severability</u> |

PAR 1121 (a) – Purpose

The purpose of PAR 1121 is to reduce NOx emission from NOx-emitting ~~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 NOx-emitting 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:

- Consumer Price Index (CPI)
- Compliance Portal
- Existing Building
- Informative Materials
- Install
- Installer
- Master-Metered Mobile Home Parks
- Mobile Home
- New Building

- Parts Per Million by Volume
- Reseller
- Responsible Officials
- Standard Conditions
- Zero-NOx Emission Units

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 term Informative materials is defined to clarify the information needed in subdivision (g). Master-metered mobile home parks are defined as installations in master-metered mobile home parks are exempted from Zero-NOx emission standards. Zero-NOx emission unit is defined to clarify what appliances for space heating have zero-NOx emissions, which will be used in the new provision for manufacturer alternative compliance option. The term responsible official is also needed for the new provision for manufacturer alternative compliance option. Consumer Price Index (CPI) is defined, and the California annual average is used for mitigation fee adjustment as specified in the rule.

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. Mobile home definition is revised to align with the definitions by California Energy Commission and Federal Department of Housing and Urban Development.

The following definitions are considered obsolete or unnecessary 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~~ a person shall only manufacture, supply, sell, resell, offer for sale, import, or install a water heater for use in the South Coast AQMD a zero-NOx emission unit by that exceeds the Table 2 compliance dates, unless the NOx-emitting Water Heater is included in the zero-NOx emission manufacturer alternative compliance option pursuant to paragraph (f)(1) as indicated in the Informative Materials for the Water Heater pursuant to paragraph (g)(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. Mobile home water heaters for installation in existing buildings are not subject to zero-NOx emission limit. They will continue to comply with paragraph (d)(1) Table 1 NOx limit.

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

| Equipment Category | NOx limit (ng/J) | Building Type | Compliance Date |
|---------------------------------|------------------|---------------|--------------------------------|
| Water Heater* | 0.0 | New | January 1, <u>2027</u> 2026 |
| | 0.0 | Existing | January 1, <u>2029</u> 2027 |
| Mobile Home Water Heater | 0.0 | New | January 1, <u>2027</u> 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,² 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) – ~~Zero-Emission Manufacturer (ZEM) Alternative Compliance Option~~
~~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).~~

In lieu of complying with paragraph (d)(2) a manufacturer of water heaters, other than mobile home water heaters, can elect to comply with the ZEM alternative compliance option. This alternative compliance option allows for the sale of NOx emitting water heaters certified to emit 10 ng/J of NOx (or 15 ppmv) or less, given:

- The manufacturer submits an alternative compliance plan no later than November 1, 2026, detailing the requirements in subparagraph (f)(1)(A);
- The manufacturer sells, or enables distributors, retailers, resellers, or installs to sell Zero-NOx emission units into or within the South Coast AQMD at a percentage greater than or equal to the Zero-NOx emission unit sales targets specified in PAR 1121 Table 3 (presented as Table 3-4 in this Staff Report);
- The manufacturer pays a \$50 mitigation fee for each NOx-emitting water heater sold for the calendar year 2027 and adjusted by the CPI annual percent increase for each subsequent year after 2027. If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year; and
- The manufacturer submits a report and mitigation fee payment pursuant to paragraph (g)(2) no later than 90 days after the end of each calendar year utilizing this alternative compliance option.

Table 2-8: PAR 1111 Table 3 ZEM Alternative Compliance Option Targets

| <u>Compliance Phase</u> | <u>Phase 1</u> | <u>Phase 2</u> | <u>Phase 3</u> | <u>Phase 4</u> |
|--|-------------------|-------------------|-------------------|-----------------------|
| <u>Calendar Years</u> | <u>2027-2028</u> | <u>2029-2032</u> | <u>2033-2035</u> | <u>2036 and after</u> |
| <u>Zero-NOx Emission Unit Sales Target</u> | <u>30 percent</u> | <u>50 percent</u> | <u>75 percent</u> | <u>90 percent</u> |
| <u>NOx-emitting Water Heater Sales Target</u> | <u>70 percent</u> | <u>50 percent</u> | <u>25 percent</u> | <u>10 percent</u> |

Paragraph (f)(2) – ZEM Alternative Compliance Option Sales Target Deviation

Any water heater manufacturer that elects to comply with the ZEM alternative compliance option and sells more NOx-emitting water heaters than water heater sales target in PAR 1121 Table 3 (presented as Table 3-4 in this Staff Report) in one calendar year must pay the per unit mitigation fee outlined in Table 3 for each unit sold above the sales target. The mitigation fee for each water heater sold over target is \$250 for the calendar year 2027 and adjusted by the CPI annual percent increase for each subsequent year after 2027. If the CPI annual percent increase for a calendar year is greater than three percent, a three percent increase will apply to that year.

Below are two examples for determining the mitigation fee when a manufacturer sold more NOx-emitting water heaters than water heater sales target.

Example 1: From January 1, 2027, to December 31, 2027, a manufacturer sold 1,000 units with sales for NOx emitting water heaters and zero-NOx emission unit and 800 (80 percent) and 200 (20 percent) respectively.

Since the 2027 NOx-emitting water heater sales were over the water heaters sales target that is 70 percent, the mitigation fee should be calculated as below:

- Number of NOx-emitting water heaters within the target = $1000 \times 70\% = 700$
- Mitigation fee per PAR 1121 subparagraph (f)(1)(F) = $\$50 \times 700 = \$35,000$
- Mitigation fee for water heaters sold over target = $\$250 \times (800 - 700) = \$25,000$
- Total mitigation fee this manufacture should pay for 2027 = $\$35,000 + \$25,000 = \$60,000$

Example 2: From January 1, 2028, to December 31, 2028, a manufacturer sold 1,000 units with sales for NOx emitting water heaters and zero-NOx emission units 750 (75 percent) and 250 (25 percent) respectively. Since the 2028 NOx-emitting water heater sales were over the water heater sales target that is 70 percent, the mitigation fee should be calculated as below:

- Number of NOx-emitting water heaters within the target = $1,000 \times 70\% = 700$
- Since it is after 2027, the mitigation fee rates should be CPI adjusted. Assuming California CPI annual percent increase for 2028 is 2.8 percent
- Mitigation fee rate for water heaters sold within the target is adjusted to $\$50 \times (1 + 2.8\%) = \51.4 per water heater
- Mitigation fee rate for water heaters sold over the target is adjusted to $\$250 \times (1 + 2.8\%) = \257.0 per water heater
- Mitigation fee for water heaters within the target per PAR 1111 subparagraph (f)(1)(F) = $\$51.4 \times 700 = \$35,980$
- Mitigation fee for water heaters sold over target = $\$257.0 \times (750 - 700) = \$12,850$
- Total mitigation fee this manufacture should pay for 2028 = $\$35,980 + \$12,850 = \$48,830$

Example 3: From January 1, 2029, to December 31, 2029, a manufacturer sold 1,000 units with sales for NOx emitting water heaters and zero-NOx emission units 600 (60 percent) and 400 (40 percent) respectively. Since the 2029 NOx-emitting water heater sales were over the water heater sales target that is 50 percent, the mitigation fee should be calculated as below:

- Number of NOx-emitting water heater within the target = $1,000 \times 50\% = 500$
- Since it is after 2027, the mitigation fee rates should be CPI adjusted. Assuming California CPI annual percent increase is 2.8 percent for 2028 and 3.5 percent for 2029,

we will use 2.8 percent for 2028 but 3.0 percent for 2029 CPI adjustment since it is higher than 3.0 percent

- Mitigation fee rate for water heaters sold within the target is adjusted to $\$50 \times (1+2.8\%)(1+3.0\%) = \52.9 per water heater
- Mitigation fee rate for water heaters sold within the target is adjusted to $\$250 \times (1+2.8\%)(1+3.0\%) = \264.7 per water heater
- Mitigation fee for units within the target per PAR 1111 subparagraph (f)(1)(F) = $\$52.9 \times 500 = \$26,450$ • Mitigation fee for water heaters sold over target = $\$264.7 \times (600-500) = \$26,470$
- Total mitigation fee this manufacture should pay for 2028 = $\$26,450 + \$26,470 = \$52,920$

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) – Informative Materials Labeling, Recordkeeping, and Reporting

Subdivision (g) is a new subdivision that details the informative materials, labeling, recordkeeping, and reporting requirements. Informative materials and Labeling requirements are important tools for enforcement, especially when some units distributed to the market can only be installed under certain conditions. ~~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) – Informative Materials for Water Heaters

Two types of NOx-emitting water heaters are subject to this provision for informative materials, which are:

- Any mobile home water heater that is for existing building or any mobile homes in a master metered mobile home park; and
- Any water heater sold under the ZEM alternative compliance option pursuant to paragraph (f)(1) in lieu of complying with paragraph (d)(2).

Those water heaters that are for distribution or sale inside of the South Coast AQMD shall distribute or publish informative materials that clearly display the language outlined in paragraph (g)(1). Informative materials include: the consumer brochure for the water heater, technical specification sheet for the water heater, and the manufacturer's website that promotes, discusses, or lists the water heater. The manufacturer may use alternative language to the language in subparagraph (g)(1)(A) or (g)(1)(B), provided that the language is similar and is approved.

Paragraph (g)(2) – Reporting and Recordkeeping Requirements for ZEM Alternative Compliance Option

The manufacturer of a water heater supplied or offered for use within the South Coast AQMD in accordance with the ZEM alternative compliance option shall submit to the Executive Officer a report, signed by the responsible official for the manufacturer no later than 90 days after the end of each calendar year using the alternative compliance option. The report shall include information specified in subparagraph (g)(2)(A) for the applicable calendar year.

The manufacturer shall also maintain records for at least five years, including, but not limited to, the information listed in subparagraph (g)(2)(B).

Paragraph (g)(3) – New and Existing Building Labeling Requirements

A manufacturer can elect to comply with paragraph (d)(2) directly or through alternative compliance option by paragraph (f)(1).

This provision specifies labeling requirement for any manufacturer that is not electing to comply using alternative compliance option by paragraph (f)(1). As specified in paragraph (d)(2), the manufacturer will be subject to the zero-NO_x emission compliance date for new buildings on January 1, 2027, for existing buildings on January 1, 2029, except for mobile home water heaters.

PAR 1121 proposes a labeling requirement for the period between the new building compliance date and existing building compliance date for each water heater, except for mobile water heaters.

Subparagraph (g)(3)(A) specifies the labeling language. Subparagraph (g)(3)(B) allows manufacturers flexibility in the labeling by posting alternative language as long as the language is similar to subparagraph (g)(3)(A) and approved.

Clause (g)(3)(B)(ii) requires the manufacturer to use the language in subparagraph (g)(3)(A) if the alternative language is not approved.

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 compliance dates that complies with the PAR 1121 Table 1 NO_x 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)(43) – 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) – Exemption from Zero-NOx Emission Limit

Three types of NOx-emitting water heaters are subject to this provision for exemption from zero-NOx emission limit, which are:

- Mobile home water heaters in compliance with paragraph (d)(1) for installation in existing mobile homes;
- Mobile home water heaters in compliance with paragraph (d)(1) for installation or use in new buildings or existing buildings located 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; and
- Water heaters in compliance with paragraph (d)(1) that will be installed or used in new buildings with building permit issued prior to [Date of Adoption] by the appropriate enforcement agency.

Mobile home water heaters in existing mobile homes are exempt from zero-NOx emission requirements due to unique challenges on zero-NOx emission implementation for mobile homes as discussed in Chapter 2.

With the consideration that master-metered mobile homes may currently not have sufficient electrical service to install-emission appliances, subparagraph (h)(3)(B) provides them an exemption from zero-NOx 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 2030.¹² When mobile homes are converted, they are no longer be exempt by this provision.

Due to potentially long timelines between building permit approval and actual installation of a water heater, subparagraph (h)(3)(C) exempts installations in new buildings if the water heater permit was granted prior to the date of rule adoption. The building permit must be issued by the appropriate enforcing agency according to the California Building Code, either city, county, or state. For example, if a building is in the process of being constructed and the building owner obtains a permit from the city to install a water heater that complies with the current Rule 1121 Table 1 NOx emission limit, but the water heater is not installed until after the PAR 1121 zero-emission effective date of January 1, 2027, the water heater would be exempt from the zero-emission limit and allowed to be installed.

PAR 1111 (i) – Severability

Subdivision (i) was added regarding rule implementation if a lawsuit would be filed after the rule adoption. If any provision is invalidated by a judicial order, such order will not affect the implementation of the remainder of the rule according to this rule provision.

¹² Mobilehome Park Utility Conversion Program. <https://www.cpuc.ca.gov/regulatory-services/safety/mhp/mobilehome-park-utility-upgrade-program>

~~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 service¹³ by 2030, wherein the mobile home 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 for space heating with a rated heat input capacity less than ~~or equal to 2,000,000~~ 175,000 Btu/hr ~~used for interior space heating, or for combination heating and cooling units, a cooling rate of less than 65,000 Btu/hr.~~ 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 5,237,000 ~~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 5,128,000 ~~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

Zero-Emission Technology and Emerging Technology

Zero-emission technologies such as heat pumps, electric resistance, and fuel cell technologies were explored as part of the BARCT assessment, all of which are proven technologies that have been in operation for decades. Staff conducted internet searches and met with stakeholders to gather more information on zero-emission technologies and emerging technology.

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.¹⁴ 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 \geq 15 amps) and can be

¹⁴ 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

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 SANCO₂ Heat Pump Water Heater system has been observed in use for multifamily retrofit projects including the South Coast AQMD Multifamily Affordable Housing Electrification Project.^{15, 16} 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.¹⁷ The Hot Water Innovation Prize intends to reward manufacturers that develop innovative split system HPWHs and bring the technology to market.¹⁸

Multi-function heat pumps (MFHP) are another emerging 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 Thermal¹⁹ and Villara Aqua ThermAire²⁰ are market available MFHP products and more developments are underway²¹.

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

¹⁵ ECO2 Systems Product Information. <https://eco2waterheater.com/product-info/>

¹⁶ South Coast AQMD’s Governing Board Agenda. <https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-jan4-002.pdf>

¹⁷ The next generation of Heat Pump Water Heaters. [https://embertec.com/heat-pump\(-water-heaters/](https://embertec.com/heat-pump(-water-heaters/)

¹⁸ Hot Water Innovation prize. <https://partners.hotwatersolutionsnw.org/hot-water-innovation-prize>

¹⁹ Harvest. <https://www.harvest-thermal.com/>

²⁰ AquathermAire-One-Sheet. <https://villara.com/wp-content/uploads/2024/03/1.22-AquathermAire-One-Sheet.pdf>

²¹ 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

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.

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. Manufacturers are also providing HPWHs that are HUD approved for mobile home installation. For example, Clayton Homes eBuilt shows a Rheem ProTerra heat pump water heater²². 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 (CO₂). The hydrogen is then sent to the fuel cell, which produces electricity and heat as a byproduct, producing zero NO_x. 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

²² Clayton Homes eBuilt, <https://www.claytonbuilt.com/ebuilt>

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.²³ 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 NO_x 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.

²³ U.S. Department of Energy, Multi-Year Research, Development, and Demonstration Plan,
https://www.energy.gov/sites/default/files/2017/05/f34/fcto_myrd_d_fuel_cells.pdf

CHAPTER 3

EXISTING SETTING

Introduction

Existing Setting

Air Quality and Greenhouse Gas Emissions

Energy

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 and 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 NO_x emissions from space heaters in residential ~~and commercial~~ buildings, and Rule 1121 to reduce NO_x emissions from water heaters in residential buildings. Control Measures R-CMB-01 and R-CMB-02, ~~and C-CMB-02~~ in the 2022 AQMP were developed to achieve further NO_x 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 and 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 NO_x Appliances – Residential Water Heating and R-CMB-02 – Emission Reductions from Replacement with Zero Emission or Low NO_x Appliances – Residential Space Heating; ~~and C-CMB-02 – Emission Reductions from Replacement with Zero Emission or Low NO_x 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 NO_x, 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 and R-CMB-02, ~~and C-CMB-02~~ were developed to further reduce NO_x emissions from residential building water heating sources regulated by Rule 1121, residential space heating sources regulated by Rule 1111, ~~and commercial space heating sources regulated by Rule 1121~~, respectively, and proposed to 1) develop rules to require zero-NO_x emission heating units for installations in both new and existing residences ~~and commercial buildings~~; 2) allow low NO_x technologies as a transitional alternative when installing a zero-NO_x emission unit is determined to be infeasible; and 3) provide incentive funds to facilitate the transition to zero-NO_x emission technologies and promote further emission reductions earlier than required.

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

Rule 1111 regulates NO_x 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 NO_x 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 NO_x 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 NO_x 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 NO_x 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 NO_x emission limit of 10 ng/J, except for mobile home water heaters that are subject to a NO_x 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 (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), particulate matter (PM, which includes PM₁₀ and PM_{2.5}), 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 PM_{2.5}, 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 PM_{2.5} 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 (O₃) | 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 (PM_{2.5}) | 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 (NO₂) | 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 (SO₂) | 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 (H₂S) | 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/m ³ = micrograms per cubic meter mg/m ³ = milligrams per cubic meter | | | | |

^a The California ambient air quality standards for O₃, CO, SO₂ (1-hour and 24-hour), NO₂, 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 O₃ and those based on annual averages are not to be exceeded more than once a year. The O₃ 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.^{24,25,26}

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 NO₂ 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.

²⁴ U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants. <https://www.epa.gov/criteria-air-pollutants>, accessed on September 19, 2024.

²⁵ 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.

²⁶ 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 – CO²⁷

| 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. | | | | |

²⁷ 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 (O₃), 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.^{28,29,30}

As summarized in Table 3-3, O₃ 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 O₃ (0.070 ppm), the state 1-hour O₃ standard (0.09 ppm), and the state 8-hour O₃ standard (0.070 ppm) in 2020. All but one station (Southwest Coast LA County) exceed the former 2008 federal 8-hour O₃ standard (0.075 ppm).

Maximum 1-hour average and 4th highest 8-hour³¹ 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.

²⁸ U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants <https://www.epa.gov/criteria-air-pollutants>, accessed on September 19, 2024.

²⁹ South Coast AQMD. 2015. Health Effects of Air Pollution. <http://www.aqmd.gov/docs/default-source/publications/brochures/the-health-effects-of-air-pollution-brochure.pdf>, accessed on September 19, 2024.

³⁰ South Coast AQMD. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. <https://www.aqmd.gov/home/research/guidelines/planning-guidance/guidance-document>, accessed on September 19, 2024.

³¹ 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 – O₃³²

| 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. | | | | | | | | | | |

³² South Coast AQMD, 2021. 2020 Air Quality, South Coast Air Quality Management District, Historical Air Quality Data for Year 2020 at locations where O₃ 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

NO₂ is a reddish-brown gas with a bleach-like odor. Nitric oxide (NO) is a colorless gas, formed from the nitrogen (N₂) and oxygen (O₂) 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 NO₂. NO₂ is responsible for the brownish tinge of polluted air. The two gases, NO and NO₂, are referred to collectively as NO_x. In the presence of sunlight, NO₂ reacts to form nitric oxide and an oxygen atom. The oxygen atom can react further to form O₃, via a complex series of chemical reactions involving hydrocarbons. Nitrogen dioxide may also react to form nitric acid (HNO₃) which reacts further to form nitrates, components of PM_{2.5} 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 NO₂ 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 NO₂ 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 NO₂ exposures and cardiopulmonary mortality, decreased lung function, respiratory symptoms, and emergency room asthma visits. In animals, exposure to levels of NO₂ 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 NO₂.^{33,34,35}

With the revised NO₂ federal standard in 2010, near-road NO₂ 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, NO₂ 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.³⁶ The highest annual average NO₂ concentration recorded was 29.1 ppb (at the CA-60 Near Road station), which is less than the federal and state annual NO₂ 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 NO₂ standards.

³³ U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants, <https://www.epa.gov/criteria-air-pollutants>, accessed on September 19, 2024.

³⁴ 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.

³⁵ 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>

³⁶ 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 – NO₂³⁷

| NITROGEN DIOXIDE (NO ₂) ^a | | | | | |
|---|------------------------------------|--|--------------------------|--|------------------------------|
| Source Receptor Area No. | Location of Air Monitoring Station | No. Days of Data | Max. Conc. in ppb 1-hour | 98 th 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 98 th 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. | | | | | |

³⁷ South Coast AQMD, 2021. 2020 Air Quality, South Coast Air Quality Management District, Historical Air Quality Data for Year 2020 at locations where NO₂ 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 PM_{2.5}. 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.^{38,39,40}

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 PM_{2.5}. 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.

³⁸ U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants, <https://www.epa.gov/criteria-air-pollutants>, accessed on September 19, 2024.

³⁹ 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

⁴⁰ 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 – SO₂⁴¹

| SULFUR DIOXIDE (SO2) ^a | | | | |
|--|------------------------------------|------------------------------|---------------------------------|---|
| Source Receptor Area No. | Location of Air Monitoring Station | No. Days of Data | Maximum Conc. ppb, 1-hour | 99 th 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 PM_{2.5})

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 (PM_{2.5}) 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 PM_{2.5} and increased mortality, reduction in lifespan, and an increased mortality from lung cancer. Daily fluctuations in PM_{2.5} 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 PM_{2.5}.^{42,43,44}

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/m³) since 2006,

⁴¹ South Coast AQMD, 2021. 2020 Air Quality, South Coast Air Quality Management District, Historical Air Quality Data for Year 2020 at locations where SO₂ was monitored; http://www.aqmd.gov/docs/default-source/air-quality/historical-data-by-year/aq2020card_final.pdf, accessed on September 19, 2024

⁴² U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants, <https://www.epa.gov/criteria-air-pollutants>, accessed on September 19, 2024

⁴³ 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

⁴⁴ 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 $\mu\text{g}/\text{m}^3$ 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 $\mu\text{g}/\text{m}^3$. The state 24-hour PM10 (50 $\mu\text{g}/\text{m}^3$) 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 $\mu\text{g}/\text{m}^3$ was recorded at the Metropolitan Riverside County 3 station. The federal annual PM10 standard has been revoked. The state annual PM10 standard (20 $\mu\text{g}/\text{m}^3$) 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 $\mu\text{g}/\text{m}^3$ 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 $\mu\text{g}/\text{m}^3$ was recorded at the Metropolitan Riverside County station, less than the federal 24-hour PM2.5 standard of 35 $\mu\text{g}/\text{m}^3$. There is no state 24-hour standard for PM2.5. The maximum annual average PM2.5 concentration of 14.36 $\mu\text{g}/\text{m}^3$ was recorded at the CA-60 Near Road station, greater than the federal and state annual PM2.5 standard of 12 $\mu\text{g}/\text{m}^3$.

Table 3-6
South Coast AQMD – 2020 Air Quality Data – PM10⁴⁵

| SUSPENDED PARTICULATE MATTER PM10 ^{a+} | | | | | | |
|--|------------------------------------|---|--|---|--|---|
| Source Receptor Area No. | Location of Air Monitoring Station | No. Days of Data | Max. Conc. µg/m ³ , 24-hour | No. (%) Samples Exceeding Standard | | Annual Average AAM Conc. ^b µg/m ³ |
| | | | | Federal > 150 µg/m ³ , 24-hour | State > 50 µg/m ³ , 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/m ³ = micrograms per cubic meter of air AAM = Annual Arithmetic Mean **Salton Sea Air Basin | | + High PM10 (≥ 155 µg/m ³) 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/m ³ . Federal annual PM10 standard (AAM > 50 µg/m ³) 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. | | | | | | |

⁴⁵ 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 – PM_{2.5}⁴⁶

| SUSPENDED PARTICULATE MATTER PM2.5 ^a | | | | | | |
|---|------------------------------------|------------------------------|--|--|--|---|
| Source Receptor Area No. | Location of Air Monitoring Station | No. Days of Data | Max. Conc. µg/m ³ , 24-hour | 98 th Percentile Conc. in µg/m ³ 24-hr | No. (%) Samples Exceeding Federal Std > 35 µg/m ³ , 24-hour | Annual Average AAM Conc. ^b µg/m ³ |
| 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/m ³ = micrograms per cubic meter of air | | AAM = Annual Arithmetic Mean | | | | |
| **Salton Sea Air Basin | | | | | | |
| ^a PM2.5 statistics listed above are for the FRM data only with the exception of Central Orange County, I-710 Near Road, Metropolitan Riverside County 1 and 3, CA-60 Near Road, and South Coastal LA Count 2 where FEM PM2.5 measurements are used to supplement missing FRM measurements because they pass the screening criteria for the South Coast AQMD Continuous Monitor Comparability Assessment and Request for Waiver dated July 1, 2021. | | | | | | |
| ^b Federal and State standards are annual average (AAM) > 12.0 µg/m ³ . | | | | | | |
| ^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

⁴⁶ South Coast AQMD, 2021. 2020 Air Quality, South Coast Air Quality Management District, Historical Air Quality Data for Year 2020 at locations where PM_{2.5} 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.^{47, 48, 49}

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 $0.15 \mu\text{g}/\text{m}^3$. Further, the state 30-day standard of $1.5 \mu\text{g}/\text{m}^3$ 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 (SO₃), 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 PM_{2.5}.

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.^{50,51,52}

As summarized in Table 3-8, South Coast AQMD monitored sulfate at seven monitoring stations in 2020. The state 24-hour sulfate standard of $25 \mu\text{g}/\text{m}^3$ 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.

⁴⁷ U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants, <https://www.epa.gov/criteria-air-pollutants>, accessed on September 19, 2024

⁴⁸ 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.

⁴⁹ 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

⁵⁰ U.S. Environmental Protection Agency. 2020. Criteria Air Pollutants. <https://www.epa.gov/criteria-air-pollutants>, accessed on September 19, 2024

⁵¹ South Coast AQMD. 2015. Health Effects of Air Pollution. <http://www.aqmd.gov/docs/default-source/publications/brochures/the-health-effects-of-air-pollution-brochure.pdf>, accessed on September 19, 2024.

⁵² South Coast AQMD. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. <https://www.aqmd.gov/home/research/guidelines/planning-guidance/guidance-document>, accessed on September 19, 2024

Table 3-8
South Coast AQMD – 2020 Air Quality Data – Lead and Sulfates⁵³

| South Coast AQMD 2016 Air Quality Data - Lead and Sulfates | | | | | |
|---|------------------------------------|--|--|-----------------------|--|
| Source Receptor Area No. | Location of Air Monitoring Station | LEAD ^{a++} | | SULFATES ^b | |
| | | Max. Monthly Average Conc. ^m µg/m ³ | Max. 3-Month Rolling Average ^m µg/m ³ | No. Days of Data | Max. Conc. µg/m ³ , 24-hour |
| LOS ANGELES COUNTY | | | | | |
| 1 | Central LA | 0.013 | 0.011 | 45 | 3.3 |
| 3 | Southwest Coastal LA County | 0.008 | 0.005 | -- | -- |
| 4 | South Coastal LA County 2 | 0.008 | 0.006 | -- | -- |
| 4 | South Coastal LA County 3 | -- | -- | 14 | 2.3 |
| 9 | East San Gabriel Valley 1 | 0.010 | 0.007 | 45 | 3.1 |
| 11 | South San Gabriel Valley | 0.012 | 0.011 | -- | -- |
| 12 | South Central LA County | 0.010 | 0.009 | -- | -- |
| ORANGE COUNTY | | | | | |
| 17 | Central Orange County | -- | -- | 44 | 3.3 |
| RIVERSIDE COUNTY | | | | | |
| 23 | Metropolitan Riverside County 1 | 0.016 | 0.010 | 84 | 5.2 |
| 30 | Coachella Valley 2** | -- | -- | 89 | 2.7 |
| SAN BERNARDINO COUNTY | | | | | |
| 34 | Central San Bernardino Valley 1 | -- | -- | 44 | 3.0 |
| 34 | Central San Bernardino Valley 2 | 0.010 | 0.09 | -- | -- |
| DISTRICT MAXIMUM ^(c) | | 0.016 | 0.011 | | 5.2 |
| SOUTH COAST AIR BASIN ^(d) | | 0.016 | 0.011 | | 5.2 |
| µg/m ³ = micrograms per cubic meter of air -- Pollutant not monitored ** Salton Sea Air Basin | | ++ Higher lead concentrations were recorded at near-source monitoring sites immediately downwind of stationary lead sources. Maximum monthly and 3-month rolling averages recorded were 0.96 µ/m ³ and 0.059 µ/m ³ . | | | |
| a Federal lead standard is 3-months rolling average > 0.15 µg/m ³ ; state standard is monthly average ≥ 1.5 µg/m ³ . Lead standards were not exceeded. | | | | | |
| b State sulfate standard is 24-hour ≥ 25 µg/m ³ . There is no federal standard for sulfate. | | | | | |
| c District Maximum is the maximum value calculated at any station in the South Coast AQMD jurisdiction. | | | | | |
| d Concentrations are the maximum value observed at any station in the South Coast Air Basin. Number of daily exceedances are the total number of days that the indicated concentration is exceeded at any station in the South Coast Air Basin. | | | | | |

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).⁵⁴ 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.

⁵³ 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.

⁵⁴ 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 V⁵⁵) 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.⁵⁶

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.

⁵⁵ 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.

⁵⁶ Jacobsen, Mark Z. "Enhancement of Local Air Pollution by Urban CO₂ 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 (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), 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 (CO₂)** 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 CO₂ include burning coal, oil, gasoline, natural gas, and wood.
- **Methane (CH₄)** is a flammable gas and is the main component of natural gas.
- **Nitrous Oxide (N₂O)**, 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 N₂O.
- **Sulfur hexafluoride (SF₆)** is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF₆ 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 (CO₂eq) 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.⁵⁷

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.⁵⁸ Effects of climate change include rising sea levels and changes in snowpack.⁵⁹ 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, CO₂ accounts for 83 percent of the total 418.2 million metric tons (MT) of CO₂eq emissions in the state in 2019. Figure 3-2 illustrates that transportation (primarily on-road travel) is the single largest source of CO₂ emissions in the state. Upstream transportation emissions from the refinery and oil and gas sectors are categorized as CO₂ 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 CO₂ 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.

⁵⁷ 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.

⁵⁸ 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.

⁵⁹ 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.

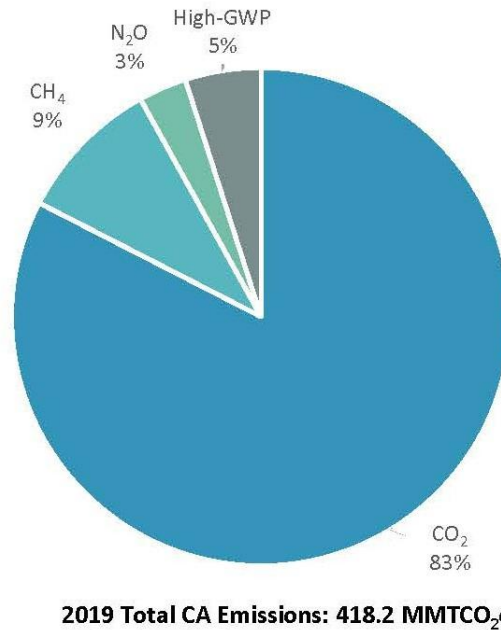


Figure 3-1
2019 Statewide GHG Emission Contributions by GHG⁶⁰

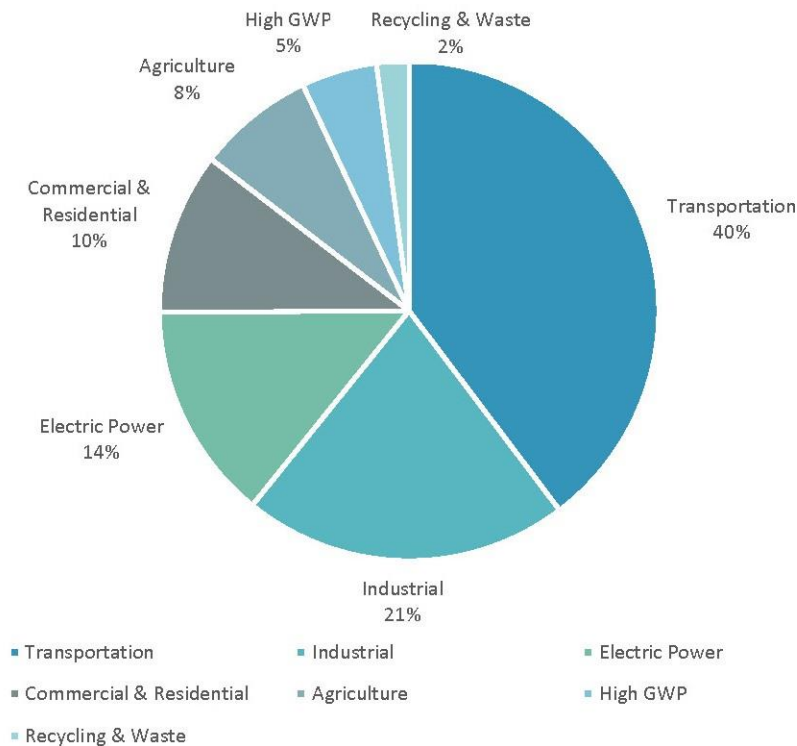


Figure 3-2
2019 Statewide GHG Emission Contributions by Scoping Plan Sector⁶¹

⁶⁰ 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.

⁶¹ 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 CO₂eq 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 CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆ 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 2022.⁶² 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-NO_x emission vehicles across the heavy-duty sector.⁶³

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

⁶² 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.

⁶³ 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 CO₂ equivalent emissions (CO₂eq) 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 CO₂eq 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 CO₂ 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 CO₂eq 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.⁶⁴ 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

⁶⁴ 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.⁶⁵ 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 MTCO₂eq for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030.⁶⁶

California's climate strategy will require contributions from all sectors of the economy, including enhanced focus on zero-NO_x 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.

⁶⁵ California Air Resources Board. 2008, December. Climate Change Scoping Plan, A Framework for Change.

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.

- 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.⁶⁷

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 MTCO₂eq or less per capita by 2030 and two MTCO₂eq 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.⁶⁸

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 MTCO₂eq 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

⁶⁷ 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.

⁶⁸ 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.⁶⁹

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.”⁷⁰ 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 2025.⁷¹

⁶⁹ 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.

⁷⁰ California Legislative Information, AB-1493 Vehicular Emissions: Greenhouse Gases, https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=200120020AB1493, accessed on September 19, 2024..

⁷¹ 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 CO₂, CH₄, N₂O, 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, 2010.⁷²

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.^{73,74} The updated targets became effective on October 1, 2018. The targets consider the need to further reduce VMT, as identified in the 2017 Scoping

⁷² 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.

⁷³ 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.

⁷⁴ 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).⁷⁵ 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.⁷⁶ 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

⁷⁵ 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.

⁷⁶ 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 retail 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 CO₂eq 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.⁷⁷

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.⁷⁸

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.

⁷⁷ California Legislative Information, September 14, 2018, AB-2127 Electric Vehicle Charging Infrastructure: Assessment, https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB2127, accessed on September 19, 2024.

⁷⁸ 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.⁷⁹ 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.

⁷⁹ 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-NOx 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-NOx 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 2045.⁸⁰

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.⁸¹

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 2045.⁸²

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.

⁸⁰ City of Los Angeles, L.A.'s Green New Deal, Sustainability Plan 2019, <https://plan.mayor.lacity.gov/>.

⁸¹ 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>

⁸² 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.⁸³

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.⁸⁴

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.

⁸³ Southern California Edison, <https://www.sce.com/about-us/who-we-are/leadership/our-service-territory>

⁸⁴ 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.⁸⁵ 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 |

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

⁸⁵ Long Beach Energy Resources Department, <https://www.longbeach.gov/energyresources/>. Accessed September 12, 2024.

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 2040.⁸⁶ 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 is 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.⁸⁷

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

⁸⁶ SoCalGas Utility Report. <https://www.pge.com/assets/pipeline/docs/library/regulatory/downloads/cgr24.pdf.coredownload.pdf>

⁸⁷ 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.⁸⁸

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.⁸⁹

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.⁹⁰

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 use⁹¹. The major wind farms in California, are located in six regions: San Geronio, Altamont, East San Diego County, Pacheco, Solano, and Tehachapi passes. The wind farms in the San Geronio 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.⁹²

⁸⁸ 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

⁸⁹ 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

⁹⁰ California Energy Commission. California Solar Energy Statistics and Data. Available online at: <https://www.californiadgstats.ca.gov/>, accessed September 9, 2024.

⁹¹ 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>

⁹² 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.⁹³

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).⁹⁴

3.3.2.4 Transportation Fuels

Petroleum-Based Fuels

In 2023, 13.6 billion gallons of gasoline (non-diesel) were sold in California.⁹⁵ 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.⁹⁶ 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

⁹³ <https://www.lacsd.org/services/solid-waste/facilities/southeast-resource-recovery-facility-serrf>, accessed on September 10, 2024.

⁹⁴ SoCalGas Utility Report. <https://www.pge.com/assets/pipeline/docs/library/regulatory/downloads/cgr24.pdf.coredownload.pdf>

⁹⁵ 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>.

⁹⁶ 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.⁹⁷

In 2022, the annual biodiesel and renewable diesel production in the U.S. were 1,699 million gallons, and 1,483 million gallons, respectively.⁹⁸ California's renewable diesel consumption grew substantially after its Low Carbon Fuel Standards (LCFS) went into effect in 2011. Between 2011 and 2021, consumption grew from one million barrels to 28 million barrels per year.⁹⁹ 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.¹⁰⁰

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). Liquefied 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 over 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

⁹⁷ Id.

⁹⁸ 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>.

⁹⁹ 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>.

¹⁰⁰ 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 projects¹⁰¹. 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 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 |

¹⁰¹ 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

Introduction

Potential Significant Environmental Impacts and Mitigation Measures

Air Quality and Greenhouse Gas Impacts

Energy Impacts

Potential Environmental Impacts Found Not to be Significant

Significant Environmental Effects Which Cannot be Avoided

Significant Irreversible Environmental Changes

Potential Growth-Inducing Impacts

Relationship Between Short-Term and Long-Term Environmental Goals

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 and 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-NOx 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 and 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 NO_x 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 Measure R-CMB-02 ~~and C-CMB-02~~ was 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 and 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~~ less than significant 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 and 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 and 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.¹⁰² 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.

¹⁰² 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 ₂ eq 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 – 99 th 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 $\mu\text{g}/\text{m}^3$ = microgram per cubic meter \geq = greater than or equal to
 MT/yr CO₂eq = metric tons per year of CO₂ equivalents $>$ = greater than

Revision: April 2019

PAR 1111 and PAR 1121 will require zero-NO_x 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.~~

Space and water heating appliances for existing mobile homes and any mobile home in master-metered mobile home parks will be exempt from the zero-NO_x emission standards, and mobile home appliances will transition to zero-NO_x emission appliances in new mobile homes or when existing mobile homes are replaced with new mobile homes. Downflow space heating furnaces for high-altitude installation are also exempted from zero-NO_x emission standards.

A Zero-NO_x Manufacturer (ZEM) alternative compliance option is provided that establishes compliance targets for the sale of NO_x-emitting and Zero-NO_x emission appliances. The targets change over time to transition the market to zero-NO_x emission appliances. The ZEM alternative compliance option also includes fees for the sale of all NO_x-emitting appliances, with higher fees for the NO_x-emitting appliances sold over the compliance target. The fees for appliances sold over the targets increase annually to reflect consumer price index.

The alternative compliance options allow time for necessary construction to occur so that the zero-NO_x 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~~ residential buildings are expected to require construction equipment. Replacements 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-NOx emission heaters in residences. Electrical service panel upgrades for residential ~~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~~ residential 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~~ residential buildings, it is difficult to form a representative construction scenario.

~~PAR 1111 will affect 200,000 commercial buildings. An SCE report¹⁰³ 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~~ residential 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,

¹⁰³ SCE, Building Inventory for Strategic Electrification, Interim Report, 2024. <https://www.etcc-ca.com/reports/building-inventory-strategic-electrification>

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 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 the potential to reduce some pollutants, especially particulates including diesel PM, as well as some NO_x and VOC emissions. However, the reason the construction air quality impacts are concluded to be significant is because the NO_x 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 NO_x emissions would be reduced to a limited extent, the quantity of potential NO_x 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-NO_x emission heating units for installations in both new and existing residences and commercial buildings; the rules will affect 5,237,000 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.~~ Space and water heating appliances for existing mobile homes and any mobile home in master-metered mobile home parks will be exempt from the zero-NO_x emission standards, and mobile home appliances will transition to zero-NO_x emission appliances in new mobile homes or when existing mobile homes are replaced with new mobile homes. Downflow space heating furnaces for high-altitude installation are also exempted from zero-NO_x emission standards.

A Zero-NOx Manufacturer (ZEM) alternative compliance option is provided that establishes compliance targets for the sale of NOx-emitting and Zero-NOx emission appliances. The targets change over time to transition the market to zero-NOx emission appliances. The ZEM alternative compliance option also includes fees for the sale of all NOx-emitting appliances, with higher fees for the NOx-emitting appliances sold over the compliance target. The fees for appliances sold over the targets increase annually to reflect consumer price index. The alternative compliance options allow time for necessary construction to occur so that the zero emission heating units can be installed. Replacements 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 ZEM alternative compliance option provides a transitional approach that allows continued sale of compliant NOx-emitting appliances while the market shifts toward zero-NOx emission technologies. This transition period helps facilitate the necessary infrastructure upgrades, such as expanding installation space or upgrading electrical service panels in residences, to support the installation of zero-NOx emission units. These upgrades are generally expected to be minor and achievable using hand tools.

The Final Program EIR for the 2022 AQMP determined that implementation of control measures such as R-CMB-01 and 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-NOx emission water heating units for new and existing residences. The zero-NOx 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-NOx emission space heating units for new and existing residences. The zero-NOx 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 and 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; the original rule concept for PAR 1111 and PAR 1121 together are expected to affect over 10 million units, and the analysis in the Draft SEA was based on 100 percent of the units are expected to being replaced with zero-NOx emission technology. However, with the revised rule concept for PAR 1111 and PAR 1121, which allows for the installation of low-NOx emission units, the analysis in this SEA has been updated to reflect four implementation phases corresponding to the compliance sales targets. In Phase 1 (2027-2028), 30 percent of the equipment would be replaced with zero-NOx technology, while the remaining 70 percent would utilize low-NOx units. In Phase 2 (2029-2032), the mix shifts to 50 percent zero-NOx and 50 percent low-NOx. By Phase 3 (2033-2035), 75 percent of equipment replacement is projected to be zero-NOx, with 25 percent low-NOx. Finally, in Phase 4 (2036 and thereafter), 90 percent of the replacement equipment would be zero-NOx, with only 10 percent utilizing low-NOx. 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 and 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

| Final Program EIR for 2022 AQMP | Control Measure | Total Number of Affected Units | Estimated Electricity Use ⁽¹⁾ | Estimated Total Electricity Use (Gwh/Yr) |
|---|------------------------|--|--|---|
| | R-CMB-01 | Of 2 million water heaters installed, 50% of residences will be zero-NOx emission and 50% will be low NOx space <u>water</u> heaters. ⁽²⁾ | 380-500 kWh/month | 6,000 |
| | R-CMB-02 | Of 2 million space heaters installed, 50% of residences will be zero-NOx 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 6,600 |
| <u>Revised Rule Concept for PAR 1111 and PAR 1121 (Phase 1)</u> | <u>Control Measure</u> | <u>Total Number of Affected Units</u> | <u>Estimated Electricity Use⁽¹⁾</u> | <u>Estimated Total Electricity Use (Gwh/Yr)</u> |
| | <u>R-CMB-01</u> | <u>Of 5,128,800 water heaters installed, 30% will be zero-NOx emission and 70% will be low-NOx emission by 2028⁽²⁾</u> | <u>380-500 kWh/month</u> | <u>9,230</u> |
| | <u>R-CMB-02</u> | <u>Of 5,237,000 space heaters installed; 30% will be zero-NOx emission and 70% will be low-NOx emission by 2028⁽³⁾</u> | <u>1.5 KWh/hr</u> | <u>943</u> |
| | Total | | | 10,173 |

Table 4-3 (concluded)
Comparison of Potential Increase in Electricity Use

| | | | | |
|---|---|--|--|---|
| <u>Revised Rule Concept for PAR 1111 and PAR 1121 (Phase 2)</u> | <u>Control Measure</u> | <u>Total Number of Affected Units</u> | <u>Estimated Electricity Use⁽¹⁾</u> | <u>Estimated Total Electricity Use (Gwh/Yr)</u> |
| | <u>R-CMB-01</u> | <u>Of 5,128,800 water heaters installed, 50% will be zero-NOx emission and 50% will be low-NOx emission by 2032 ⁽²⁾</u> | <u>380-500 kWh/month</u> | <u>15,384</u> |
| | <u>R-CMB-02</u> | <u>Of 5,237,000 space heaters installed; 30% will be zero-NOx emission and 70% will be low-NOx emission by 2032 ⁽³⁾</u> | <u>1.5 KWh/hr</u> | <u>1,571</u> |
| | <u>Total</u> | | | <u>16,955</u> |
| <u>Revised Rule Concept for PAR 1111 and PAR 1121 (Phase 3)</u> | <u>Control Measure</u> | <u>Total Number of Affected Units</u> | <u>Estimated Electricity Use⁽¹⁾</u> | <u>Estimated Total Electricity Use (Gwh/Yr)</u> |
| | <u>R-CMB-01</u> | <u>Of 5,128,800 water heaters installed, 70% will be zero-NOx emission and 25% will be low-NOx emission by 2035 ⁽²⁾</u> | <u>380-500 kWh/month</u> | <u>23,076</u> |
| | <u>R-CMB-02</u> | <u>Of 5,237,000 space heaters installed; 70% will be zero-NOx emission and 25% will be low-NOx emission by 2035 ⁽³⁾</u> | <u>1.5 KWh/hr</u> | <u>2,357</u> |
| | <u>Total</u> | | | <u>25,433</u> |
| <u>Revised Rule Concept for PAR 1111 and PAR 1121 (Phase 4)</u> | <u>Control Measure</u> | <u>Total Number of Affected Units</u> | <u>Estimated Electricity Use⁽¹⁾</u> | <u>Estimated Total Electricity Use (Gwh/Yr)</u> |
| | R-CMB-01 | <u>Of 5,128,800 water heaters installed, 90% will be zero-NOx emission and 10% will be low-NOx emission by 2036 and thereafter⁽²⁾</u> | 380-500 kWh/month | 27,691 30,768 |
| | R-CMB-02 | <u>Of 5,237,000-5,350,000 space heaters installed; 90% will be zero-NOx emission and 10% will be low-NOx emission by 2036 and thereafter⁽³⁾</u> | 1.5 KWh/hr | 2,828 3,240 |
| | C-CMB-02 | 112,435 space heaters in commercial buildings will convert to zero emission technology. | 10 KWh/hr | 450 |
| | <u>Total</u> | | | <u>34,428 30,518</u> |
| | <u>Updated Total for All 2022 AQMP Control Measures</u> | | | <u>37,348</u> |

(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 (refer to Table 4.2-6 of the Final Program EIR for 2022 AQMP).

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 ~~and 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 Strategy¹⁰⁴, 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-NO_x 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. Space and water heating appliances for existing mobile homes and any mobile home in master-metered mobile home parks will be exempt from the zero-NO_x emission standards, and mobile home appliances will transition to zero-NO_x emission appliances in new mobile homes or when existing mobile homes are replaced with new mobile homes. Downflow space heating furnaces for high-altitude installation are also exempted from zero-NO_x emission standards.~~

A Zero-NO_x Manufacturer (ZEM) alternative compliance option is provided that establishes compliance targets for the sale of NO_x-emitting and Zero-NO_x emission appliances. The targets change over time to transition the market to zero-NO_x emission appliances. The ZEM alternative compliance option also includes fees for the sale of all NO_x-emitting appliances, with higher fees for the NO_x-emitting appliances sold over the compliance target. The fees for appliances sold over the targets increase annually to reflect consumer price index.

The ZEM alternative compliance option provides a transitional approach that allows continued sale of compliant NO_x-emitting appliances while the market shifts toward zero-NO_x emission technologies. This transition period helps facilitate the necessary infrastructure upgrades, such as expanding installation space or upgrading electrical service panels in residences, to support the installation of zero-NO_x emission units. These upgrades are generally expected to be minor and achievable using hand tools. ~~The alternative compliance options allow time for necessary~~

¹⁰⁴ 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>

~~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.~~ Replacements 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 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-NOx emission or low NOx technologies, such as through Control Measures R-CMB-01 and 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 and 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- <u>NOx</u> emission water heaters and low NOx technologies (when zero- <u>NOx</u> 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- <u>NOx</u> emission space heaters and low NOx technologies (when zero- <u>NOx</u> 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 GWh¹⁰⁵, approximately an 11 percent increase, by 2037 which will produce approximately 2.18 ~~2.76~~ million metric tons (MMT) of GHG emissions.¹⁰⁶ As shown in Table 4-3, by 2036, implementation of PAR 1111 and PAR 1121 will increase the projected electricity demand to ~~40,857~~ 37,348 GWh, approximately a ~~34.6~~ 31.6 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~~ 6.06 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,

¹⁰⁵ Based on quantifiable increases in electricity from Tables 4.3-2 and 4.3-3. $(12,960+469)/118,200 = 11.3\%$ increase.

¹⁰⁶ 2020 eGRID data of 453 lb/MWh for SCE, U.S. EPA, 2022, <https://epa.gov/egrid/download-data>.

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 <u>6.06</u> |
| Net Change in GHG Emissions with Implementation of PAR 1111 and PAR 1121 | -9.42 <u>-11.74</u> |

The electricity that will be needed to power zero-NO_x 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.

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 and 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-NOx 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-NOx 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.~~ Space and water heating appliances for existing mobile homes and any mobile home in master-metered mobile home parks will be exempt from the zero-NOx emission standards, and mobile home appliances will transition to zero-NOx emission appliances in new mobile homes or when existing mobile homes are replaced with new mobile homes. Downflow space heating furnaces for high-altitude installation are also exempted from zero-NOx emission standards.

A Zero-NOx Manufacturer (ZEM) alternative compliance option is provided that establishes compliance targets for the sale of NOx-emitting and Zero-NOx emission appliances. The targets change over time to transition the market to zero-NOx emission appliances. The ZEM alternative compliance option also includes fees for the sale of all NOx-emitting appliances, with higher fees for the NOx-emitting appliances sold over the compliance target. The fees for appliances sold over the targets increase annually to reflect consumer price index.

The ZEM alternative compliance option provides a transitional approach that allows continued sale of compliant NOx-emitting appliances while the market shifts toward zero-NOx emission technologies. This transition period helps facilitate the necessary infrastructure upgrades, such as expanding installation space or upgrading electrical service panels in residences, to support the installation of zero-NOx emission units. These upgrades are generally expected to be minor and achievable using hand tools.

~~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-NO_x 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 energy 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

Under the new rule concept, PAR 1111 and PAR 1121 will require either zero-NO_x or low-NO_x emission heating units for installations in both new and existing residences ~~and commercial~~

~~buildings~~; the rules will affect ~~5,237,000~~~~5,350,000~~ and 5,128,000 space and water heaters, respectively. Replacements 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 disclosed in the Final Program EIR for the 2022 AQMP could be higher.

Residential electrification, such as the transition to zero-NOx emission space and water heating appliances under PAR 1111 and PAR 1121, will contribute to increased electricity demand. This increase is expected to be incremental and somewhat offset in part by the reduction in residential natural gas use. Given that commercial installations are no longer part of the proposed project under the new rule concept for PAR 1111 and PAR 1121, the anticipated shift in energy demand is focused on residential applications, aligning with the state's broader goals for decarbonization.

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. At that time, of the anticipated two2 million water heaters and two2 million space heaters to be installed, 50 percent of residences were assumed to would be install zero-NOx units emission and 50 percent were assumed to would be install low-NOx units. However, PAR 1111 and PAR 1121 introduce a phased compliance structure through the Zero-NOx Emission Manufacturer (ZEM) alternative compliance option, which adjusts market penetration rates of zero-NOx appliances over time. Specifically, the ZEM targets require 30 percent of space heating units sold to be zero-NOx by 2027–2028, increasing to 50 percent by 2029–2032, 75 percent by 2033–2035, and 90 percent beginning in 2036. Correspondingly, the allowance for NOx-emitting units decreases over time, from 70 percent in the initial phase to 10 percent in Phase 4. These updated sales targets more accurately reflect the anticipated equipment mix for electricity demand forecasting. 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-NOx emission heating units for installations in both new residences and zero-NOx and/or low NOx emission heating units in and existing residences and commercial buildings; the rules will affect 5,237,000 5,350,000 and 5,128,000 space and water heaters, respectively. In addition, 0.5 percent of the equipment replacements could occur prior to the end of useful life due to the availability of incentive funding.

However, under the new rule concept for PAR 1111, commercial building installations were removed; thus, the electricity demand impacts associated with installation of zero-NOx units will be limited to the residential sector. As shown in Table 4-6, the overall electricity demand increase attributable to these rules is anticipated to be less than what was previously estimated in the Draft SEA, but still significant. The Final Program EIR for the 2022 AQMP concluded that electricity demand impacts could be significant even after mitigation measures are applied. Further, even if the applicability of PAR 1111 and PAR 1121 is limited to residential buildings, the anticipated increase in electrical demand will remain significant for PAR 1111 and PAR 1121.

Table 4-6
Comparison of Potential Increase in Electricity Use Between
2022 AQMP and PAR 1111 and PAR 1121

| Final Program EIR for 2022 AQMP | Control Measure | Total Number of Affected Units | Estimated Electricity Use ⁽¹⁾ | Estimated Total Electricity Use (Gwh/Yr) |
|--|---|--|--|---|
| | R-CMB-01 | Of 2 million water heaters installed, 50% of residences will be zero- <u>NOx</u> emission and 50% will be low NOx water heaters ⁽²⁾ | 380-500 kWh/month | 6,000 |
| | R-CMB-02 | Of 2 million <u>space</u> heaters installed, 50% of residences will be zero- <u>NOx</u> 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 ⁽²⁾ | 10 KWh/hr | 400 |
| | Total for Control Measures R-CMB-01 <u>and</u> R-CMB-02, <u>and</u> C-CMB-02 | | | 7,000 <u>6,600</u> |
| | 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% |
| <u>PAR 1111 and PAR 1121 by 2028 (Phase 1)</u> | <u>Control Measure</u> | <u>Total Number of Affected Units</u> | <u>Estimated Electricity Use⁽¹⁾</u> | <u>Estimated Total Electricity Use (Gwh/Yr)</u> |
| | <u>R-CMB-01</u> | <u>Of 5,128,000 water heaters installed, 30% of residences will be zero-NOx emission and 70% will be low NOx water heaters by 2028 ⁽²⁾</u> | <u>380-500 kWh/month</u> | <u>9,230</u> |
| | <u>R-CMB-02</u> | <u>Of 5,237,000 space heaters installed, 30% of residences will be zero-NOx emission and 70% will be low NOx space heaters by 2028 ⁽³⁾</u> | <u>1.5 KWh/hr</u> | <u>943</u> |
| | Total | | | <u>10,173</u> |
| | <u>Updated Total for All 2022 AQMP Control Measures</u> | | | <u>17,002</u> |
| | <u>2020 Electricity Use within South Coast AQMD's Jurisdiction</u> | | | <u>118,210</u> |
| | <u>2022 Electricity Use within South Coast AQMD's Jurisdiction</u> | | | <u>123,141</u> |
| | <u>Updated Electricity Percent Increase from All 2022 AQMP Control Measures</u> | | | <u>14.4%</u> |
| | <u>Updated Electricity Percent Increase from All 2022 AQMP Control Measures with Updated 2022 Electricity Use data</u> | | | <u>13.8%</u> |
| | | | | |

Table 4-6 (continued)
Comparison of Potential Increase in Electricity Use Between
2022 AQMP and PAR 1111 and PAR 1121

| <u>PAR 1111 and PAR 1121 by 2032 (Phase 2)</u> | Control Measure | Total Number of Affected Units | Estimated Electricity Use⁽¹⁾ | Estimated Total Electricity Use (Gwh/Yr) |
|---|--|---|--|---|
| | R-CMB-01 | Of 5,128,000 water heaters installed, <u>50% of residences will be zero-NOx emission and 50% will be low NOx water heaters by 2032</u> ⁽²⁾ | 380-500 kWh/month | <u>15,384</u> 30,768 |
| | R-CMB-02 | Of <u>5,237,000</u> 5,350,000 space heaters installed, <u>50% of residences will be zero-NOx emission and 50% will be low NOx space heaters by 2032</u> ⁽³⁾ | 1.5 KWh/hr | <u>1,571</u> 3,210 |
| | C-CMB-02 | 112,435 space heaters in commercial buildings will convert to zero emission technology. | 10 KWh/hr | 450 |
| | Total | | | <u>34,428</u> 16,955 |
| | Updated Total for All 2022 AQMP Control Measures | | | <u>40,857</u> 23,784 |
| | 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 | | | <u>34.6%</u> 20.1% |
| | Updated Electricity Percent Increase from All 2022 AQMP Control Measures with Updated 2022 Electricity Use data | | | <u>33.2%</u> 19.3% |
| <u>PAR 1111 and PAR 1121 by 2035 (Phase 3)</u> | Control Measure | Total Number of Affected Units | Estimated Electricity Use⁽¹⁾ | Estimated Total Electricity Use (Gwh/Yr) |
| | <u>R-CMB-01</u> | Of 5,128,000 water heaters installed, <u>75% of residences will be zero-NOx emission and 25% will be low NOx water heaters by 2035</u> ⁽²⁾ | <u>380-500</u> kWh/month | <u>23,076</u> |
| | <u>R-CMB-02</u> | Of <u>5,237,000</u> space heaters installed, <u>75% of residences will be zero-NOx emission and 25% will be low NOx space heaters by 2035</u> ⁽³⁾ | <u>1.5 KWh/hr</u> | <u>2,357</u> |
| | Total | | | <u>25,433</u> |
| | Updated Total for All 2022 AQMP Control Measures | | | <u>33,262</u> |
| | <u>2020 Electricity Use within South Coast AQMD's Jurisdiction</u> | | | <u>118,210</u> |
| | <u>2022 Electricity Use within South Coast AQMD's Jurisdiction</u> | | | <u>123,141</u> |
| | Updated Electricity Percent Increase from All 2022 AQMP Control Measures | | | <u>27.3%</u> |
| | Updated Electricity Percent Increase from All 2022 AQMP Control Measures with Updated 2022 Electricity Use data | | | <u>26.2%</u> |

Table 4-6 (concluded)
Comparison of Potential Increase in Electricity Use Between
2022 AQMP and PAR 1111 and PAR 1121

| <u>PAR 1111 and PAR 1121 by 2036 and after (Phase 4)</u> | <u>Control Measure</u> | <u>Total Number of Affected Units</u> | <u>Estimated Electricity Use⁽¹⁾</u> | <u>Estimated Total Electricity Use (Gwh/Yr)</u> |
|---|---|--|---|--|
| | <u>R-CMB-01</u> | <u>Of 5,128,000 water heaters installed, 90% of residences will be zero-NOx emission and 10% will be low NOx water heaters by 2036 and after ⁽²⁾</u> | <u>380-500 kWh/month</u> | <u>27,691</u> |
| | <u>R-CMB-02</u> | <u>Of 5,237,000 space heaters installed, 90% of residences will be zero-NOx emission and 10% will be low NOx space heaters by 2036 and after ⁽³⁾</u> | <u>1.5 KWh/hr</u> | <u>2,828</u> |
| | <u>Total</u> | | | <u>30,519</u> |
| | <u>Updated Total for All 2022 AQMP Control Measures</u> | | | <u>37,348</u> |
| | <u>2020 Electricity Use within South Coast AQMD's Jurisdiction</u> | | | <u>118,210</u> |
| | <u>2022 Electricity Use within South Coast AQMD's Jurisdiction</u> | | | <u>123,141</u> |
| | <u>Updated Electricity Percent Increase from All 2022 AQMP Control Measures</u> | | | <u>31.6%</u> |
| | <u>Updated Electricity Percent Increase from All 2022 AQMP Control Measures with Updated 2022 Electricity Use data</u> | | | <u>30.3%</u> |
| | ⁽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 6,600 GWh/year (for implementation of Control Measures R-CMB-01 and R-CMB-02, and C-CMB-02 in the Final Program EIR for 2022 AQMP) to: 10,173 34,358 GWh/year by 2028, 16,955 GWh/year by 2032; 25,433 GWh/year by 2035; and 30,519 GWh/year by 2036 and thereafter (for implementation of the revised rule concept for PAR 1111 and PAR 1121).

After updating the total affected units from implementing PAR 1111 and PAR 1121, the total electricity demand from implementing all 2022 AQMP control measures will increase from the original baseline 13,429 GWh to 37,348 GWh. 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).

On a percentage basis, implementation of the revised rule concept for PAR 1111 and PAR 1121 will increase electricity demand from 10.9 percent to: 13.8 percent by 2028 (representing a 2.9 percent interim increment); 19.3 percent by 2032 (representing a 5.5 percent interim increment); 26.2 percent by 2035 (representing a 6.9 percent interim increment); and 30.3 (representing a 4.1 percent increment and a total net increase of 19.4 percent from the revised baseline). The availability of incentive funding could cause the increase in electricity demand for 0.5 percent of

zero-NOx units being installed to occur sooner than if the all equipment were to be replaced at the end of useful life but the timing of when the incentive-driven replacements would occur is speculative and will not be further analyzed in this SEA.

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. When compared the analysis in the Final Program EIR for the 2022 AQMP, the incremental increase in electricity demand from implementing PAR 1111 and PAR 1121 is estimated to be approximately 19.4 percent greater. Thus, the energy impacts from the implementation of PAR 1111 and PAR 1121 are more severe than what was previously estimated for the 2022 AQMP and as such, are expected to be remain 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 neither directly or indirectly applicable to not affected by Control Measures R-CMB-01 and R-CMB-02, and C-CMB-02, nor PAR 1111 and PAR 1121. Energy mitigation measures E-1 to E-4, and E-7 from the Final Program EIR for the 2022 AQMP were developed to target electricity producers (e.g., utilities) and the projects they would implement to provide sufficient electricity in support of the 2022 AQMP Control Measures R-CMB-01 and R-CMB-02. At this time, South Coast AQMD has not received any details from the utility providers regarding any proposed modifications to their infrastructure to support generating more electricity. However, when the utility providers embark on future modifications to their electricity generation equipment, air permits will be needed and those projects will be subject to CEQA review, and mitigation measures will be required if significant impacts are identified. For these future utility-specific projects, the CEQA evaluation will examine whether additional mitigation measures are necessary, and whether the applicable aforementioned mitigation measures as adopted in the Final Program EIR for the 2022 AQMP and the corresponding Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP, need to be modified. For these reasons, no additional feasible mitigation measures have been identified in this SEA. Thus, only mitigation measures E-1 to E-4, and E-7 are indirectly 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.

In addition, the mitigation measures that monitoring agencies shall implement are listed in the Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP that is incorporated by reference.¹⁰⁷

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 ~~the~~ 2020 baseline electricity consumption by up to ~~33.2~~ 31.6 percent ~~in 2036 and thereafter~~. **Even after the mitigation measures are applied, electricity demand impacts would remain significant. No additional feasible mitigation measures have been identified beyond those already included in the Final Program EIR for the 2022 AQMP. Thus, the previously adopted energy mitigation measures (e.g., E-1 through E-4 and E-7) which are applicable to PAR 1111 and PAR 1121, will remain in effect for managing any localized or incremental electricity impacts from implementing PAR 1111 and PAR 1121.**

Project-Specific Natural Gas Demand Impacts

PAR 1111 and PAR 1121 will require zero-~~NOx~~ emission heating units for installations in both new and existing residences ~~and commercial buildings~~; the rules will affect ~~5,237,000~~ 5,350,000 and 5,128,000 space and water heaters, respectively. Replacements 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 ~~and 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 ~~and 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)¹⁰⁸ (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.

¹⁰⁷ <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-attachment1toresolution.pdf>

¹⁰⁸ Senate Bill 100, https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB100.

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 projections indicate that the total gas demand will 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 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 were concluded ~~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. Under the original rule concept for PAR 1111 and PAR 1121, the analysis assumed that 100 percent of replaced units would be zero-NOx emitting which would cause the natural gas demand to shift from being used in the appliances and instead be used to produce electricity. However, under the new rule concept for PAR 1111 and PAR 1121, up to 10 percent

of low-NO_x units may be installed and operating by 2036 and thereafter which means that a portion of natural gas will continue to be used to operate 10 percent of the appliances; thus, the amount of natural gas that would be utilized to generate electricity by the utilities will be reduced over time. Nonetheless, implementation of PAR 1111 and PAR 1121 is expected to will result in similar, significant natural gas demand impacts as implementation of Control Measures R-CMB-01 and 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 addition to mitigation measures E-1 through E-4 and 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. **No additional feasible mitigation measures have been identified beyond those already included in the Final Program EIR for the 2022 AQMP. Thus, the previously adopted natural gas mitigation measures (e.g., E-8 and E-9) which are applicable to PAR 1111 and PAR 1121, will remain in effect for managing any localized or incremental natural gas impacts from implementing PAR 1111 and PAR 1121. 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~~ 30.3 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, relative to the question of whether the proposed project would result in wasteful, unnecessary, or inefficient use of energy, 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 and 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 NO_x 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 and 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 and 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 and 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 and 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 and 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 and 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), require 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 and 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 and R-CMB-02, ~~and C-CMB-02~~ would accelerate the penetration of zero-NOx 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 ~~with as a result of implementation of control measure C-CMB-02 which will require minimum amount of~~ minimal construction required in larger residential buildings, 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-NOx 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 supersede 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 previously unregulated wall furnaces and floor furnaces with a rated heat input capacity ~~from of less than 175,000 Btu/hr to 2,000,000 Btu/hr that are currently unregulated~~; and 2) ~~divide the applicable units into four~~ establish three categories for the applicable unit, each with zero-NOx 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-NOx 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-NOx emission compliance dates for units installed in new or existing buildings; 2) provide a Zero-NOx Manufacturer (ZEM) alternative compliance option that establishes compliance targets for the sale of NOx-emitting and Zero-NOx emission appliances ~~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 informative materials, labeling, recordkeeping, and reporting requirements; 4) provide an exemption from zero-NOx emission requirements for mobile homes in a master-metered mobile home parks, existing mobile homes, and units for new buildings with building permit issued prior to the date of rule adoption; and 5) update and clarify rule language. Replacements 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 6.12 tpd by 2061 ~~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 NO_x 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 previously unregulated wall furnaces and floor furnaces with a rated heat input capacity from of less than 175,000 Btu/hr to 2,000,000 Btu/hr that are currently unregulated; and 2) ~~divide the applicable units into four~~ establish three categories for zero-NO_x 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-NO_x 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-NO_x emission compliance dates for units installed in new or existing buildings; 2) provide a Zero-NO_x Manufacturer (ZEM) alternative compliance option that establishes compliance targets for the sale of NO_x-emitting and Zero-NO_x emission appliances ~~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 informative materials, labeling, recordkeeping, and reporting requirements; 4) provide an exemption from zero-NO_x emission requirements for mobile homes in a master-metered mobile home parks, existing mobile homes, and units for new buildings with building permit issued prior to the date of rule adoption; and 5) update and clarify rule language. Replacements 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 NO_x emissions by up to 6.12 tpd by 2061 ~~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 and 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 and 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 and 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 NO_x and zero-NO_x 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 and 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 and 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 and 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 and 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 and 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 1111 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 the topic of 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 and 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 for the topic of 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 and 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.

The Final Program EIR for 2022 AQMP concluded that implementation of the control measures would affect existing ~~commercial facilities and~~ residences 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 control measures R-CMB-01 and R-CMB-02, that affect which are applicable to residential land uses, any modifications ~~needed~~ would be expected to occur inside the existing 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, ~~these 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 these 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.

It is also important to note that additional safety measures are in place to minimize the impacts of pollutant concentrations from wildfire ash. For example, 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 Final Program EIR for 2022 AQMP concluded that the control measures in the 2022 AQMP, including Control Measures R-CMB-01 and R-CMB-02, 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. However, 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, the Final Program EIR for 2022 AQMP concluded that 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 and concluded in the Final Program EIR for 2022 AQMP to have less than significant impacts related to control measures R-CMB-01 and R-CMB-02, ~~and C-CMB-02~~: noise and solid and hazardous waste.

The following discussion independently considers the currently proposed project (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 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 and 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~~ residential buildings, if needed, 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 mobile, equipment such as 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 construction equipment does not generate significant levels of noise. The construction activities associated with panel upgrades are generally short-term and involve relatively low-noise emitting equipment compared to other types of construction work.

Additionally, the Final Program EIR for the 2022 AQMP addressed potential noise impacts from construction activities occurring 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 where the construction activities will occur sites. Typically, modifications would occur in already developed 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 specific to the ~~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~~ such as hand tools for the installation of zero-NO_x emission heaters in residences. If an electrical panel upgrade is needed, the construction activities can be divided into two phases: construction work performed by the utility provider to deliver power from the transformer or electrical pole to the building, and work performed by the property owner or the property owner's contractor on the electrical panel(s) and the building's wiring system. Work performed by the utility provider work might involve a backhoe, crane, forklift, manlift, concrete saw, and/or welder, as estimated in the Final Program EIR for 2022 AQMP. Work performed by the property owner or the property owner's contractor work, may which vary from structure to structure depending on the each building's specifies layout, could range from hand tools to more extensive larger equipment such as a backhoe for digging a like trenching with a backhoe and a forklift to laying conduit with a forklift. Multi-story and high-rise buildings will generally require more extensive construction activities using larger equipment effort when compared to single-story structures, making it challenging to standardize the potential noise profile of these construction activities 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~~ Nonetheless, the types of construction equipment that will be used to implement ~~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 ~~and 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 ~~concluded less than significant determined that the impacts for the topic of solid and hazardous waste as a result of implementing from~~ Control Measures R-CMB-01 ~~and R-CMB-02, and C-CMB-02~~ would be less than significant. The anticipated construction activities involve replacing old appliances or equipment, such as water heaters and space heaters, with new, electrified or low NO_x 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, aging 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-NO_x emission or low NO_x 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-NO_x emission or low NO_x 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 ~~and 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 NO_x 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-NO_x 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,¹⁰⁹ 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 2027~~3~~ to 2061~~36~~. 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.

¹⁰⁹ EDD, Labor Market Information Division, Labor Market Information by County, July 2022. <https://www.labormarketinfo.edd.ca.gov/geography/lmi-by-county.html>

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.

As analyzed earlier in this energy section of this chapter, PAR 1111 and PAR 1121 could result in ~~an substantial~~ increase in severity of the 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-NOx 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 in electricity and natural gas to support the increased penetration of low NOx and zero-NOx 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 NO_x emissions from residential water heaters and residential ~~and commercial~~ space heaters, by proposing NO_x limits that represent BARCT for the applicable equipment; 2) address challenges with installation of zero-NO_x 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-NO_x emission technologies and promote further emission reductions earlier than required. By achieving additional reductions in NO_x, an ozone and PM_{2.5} 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

Introduction

Methodology for Developing Project Alternatives

Description of Alternatives to the Proposed Project

Alternatives Analysis

Comparison of Alternatives to the Proposed Project

Alternatives Rejected as Infeasible

Lowest Toxic and Environmentally Superior Alternative

Conclusion

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 NO_x emission limits (including ~~alternative compliance options which allow for use of low NO_x 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 NO_x 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 NO_x 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 NO_x 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 both new and existing buildings would feature zero-NO_x 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 NO_x 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 NO_x emission limits as specified under the proposed project; however, equipment in existing buildings would be allowed to be replaced with low NO_x 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-NO_x emission heaters, while 50 percent would be low NO_x. 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 and 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-NO_x

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

Upon full implementation by 2061, of PAR 1111 and PAR 1121 are estimated to reduce NOx emissions by up to 4.05 7.7 tpd upon full implementation by 2055, and 2.07 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-NOx 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-NOx emission heaters in residences. In contrast, some ~~commercial~~ developments such as residential buildings that may need construction equipment, and the analysis in the SEA (presented in Table 4-2) estimated that if 10,000 ~~commercial-residential~~ 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~~ NOx-emitting 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-NO_x emission technologies would not be implemented. Additionally, Alternative A would not entail any new construction activities associated with the implementation of zero-NO_x 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 NO_x and GHG emissions. Alternative A would not align with the 2022 AQMP's goals of transitioning to zero-NO_x 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-NO_x 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-NO_x emission heater replacement.

Alternative B is anticipated to achieve substantial NO_x 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-NO_x 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-NO_x emission technologies, while the other 50 percent will be replaced with low-NO_x equipment. Construction impacts from the installation of low NO_x heaters are expected to be similar to zero-NO_x emission technology. While Alternative C may yield fewer NO_x emission reductions compared to the proposed project and Alternatives B and D, which mandate only zero-NO_x 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-NO_x 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 NO_x 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 ~~5.27~~ 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. Space and water heating appliances for existing mobile homes and any mobile home in master-metered mobile home parks will be exempt from the zero-NO_x emission standards, and mobile home appliances will transition to zero-NO_x emission appliances in new mobile homes or when existing mobile homes are replaced with new mobile homes. Downflow space heating furnaces for high-altitude installation are also exempted from zero-NO_x emission standards.

A Zero-NO_x Manufacturer (ZEM) alternative compliance option is provided that establishes compliance targets for the sale of NO_x-emitting and Zero-NO_x emission appliances. The targets change over time to transition the market to zero-NO_x emission appliances. The ZEM alternative compliance option also includes fees for the sale of all NO_x-emitting appliances, with higher fees for the NO_x-emitting appliances sold over the compliance target. The fees for appliances sold over the targets increase annually to reflect consumer price index.

Alternative compliance options will be available for Zero-NO_x Manufacturer (ZEM) option that establishes compliance targets for the sale of low NO_x-emitting and Zero-NO_x emission appliances. ~~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-NO_x emission heating units.

Due to the increase in the number of affected units, the operational energy use estimate will increase ~~rise~~ from 7,000 6,600 GWh/year (for the implementation of Control Measures R-CMB-01 and R-CMB-02, ~~and C-CMB-02~~ in the Final Program EIR for the 2022 AQMP) to ~~34,358~~ 37,348 GWh/year (for implementation of the revised rule concept for PAR 1111 and PAR 1121). Overall, the electricity demand from the implementation of all 2022 control measures is projected to increase from the original baseline of 13,429 GWh (approximately 11.3 percent over 2020 consumption) to 40,857 37,348 GWh which reflects the revised baseline due to updated unit counts specific to PAR 1111 and PAR 1121 (approximately 34.6 34.6 percent over 2020 consumption). On a percentage basis, implementation of the new rule

concept for PAR 1111 and PAR 1121 will increase electricity demand by 30.3 percent by 2036. However, the increase is expected to occur gradually, as follows: 1) Phase 1 (2027-2028), 30 percent of the equipment would be replaced with zero-NOx technology, while the remaining 70 percent would utilize low-NOx units, resulting in a 13.8 percent increase in electricity demand; 2) Phase 2 (2029-2032), the mix shifts to 50 percent zero-NOx and 50 percent low-NOx, resulting in a 19.3 percent increase in electricity demand; 3) Phase 3 (2033-2035), 75 percent of equipment replacement is projected to be zero-NOx, with 25 percent low-NOx, resulting in 26.2 percent increase in electricity demand; and 4) Phase 4 (2036 and thereafter), 90 percent of the replacement equipment would be zero-NOx, with only 10 percent utilizing low-NOx with increase in electricity demand by 30.3 percent.

The introduction-availability of incentive funding could cause the ~~may accelerate this~~ increase in electricity demand for 0.5 percent of zero-NOx units being installed sooner than if the ~~compared to a scenario where all equipment were to be~~ is replaced at the end of its useful life. However, the timing of when the incentive-driven replacements would occur is speculative and will not be further analyzed in this SEA.

This ~~substantial rise-project~~ increase in the number of affected units from 4.2 million to over 10 million space and water heaters is balanced by the revised rule concept for PAR 1111 and PAR 1121 which will allow both zero-NOx emission units and low-NOx emission units to be installed, ~~substantially increases~~ tempering the severity of the overall energy impacts when compared to what was previously analyzed in the Draft SEA. 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 1121, more equipment replacements will occur than originally estimated such that the minimum Basin-wide electricity use is expected to increase to ~~33.2~~ 30.3 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 and 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, which include provisions allowing for the installation of low-NOx units. These units, when installed, are typically more efficient in their natural gas usage compared to the older equipment being replaced. As a result, individual residences or businesses that upgrade to low-NOx units may experience a reduction in natural gas consumption. However, because low-NOx technologies still rely on natural gas, unlike zero-NOx emission technologies, overall energy demand is expected to increase, though to a lesser extent due to the improved efficiency of the newer equipment. ~~except that the estimates for natural gas use during this interim period may be substantially more severe.~~ However, for the overall project, because of the potentially large number of low-NOx units expected to be installed (as opposed to zero-NOx technologies), the analysis concludes that natural gas usage may remain potentially significant during the interim period. 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 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-NO_x 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 5.2735 million space heaters and 5.13 million water heaters would remain in use without transitioning to zero-NO_x 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-NO_x 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-NO_x 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 6,600 GWh/year to 34,358 30,519 GWh/year. However, Alternative B would result in an earlier increase in electricity demand which is driven by the earlier deployment of zero-NO_x 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-NO_x 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-NOx emission technologies as the proposed project but proposes a mixed approach for existing buildings. Under this alternative, approximately 5.27~~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-NOx 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-NOx 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-NOx 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-NOx 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-NOx 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-NOx 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-NOx 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-NOx 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-NOx 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-NO_x 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-NO_x 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 | Buildi ng Type | Original Rule Concepts Proposed Project: PAR 1111 | Revised Rule Concepts Proposed Project: PAR 1111* | 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-NOx Emission at End of Life by on and after 1/1/2026 | <u>Zero-NOx Emission on and after 1/1/2027</u> | 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-NOx emission technologies wherever possible. | Zero-NOx Emission at End of Life by on and after 1/1/2026 2025 | Zero-NOx Emission at End of Life by on and after 1/1/2027 2026 | Zero-NOx Emission at End of Life by on and after 1/1/2027 2026 |
| | Existing | Zero-NOx Emission at End of Life by on and after 1/1/2028 | <u>Zero-NOx Emission at end of life on and after 1/1/2029</u> | | Zero-NOx Emission Required by on and after 1/1/2029 2028 | Zero-NOx Emission at End of Life by on and after 1/1/2029 2028 | Zero-NOx Emission at End of Life by on and after 1/1/2029 2028 |
| | | 0.5% of equipment estimated to be replaced before end of useful lifetime | <u>0.5% of equipment estimated to be replaced before end of useful lifetime</u> | | | 50% of residences will be zero-NOx 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-NOx Emission at End of Life by on and after 1/1/2026 | <u>Commercial Fan-Type Central Furnace has been completely removed from PAR 1111.</u> | | 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-NOx Emission at End of Life by on and after 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-NOx Emission at End of Life by on and after 1/1/2026 | <u>Zero-NOx Emission on and after 1/1/2027</u> | | Zero-NOx Emission at End of Life by on and after 1/1/2026 2025 | Zero-NOx Emission at End of Life by on and after 1/1/2027 2026 | Zero-NOx Emission at End of Life by on and after 1/1/2027 2026 |
| | Existing | Zero-NOx Emission at End of Life by on and after 1/1/2030 | <u>Exempt from Zero-NOx Emission standards in PAR 1111</u> | | 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 (continued)
Summary of the Proposed Project (PAR 1111 and PAR 1121) and Alternatives*

| Categories with Proposed Changes | Building Type | Original Rule Concepts Proposed Project: PAR 1111 | Revised Rule Concepts Proposed Project: <u>PAR 1111*</u> | 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 | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2026</i> | <i>Zero-NO_x Emission on and after 1/1/2027</i> | NO _x emission limits would not be implemented. This means the projected reductions in NO _x emissions would not be achieved, failing to meet the objectives of PAR 1111 and PAR 1121, which aim to reduce NO _x 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 NO _x emissions and transition zero-NO _x emission technologies wherever possible. | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2026 2025</i> | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2027 2026</i> | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2027 2026</i> |
| | Existing | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2028</i> | <i>Zero-NO_x Emission at end of life on and after 1/1/2029</i> | | <i>Zero-NO_x Emission Required by on and after 1/1/2029 2028</i> | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2029 2028</i> | <i>Zero-NO_x Emission at End of Life by on and after 1/1/2029 2028</i> |
| | | <i>0.5% of equipment estimated to be replaced before end of useful lifetime</i> | <i>0.5% of equipment estimated to be replaced before end of useful lifetime</i> | | | <i>50% of buildings will be zero-NO_x emission and 50% will be low NO_x equipment</i> | <i>1% of equipment estimated to be replaced before end of useful lifetime</i> |

*In lieu of above new and existing building requirements provided in paragraph (d)(2) of rule language, any a manufacturer of furnaces, other than mobile home furnaces, subject to Rule 1111 may elect to comply with the ZEM alternative compliance option, which sets sales targets for zero-NO_x emission and NO_x emitting units and associated mitigation fee, for sales on and after 1/1/2027. The ZEM alternative compliance option includes four implementation phases: 1) 30% zero-NO_x and 70% low NO_x by 2028, 2) 50% zero-NO_x and 50% low NO_x by 2032, 3) 75% zero-NO_x and 25% low NO_x by 2035, and 4) 90% zero-NO_x and 10% low NO_x 2036 and after.

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

| Categories with Proposed Changes | Building Type | Original Rule Concepts Proposed Project: PAR 1121 | Revised Rule Concepts Proposed Project: 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 Water Heater | New | Zero-NO_x Emission at End of Life by on and after 1/1/2026 | <u>Zero-NO_x Emission by 1/1/2027</u> | NO _x emission limits would not be implemented. This means the projected reductions in NO _x emissions would not be achieved, failing to meet the objectives of PAR 1111 and PAR 1121, which aim to reduce NO _x 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 NO _x emissions and transition zero-NO _x emission technologies wherever possible. | Zero-NO_x Emission at End of Life by 1/1/2026 2025 | Zero-NO_x Emission at End of Life by on and after 1/1/2027 2026 | Zero-NO_x Emission at End of Life by on and after 1/1/2027 2026 |
| | Existing | Zero-NO_x Emission at End of Life by on and after 1/1/2027 | <u>Zero-NO_x emission at end of life on and after 1/1/2029</u> | | Zero-NO_x Emission Required by on and after 1/1/2029 2027 | Zero-NO_x Emission at End of Life by on and after 1/1/2029 2027 | Zero-NO_x Emission at End of Life by on and after 1/1/2029 2027 |
| | | 0.5% of equipment estimated to be replaced before end of useful lifetime | <u>0.5% of equipment estimated to be replaced before end of useful lifetime</u> | | | 50% of buildings will be zero-NO_x emission and 50% will be low NO_x equipment | 1% of equipment estimated to be replaced before end of useful lifetime |
| Mobile Home Water Heater | New | Zero-NO_x Emission at End of Life by on and after 1/1/2026 | <u>Zero-NO_x Emission on and after 1/1/2027</u> | Zero-NO_x Emission at End of Life by on and after 1/1/2026 2025 | Zero-NO_x Emission at End of Life by on and after 1/1/2027 2026 | Zero-NO_x Emission at End of Life by on and after 1/1/2027 2026 | |
| | Existing | Zero-NO_x Emission at End of Life by on and after 1/1/2030 | <u>Exempt from Zero-NO_x Emission standards set in PAR 1121</u> | 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 NO_x equipment | 1% of equipment estimated to be replaced before end of useful lifetime | |

**In lieu of above new and existing building requirements provided in paragraph (d)(2) of rule language, any a manufacturer of Water Heaters, other than Mobile Home Water Heaters, subject to Rule 1121 may elect to comply with the ZEM alternative compliance option, which sets sales targets for zero-NOx emission and NOx emitting units and associated mitigation fee, for sales on and after 1/1/2027. The ZEM alternative compliance option includes four implementation phases: 1) 30% zero-NOx and 70% low NOx by 2028, 2) 50% zero-NOx and 50% low NOx by 2032, 3) 75% zero-NOx and 25% low NOx by 2035, and 4) 90% zero-NOx and 10% low NOx 2036 and after.

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 | <p>Potentially Significant Air Quality Impacts During Construction due to:</p> <ul style="list-style-type: none"> 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 <u>residential</u> buildings | <p>No Impacts</p> <p>Since Alternative A involves no construction activities to transition from existing natural gas-fired equipment to zero-<u>NO_x</u> emission units, no impacts to air quality during construction are expected.</p> | <p>Potentially Significant Air Quality Impacts During Construction</p> <p>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.</p> | <p>Potentially Significant Air Quality Impacts During Construction</p> <p>Construction impacts from the installation of low NO_x heaters are expected to be similar to zero-<u>NO_x</u> 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.</p> | <p>Potentially Significant Air Quality Impacts During Construction</p> <p>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.</p> |

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 | <p>Potentially Significant Energy Impacts due to:</p> <ul style="list-style-type: none"> 34.6 31.6% increase in operational electricity demand compared to the 2018 baseline; and 32.2 30.3% increase in operational electricity compared to 2022 baseline. | <p>No Impacts</p> <p>Since PAR 1111 and PAR 1121 would not be implemented under Alternative A, no impacts related to increased electricity demand will occur.</p> | <p>Potentially Significant Energy Impacts</p> <p>Compared to proposed project, Alternative B will result in an earlier increase in operational electricity due to earlier installation of zero-NO_x emission technologies. <u>Although the same number of equipment units would be replaced under both scenarios, the more condensed timeline under Alternative B would shift the energy demand to an earlier period. As such, operational electricity impacts would remain significant, consistent with the proposed project, but would occur sooner in the implementation schedule. It is anticipated that Alternative B would result in the same significant impacts for operational electricity demand.</u></p> | <p>Potentially Significant Energy Impacts</p> <p>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-NO_x emission technologies.</p> | <p>Potentially Significant Energy Impacts</p> <p>Alternative D will result in potentially significant impacts for electricity demand, earlier than the proposed project due to the accelerated deployment of zero-NO_x emission technologies due to incentive funding.</p> |
| Natural Gas Demand | <p>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-NO_x emission technologies.</p> | <p>No Impacts</p> <p>Since PAR 1111 and PAR 1121 would not be implemented under Alternative A, no impacts to increased demand for natural gas will occur.</p> | <p>Potentially Significant Energy Impacts</p> <p>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-NO_x emission technologies. <u>While the total natural gas demand is expected to be similar to the proposed project, the more condensed implementation timeline under Alternative B would shift this demand to an earlier period. Therefore, operational natural gas impacts would remain significant, as with the proposed project, but would occur earlier in the implementation schedule until electricity is supplied by renewable resources. 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.</u></p> | <p>Potentially Significant Energy Impacts</p> <p>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.</p> | <p>Potentially Significant Energy Impacts</p> <p>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-NO_x emission technologies due to incentive funding.</p> |

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 NO_x 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-NO_x emission technologies.

The main objective of the proposed project is to propose NO_x 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-NO_x 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 by 2061, the proposed project is expected to result in all heaters being replaced, which Phase 4 of the ZEM Alternative Compliance Option, with a target of 90% zero-NOx and 10% NOx-emitting equipment, is expected to achieve 4.05 7.7 tpd of NOx emission reductions by 2055 for PAR 1111 and 2.07 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 achieve Phase 4 of the ZEM Alternative Compliance Option, with a target of 90% zero-NOx and 10% NOx-emitting equipment ~~require all heaters to be replaced with zero-emission technology.~~ No NOx emission reductions would be expected under Alternative A, and less than 4.05 7.7 tpd of NOx emission reductions for PAR 1111 and 2.07 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 2061~~ 2045. Under Alternative B, new buildings will be required to install zero-NOx 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 one 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-NOx emission

technologies, which would perpetuate existing health risks associated with NO_x emissions. Therefore, Alternative A is not the environmentally superior alternative.

Among the remaining alternatives, Alternative B proposes more stringent NO_x emission limits and earlier compliance deadlines. This alternative is expected to lead to significant reductions in NO_x 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-NO_x emission and low-NO_x 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-NO_x emission technologies, it does not achieve as immediate or as extensive reductions in NO_x 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-NO_x heaters in situations where alternative compliance options would occur, so 50 percent of equipment replacements in existing buildings was estimated to be with low NO_x heaters. Alternative C would not achieve the same quantity of NO_x emission reductions as the proposed project.

Alternatives B and D would achieve the same quantity of NO_x 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/m³ = 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

N₂O = nitrous oxide

NAAQS = National Ambient Air Quality Standards

ND = Negative Declaration

NHTSA = National Highway Traffic and Safety Administration

NO = nitric oxide

NO₂ = nitrogen dioxide

NOC = Notice of Completion

NOP/IS = Notice of Preparation/Initial Study

NO_x = oxides of nitrogen

O₂ = oxygen

O₃ = 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

SO₂ = sulfur dioxide

SO₃ = sulfur trioxide

SO_x = 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-NO_x emission and near-zero emission

APPENDIX A1

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

In order to save space and avoid repetition, please refer to the latest version of PAR 1111 located elsewhere in the Governing Board Agenda for the public hearing scheduled on June 6, 2025. The version of PAR 1111 that was circulated with the Draft SEA for a 46-day public review and comment period from September 27, 2024 to November 12, 2024 was identified as the “Preliminary Draft Rule PAR 1111, revision date September 20, 2024,” which is available from the South Coast AQMD’s website at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-preliminary-draft-rule-language.pdf>. An original hard copy of the Draft SEA, which included the draft version of PAR 1111 listed above, can be obtained through the South Coast AQMD Public Information Center by phone at (909) 396-2001 or by email at PICrequests@aqmd.gov.

APPENDIX A2

Proposed Amended Rule (PAR) 1121 – Reduction of NO_x Emissions from Residential Type, Natural Gas-Fired Water Heaters

In order to save space and avoid repetition, please refer to the latest version of PAR 1121 located elsewhere in the Governing Board Agenda for the public hearing scheduled on June 6, 2025. The version of PAR 1121 that was circulated with the Draft SEA for a 46-day public review and comment period from September 27, 2024 to November 12, 2024 was identified as the “Preliminary Draft Rule PAR 1121, revision date September 20, 2024,” which is available from the South Coast AQMD’s website at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1121-preliminary-draft-rule-language.pdf>. An original hard copy of the Draft SEA, which included the draft version of PAR 1121 listed above, can be obtained through the South Coast AQMD Public Information Center by phone at (909) 396-2001 or by email at PICrequests@aqmd.gov.

APPENDIX B

Comment Letters Received on the Draft SEA and Responses to Comments

**APPENDIX B: COMMENT LETTERS RECEIVED ON THE DRAFT SEA
AND RESPONSES TO COMMENTS**

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OVERVIEW

This appendix to the Final SEA has been prepared in accordance with the California Environmental Quality Act (CEQA) and the South Coast Air Quality Management District's (South Coast AQMD) Certified Regulatory Program Guidelines. Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l), and South Coast AQMD's Certified Regulatory Program (codified under Rule 110) require that the final action on PAR 1111 and PAR 1121 include written responses to issues raised during the public process. South Coast AQMD Rule 110 (the rule which codifies and implements the South Coast AQMD's certified regulatory program) does not impose any greater requirements for summarizing and responding to comments than is required for an environmental impact report under CEQA.

CEQA PROCESS OF THE DRAFT SEA

The Draft SEA was released for a 46-day public review and comment period that started on September 27, 2024 and ended on November 12, 2024 at 5:00 p.m. A Notice of Completion (NOC) and the Draft SEA were filed with the Governor's Office of Planning and Research (OPR) (State Clearinghouse (SCH) #2022050287) and posted on the State Clearinghouse's CEQAnet Web Portal at: <https://ceqanet.opr.ca.gov/2022050287/5>. In addition, the NOC was filed and posted with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties. The NOC was distributed using electronic mail to various government agencies and other interested agencies, organizations, and individuals (collectively referred to as the public). The NOC was also provided to all California Native American Tribes (Tribes) that requested to be on the Native American Heritage Commission's (NAHC) notification list per Public Resources Code Section 21080.3.1(b)(1). The NAHC notification provides a 30-day period during which a Tribe may respond to the formal notice, in writing, requesting consultation on the Draft SEA. No Tribes requested a consultation on the Draft SEA. Additionally, the NOC was published in the Los Angeles Times on September 27, 2024. The NOC and the Draft SEA were posted on South Coast AQMD's website at: <http://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects>. An email announcing the availability of the NOC and the Draft EA was also sent to interested parties on September 27, 2024.

LIST OF COMMENTERS

Three comment letters were received by South Coast AQMD during the public review and comment period on the Draft SEA. This appendix contains responses to comments received relative to the analysis in the Draft SEA. Responses to comments received relative to the proposed amended rule language (PAR 1111 and PAR 1121) can be found in Appendices A through E of the Final Staff Report.

For the purpose of identifying and responding to comments on the Draft SEA, the comment letters have been organized according to the date received and assigned a number; individual comments within each letter have been bracketed and assigned a comment number. The following is a list of comment letters received in relative to the Draft SEA along with the date each letter was received.

| Comment Letter Number | Commenter | Comment Letter Received Date | Page No. |
|---|---|------------------------------|----------|
| Comment Letters Received During the Public Review Period | | | |
| 1 | Morongo Band of Mission Indians | October 4, 2024 | B-4 |
| 2 | SoCalGas | October 17, 2024 | B-6 |
| 3 | BizFed Los Angeles County Business Federation | October 31, 2024 | B-53 |

For any response in this appendix that requires an update elsewhere in this SEA, the response will indicate that a change has been made and where the change is located in the Final SEA. For ease of identification, additions to text are reflected in underlined text and deletions are reflected in ~~strikethrough~~ text.

Pursuant to CEQA Guidelines Section 15088(a) and South Coast AQMD Rule 110(d), South Coast AQMD is required to evaluate and provide written responses only for the comments received during the public comment period of the Draft SEA which raise significant environmental issues. South Coast AQMD staff has reviewed the comments submitted, updated the SEA to reflect the responses to the comments, and determined that none of the comments raise significant environmental issues. In addition, none of the revisions made contain the type of significant new information that would require recirculation of the Draft SEA for further public review under CEQA Guidelines Sections 15073.5 and 15088.5. Further, none of the comments indicate that the proposed project will result in a significant new environmental impact not previously disclosed in the Draft SEA. Additionally, none of comments indicate that there would be a substantial increase in the severity of a previously identified environmental impact that will not be mitigated, or that there would be any of the other circumstances requiring recirculation as described in CEQA Guidelines Sections 15073.5 and 15088.5.

CEQA REQUIREMENTS REGARDING COMMENTS AND RESPONSES

CEQA Guidelines Section 15204(b) outlines parameters for submitting comments and reminds persons and public agencies that the focus of review and comment of the Draft SEA should be “on the proposed finding that the project will not have a significant effect on the environment.” If persons and public agencies believe that the proposed project may have a significant effect, the commenter should: 1) identify the specific effect; 2) explain why they believe the effect would occur; and 3) explain why they believe the effect would be significant. Comments are most helpful when they are as specific as possible. At the same time, reviewers of the Draft SEA should be aware that CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commenters. CEQA Guidelines Section 15204(c) further advises, “Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to CEQA Guidelines Section 15064, an effect shall not be considered significant in the absence of substantial evidence.” CEQA Guidelines Section 15204(e) also states, “This section shall not be used to restrict the ability of reviewers to comment on the general adequacy of a document or of the lead agency to reject comments not focused as recommended by this section.”

Pursuant to CEQA Guidelines Section 15088(a) and South Coast AQMD Rule 110(d), South Coast AQMD has evaluated and provided written responses to comments received during the Draft SEA public comment period. The level of detail contained in each response corresponds to the level of detail provided in the comment (i.e., responses to general comments may be general). In addition, updates to the CEQA analysis have been made in response to public comments to reflect recent updates to PAR 1111 and PAR 1121, and to incorporate other minor modifications for consistency.

COMMENT LETTER #1 – Tribal Historic Preservation, October 4, 2024 (p. 1 of 1)

From: Tribal Historic Preservation Office <thpo@morongo-nsn.gov>
Sent: Friday, October 4, 2024 11:23 AM
To: Jivar Afshar
Cc: Ann Brierty; Laura Chatterton
Subject: [EXTERNAL] South Coast Air Quality Management District Reduction of NOX Emissions

Thank you for Notifying MBMI of Proposed Amended Rule 1111 for the Reduction of NOX Emissions (Project).

The South Coast Air Quality Management District (SQAMD) has completed a Draft Subsequent Environmental Assessment to analyze impacts of the Project.

At this time, we have no comments upon the Project as proposed. Pursuant to applicable regulations under the California Environmental Quality Act (CEQA), our office will request government-to-government consultation under Assembly Bill (AB) 52 (California Public Resources Code § 21080.3.1) if/when consultation is initiated/appropriate.

This letter neither initiates nor concludes consultation.

Our Office thanks you for the opportunity to comment upon the Project. We look forward to working with SQAMD in the future.

Respectfully,

Laura Chatterton
Cultural Resource Specialist
Tribal Historic Preservation Office
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220
O: (951) 755.5256
C: (951) 663.7570

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1-1

**RESPONSE TO COMMENT LETTER #1 – Tribal Historic Preservation Office, Morongo
Band of Mission Indians, October 4, 2024**

Response 1-1

Comment 1-1 acknowledges receipt of the Notice of Completion of the Draft SEA for PAR 1111 and PAR 1121, and indicates that the commenter has no comments and does not request to initiate or conclude consultation regarding the proposed project.

The South Coast AQMD provided a formal notice of the proposed project to all California Native American Tribes that either requested to be on the Native American Heritage Commission's (NAHC) notification list or South Coast AQMD's mailing list per Public Resources Code Section 21080.3.1(b)(1) and a notice of the proposed project was provided to the commenter. These notices provide an opportunity for California Native American Tribes to request a consultation with the South Coast AQMD if potentially significant adverse impacts to Tribal cultural resources are identified. The Draft SEA for the proposed project did not identify any potentially significant adverse impacts to Tribal cultural resources and the commenter did not request consultation. Further, the South Coast AQMD did not receive any consultation requests from any California Native American Tribes, including the commenter, relative to the proposed project. Since this comment does not raise any issues relative to Tribal cultural resources during the comment period for the Draft SEA, no further response is necessary under CEQA. [CEQA Guidelines Section 15088(a)].

COMMENT LETTER #2 – SoCalGas, October 17, 2024 (p. 1 of 37)



Kevin Barker
Senior Manager
Energy and Environmental Policy
555 West 5th Street
Los Angeles, CA 90013
Tel: (916) 492-4252
KBarker@socalgas.com

October 17, 2024

Senator Vanessa Delgado, Chair and
Honorable Governing Board Members
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Subject: Comments on Proposed Amendments to Rule 1111 and Rule 1121

Dear Senator Delgado and Honorable Members of the Governing Board:

Southern California Gas Company (SoCalGas) appreciates the opportunity to provide public comments on the South Coast Air Quality Management District (South Coast AQMD) Proposed Amendments to Rule (PAR) 1111 and Rule (PAR) 1121. If adopted, the proposed amendments will require millions of residents within the South Coast Air Basin to replace approximately 10 million affected units once the existing appliance requires replacement and will require all new buildings to install fully electric space and water heating appliances. These rules create significant burdens for consumers and will cost billions of dollars to reduce overall nitrogen oxide (NOx) emissions within the South Coast Air Basin by just 2.8% or 10 tons per day out of the total 351 tons per day of NOx emitted by all sources within the territory¹. Even if all sources regulated by the California Air Resources Board (CARB) and South Coast AQMD were zero emission, federal sources alone would emit substantially more than the 60 tons per day NOx limit the District must achieve to comply with federal ozone standards.² SoCalGas supports policies to achieve NOx reductions, provided such policies are feasible, permitted by federal law, cost-effective, and commercially available. However, SoCalGas has numerous concerns with the proposed rule, including a concern that it is preempted by federal law.

¹ South Coast AQMD, "Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121," September 2024, Page 5-1, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

² South Coast AQMD, "2022 Air Quality Management Plan Executive Summary," December 2022, Page ES-6, <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/03-es.pdf?sfvrsn=6>.

COMMENT LETTER #2 – SoCalGas, October 17, 2024 (p. 2 of 37)

SoCalGas's comments highlight the following concerns: 1) The proposed rules effectively ban certain appliances covered by the federal Energy Policy and Conservation Act (EPCA); 2) It is imperative that South Coast AQMD inform residents and business owners of the impacts of PAR 1111 and 1121 prior to Board consideration, as it appears that the majority of residents and business owners in the South Coast AQMD jurisdiction are wholly unaware of these significant changes; 3) South Coast AQMD staff need to provide the datasets and assumptions used to perform cost-effectiveness calculations to allow stakeholders to better assess the impacts of the proposed amendments; 4) Several assumptions within the cost-effectiveness analysis are inconsistent and should be reevaluated by staff; 5) Among other issues, the Draft Subsequent Environmental Assessment does not sufficiently explain why energy impacts from PAR 1111 and 1121 are less than significant; 6) Staff should clarify why they plan to perform a technology check-in after rule implementation; and 7) The financial impact of the proposed amendments has not been adequately evaluated and will be burdensome to the everyday customer.

2-1

1. The proposed rules effectively ban certain appliances covered by EPCA

Under a recent ruling by the Ninth Circuit Court of Appeals, *California Restaurant Association v. City of Berkeley*, 89 F.4th 1094 (9th Cir. 2024), the Court held that EPCA preempts all regulations "that relate to 'the quantity of [natural gas] directly consumed by' certain consumer appliances at the place where those products are used." *Id.* at 1101. "[A] regulation on 'energy use' fairly encompasses an ordinance that effectively eliminates the 'use' of an energy source." *Id.* at 1102. Here, similar to the Berkeley ordinance, the effect of the proposed rules is to reduce the quantity of gas consumed by EPCA-covered appliances to zero. Under *Berkeley*, States and localities cannot avoid EPCA's preemption provisions "by doing *indirectly* what Congress says they can't do *directly*." *Id.* at 1107 (emphasis in original).

2. It is imperative that South Coast AQMD inform residents and business owners of the impacts of PAR 1111 and 1121 prior to Board consideration, as it appears that the majority of residents and business owners in the South Coast AQMD jurisdiction are wholly unaware of these significant changes

It is incumbent upon regulatory agencies to ensure affected parties of any rulemaking process know and have an opportunity to understand the proposed changes to rules before the rule amendments are adopted. While staff held six (6) working group meetings and one public workshop, most attendees were manufacturers, contractors, and environmental justice leaders. Given this, it is our impression that the majority of residents and business owners in the South Coast AQMD territory are wholly unaware of the significant changes being proposed.³

2-2

³ This was evident at the California Air Resources Board's (CARB) August 22, 2024, Virtual Listening Session on CARBs similar Zero-Emission Space and Water Heating Standard. This listening session intended to engage residents of Southern California. While the meeting was co-hosted by Climate Action Campaign (CAC) with CARB and attended by South Coast AQMD staff, unfortunately the public was not informed about this opportunity to learn about these proposed regulations. As such, the meeting was attended by fewer than 45 people in a region of 17 million and the majority of attendees were government agency staff, members of CAC, and SoCalGas staff.

COMMENT LETTER #2 – SoCalGas, October 17, 2024 (p. 3 of 37)

It is essential that the public is made aware of these proposed amendments, since the requirements and impacts are far reaching. When the Board adopted its most recent amendments to Rule 1146.2 in June 2024, which regulates NOx emissions from large water heaters, small boilers and process heaters, two members emphasized the need for an immediate outreach campaign to inform those affected by that regulation.⁴ While it's crucial to notify impacted parties about rule changes and implementation timelines, it's even more vital for the regulatory body to engage in public awareness efforts before adoption. PAR 1111 and 1121 will directly impact residential customers, who will bear the majority of compliance costs.⁵ Therefore, it is essential that communities understand how the proposed amendments will influence their choices and future costs.

Previous updates to Rules 1111 and 1121 required that manufacturers develop equipment to meet stricter emissions standards by setting a feasible NOx reduction target. These updates did not require residents to invest in costly modifications to their homes when their space and water heating equipment required replacement. The present proposed amendments, while presented as an emissions reduction regulation, will require property owners – residential and commercial – and tenants to switch out their gas appliances for electric appliances. If approved, the financial burden of these changes will be placed on residents and consumers in the South Coast AQMD territory.

During the October 3, 2024 South Coast AQMD Public Workshop, an owner of a heating, ventilation, and air conditioning (HVAC) company in the San Bernadino mountains similarly expressed concerns that the public is unaware of the amendments' implications on their future budgets and the costs of major upgrades to their homes. His comments highlighted that staff did not take his region into account when evaluating feasibility and costs. In the analysis, AQMD staff averaged installation costs for climate zones 6, 9, and 10⁶. However, the customers he serves are in climate zone 16 and the majority of these homes do not have preexisting air conditioning (AC). If these amendments are passed and these residents are required to replace their heating system with a heat pump, they will face an additional expense compared to other customers in the District because they will need to install low ambient heat pump equipment which, on average, costs 30 - 50% more than standard heat pump equipment.⁷ It appears that these additional incremental costs were not accounted for in staff's cost-effectiveness analysis. Needless to say, PARs 1111 and 1121 will affect millions of residents and businesses in the South Coast AQMD region and it is imperative that there be public outreach campaigns to garner participation from those this will

2-2

⁴ "Governing Board Meeting Live Webcast," South Coast AQMD, June 7, 2024, <https://www.aqmd.gov/home/news-events/webcast/live-webcast?ms=UeHieemQEZc>.

⁵ Rule 1146.2 regulates small commercial boilers and large water heaters as well as tankless water heaters and pool heaters.

⁶ South Coast AQMD, "Proposed Amended Rules 1111 and 1121 Working Group Meeting #2," November 28, 2023, Slide 11, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-wgm2-november-2023.pdf?sfvrsn=14>.

⁷ Diane Oestreich, "Kory Griggs Addresses Air Quality Management Board," Mountain News, published on October 9, 2024, https://www.mountain-news.com/news/kory-griggs-addresses-air-quality-management-board/article_73c973dc-867d-11ef-8fc9-4ff63eba5178.html.

COMMENT LETTER #2 – SoCalGas, October 17, 2024 (p. 4 of 37)

impact the most. SoCalGas requests that South Coast AQMD delay the adoption of these rules to allow adequate time for public outreach. Additionally, SoCalGas requests that South Coast AQMD make all comment letters submitted by stakeholders publicly available on the South Coast AQMD's website within 72 hours of comment submittal.

2-2

3. South Coast AQMD staff need to provide the datasets and assumptions used to perform cost-effectiveness calculations to allow stakeholders to better assess the impacts of the proposed amendments

The data sources used, and assumptions made by South Coast AQMD staff in the cost-effectiveness analysis are unclear. Staff provided general citations to public data sources used to estimate costs during the rulemaking process, but citations should point stakeholders to the specific datasets that were relied upon in the cost-effectiveness evaluation.

For example, capital and operating costs were presented in Working Group Meeting #2 on slides 9 – 13. While staff generally references the source of data used to obtain cost information, the presentation lacks citations for specific reports and datasets used in the evaluation. The link provided on slide 13 of the Working Group Meeting #2 presentation, for example, takes users to the landing webpage for Energy Star Certified Heat Pump Water Heaters, which makes it difficult to understand exactly where staff obtained the annual energy use data for certified water heaters. Similarly, in Working Group Meeting #4, staff updated the cost-effectiveness for residential heat pump water heaters to \$246,000 per ton without providing any explanation. This value was again updated in the staff report to \$327,000 per ton, yet staff never provided an update on this in subsequent Working Group Meetings, and it is unclear how staff determined this value. These are just a few of the many instances where staff failed to provide transparency with the data used to conduct the cost-effectiveness analysis.

2-3

Furthermore, in an effort to gain a better understanding of the costs associated with the transition to electric space and residential water heaters for our customers, SoCalGas asked an independent consulting firm, Ramboll, to use the information presented in the PAR 1111 and PAR 1121 Working Group Meetings and apply the South Coast AQMD's cost-effectiveness analysis technique to estimate costs. Using the methodology and data provided in the Working Group Meetings and the staff report, Ramboll's calculated values are significantly different than those presented by staff for all the replacement scenarios. Table 1 below illustrates this difference for single-family water heaters. It is important to reiterate that Ramboll's analysis is using the same assumptions and values presented by staff, and yet the results were unable to be duplicated and independently verified (see Appendix A for complete analysis).

COMMENT LETTER #2 – SoCalGas, October 17, 2024 (p. 5 of 37)

Table 1: Comparison of Cost-Effectiveness Values for Single-Family Water Heater

| Category | Cost-Effectiveness (\$/Ton) | | |
|---|-----------------------------|------------------|----------------|
| | AQMD Analysis | Ramboll Analysis | Percent Change |
| Single-Family Water Heater with Panel Upgrade | \$601,000 | \$750,345 | 25% |
| Single-Family Water Heater | \$299,000 | \$524,016 | 75% |
| Overall Weighted Average* | \$327,000 | \$544,385 | 66% |

*Based on South Coast AQMD assumption that 9% of homes require a panel upgrade

The lack of clarity as to how staff arrived at these cost-effectiveness values is very concerning. It appears that staff did not update the average annual electricity usage values as indicated in the staff report to arrive at \$601,000⁸ for the cost of a water heater replacement with a panel upgrade (Ramboll's analysis using South Coast AQMD's assumptions is 25% higher for water heaters with panel upgrades, 75% higher for water heaters without upgrades, and 66% higher for water heaters when using South Coast's weighted average calculation). Unfortunately, SoCalGas is unable to determine how staff arrived at \$299,000 for the cost of a water heater replacement without a panel upgrade. Without visibility into the datasets used, assumptions, and calculations made by staff, stakeholders are unable to get a full picture of how the potential costs associated with compliance with these rules were evaluated. Data transparency is crucial in any rulemaking process but is particularly important for PAR 1111 and PAR 1121, as the potential financial implications of this rulemaking will impact millions of residents and businesses in South Coast AQMD jurisdiction. SoCalGas requests that staff provide details on the assumptions, datasets, and calculations used within the cost-effectiveness analysis to derive the cost-effectiveness values presented. It is critical that staff provide this information to help the public better understand what costs customers may encounter in the not-too-distant future. SoCalGas recommends that staff make their calculation spreadsheet available to the public for review and comment as was done for Proposed Rule 2304.⁹

Given the difficulty of unpacking the cost-effectiveness assumptions and lack of public awareness, stakeholders should be given more time to understand the specific assumptions to ensure the calculations are sound. As such, SoCalGas requests that the Board delay adoption of these proposed rules to allow for an additional public workshop to review the cost-effectiveness calculations that were used to determine the cost-effectiveness values.

⁸ South Coast AQMD, "Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121," September 2024, Page 2-20, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

⁹ South Coast AQMD, "Proposed Rule 2304," see Potential Port Emission Reduction Strategies excel files from Working Group Meetings, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-2304>.

COMMENT LETTER #2 – SoCalGas, October 17, 2024 (p. 6 of 37)**4. Several assumptions within the cost-effectiveness analysis are inconsistent and should be reevaluated by staff**

The cost-effectiveness analysis contains several assumptions that are inconsistent, which undermines the overall reliability of the findings. To enhance the accuracy and credibility of the evaluation, it is crucial to address these inconsistencies. SoCalGas's analysis of staff's calculations found several areas that should be addressed. Enhancements should focus on ensuring that assumptions are clearly defined, logically sound, and consistently applied throughout the process. We hope that these insights will help to produce more robust and dependable results, ultimately leading to better-informed decisions.

a. Inconsistent data used to estimate equipment replacement costs

The South Coast AQMD's analysis uses two different data sets to estimate replacement costs for gas and electrical equipment. Gas replacement estimates are based on the E3 Residential Building Electrification analysis¹⁰, while the electric equipment replacement costs are based on the Technology and Equipment for Clean Heating (TECH) data set¹¹. Per the staff report, staff utilized the November 2023 public data set from TECH for Los Angeles, Orange, San Bernardino and Riverside counties and the entire data set from E3 for climate zones 6, 9 and 10¹². According to staff, TECH Clean California Program data includes only 1,400 Multi-Family (MF) buildings and 18,000 Single-Family (SF) buildings that participated in the state incentive program¹³.

It is unclear why staff chose to use two separate sources of data, from where values were pulled, and why staff limited the scope of the data sets. It is important to have data integrity to avoid the appearance of bias in such an analysis. In order to eliminate these data inconsistencies, the same data source can be used for both gas and electric equipment costs. Since the E3 analysis includes estimates for both gas and electric equipment costs, utilizing this data as the basis for the cost-effectiveness calculations would provide consistency.

2-3

¹⁰ Amber Mahone et al., "Residential Building Electrification in California," Energy and Environmental Economics, Inc. ("E3"), April 2019, https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf.

¹¹ Technology and Equipment for Clean Heating (TECH) Clean California. "Heat Pump Data," last modified on September 13, 2024, <https://techcleanca.com/heat-pump-data/download-data/>.

¹² South Coast AQMD, "Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121," September 2024, Page 2-15, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

¹³ South Coast AQMD, "Proposed Amended Rules 1111 and 1121 Working Group Meeting#3," January 31, 2024, Slide 17, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>.

COMMENT LETTER #2 – SoCalGas, October 17, 2024 (p. 7 of 37)

b. Space heating cost-effectiveness analysis assumes simultaneous replacement of AC units, which are not regulated under Rule 1111

South Coast AQMD's analysis should not rely upon a baseline of replacing AC units, an appliance which is not regulated by Rule 1111, in order to achieve cost-effectiveness. South Coast AQMD's analysis asserts that it is not cost-effective to replace a furnace with a heat pump in single-family homes without including the costs of replacing an AC system. In fact, in homes that do not currently have AC, the cost-effectiveness for a heat pump replacement is \$827,000 per ton without a panel upgrade or \$921,000 per ton with a panel upgrade. This exceeds the \$349,000 cost-effectiveness threshold.¹⁴ Furnace replacement with a heat pump only appears cost-effective when costs associated with simultaneous replacement of the furnace and AC are included.

Furthermore, to account for the fact that homes without AC are above the cost-effectiveness threshold, the South Coast AQMD's analysis relies on weighted averages. It is unclear how staff is performing these weighted average calculations, but the analysis relies on two percentages; according to staff, 87% of homes in South Coast AQMD already have AC and only 4% of homes will require a panel upgrade.¹⁵ To estimate the percentage of homes with AC and without AC, staff relied on the U.S. Census American Housing Survey (AHS). Staff did not provide details as to how this data was utilized, but it appears that the 87% estimate includes a significant number of room AC units.¹⁶ While the cost-effective analysis should not include AC units at all, it would be more accurate to exclude room units. Per the AHS data, when excluding room air conditioners only 66% of homes in the South Coast have AC (for the Los Angeles-Orange-San Bernardino-Riverside area).¹⁷ Similarly, per the staff report the TECH data was used to determine that only 4% of homes need electrical panel upgrades for space heating, however it is unclear how staff arrived at this percentage and why such a small dataset was utilized.¹⁸

2-3

Overall, this approach assumes a 1:2 appliance replacement and should not be used to conclude that this is cost-effective. Rather than just evaluating the cost to replace a furnace, staff is assuming that customers will replace the furnace and a functioning AC unit at the same time, regardless of cost. It is not realistic to assume that homeowners are going to replace AC units that are in good condition if they only need to buy a new furnace. It is also a divergence from common practice to

¹⁴ South Coast AQMD, "Proposed Amended Rules 1111 and 1121 Working Group Meeting #6," August 15, 2024, Slide 27, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm6-august-2024.pdf?sfvrsn=18>.

¹⁵ South Coast AQMD, "Proposed Amended Rules 1111 and 1121 Working Group Meeting #6," Slide 27.

¹⁶ South Coast AQMD, "Proposed Amended Rules 1111 and 1121 Working Group Meeting #2," November 28, 2023, Slide 7, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm2-november-2023.pdf?sfvrsn=14>.

¹⁷ U.S. Census Bureau, "American Housing Survey (AHS) Table Creator," American Housing Survey, AHS housing unit Characteristics spreadsheet, https://www.census.gov/programs-surveys/ahs/data/interactive/ahstablecreator.html?s_areas=00000&s_year=2023&s_tablename=TABLE1&s_bygroup1=1&s_bygroup2=1&s_filtergroup1=1&s_filtergroup2=1.

¹⁸ South Coast AQMD, "Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121," September 2024, Page 2-17, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

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put forth a regulation that is not cost-effective simply because staff believes that residents will benefit from having AC. As indicated in the staff report “although heat pump replacement for furnace without AC has a high cost-effectiveness, the replacement would have an additional benefit of space cooling, which is becoming more of a necessity due to climate change.”¹⁹ Consumers should not be forced to bear the cost of an appliance that they may not need or be able to afford. As such, staff should update the cost-effective analysis excluding the costs of AC replacement; doing so will show that these proposed amendments to Rule 1111 are not cost-effective.

c. South Coast AQMD should consider revising electrical panel upgrade costs to more accurately reflect upfront costs to customers

During the rulemaking process, staff acknowledged that the transition to zero-emission units may require electrical panel upgrades, which will be an added cost to customers who are already paying to replace their appliance. Although staff noted that panel upgrades typically cost approximately \$3,000 based on available data,²⁰ the cost-effectiveness analysis ultimately relied upon a panel upgrade cost of \$750²¹. This value was derived by dividing the \$3,000 estimate in half to account for the longer useful life of the electrical panel (assumed to be 30 years) versus the useful life of the replacement unit (assumed to be 15 years for heat pump water heaters, but staff did not update this value to use the 25-year useful life of heat pump space heaters). Staff also assumed that costs would be shared between both space and water heating appliances even though one appliance replacement could trigger the need to upgrade the whole cost of the panel, resulting in a realized cost of \$3,000 to the customer to replace one appliance.

To accurately estimate upfront costs and effectively communicate expected costs to the public, the cost-effectiveness analysis should be updated to include the total cost of an electrical panel upgrade. The financial investment in panel upgrades is made at the time of purchase, not at the end of the equipment life; therefore, electric panel upgrade costs should not be prorated based on the useful life of the appliance. Furthermore, based on available data, the cost of a panel upgrade can be up to \$18,000²² if customers are responsible for utility infrastructure costs such as pole changeouts or conduit replacements, or other costs such as sub-panels, new breakers, trenching, etc. Additionally, space and water heaters have varying life expectancies, thus it is inaccurate to apply a single 15-year panel lifetime cost to both types of equipment. If staff chooses to stick with this approach, however, then appliances with a 25-year expected life should be identified with the prorated panel upgrade cost.

¹⁹ South Coast AQMD, “Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121,” Page 2-18.

²⁰ NV5, “Service Upgrades for Electrification Retrofits Study Final Report,” May 27, 2022, Page 32, <https://pda.energydataweb.com/api/view/2635/Service%20Upgrades%20for%20Electrification%20Retrofits%20Study%20FINAL.pdf>.

²¹ South Coast AQMD, “Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121,” September 2024, Page 2-17, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

²² NV5, “Service Upgrades for Electrification Retrofits Study Final Report,” Page 32.

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Also, as previously noted, staff is performing weighted averages utilizing the assumptions that only “4 percent of homes for space heating and 9 percent of homes for water heating” will require a panel upgrade.²³ Since the transition to zero-emission technology will require California families to ultimately bear this added cost, it is important to ensure that such assumptions used to derive this value are appropriate and provide a realistic cost to customers. For these reasons, we request that South Coast AQMD delay the adoption of these rules to allow for a public workshop to review the assumptions that were used to arrive at these values. In lieu of a public workshop staff could make their calculation spreadsheet available to the public for review and comment.

- d. *Energy Prices used in South Coast AQMD’s analysis are point sources and representative of prices before the proposed rule implementation date*

In its cost-effectiveness analysis for residential and commercial appliances, South Coast AQMD used projected electricity and natural gas rates for 2024-2050 from the 2023 Integrated Energy Policy Report (IEPR) Energy Demand Forecast.²⁴ The 2023 IEPR electricity forecast only goes to 2040, but natural gas rates extend to 2050. Since the compliance dates do not begin until 2026 and these types of equipment have long lifetimes (ex. 15 and 25 years), energy prices are expected to change during that period.²⁵ Hence, SoCalGas proposes that the cost-effectiveness analysis should use an average of projected rates during the equipment’s expected 15- or 25-year lifetime to better reflect the actual cost of O&M for the equipment’s lifetime. We also believe that the approaches for electric and gas appliances should be consistent; however, we were unable to verify the source and timeframe of the electricity and gas rates used for the cost-effectiveness analysis. Therefore, SoCalGas requests clarification from staff how electricity rates are averaged through 2050 if the data was not available from the forecast. Without this clarification, it is not possible to validate the staff report’s analysis.

- e. *Inflated coefficient of performance assumptions for heat pumps*

South Coast AQMD staff presented energy consumption data during Working Group Meeting #2 on slides 13 and 14. Table 2 below provides a summary of energy usage assumptions provided, gaps in energy usage assumptions, as well as calculated Coefficients of Performance (COP).

²³ South Coast AQMD, “Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121,” September 2024, Page 2-15, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

²⁴ California Energy Commission, “2023 Integrated Energy Policy Report Energy Demand Forecast California Energy Demand,” <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2023-integrated-energy-policy-report/2023-1>.

²⁵ U.S. Energy Information Administration, “Annual projections to 2050,” retrieved on October 8, 2024, <https://www.eia.gov/analysis/projection-data.php>.

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Table 2: Summary of Energy Usage Assumptions Used in South Coast AQMD Analysis

| | SF/MF Residential Space Heating | | Commercial Space Heating | | Residential Water Heating ²⁶ | | Coefficient of Performance ²⁷ | |
|--|---------------------------------|-------|--------------------------|------------------|---|-------|--|------|
| | HP | Gas | HP | Gas | HP | Gas | HPSH | HPWH |
| Energy Consumption (kWh) ²⁸ | 565 | 3,822 | No data provided | No data provided | 1,036 | 5,567 | 6.76 | 5.37 |

Based on the residential energy data South Coast AQMD staff provided, the residential heat pump space and water heating COPs are 6.76 and 5.37, respectively. These levels of efficiencies are not consistent with performance of existing heat pump technologies. Heat pump technologies typically range from 3.5-4.4.²⁹

SoCalGas staff attempted to unpack the rationale for the high COP values used by South Coast AQMD staff for both space and water heat pump technologies. The staff report indicates that heat pump technology “can be over three times more efficient than conventional appliances” but does not provide any reference.³⁰ Additionally, the source of the energy consumption data for water heater usage was unclear as the only reference for data source is the ENERGY STAR product finder link.³¹ South Coast AQMD staff should provide the specific appliances or data used to develop these calculations, so stakeholders can understand how the values are derived.

In the South Coast AQMD Space Heating consumption analysis, as presented on slide 12 of Working Group Meeting #2, the current values used in the analysis appear to come from the RASS 2019 executive summary, Tables ES-1 and ES-3.³² The Southern California Edison (SCE) values in Table ES-1 represent the average consumption of all electric HVAC heat pump installations (single-family, multi-family, and mobile homes) in the SCE service territory, while the SoCalGas values in Table ES-3 represent the average consumption of all gas space heating installations (single-family, multi-family, and mobile homes) in SoCalGas territory. These values, however, do not account for the types of buildings (single-family vs. multi-family vs. mobile homes) in which

²⁶ Used lowest range energy usage assumption for both heat pumps and conventional gas water heaters.

²⁷ SoCalGas calculated the coefficient of performance based on energy consumption of gas appliances and heat pump appliances.

²⁸ Gas energy usage converted from therms to kWh using 29.3 kWh/therm conversion factor including electricity load for furnace fan.

²⁹ Nate Jutras, “What is Uniform Energy Factor and Why Does it Matter?,” ENERGY STAR, accessed October 16, 2024, <https://www.energystar.gov/products/ask-the-experts/what-uniform-energy-factor-and-why-does-it-matter>.

³⁰ South Coast AQMD, “Preliminary Draft Staff Report for Proposed Amended Rules 1111 and 1121,” September 2024, Page 2-10, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

³¹ ENERGY STAR Certified Heat Pump Water Heaters,

<https://www.energystar.gov/productfinder/product/certified-heat-pump-water-heaters/results>.

³² California Energy Commission, “2019 California Residential Appliance Saturation Study (RASS) Executive Summary,” July 2021, Pages 5 and 11, <https://www.energy.ca.gov/sites/default/files/2021-08/CEC-200-2021-005-ES.pdf>.

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the equipment is installed. For example, if there are more HVAC heat pumps in multi-family homes, which have a lower space heating load than single-family buildings, it could show that the heat pump space heater is saving more energy simply by heating smaller building sizes. By comparing the SCE numbers from Table ES-1 to the building specific values in Table ES-2, one can see that the average space heating load in SCE territory is most similar to multi-family energy consumption. Moreover, comparing SoCalGas numbers from Table ES-3 to the building specific values in Table ES-4 shows the space heating load in SoCalGas territory is most similar to mobile home energy consumption. This suggests that there are more heat pump installations in multi-family buildings, which skews the unit energy consumption values lower within SCE territory.

The more appropriate numbers for the analysis would be from Tables ES-2 and ES-4, which control for building size and therefore compare equal building loads. These tables show that multi-family space heating uses about 40% of the single-family energy usage and mobile home space heating uses about 75% of the single-family energy usage. The following table summarizes ES-2 and ES-4 for energy consumption data by technology and residential building types.

Table 3: Summary of ES-2 and ES-4 Energy Consumption Data

| | Unit Energy Consumption (UEC) | | |
|--|-------------------------------|--------------|-------------|
| | Single-Family | Multi-Family | Mobile Home |
| Primary Conventional Space Heating (kWh) | 1,509 | 622 | 1,193 |
| Primary Heat Pump Space Heating (kWh) | 1,221 | 493 | 980 |
| Primary Heat (therm) | 191 | 67 | 136 |
| Furnace Fan (kWh) | 159 | 55 | 116 |

While these numbers are statewide and include climate zones outside of the South Coast AQMD territory, they provide for a more like-for-like comparison of building usage. The statewide values for different building types in Tables ES-2 and ES-4 would be more appropriate for this analysis.

Further, to get the most accurate consumption values and account for the regionality of energy consumption as well as the different building load usage, the RASS database could be utilized.³³ Although currently unavailable on the CEC website, the RASS 2019 database contains all of the raw data from the RASS study (see footnote 33) to enable a user to search and filter the data usage as needed. The RASS 2019 UEC tables, which calculate energy consumption values of weather sensitive end uses by climate zones and building types, can be utilized to get regional values for different space heating loads depending on the building type.³⁴ This would allow for a more

³³ California Energy Commission, California Residential Appliance Saturation Study Database, <https://rass.dnv.com/sign/in>.

³⁴ California Energy Commission, "2019 California Residential Appliance Saturation Study (RASS) Volume 2: Results," July 2021, <https://rass.dnv.com/envodig/api/site/media/CEC-200-2021-005-RSLTS.pdf>.

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accurate like-for-like comparison of the different consumption values between building and space heating types within certain regions.

Due to the relatively smaller sample sizes of the UEC values by climate zone, there is more variation in the results of the data. To have statistically significant data, it is best to use the statewide figures from the RASS 2019 database below, similar to the executive summary tables ES-2 and ES-4:

Table 4: RASS 2019 Statewide Energy Consumption Data

| Building Type | Primary Heat (therm) | Conv. Heat (kWh) | Heat Pump (kWh) |
|----------------------|---------------------------------|-----------------------------|----------------------------|
| Single-Family | 189 | 1,509 | 1,221 |
| Townhome | 83 | 951 | 593 |
| 2-4 Unit Apartment | 69 | 592 | 559 |
| 5+ Unit Apartment | 53 | 582 | 461 |
| Mobile Home | 144 | 1,193 | 980 |

SoCalGas requested that Ramboll use the statewide data per residential building type in their cost-effectiveness analysis.

f. Cost-effectiveness calculations should include costs of alternative compliance pathways

During the October 3, 2024 South Coast AQMD Public Workshop, several stakeholders raised concerns about the alternative compliance pathways laid out within both rules. Stakeholders voiced concern regarding rental appliance feasibility, noting that this would be incredibly complicated and costly to owners. One commenter acknowledged that for his manufacturing company, ultra-low NOx products are only shipped to and sold in areas in California that have low NOx requirements. Another manufacturer commented that the District should not rely on the market to create a rental program and suggested that the District fund a program similar to what was done to support the TECH program.³⁵ Without such an established program, inventory in the next few years will decline as manufacturers stop producing natural gas units for sale in California. The lack of availability of rental units will impose additional costs on households and could potentially offset emissions reductions if consumers need to utilize higher emitting units because manufacturers stop developing units that meet California's strict emissions standards.

Furthermore, the cost-effectiveness analysis does not include consideration of the additional costs incurred by customers under the alternative compliance options. Staff noted that the alternative compliance options were included as part of the PAR 1111 amendments to address the high upfront cost associated with furnace replacement, since furnace replacement without simultaneous

³⁵ South Coast AQMD October 3, 2024 Public Workshop, stakeholder comments; recording available by request to AQMD staff.

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replacement of an AC systems is not cost-effective³⁶. Given 34 percent of homes in the South Coast AQMD region do not have AC, the additional costs of the alternative compliance option will be a reality for many households.³⁷ To account for these costs, the cost-effectiveness analysis should assume that these homeowners will have to pay double the installation, labor, and permitting costs, in addition to rental costs, since rented natural gas-fired furnaces and water heaters will need to be installed and subsequently uninstalled once a heat pump replacement unit has been procured and any necessary upgrades are completed for the heat pump. It is in the public interest to be made aware of these potential additional upfront costs, as it will impose additional financial burden on anyone who will need to utilize these alternative compliance options.

g. Ramboll's cost-effectiveness analysis

Given these findings, SoCalGas asked Ramboll to apply the South Coast AQMD's cost-effectiveness analysis technique as presented by staff for the proposed zero emission standards for PAR 1111 and 1121 (Appendix A). Ramboll calculated the cost-effectiveness in dollars per ton of NO_x reduced for the replacement of residential natural gas appliances with electric heat pump alternatives using the updated data and assumptions as discussed in the comments above. The results are summarized below in Table 4. The analysis indicates that the replacement of a single-family home natural gas water heater, single-family home natural gas furnace (only), and multi-family home natural gas furnace (only) with heat pump equipment are not cost-effective, i.e., cost-effectiveness is greater than the threshold of \$349,000. Details of these calculations are presented in Tables B-1, B-2, and B-3 in Attachment B for single-family home water heaters, single-family home HVACs, and multi-family home HVACs, respectively.

2-3

³⁶ South Coast AQMD, "Preliminary Draft Staff Report for Proposed Amended Rule 1111 and 1121," September 2024, Page 2-19, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>.

³⁷ U.S. Census Bureau, "American Housing Survey (AHS) Table Creator," American Housing Survey, https://www.census.gov/programs-surveys/ahs/data/interactive/ahstablecreator.html?s_areas=00000&s_year=2023&s_tablename=TABLE1&s_bygroup1=1&s_bygroup2=1&s_filtergroup1=1&s_filtergroup2=1.

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| Table 4: Updated Cost-Effectiveness Comparisons | | | |
|--|--|-------------------------|------------------------|
| Data Source | Cost-Effectiveness for Conversion of Residential Natural Gas Equipment to Electric Heat Pump Equipment | | |
| | (2022\$/ton NOx) | | |
| | Single-Family Home Water Heater | Single-Family Home HVAC | Multi-Family Home HVAC |
| PAR 1111/1121 Preliminary Draft Staff Report ¹ | 601,000 | 921,000 | (135,000) |
| Cost-effectiveness values calculated based on updated data presented in this comment letter ² | 879,258 | 972,443 | 1,351,118 |
| Cost-effectiveness threshold (\$/ton of NOx) | 349,000 | | |
| Notes: | | | |
| ¹ South Coast AQMD. Preliminary Draft Staff Report 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. Available at: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18 . Accessed: October 2024. | | | |
| ² See Attachment B. Analysis includes panel upgrade costs of \$3,000 | | | |
| Abbreviations: | | | |
| \$ - dollar, HVAC – heating ventilation and air conditions, NOx – oxides of nitrogen | | | |

Given this, SoCalGas requests that South Coast AQMD staff revisit and refine the assumptions made within the cost-effectiveness analysis. Delay of rule adoption would allow for further investigation and deep-dive discussions between staff and engaged stakeholders to ensure all aspects of this rulemaking have been analyzed and vetted.

2-3

COMMENT LETTER #2 – SoCalGas, October 17, 2024 (p. 15 of 37)**4. The Draft Subsequent Environmental Assessment does not sufficiently explain why energy impacts from PAR 1111 and 1121 are less than significant**

SoCalGas has had the opportunity to review South Coast AQMD’s September 2024 Draft Subsequent Environmental Assessment for PAR 1111 and PAR 1121 (State Clearinghouse No. 2022050287; South Coast AQMD No. 20240924JA/05122022KN) (“Draft SEA”). SoCalGas offers several comments on the Draft SEA’s analysis concerning the proposed project, including comments concerning the Draft SEA’s air quality and energy impacts analyses, some of these analyses’ underlying data and assumptions, and the Draft SEA’s discussion of project alternatives. SoCalGas’s comments are detailed in Appendix B. However, SoCalGas would like to highlight the following comment:

The Draft SEA’s energy impacts analysis, in its concluding section, states that “[t]he cumulative energy impacts from increased electricity and natural gas demand remain significant and unavoidable.” (Draft SEA, p. 4-23.) It then continues: “However, the Final Program Environmental Impact Report (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.” (*Id.*)

The Draft SEA leaves unclear how to reconcile these two propositions. The mere passing reference to the 2022 Final (FEIR does not explain how the significant and unavoidable energy demand impacts discussed at length in the preceding pages of the Draft SEA are negated or made less significant by the absence of waste or inefficiency in how this energy is used. In the end, the Draft SEA goes from finding significant and unavoidable impacts to less than significant impacts in the space of just a few sentences, without sufficient explanation.

2-4

5. Staff should clarify why they plan to perform a technology check-in after rule implementation

During the October 3, 2024 Public Workshop, South Coast AQMD staff stated that they plan to conduct a technology check-in of the rule amendments by June 2027, ahead of implementation of the rules to consider any issues with the rules as proposed. However, PAR 1121’s implementation date is January 1, 2027, for existing buildings. During the comment period, SoCalGas requested clarification as to why the feasibility study would occur after the first implementation date, but South Coast AQMD did not respond to the question. SoCalGas would appreciate if staff could address this inconsistency as it does not benefit customers to have their concerns addressed *after* implementation.

2-5

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6. The financial impact of the proposed amendments has not been adequately evaluated and will be burdensome to the everyday customer

California is currently one of the most expensive places to live in the country³⁸ and has experienced one of the highest inflation rates recently.³⁹ According to the Public Policy Institute of California, nearly a third of Californians are living in or near poverty.⁴⁰ Needless to say, affordability is first and foremost on many policymakers' and stakeholders' minds when it comes to living in California.⁴¹

In the long run, SoCalGas believes that the clean energy transition is a great opportunity to raise the living standards for all Californians in an affordable and equitable fashion. To do so, we believe that we need to understand the immediate and direct impact to consumers in advance of any new policy being enacted. Oftentimes, communities and households who are least able to afford certain costs are most burdened with them and receive little recourse from policies and incentives. According to the LA100 Equity Strategies Report, "low-income families, renters, and people of color—face higher energy and transportation burdens, unsafe temperatures, higher impact from extreme heat events, and other negative impacts of historical legacies that are still present in current policies and practices." Specifically, the report found that "between 1999 and 2022, Los Angeles Department of Water and Power invested \$340 million in residential solar installation, \$14 million in residential energy efficiency, and \$5 million in residential electric vehicle incentive programs, but disadvantaged communities only received 38%, 46%, and 23% of those allocations, respectively."⁴²

While we understand that there will be rebates and incentives to help with some costs of compliance, it is concerning that costs can vary significantly. Table 5 below highlights actual costs that consumers will face to comply with PAR 1111 and cost for PAR 1121.⁴³ Similarly, TECH data, which staff utilized for single-family homes, shows that costs to replace a furnace with a heat pump in communities identified as disadvantaged can range from \$3,800 to \$56,000.⁴⁴ Given that there may be additional upfront costs when replacing with electric instead of gas appliances (e.g., \$5,200 vs. \$3,000 for water heaters, \$18,550 vs. \$10,000 for space heating, based on South

2-6

³⁸ Missouri Economic Research and Information Center, "Cost of Living Data Series", retrieved on Oct. 8, 2024, <https://meric.mo.gov/data/cost-living-data-series>.

³⁹ Paul Davidson, "The 5 states with the highest inflation and the 5 with the lowest," *USA Today*, April 9, 2024, <https://www.usatoday.com/story/money/2024/04/09/states-highest-lowest-inflation/73184932007/>.

⁴⁰ Public Policy Institute of California, "Poverty in California (October 2023 Factsheet)," last modified in 2023, <https://www.ppic.org/publication/poverty-in-california/>.

⁴¹ California Public Utilities Commission (CPUC), "Affordability Rulemaking," last modified in 2023, <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/affordability>.

⁴² National Renewable Energy Laboratory, "LA100: The Los Angeles 100% Renewable Energy Study and Equity Strategies," <https://maps.nrel.gov/la100/equity-strategies/recognizing-inequities#key-findings>.

⁴³ Costs for PAR 1111 provided by regional HVAC contractor; costs for PAR 1121 from LA BizFed analysis available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/los-angeles-county-business-federation.pdf?sfvrsn=6>.

⁴⁴ *September 2024 TECH Working Dataset_Multifamily & TECH Working Dataset_Single-Family Spreadsheets*.

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Coast AQMD estimates and both excluding the cost of panel upgrades and other potential costs⁴⁵), we urge South Coast AQMD to be judicious in its cost-effectiveness analysis, to be up-front and clear about how much this will cost the individual consumer, and to provide additional clarification in a cost-effectiveness workshop to help the public understand the assumptions used and the potential impact of these rules on our communities -- households and businesses. Additionally, SoCalGas looks forward to reviewing the Socioeconomic Impact Assessment once it is released later this year.

Table 5: Appliance Replacement Costs

| Natural Gas Space Heater | Replacement Cost |
|---------------------------------|-------------------------|
| Floor Heater | \$4,910 |
| Wall Heater | \$3,200 |
| Central Furnace | \$6,750 |

| Heat Pump Space Heater | Replacement Cost |
|---|-------------------------|
| Floor/Wall Heater Replacement with Panel Upgrade | \$32,099 |
| Floor/Wall Heater Replacement without Panel Upgrade | \$27,099 |
| Central Heating Without AC | \$23,750 |

| Water Heaters | Replacement Cost |
|-----------------------------|-------------------------|
| Natural Gas Water Heater | \$1,700 |
| 120V Heat Pump Water Heater | \$4,000 - \$15,000 |
| 240V Heat Pump Water Heater | \$30,000 - \$80,000 |

Conclusion

SoCalGas has been an active participant in the South Coast AQMD rulemaking on PAR 1111 and 1121 and appreciates staff's efforts in updating this regulation; however, SoCalGas and other stakeholders continue to have serious concerns.⁴⁶ While SoCalGas supports emission reduction efforts, PAR 1111 and 1121 effectively ban gas-fired space and water heaters, disregarding the potential emissions reductions that can be achieved through technological advancements in ultra-low-NOx gas technologies, hydrogen-enriched natural gas systems, and hybrid solutions. These alternatives have the potential to achieve meaningful emissions reductions while maintaining reliable, affordable, and efficient options for residents and consumers. Allowing for ultra-low-NOx alternatives will be far more effective than a zero-NOx mandate that requires residents to spend thousands of dollars modifying their homes to install electric heat pumps.

⁴⁵ South Coast AQMD, "Proposed Amended Rules 1111 and 1121 Working Group Meeting #2," November 28, 2023, Slide 11, <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-wgm2-november-2023.pdf?sfvrsn=14>.

⁴⁶ South Coast AQMD October 3, 2024 Public Workshop, stakeholder comments; recording available by request to AQMD staff.

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We urge South Coast AQMD to delay adoption of these rules and take the time to wholistically and appropriately evaluate their impacts. Given the earliest compliance deadline for existing buildings is not until January 1, 2027, we feel there is an opportunity for the South Coast AQMD to conduct public outreach to inform property owners and tenants within its jurisdiction of this rulemaking. It is crucial to recognize that homeowners and renters, rather than industry, will be the ones forced to reach deep into their pockets to comply with these rules. Historically, the South Coast AQMD granted extensions to manufacturers under Rule 1121 to meet lower NOx emission limits, acknowledging the challenges they faced with compliance costs. Similarly, we believe it is reasonable to allow more time in this rulemaking process, considering the significant financial impact to homeowners and businesses and the challenges they will likely face with rule implementation. We urge the South Coast AQMD to schedule an additional public workshop to ensure all considerations have been included in the cost-effectiveness values presented to the public. This will also help homeowners and businesses within your jurisdiction to plan their future finances accordingly. SoCalGas, looks forward to collaborating on California's shared goal of advancing air quality objectives.

2-7

Respectfully,

/s/ Kevin Barker

Kevin Barker
Senior Manager
Energy and Environmental Policy

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Appendix A

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ENVIRONMENT
& HEALTH

MEMORANDUM

To: Kevin Barker
Southern California Gas Company

From: Varalakshmi Jayaram & Tony Wang
Ramboll Americas Engineering Solutions, Inc.

Subject: **COMMENTS ON SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT'S (SOUTH COAST AQMD'S) COST-EFFECTIVENESS CALCULATIONS FOR PROPOSED AMENDED RULES (PAR) 1111 AND 1121**

1. It is unclear how South Coast AQMD arrived at the cost-effectiveness values that they presented in the Preliminary Draft Staff Report for PAR 1111/1121.

Ramboll calculated the cost-effectiveness (CE) in dollars per ton of NO_x (oxides of nitrogen) reduced for the replacement of residential natural gas (NG) appliances with electric heat pump alternatives using the data and assumptions presented by South Coast AQMD in the preliminary draft staff report¹ and Working Group Meetings (WGMs)² for PAR 1111/1121. Details of these calculation are presented in Tables A-1, A-2, and A-3 in **Attachment A** for single-family home water heaters, single-family home heating ventilation and air conditioning (HVAC) systems, and multi-family home HVAC systems respectively. As summarized in **Table 1** below, Ramboll's calculated CE values are substantially different from those presented by South Coast AQMD for most of the replacement scenarios.

We understand that staff has made multiple updates to their CE calculations after their initial presentation of assumptions in WGMs #2 and #3. Ramboll has accounted for these updates in our calculations presented in **Attachment A** by incorporating the information provided in the presentation materials for subsequent WGMs and the preliminary draft staff report. However, our results still do not align with those presented in the preliminary draft staff report. We therefore request staff to provide a summary of their current assumptions and methodology for the CE calculations that were used to arrive at these

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¹ South Coast AQMD. Preliminary Draft Staff Report for: Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces and Proposed Amended Rule 1121 – Reduction of NO_x emissions from Small Natural Gas-Fired Water Heaters. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

² South Coast AQMD Presentation Materials for Working Group Meetings for PAR 1111/1121. Available at: <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1111-and-rule-1121>. Accessed: October 2024.

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cost-effectiveness values. We are happy to provide a Microsoft Excel version of our detailed calculations that are presented in **Attachment A**, as needed.

| Table 1. Comparison of Cost-Effectiveness | | | | | |
|--|---|--------------------------------|---------------------|-------------------------------|---------------------|
| Data Source | Cost-Effectiveness for Conversion of Residential Natural Gas Equipment to Electric Heat Pump Equipment (2022\$/ton NO_x) | | | | |
| | Single-Family Home Water Heater | Single-Family Home HVAC | | Multi-Family Home HVAC | |
| | | Furnace + AC | Furnace Only | Furnace + AC | Furnace Only |
| PAR 1111/1121 Preliminary Draft Staff Report ¹ | 601,000 | (183,000) | 921,000 | (2,633,000) | (135,000) |
| Cost-Effectiveness Values calculated based on South Coast AQMD Data ² | 750,345 | (174,683) | 1,483,017 | (1,455,633) | (363,058) |
| Notes: ¹ South Coast AQMD. Preliminary Draft Staff Report for: Proposed Amended Rule 1111 – Reduction of NO _x Emissions from Natural Gas-Fired Furnaces and Proposed Amended Rule 1121 – Reduction of NO _x emissions from Small Natural Gas-Fired Water Heaters. Available at: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18 . Accessed: October 2024. ² See Attachment A. Abbreviations: \$ - dollar, AC – air conditioner, HVAC – heating ventilation and air conditions, NO _x – oxides of nitrogen | | | | | |

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2. South Coast AQMD's assumptions for electric heat pump efficiencies are substantially higher than those reported for residential heat pumps that are available in the market.

The energy consumption data for heat pumps and the natural gas appliances presented by South Coast AQMD staff in WGM#2³ indicates that the heat pumps are approximately 5-7 times more efficient than the natural gas appliances they replace. Specifically, the electric heat pump space heater is assumed to be 6.8 times⁴ more efficient than a conventional natural gas furnace and the

³ South Coast AQMD Working Group Meetings for Proposed Amended Rules 1111 - Reduction of NO_x Emissions from Natural-Gas-Fired Furnaces and 1121 - Reduction of NO_x Emissions from Residential Type, Natural-Gas-Fired Water Heaters. Available at: <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1111-and-rule-1121>. Accessed: October 2024.

⁴ South Coast AQMD assumed an annual energy use of 3,822 kWh (127 therm NG for furnace + 101 kWh electricity for furnace fan) from a conventional gas furnace and 565 kWh for a HVAC heat pump to be 565 kWh, in WGM#2, Slide 12, and did not distinguish single family-and multi-family use. This indicates that the heat pump HVAC is 6.8 (3,822÷565) times more efficient than the conventional natural gas furnace.

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electric heat pump water heater is assumed to be at least 5.3 times⁵ more efficient than a conventional natural gas water heater.

While South Coast AQMD staff claimed the energy consumption data of the natural gas furnace and HVAC heat pumps were obtained from the 2019 California Residential Appliance Saturation Study (2019 RASS)⁶, staff used incorrect values from the RASS by mixing the single- and multi-family space heating energy consumptions. **Table 2** below summarizes the space heating Unit Energy Consumption (UEC) for natural gas furnaces (i.e., Primary Heat + Furnace Fan) and heat pump space heaters (i.e., Primary Heat Pump Space Heating) that are listed in the 2019 RASS. We recommend staff uses these UEC values to revise their CE analysis.

| Table 2. UEC from the 2019 RASS | | | |
|--|----------------------|---------------------|-------------|
| Equipment | Single-Family | Multi-Family | Unit |
| Primary Heat ¹ | 191 | 67 | therms/year |
| Furnace Fan ² | 159 | 55 | kWh/year |
| Primary Heat Pump Space Heating ² | 1,221 | 493 | kWh/year |
| ¹ Data obtained from Table 33 in Volume 2 of the 2019 California RASS. Available at: https://www.energy.ca.gov/sites/default/files/2021-08/CEC-200-2021-005-RSLTS.pdf . Accessed: October 2024. Multi-family UEC data are the average the UECs for townhomes, 2-4 unit apartments, and 5+ unit apartments. ² Data obtained from Table 11 in Volume 2 of the 2019 California RASS. Available at: https://www.energy.ca.gov/sites/default/files/2021-08/CEC-200-2021-005-RSLTS.pdf . Accessed: October 2024. Multi-family UEC data are the average the UECs for townhomes, 2-4 unit apartments, and 5+ unit apartments. | | | |

Additionally, we would like to point out that the energy efficiency values South Coast AQMD staff used are also significantly higher than the efficiencies of residential heat pumps appliances that are available in the market. For instance, the Coefficient of Performance (COP) of certified Air-Source Heat Pumps (ASHP, or heat pump space heaters) in the ENERGY STAR program's database range from 1.8 to 2.9 (average 2.0).⁷ This indicates that residential heat pump space heaters in the market are approximately 2 time more efficient than a conventional NG furnace.

The ENERGY STAR website⁸ also indicates that certified heat pump water heaters are 3.5 to 4.4 times more efficient than a traditional NG water heater. Additionally, South Coast AQMD staff

⁵ South Coast AQMD assumed an annual energy use of 190 therms NG (5,567 kWh) for a conventional gas water heater and 1,036 kWh for an equivalent heat pump water heater, in the Preliminary Draft Staff Report. This indicates that the heat pump water heater would be at least 5.3 times (5,567÷1,036) more efficient than the conventional gas water heater.

⁶ South Coast AQMD assumed an annual energy use of 3,822 kWh (127 therm NG for furnace + 101 kWh electricity for furnace fan) from a conventional gas furnace and 565 kWh for a HVAC heat pump to be 565 kWh, in WGM#2, Slide 12.

⁷ ENERGY STAR Certified Air-Source Heat Pumps. Available at: https://data.energystar.gov/Active-Specifications/ENERGY-STAR-Certified-Air-Source-Heat-Pumps/w7cv-9xjt/about_data. Accessed: October 2024.

⁸ ENERGY STAR- What is Uniform Energy Factor and Why Does it Matter?. Available at: <https://www.energystar.gov/products/ask-the-experts/what-uniform-energy-factor-and-why-does-it-matter>. Accessed: October 2024. Note this article reported that the UEF (i.e., Uniform Energy Factor) for a traditional gas water heater is 0.93, while ENERGY STAR certified heat pump water heaters typically have UEF ratings in the range of 3.3 to 4.1. Ramboll calculated the ratio and summarized the efficiency improvement to be 3.5-4.4 times.

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have also stated that the heat pump water heater is 4.6 more efficient than a Type 1 NG water heater in the in WGM#3 for PAR 1146.2.⁹ While the water heaters subject to Rule 1146.2 are larger than the residential water heaters that would be subject to PAR 1111/1121, the relative efficiency of heat pump water heater to a natural gas water heater should still be similar for both small and large water heaters.

Therefore, we request staff review and update the energy consumption assumptions for the natural gas and residential heat pump appliances that are used in their cost-effectiveness evaluations for PAR 1111/1121.

3. South Coast AQMD should consider changing the panel upgrade cost for each equipment from \$750 to \$3,000 to reflect an accurate estimation of infrastructure costs.

South Coast AQMD proposes reducing the panel upgrade cost from \$3,000 to \$1,500, assuming a longer useful panel life compared to the equipment's 15-year lifespan. Staff also assumed that this cost would be shared by both the space heaters and water heaters, resulting in an infrastructure cost of \$750 each, as noted in WGM #2, slide 16. However, it is not valid to implement a lower infrastructure cost from an assumed longer panel lifespan because the investment for the panel upgrade must be fully made at the time of purchase, and not at the end of the equipment life. Additionally, space heaters and water heaters have varying lifetimes; therefore, it is invalid to assume all homes will install electric water heaters and space heaters simultaneously to share the panel upgrade cost. Hence, we recommend that staff use a panel upgrade cost to be \$3,000 for each equipment replacement project.

4. South Coast AQMD used inconsistent data sources for the capital costs of natural gas appliances and heat pump appliances, leading to uncertainty in the CE analysis.

South Coast AQMD staff utilized capital cost data for NG equipment from the 2019 E3 Residential Building Study (E3 Study)¹⁰, while the capital costs for heat pump equipment were obtained from the TECH Clean California program (TECH)¹¹. We are concerned about the discrepancies between these two data sources and the resulting uncertainty in the CE analysis.

For instance, the E3 Study models costs for three types of homes: pre-1978 homes, which typically require electric panel upgrades, 1990s homes, and new construction that complies with California's 2019 Title 24 building code. In contrast, the TECH data only covers electrification projects for existing homes, excluding new construction entirely.

Additionally, the sample size in the TECH dataset varies greatly by home type. Specifically, it includes over 10,000 single-family project records in the South Coast (i.e., water heating and space heating projects in Los Angeles, Riverside, Orange, and San Bernardino counties) but only about 1,000 multi-family projects. This suggests that the TECH data is dominated by single-family projects and may not adequately represent multi-family projects.

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⁹ South Coast AQMD Working Group Meeting #3: Proposed Amended Rule 1146.2 – Controls of Oxides of Nitrogen from Large Water Heaters, Small Boilers, and Process Heaters. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-1146-1146.1-and-1146.2/par-1146-2-wgm3-august-2023.pdf?sfvrsn=14>. Accessed: October 2024.

¹⁰ Energy+Environmental Economics (E3). Residential Building Electrification in California. Available at: <https://www.ethree.com/e3-quantifies-the-consumer-and-emissions-impacts-of-electrifying-california-homes/>. Accessed: October 2024.

¹¹ TECH Clean California. Heat Pump Data. Available at: <https://techcleanca.com/heat-pump-data/>. Accessed: October 2024.

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Given these discrepancies, we recommend that South Coast AQMD staff revise their CE analysis by using E3 Study data for both natural gas and heat pump equipment costs to ensure consistency and accuracy.

5. The CE analysis should use the average electricity and natural gas prices over the equipment lifetime instead of the current-year electricity and natural gas prices.

The preliminary draft staff report¹² states that the CE analysis relied on the fuel price estimates which are based on a combination of the 2023 Integrated Energy Policy Report (2023 IEPR) and Energy Information Administration national level forecasts. While the staff report does not provide the values of the fuel price estimates that were actually used in the analysis, slide 25 in WGM #4 presentation indicated that these values are 0.0566 \$/kWh and 0.2639 \$/ kWh for natural gas and electricity, respectively. However, it is not clear how AQMD staff arrived at these values.

The proposed initial implementation year for PAR 1111/1121 starts from 2026, and the expected equipment lifespan for water heater and space heater are 15 years and 25 years, respectively. Additionally, we note that the 2023 IEPR provides electricity price forecasts only till 2040. Hence, we suggest that Staff use the average of the fuel price forecasts from 2026 to 2040 (a 15-year period) in their CE analysis. Ramboll has estimated these fuel price forecasts as described below:

- Ramboll used the price forecasts in the 2023 IEPR¹³ to calculate the following 2026 to 2040 average electricity prices for Southern California Edison (SCE) and Los Angeles Department of Water and Power (LADWP): 0.2959 2022\$/kWh for SCE and 0.2919 2022\$/kWh for LADWP. We then estimated a population weighted average electricity price of 0.2950 2022\$/kWh ($0.77 \times \text{SCE price} + 0.23 \times \text{LADWP price}$) for the South Coast Air Basin following the methodology described in the preliminary draft staff report.
- Ramboll received a copy of the California Energy Commission's (CEC's) projected residential rates for Southern California Gas Company (SCG) from SCG. While this data included natural gas base rate projections till 2050, in order to maintain consistency with the approach for estimating the electricity prices, we propose using the 2026 to 2040 average natural gas price of 2.2372 2023\$/therm, i.e., 0.07314 2022\$/kWh¹⁴.

We recommend that staff review our estimates for fuel prices and use these in the CE analysis.

6. Once all suggested revisions related to CE analysis are incorporated, the CE analysis of PAR 1111 and 1121 to mandate the switch toward electric water heaters and space heaters will no longer be cost-effective for most scenarios.

Ramboll calculated the CE in dollars per ton of NO_x reduced for the replacement of residential NG appliances with electric heat pump alternatives using the updated data and assumptions as discussed in the comments above. These are summarized below in **Table 3**. Our analysis indicates that the replacement of a single-family home natural gas water heater, single-family home natural gas furnace (only), and multi-family home natural gas furnace (only) with heat pump equipment are

¹² South Coast AQMD. Preliminary Draft Staff Report for: Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired Furnaces and Proposed Amended Rule 1121 – Reduction of NO_x emissions from Small Natural Gas-Fired Water Heaters. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹³ California Energy Demand Forecast, 2023-2040. Electricity Rate Forecast and Supporting Data. Available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=253591>. Accessed: October 2024.

¹⁴ 2023\$ were converted to 2022\$ using a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2023. CPI data available at: <https://www.dir.ca.gov/oprl/CPI/EntireCCPI.PDF>. Accessed: October 2024.

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not cost-effective, i.e., CE is greater than the threshold of \$349,000. Details of these calculation are presented in Tables B-1, B-2, and B-3 in **Attachment B** for single-family home water heaters, single-family home HVACs, and multi-family home HVACs respectively.

| Table 3: Updated Cost-Effectiveness Comparisons | | | | | |
|--|--|-------------------------|--------------|------------------------|--------------|
| Data Source | Cost-Effectiveness for Conversion of Residential Natural Gas Equipment to Electric Heat Pump Equipment (2022\$/ton NOx) | | | | |
| | Single-Family Home Water Heater | Single-family Home HVAC | | Multi-family Home HVAC | |
| | | Furnace + AC | Furnace Only | Furnace + AC | Furnace Only |
| PAR 1111/1121 Preliminary Draft Staff Report ¹ | 601,000 | (183,000) | 921,000 | (2,633,000) | (135,000) |
| Cost-Effectiveness Values Calculated based on Updated Data presented in this Comment Letter ² | 879,258 | (220,761) | 972,443 | 91,831 | 1,351,118 |
| Cost-effectiveness Threshold (\$/ton of NOx) | 349,000 | | | | |
| <u>Notes:</u> | | | | | |
| ¹ South Coast AQMD. Preliminary Draft Staff Report for: Proposed Amended Rule 1111 – Reduction of NO _x Emissions from Natural Gas-Fired Furnaces and Proposed Amended Rule 1121 – Reduction of NO _x emissions from Small Natural Gas-Fired Water Heaters. Available at: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18 . Accessed: October 2024. | | | | | |
| ² See Attachment B. | | | | | |
| <u>Abbreviations:</u> | | | | | |
| \$ - dollar, AC – air conditioner, HVAC – heating ventilation and air conditions, NO _x – oxides of nitrogen | | | | | |

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**ATTACHMENT A
COST-EFFECTIVENESS CALCULATIONS
BASED ON SOUTH COAST AQMD DATA**

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Table A1. Cost-Effectiveness Calculations for the Replacement of a Residential Single-Family Home Natural Gas Water Heater based on Data presented by South Coast AQMD

| | Natural Gas Water Heater | Electric Heat Pump Water Heater | Units |
|---|--------------------------|---------------------------------|------------|
| NOx Emissions | | | |
| NOx Emission Factor | 10.0 | 0.0 | ng/l |
| Annual Energy Use by Technology Type ¹ | 5,567 | 1,036 | kWh |
| Equipment Useful Life | 15 | 15 | years |
| Total Lifetime NOx Emissions ² | 3.3E-03 | 0.0E+00 | tons |
| Capital Costs | | | |
| Capital Costs ³ | 3,000 | 5,200 | 2022\$ |
| Infrastructure | --- | 750 | 2022\$ |
| Total Capital Costs | 3,000 | 5,950 | 2022\$ |
| Operation and Maintenance (O&M) Costs | | | |
| Electricity/Fuel Prices ⁴ | 0.0566 | 0.2639 | 2022\$/kWh |
| Annual Electricity/Fuel Costs ⁵ | 315 | 273 | 2022\$/yr |
| Total Lifetime O&M Costs ⁶ | 3,503 | 3,040 | 2022\$ |
| Cost-Effectiveness | | | |
| Lifetime NOx Emission Reductions ⁷ | --- | 3.3E-03 | tons |
| Incremental Capital Costs ⁸ | --- | 2,950 | 2022\$ |
| Incremental Lifetime Operation and Maintenance Costs ⁸ | --- | (464) | 2022\$ |
| Incremental Lifetime Equipment Costs ⁸ | --- | 2,486 | 2022\$ |
| NOx Cost-Effectiveness ⁹ | --- | 750,345 | 2022\$/ton |
| South Coast AQMD Reported Cost-Effectiveness ¹⁰ | --- | 601,000 | 2022\$/ton |
| South Coast AQMD NOx Cost-Effectiveness Threshold | 349,000 | 349,000 | 2022\$/ton |

Abbreviations:

AQMD - Air Quality Management District
COP - coefficient of performance
hr - hour
kg - kilogram
kW - kilowatt
kWh - kilowatt hour
J - joule
MMBtu - million British thermal units
NOx - oxides of nitrogen
ng - nanogram
yr - year

Constants:

Present Value Factor¹¹ 11.118
Real Interest Rate 4%

Conversion Factors:

8,760 hr/yr
29.3 kWh/therm
2,000 lbs/ton
2.78E-07 kWh/l
1.0.E+09 ng/g

Notes:

¹ Annual Energy Use obtained from Page 2-20 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

² Total Lifetime NOx emissions are estimated as the Annual Energy Use multiplied by the Equipment Useful Life, and the NOx Emission Factor.

³ Capital Costs obtained from Page 2-20 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

⁴ Electricity/fuel prices (\$/kWh) data obtained from South Coast AQMD Working Group Meeting #4: Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired Furnaces and PAR 1121 - Reduction of NOx Emissions from Residential Type, Natural-Gas-Fired Water Heaters. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm4-april-2024.pdf?sfvrsn=14>. Accessed: October 2024. It appears that updates were made to the methodology used to estimate these prices in the Preliminary Draft Staff Report, however, the exact values that were used for the calculations in the staff report are not presented in the report.

⁵ Annual Electricity/Fuel Costs is estimated as the product of the Annual Energy Use and the Electricity/Fuel Prices.

⁶ Lifetime O&M Costs are estimated as the Annual Electricity/Fuel Costs multiplied by the Present Value Factor.

⁷ Lifetime NOx Emission Reductions are calculated as the difference in Lifetime NOx emissions for the natural gas unit and the electric unit.

⁸ Incremental Costs are calculated as the difference in cost compared to the natural gas unit.

⁹ NOx Cost-Effectiveness is calculated as the Incremental Lifetime Equipment Costs divided by the Lifetime NOx Emission Reductions

¹⁰ Data obtained from Page 2-20 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹¹ The Present Value Factor is part of the Discounted Cash Flow Method that uses expected future cash flows in conjunction with a discount rate to estimate present fair value. Based on South Coast AQMD Working Group Meeting #3 presentation slides. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>. Accessed: October 2024.

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Table A2. Cost-Effectiveness Calculations for the Replacement of a Residential Single-Family Home Natural Gas Furnace based on Data Presented by South Coast AQMD

| Parameters for Cost-Effectiveness Analysis | Space Heating and Cooling | | Space Heating Only | | Units |
|---|---------------------------------------|-------------------------|---------------------|-------------------------|------------|
| | Natural Gas Furnace + Air Conditioner | Electric Heat Pump HVAC | Natural Gas Furnace | Electric Heat Pump HVAC | |
| NOx Emissions | | | | | |
| NOx Emission Factor | 14.0 | 0.0 | 14.0 | 0.0 | ng/l |
| Annual Energy Use by Technology Type ¹ | 3,822 | 565 | 3,822 | 565 | kWh |
| Equipment Useful Life | 25 | 25 | 25 | 25 | years |
| Total Lifetime NOx Emissions ² | 5.3E-03 | 0.0E+00 | 5.3E-03 | 0.0E+00 | tons |
| Capital Costs | | | | | |
| Capital Costs ³ | 18,800 | 18,500 | 10,000 | 18,500 | 2022\$ |
| Infrastructure | — | 750 | — | 750 | 2022\$ |
| Total Capital Costs | 18,800 | 19,250 | 10,000 | 19,250 | 2022\$ |
| Operation and Maintenance (O&M) Costs | | | | | |
| Electricity Prices ⁴ | 0.2639 | 0.2639 | 0.2639 | 0.2639 | 2022\$/kWh |
| Natural Gas Prices ⁴ | 0.0566 | | 0.0566 | | 2022\$/kWh |
| Annual Electricity/Fuel Costs ⁵ | 237 | 149 | 237 | 149 | 2022\$/yr |
| Total Lifetime O&M Costs ⁶ | 3,707 | 2,329 | 3,707 | 2,329 | 2022\$ |
| Cost-Effectiveness | | | | | |
| Lifetime NOx Emission Reductions ⁷ | -- | 5.3E-03 | -- | 5.3E-03 | tons |
| Incremental Capital Costs ⁸ | -- | 450 | -- | 9,250 | 2022\$ |
| Incremental Lifetime Operation and Maintenance Costs ⁸ | -- | (1,377) | -- | (1,377) | 2022\$ |
| Incremental Lifetime Equipment Costs ⁹ | -- | (927) | -- | 7,873 | 2022\$ |
| NOx Cost-Effectiveness ⁸ | -- | (174,683) | -- | 1,483,017 | 2022\$/ton |
| South Coast AQMD Reported Cost-Effectiveness ¹⁰ | | (183,000) | | 921,000 | 2022\$/ton |
| South Coast AQMD NOx Cost-Effectiveness Threshold | 349,000 | 349,000 | 349,000 | 349,000 | 2022\$/ton |

Abbreviations:

AQMD - Air Quality Management District
 COP - coefficient of performance
 hr - hour
 kg - kilogram
 kW - kilowatt
 kWh - kilowatt hour
 J - joule
 MMBtu - million British thermal units
 NOx - oxides of nitrogen
 ng - nanogram
 yr - year

Constants:

Present Value Factor¹¹ 15.622
 Real Interest Rate 4%

Conversion Factors:

8,760 hr/yr
 29.3 kWh/therm
 2,000 lbs/ton
 2.78E-07 kWh/l
 1.0.E+09 ng/g

Notes:

¹ Annual Energy Use obtained from South Coast AQMD Working Group Meetings #2: Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired Furnaces and PAR 1121 - Reduction of NOx Emissions from Residential Type, Natural-Gas-Fired Water Heaters, Slide 12. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm2-november-2023.pdf>. Accessed: October 2024.

² Total Lifetime NOx emissions are estimated as the Annual Energy Use multiplied by the Equipment Useful Life, and the NOx Emission Factor.

³ Capital Costs obtained from Page 2-18 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

⁴ Electricity/natural gas prices (\$/kWh) data obtained from South Coast AQMD Working Group Meeting #4: Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired Furnaces and PAR 1121 - Reduction of NOx Emissions from Residential Type, Natural-Gas-Fired Water Heaters. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm4-april-2024.pdf?sfvrsn=14>. Accessed: October 2024. It appears that updates were made to the methodology used to estimate these prices in the Preliminary Draft Staff Report, however, the exact values that were used for the calculations in the staff report are not presented in the report.

⁵ Annual Electricity/Fuel Costs is estimated as the product of the Annual Energy Use and the Electricity/Fuel Prices.

⁶ Lifetime O&M Costs are estimated as the Annual Electricity/Fuel Costs multiplied by the Present Value Factor.

⁷ Lifetime NOx Emission Reductions are calculated as the difference in Lifetime NOx emissions for the natural gas unit and the electric unit.

⁸ Incremental Costs are calculated as the difference in cost compared to the natural gas unit.

⁹ NOx Cost-Effectiveness is calculated as the Incremental Lifetime Equipment Costs divided by the Lifetime NOx Emission Reductions

¹⁰ Data obtained from Page 2-18 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹¹ The Present Value Factor is part of the Discounted Cash Flow Method that uses expected future cash flows in conjunction with a discount rate to estimate present fair value. Based on South Coast AQMD Working Group Meeting #3 presentation slides. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>. Accessed: October 2024.

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Table A3. Cost-Effectiveness Calculations for the Replacement of a Multi-Family Home Residential Natural Gas Furnace based on Data Presented by South Coast AQMD

| Parameters for Cost-Effectiveness Analysis | Space Heating and Cooling | | Space Heating Only | | Units |
|---|---------------------------------------|-------------------------|---------------------|-------------------------|------------|
| | Natural Gas Furnace + Air Conditioner | Electric Heat Pump HVAC | Natural Gas Furnace | Electric Heat Pump HVAC | |
| | | | | | |
| NOx Emissions | | | | | |
| NOx Emission Factor | 14.0 | 0.0 | 14.0 | 0.0 | ng/l |
| Annual Energy Use by Technology Type ¹ | 3,822 | 565 | 3,822 | 565 | kWh |
| Equipment Useful Life | 25 | 25 | 25 | 25 | years |
| Total Lifetime NOx Emissions ² | 5.3E-03 | 0.0E+00 | 5.3E-03 | 0.0E+00 | kg |
| Capital Costs | | | | | |
| Capital Costs ³ | 12,400 | 5,300 | 6,600 | 5,300 | 2022\$ |
| Infrastructure | -- | 750 | -- | 750 | 2022\$ |
| Total Capital Costs | 12,400 | 6,050 | 6,600 | 6,050 | 2022\$ |
| Operation and Maintenance (O&M) Costs | | | | | |
| Electricity Prices ⁴ | 0.2639 | 0.2639 | 0.2639 | 0.2639 | 2022\$/kWh |
| Natural Gas Prices ⁴ | 0.0566 | | 0.0566 | | 2022\$/kWh |
| Annual Electricity/Fuel Costs ⁵ | 237 | 149 | 237 | 149 | 2022\$/yr |
| Total Lifetime O&M Costs ⁶ | 3,707 | 2,329 | 3,707 | 2,329 | 2022\$ |
| Cost-Effectiveness | | | | | |
| Lifetime NOx Emission Reductions ⁷ | -- | 5.3E-03 | -- | 5.3E-03 | tons |
| Incremental Capital Costs ⁸ | -- | (6,350) | -- | (550) | 2022\$ |
| Incremental Lifetime Operation and Maintenance Costs ⁸ | -- | (1,377) | -- | (1,377) | 2022\$ |
| Incremental Lifetime Equipment Costs ⁸ | -- | (7,727) | -- | (1,927) | 2022\$ |
| NOx Cost-Effectiveness ⁹ | -- | (1,455,633) | -- | (363,058) | 2022\$/ton |
| South Coast AQMD Reported Cost-Effectiveness ¹⁰ | | (2,633,000) | | (135,000) | 2022\$/ton |
| South Coast AQMD NOx Cost-Effectiveness Threshold | 349,000 | 349,000 | 349,000 | 349,000 | 2022\$/ton |

Abbreviations:

AQMD - Air Quality Management District
 COP - coefficient of performance
 hr - hour
 kg - kilogram
 kW - kilowatt
 kWh - kilowatt hour
 J - joule
 MMBtu - million British thermal units
 NOx - oxides of nitrogen
 ng - nanogram
 yr - year

Constants:

Present Value Factor¹¹ 15.622
 Real Interest Rate 4%

Conversion Factors:

8,760 hr/yr
 29.3 kWh/therm
 2,000 lbs/ton
 2.78E-07 kWh/l
 1.0.E+09 ng/g

Notes:

¹ Annual Energy Use obtained from South Coast AQMD Working Group Meetings #2: Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired Furnaces and PAR 1121 - Reduction of NOx Emissions from Residential Type, Natural-Gas-Fired Water Heaters, Slide 12. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm2-november-2023.pdf>. Accessed: October 2024.

² Total Lifetime NOx emissions are estimated as the Annual Energy Use multiplied by the Equipment Useful Life, and the NOx Emission Factor.

³ Capital Costs obtained from Page 2-19 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

⁴ Electricity/natural gas prices (\$/kWh) data obtained from South Coast AQMD Working Group Meeting #4: Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired Furnaces and PAR 1121 - Reduction of NOx Emissions from Residential Type, Natural-Gas-Fired Water Heaters. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm4-april-2024.pdf?sfvrsn=14>. Accessed: October 2024. It appears that updates were made to the methodology used to estimate these prices in the Preliminary Draft Staff Report, however, the exact values that were used for the calculations in the staff report are not presented in the report.

⁵ Annual Electricity/Fuel Costs is estimated at the product of the Annual Energy Use and the Electricity/Fuel Prices.

⁶ Lifetime O&M Costs are estimated as the Annual Electricity/Fuel Costs multiplied by the Present Value Factor.

⁷ Lifetime NOx Emission Reductions are calculated as the difference in Lifetime NOx emissions for the natural gas unit and the electric unit.

⁸ Incremental Costs are calculated as the difference in cost compared to the natural gas unit.

⁹ NOx Cost-Effectiveness is calculated as the Incremental Lifetime Equipment Costs divided by the Lifetime NOx Emission Reductions

¹⁰ Data obtained from Page 2-19 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹¹ The Present Value Factor is part of the Discounted Cash Flow Method that uses expected future cash flows in conjunction with a discount rate to estimate present fair value. Based on South Coast AQMD Working Group Meeting #3 presentation slides. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>. Accessed: October 2024.

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COMMENT LETTER #2 – SoCalGas, October 17, 2024 (p. 30 of 37)



**ATTACHMENT B
COST-EFFECTIVENESS CALCULATIONS
BASED ON UPDATED DATA PRESENTED IN
THIS COMMENT LETTER**

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COMMENT LETTER #2 – SoCalGas, October 17, 2024 (p. 31 of 37)

Table B1. Cost-Effectiveness Calculations for the Replacement of a Residential Single-Family Home Natural Gas Water Heater

| Parameters for Cost-Effectiveness Analysis | Natural Gas Water Heater | Electric Heat Pump Water Heater | Units |
|---|--------------------------|---------------------------------|------------|
| NOx Emissions | | | |
| NOx Emission Factor | 10.0 | 0.0 | ng/l |
| Annual Energy Use by Technology Type ¹ | 7,618 | 1,905 | kWh |
| Equipment Useful Life | 15 | 15 | years |
| Total Lifetime NOx Emissions ² | 4.5E-03 | 0.0E+00 | tons |
| Capital Costs | | | |
| Capital Costs ³ | 3,676 | 4,611 | 2022\$ |
| Infrastructure | -- | 3,000 | 2022\$ |
| Total Capital Costs | 3,676 | 7,611 | 2022\$ |
| Operation and Maintenance (O&M) Costs | | | |
| Electricity/Fuel Prices ^{4,5} | 0.0731 | 0.2950 | 2022\$/kWh |
| Annual Electricity/Fuel Costs ⁶ | 557 | 562 | 2022\$/yr |
| Total Lifetime O&M Costs ⁷ | 6,195 | 6,247 | \$ |
| Cost-Effectiveness | | | |
| Lifetime NOx Emission Reductions ⁸ | -- | 4.5E-03 | tons |
| Incremental Capital Costs ⁹ | -- | 3,935 | 2022\$ |
| Incremental Lifetime Operation and Maintenance Costs ⁹ | -- | 52 | 2022\$ |
| Incremental Lifetime Equipment Costs ⁹ | -- | 3,987 | 2022\$ |
| NOx Cost-Effectiveness ¹⁰ | -- | 879,258 | 2022\$/ton |
| South Coast AQMD Reported Cost-Effectiveness ¹¹ | -- | 601,000 | 2022\$/ton |
| South Coast AQMD NOx Cost-Effectiveness Threshold | 349,000 | 349,000 | 2022\$/ton |

Abbreviations:

AQMD - Air Quality Management District
COP - coefficient of performance
hr - hour
kg - kilogram
kW - kilowatt
kWh - kilowatt hour
J - joule
MMBtu - million British thermal units
NOx - oxides of nitrogen
ng - nanogram
yr - year

Constants:

Present Value Factor¹² 11.118
Real Interest Rate 4%

Conversion Factors:

8,760 hr/yr
29.3 kWh/therm
2,000 lbs/ton
2.78E-07 kWh/l
1.0.E+09 ng/g

Notes:

¹ Energy consumption of the natural gas water heater was obtained from Table 33 of the 2019 California Residential Appliance Saturation Study (RASS). Available at: <https://www.energy.ca.gov/publications/2021/2019-california-residential-appliance-saturation-study-rass>. Accessed: October 2024.

For the electric heat pump water heater energy consumption, Ramboll assumed it to be 4 times more efficient than the natural gas water heater based on this article: <https://www.energystar.gov/products/ask-the-experts/what-uniform-energy-factor-and-why-does-it-matter>. Accessed: October 2024.

² Total Lifetime NOx Emissions are estimated as the Annual Energy Use multiplied by the Equipment Useful Life, and the NOx Emission Factor.

³ Capital Costs were derived based on Capital Cost Data of Zones 6, 9 and 10 from the E3 study, "Residential Building Electrification in California." Available at: <https://www.ethree.com/e3-quantifies-the-consumer-and-emissions-impacts-of-electrifying-california-homes/>. Accessed: October 2024.
The costs were also converted from 2018\$ to 2022\$ based on a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2018. CPI data available at: <https://www.dir.ca.gov/opri/CPI/EntireCCPI.PDF>. Accessed: October 2024.

⁴ As noted in the preliminary draft staff report (Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024), the electricity price is calculated as a population weighted average of 2026 to 2040 projected price averages for SCE and LADWP, i.e., 0.77 x SCE price + 0.23 x LADWP price. The 2026 to 2040 projected average price averages for SCE and LADWP were obtained from the 2023 IEPR. Available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=253591>. Accessed: October 2024.

⁵ Natural gas price was estimated as the average of the 2026 to 2040 residential baseline rates from CEC. Note, these rates were provided in 2023\$ and converted to 2022\$ using a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2023. CPI data available at: <https://www.dir.ca.gov/opri/CPI/EntireCCPI.PDF>. Accessed: October 2024.

⁶ Annual Electricity/Fuel Costs are estimated as the product of the Annual Energy Use and the Electricity/Fuel Prices.

⁷ Total Lifetime O&M Costs are estimated as the Annual Electricity/Fuel Costs multiplied by the Present Value Factor.

⁸ Lifetime NOx Emission Reductions are calculated as the difference in Lifetime NOx Emissions for the natural gas unit and the electric unit.

⁹ Incremental Costs are calculated as the difference in cost compared to the natural gas unit.

¹⁰ NOx Cost-Effectiveness is calculated as the Incremental Lifetime Equipment Costs divided by the Lifetime NOx Emission Reductions.

¹¹ Data obtained from Page 2-20 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹² The Present Value Factor is part of the Discounted Cash Flow Method that uses expected future cash flows in conjunction with a discount rate to estimate present fair value. Based on South Coast AQMD Working Group Meeting #3 presentation slides. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>. Accessed: October 2024.

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Table B2. Cost-Effectiveness Calculations for the Replacement of a Residential Single-Family Home Natural Gas Furnace

| Parameters for Cost-Effectiveness Analysis | Space Heating and Cooling | | Space Heating Only | | Units |
|---|---------------------------------------|-------------------------|---------------------|-------------------------|------------|
| | Natural Gas Furnace + Air Conditioner | Electric Heat Pump HVAC | Natural Gas Furnace | Electric Heat Pump HVAC | |
| NOx Emissions | | | | | |
| NOx Emission Factor | 14.0 | 0.0 | 14.0 | 0.0 | ng/3 |
| Annual Energy Use by Technology Type ¹ | 5,755 | 1,221 | 5,755 | 1,221 | kWh |
| Equipment Useful Life | 25 | 25 | 25 | 25 | years |
| Total Lifetime NOx Emissions ² | 8.0E-03 | 0.0E+00 | 8.0E-03 | 0.0E+00 | tons |
| Capital Costs | | | | | |
| Capital Costs ³ | 19,495 | 16,230 | 9,957 | 16,230 | 2022\$ |
| Infrastructure | — | 3,000 | — | 3,000 | 2022\$ |
| Total Capital Costs | 19,495 | 19,230 | 9,957 | 19,230 | 2022\$ |
| Operation and Maintenance (O&M) Costs | | | | | |
| Electricity Prices ⁴ | 0.2950 | 0.2950 | 0.2950 | 0.2950 | 2022\$/kWh |
| Natural Gas Prices ⁵ | 0.0731 | — | 0.0731 | — | 2022\$/kWh |
| Annual Electricity/Fuel Costs ⁶ | 456 | 360 | 456 | 360 | 2022\$/yr |
| Total Lifetime O&M Costs ⁷ | 7,127 | 5,627 | 7,127 | 5,627 | 2022\$ |
| Cost-Effectiveness | | | | | |
| Lifetime NOx Emission Reductions ⁸ | — | 8.0E-03 | — | 8.0E-03 | tons |
| Incremental Capital Costs ⁹ | — | (265) | — | 9,273 | 2022\$ |
| Incremental Lifetime Operation and Maintenance Costs ⁹ | — | (1,500) | — | (1,500) | 2022\$ |
| Incremental Lifetime Equipment Costs ⁹ | — | (1,765) | — | 7,773 | 2022\$ |
| NOx Cost-Effectiveness ¹⁰ | — | (220,761) | — | 972,443 | 2022\$/ton |
| South Coast AQMD Reported Cost-Effectiveness ¹¹ | — | (183,000) | — | 921,000 | 2022\$/ton |
| South Coast AQMD NOx Cost-Effectiveness Threshold | 349,000 | 349,000 | 349,000 | 349,000 | 2022\$/ton |

Abbreviations:

AQMD - Air Quality Management District
 COP - coefficient of performance
 hr - hour
 kg - kilogram
 kW - kilowatt
 kWh - kilowatt hour
 J - joule
 MMBtu - million British thermal units
 NOx - oxides of nitrogen
 ng - nanogram
 yr - year

Constants:

Present Value Factor¹² 15.622
 Real Interest Rate 4%

Conversion Factors:

8,760 hr/yr
 29.3 kWh/therm
 2,000 lbs/ton
 2.78E-07 kWh/J
 1.0.E+09 ng/g

Notes:

¹ Energy consumptions of the natural gas and heat pump space heaters were obtained from the 2019 California Residential Appliance Saturation Study (RASS), Table 11 and Table 33. Natural gas furnace energy consumption includes 191 therms of natural gas per year and 159 kWh of electricity per year for the furnace fan. Available at: <https://www.energy.ca.gov/publications/2021/2019-california-residential-appliance-saturation-study-rass>. Accessed: October 2024.

² Total Lifetime NOx Emissions are estimated as the Annual Energy Use multiplied by the Equipment Useful Life, and the NOx Emission Factor.

³ Capital Costs were derived based on Capital Cost Data of Zones 6, 9 and 10 from the E3 study, "Residential Building Electrification in California." Available at: <https://www.ethree.com/e3-quantifies-the-consumer-and-emissions-impacts-of-electrifying-california-homes/>. Accessed: October 2024. The costs were also converted from 2018\$ to 2022\$ based on a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2018. CPI data available at: <https://www.dir.ca.gov/opri/CPI/EntireCPI.PDF>. Accessed: October 2024.

⁴ As noted in the preliminary draft staff report (Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024), the electricity price is calculated as a population weighted average of 2026 to 2040 projected price averages for SCE and LADWP, i.e., 0.77 x SCE price + 0.23 x LADWP price. The 2026 to 2040 projected average price averages for SCE and LADWP were obtained from the 2023 IPRP. Available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=253591>. Accessed: October 2024.

⁵ Natural gas price was estimated as the average of the 2026 to 2040 residential baseline rates from CEC. Note, these rates were provided in 2023\$ and converted to 2022\$ using a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2023. CPI data available at: <https://www.dir.ca.gov/opri/CPI/EntireCPI.PDF>. Accessed: October 2024.

⁶ Annual Electricity/Fuel Costs are estimated as the product of the Annual Energy Use and the Electricity/Fuel Prices.

⁷ Total Lifetime O&M Costs are estimated as the Annual Electricity/Fuel Costs multiplied by the Present Value Factor.

⁸ Lifetime NOx Emission Reductions are calculated as the difference in Lifetime NOx Emissions for the natural gas unit and the electric unit.

⁹ Incremental Costs are calculated as the difference in cost compared to the natural gas unit.

¹⁰ NOx Cost-Effectiveness is calculated as the Incremental Lifetime Equipment Costs divided by the Lifetime NOx Emission Reductions.

¹¹ Data obtained from Page 2-18 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹² The Present Value Factor is part of the Discounted Cash Flow Method that uses expected future cash flows in conjunction with a discount rate to estimate present fair value. Based on South Coast AQMD Working Group Meeting #3 presentation slides. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>. Accessed: October 2024.

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Table B3. Cost-Effectiveness Calculations for the Replacement of a Residential Multi-Family Home Natural Gas Furnace

| Parameters for Cost-Effectiveness Analysis | Space Heating and Cooling | | Space Heating Only | | Units |
|---|---------------------------------------|-------------------------|---------------------|-------------------------|------------|
| | Natural Gas Furnace + Air Conditioner | Electric Heat Pump HVAC | Natural Gas Furnace | Electric Heat Pump HVAC | |
| NOx Emissions | | | | | |
| NOx Emission Factor | 14.0 | 0.0 | 14.0 | 0.0 | ng/J |
| Annual Energy Use by Technology Type ¹ | 2,039 | 537.67 | 2,039 | 537.67 | kWh |
| Equipment Useful Life | 25 | 25 | 25 | 25 | years |
| Total Lifetime NOx Emissions ² | 2.8E-03 | 0.0E+00 | 2.8E-03 | 0.0E+00 | kg |
| Capital Costs | | | | | |
| Capital Costs ³ | 13,542 | 11,078 | 6,857 | 11,078 | 2022\$ |
| Infrastructure | --- | 3,000 | --- | 3,000 | 2022\$ |
| Total Capital Costs | 13,542 | 14,078 | 6,857 | 14,078 | 2022\$ |
| Operation and Maintenance (O&M) Costs | | | | | |
| Electricity Prices ⁴ | 0.2950 | 0.2950 | 0.2950 | 0.2950 | 2022\$/kWh |
| Natural Gas Prices ⁵ | 0.0731 | --- | 0.0731 | --- | 2022\$/kWh |
| Annual Electricity/Fuel Costs ⁶ | 162 | 159 | 162 | 159 | 2022\$/yr |
| Total Lifetime O&M Costs ⁷ | 2,526 | 2,478 | 2,526 | 2,478 | 2022\$ |
| Cost-Effectiveness | | | | | |
| Lifetime NOx Emission Reductions ⁸ | --- | 5.3E-03 | --- | 5.3E-03 | tons |
| Incremental Capital Costs ⁹ | --- | 536 | --- | 7,221 | 2022\$ |
| Incremental Lifetime Operation and Maintenance Costs ⁹ | --- | (49) | --- | (49) | 2022\$ |
| Incremental Lifetime Equipment Costs ⁹ | --- | 487 | --- | 7,172 | 2022\$ |
| NOx Cost-Effectiveness¹⁰ | --- | 91,831 | --- | 1,351,118 | 2022\$/ton |
| South Coast AQMD Reported Cost-Effectiveness¹¹ | | (2,633,000) | | (135,000) | 2022\$/ton |
| South Coast AQMD NOx Cost-Effectiveness Threshold | 349,000 | 349,000 | 349,000 | 349,000 | 2022\$/ton |

Abbreviations:

AQMD - Air Quality Management District
 COP - coefficient of performance
 hr - hour
 kg - kilogram
 kW - kilowatt
 kWh - kilowatt hour
 J - joule
 MMBtu - million British thermal units
 NOx - oxides of nitrogen
 ng - nanogram
 yr - year

Constants:

Present Value Factor¹² 15.622
 Real Interest Rate 4%

Conversion Factors:

8,760 hr/yr
 29.3 kWh/therm
 2,000 lbs/ton
 2.78E-07 kWh/J
 1.0E+09 ng/g

Notes:

¹ Energy consumptions of the natural gas and heat pump space heaters were obtained from the 2019 California Residential Appliance Saturation Study (RASS), Table 11 and Table 33. Averages of townhomes, 2-4 unit apartment, and 5-unit apartment energy consumptions were used. Natural Gas furnace energy consumption includes 67.7 therms of natural gas per year and 56.7 kWh electricity per year for the furnace fan. Available at: <https://www.energy.ca.gov/publications/2021/2019-california-residential-appliance-saturation-study-rass>. Accessed: October 2024.

² Total Lifetime NOx emissions are estimated as the Annual Energy Use multiplied by the Equipment Useful Life, and the NOx Emission Factor.

³ Capital Costs were derived based on Capital Cost Data of Zones 6, 9 and 10 from the E3 study, "Residential Building Electrification in California." Available at: <https://www.ethree.com/e3-quantifies-the-consumer-and-emissions-impacts-of-electrifying-california-homes/>. Accessed: October 2024. The costs were also converted from 2018\$ to 2022\$ based on a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2018. CPI data available at: <https://www.dir.ca.gov/opri/CPI/EntireCPI.PDF>. Accessed: October 2024.

⁴ As noted in the preliminary draft staff report (Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024), the electricity price is calculated as a population weighted average of 2026 to 2040 projected price averages for SCE and LADWP, i.e., 0.77 x SCE price + 0.23 x LADWP price. The 2026 to 2040 projected average price averages for SCE and LADWP were obtained from the 2023 IEP. Available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=253591>. Accessed: October 2024.

⁵ Natural gas price was estimated as the average of the 2026 to 2040 residential baseline rates from CEC. Note, these rates were provided in 2023\$ and converted to 2022\$ using a CPI ratio of All Urban Customers in 2022 to All Urban Customers in 2023. CPI data available at: <https://www.dir.ca.gov/opri/CPI/EntireCPI.PDF>. Accessed: October 2024.

⁶ Annual Electricity/Fuel Costs are estimated as the product of the Annual Energy Use and the Electricity/Fuel Prices.

⁷ Total Lifetime O&M Costs are estimated as the Annual Electricity/Fuel Costs multiplied by the Present Value Factor.

⁸ Lifetime NOx Emission Reductions are calculated as the difference in Lifetime NOx Emissions for the natural gas unit and the electric unit.

⁹ Incremental Costs are calculated as the difference in cost compared to the natural gas unit.

¹⁰ NOx Cost-Effectiveness is calculated as the Incremental Lifetime Equipment Costs divided by the Lifetime NOx Emission Reductions.

¹¹ Data obtained from Page 2-19 of the Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-preliminary-draft-staff-report.pdf?sfvrsn=18>. Accessed: October 2024.

¹² The Present Value Factor is part of the Discounted Cash Flow Method that uses expected future cash flows in conjunction with a discount rate to estimate present fair value. Based on South Coast AQMD Working Group Meeting #3 presentation slides. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121-par-1111-and-1121-wgm3-january-2024.pdf?sfvrsn=12>. Accessed: January 2024.

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Appendix B

COMMENT LETTER #2 – SoCalGas, October 17, 2024 (p. 35 of 37)**Comments on Draft Subsequent Environmental Assessment**

1. The Draft SEA's air quality impacts analysis compares potential increases in electricity use under South Coast AQMD's 2022 Air Quality Management Plan with those under the proposed project. In doing so, the Draft SEA assumes that space heaters will operate 4 hours per day on 100 days per year when the temperature is below 70°F. (Draft SEA, Table 4-3, fn. 3.) However, the Draft SEA does not identify the source of this data, making it difficult for a reader to verify the reasonableness of the assumption. Additionally, Table 4-3 cites to the website of Silicon Valley Power of the City of Santa Clara for its estimates of zero-emission water heaters' and low-NOx space heaters' electricity use. (Draft SEA, Table 4-3, fn. 1.) However, the Draft SEA leaves unclear why it relies on data from Northern California in its analysis of anticipated electricity use for such appliances within South Coast AQMD's Southern California jurisdictional area, and whether electricity use in the two areas might differ. South Coast AQMD could rely on the Residential Appliance Saturation Survey (RASS) for energy consumption by appliance in various utility territories.¹

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2. The Draft SEA's energy impacts analysis, in its concluding section, states that "[t]he cumulative energy impacts from increased electricity and natural gas demand remain significant and unavoidable." (Draft SEA, p. 4-23.) It then continues: "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." (*Id.*)

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The Draft SEA leaves unclear how to reconcile these two propositions. The mere passing reference to the 2022 FEIR does not explain how the significant and unavoidable energy demand impacts discussed at length in the preceding pages of the Draft SEA are negated or made less significant by the absence of waste or inefficiency in how this energy is used. In the end, the Draft SEA goes from finding significant and unavoidable impacts to less than significant impacts in the space of just a few sentences, without sufficient explanation.

3. The Draft SEA's energy impacts analysis incorporates the same assumption that that space heaters will operate 4 hours per day on 100 days per year when the temperature is below 70°F as the Draft SEA's air quality impacts analysis. (Draft SEA, Table 4-6, fn. 3.) And this energy impacts analysis relies on the same source for comparing potential increases in electricity use under South Coast AQMD's 2022 Air Quality Management Plan and under the proposed project as does the Draft SEA's air quality impacts analysis (Silicon Valley Power). (Draft SEA, Table 4-6, fn. 1.) As discussed in Paragraph 1 above, this analysis leaves unclear the source of data for the former proposition and the applicability of electricity use in Northern California for the latter comparison; SoCalGas recommends use of the RASS energy consumption datasets instead.

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4. The Draft SEA's discussion of those potential impacts found not to be significant appears to contain an inconsistency. The Draft SEA's analysis of some of these impact areas assumes that installation of new furnaces and water heaters will not require construction activities. (See, e.g.,

2-12

¹ California Energy Commission, California Residential Appliance Saturation Study, <https://rass.dnr.com/signin>

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pp. 4-25 [Aesthetics, Agriculture and Forestry Resources], 4-26 [Geology and Soils].) Yet the Draft SEA's discussion of other impact areas appears to assume at least the possibility of new construction. (See Draft SEA, p. 4-26 [Cultural and Tribal Resources: "In addition, if any new residential buildings are to be constructed, the project would be subject to project-level review,"].) To the extent the Draft SEA relies on inconsistent assumptions about whether and how much new construction the proposed project might entail, it does not explain this inconsistency.

2-12

5. The Draft SEA's discussion of potential Population and Housing impacts (Draft SEA, p. 4-31) does not address whether owners of rental properties might pass the costs of new furnaces or space heaters on to tenants, thus potentially driving up rental rates. CEQA requires lead agencies, in analyzing Population and Housing impacts, to examine whether the proposed project will "displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere." (See CEQA Guidelines, Appendix G, § XIV(b).) The Draft SEA should address whether implementation of the project might result in renters within the South Coast Basin experiencing rent increases and moving to more affordable rental properties elsewhere as a result. Or, if South Coast AQMD views such a housing impact as insignificant, the Draft SEA should explain why.

2-13

6. The Draft SEA's project alternatives analysis includes a purportedly "Less Stringent Alternative ("Alternative C"). Under Alternative C, the suggested reduction in stringency comes from allowing the replacement of equipment in existing buildings with low NOx heaters in situations where alternative compliance options would be necessary under the proposed project. (Draft SEA, p. 5-2.) SoCalGas questions why South Coast AQMD's analysis of alternatives to the proposed project does not also incorporate into this "Less Stringent Proposed Project" delayed dates for implementation of the proposed project's required compliance dates. "Alternative B – More Stringent Proposed Project" sets compliance dates 12 months earlier than the proposed project. (See Draft SEA, p. 5-2.) Including a proposed project alternative that would instead defer these dates across the board would allow for a more like-to-like comparison with Alternative B.

2-14

Moreover, including an alternative with delayed compliance dates would be particularly helpful given some of the near-term environmental impacts that the Draft SEA identifies. For example, the Draft SEA's analysis of Alternative B explains that this alternative could cause more significant air quality impacts due to its compressed timeframe for implementation, based on the likelihood of more equipment replacement projects occurring on a peak day. (Draft SEA, p. 5-4.) Similarly, in analyzing Alternative B's potential energy impacts, the Draft SEA explains that "Alternative B would result in an earlier increase in electricity demand which is driven by the earlier deployment of zero-emission technologies." (Draft SEA, p. 5-6.) An alternative that incorporates deferred rather than accelerated compliance dates would allow a better comparison between its potential air quality and energy impacts and those of both the proposed project and alternatives like Alternative B.

SoCalGas acknowledges the proposition that a lead agency "need not consider every conceivable alternative to a project" (Cal. Code Regs., tit. 16, § 15126.6), as the Draft SEA states. But analyzing

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a project alternative that includes delayed compliance dates would make the Draft SEA a more informative document for the public and for decision makers.

2-14

RESPONSE TO COMMENT LETTER #2 – SoCalGas, October 17, 2024**Response 2-1**

Comment 2-1 does not raise any issues relative to the analysis contained in the Draft SEA. Since this comment does not raise any issues relative to CEQA during the comment period for the Draft SEA, no further response is necessary under CEQA. [CEQA Guidelines Section 15088(a)]. Please refer to Response to Comment 37-1 in Appendix C of the Final Staff Report for PAR 1111 and PAR 1121.¹

Response 2-2

Comment 2-2 does not raise any issues relative to the analysis contained in the Draft SEA. Since this comment does not raise any issues relative to CEQA during the comment period for the Draft SEA, no further response is necessary under CEQA. [CEQA Guidelines Section 15088(a)]. Please refer to Response to Comment 37-2 in Appendix C of the Final Staff Report for PAR 1111 and PAR 1121.

Response 2-3

Comment 2-3 does not raise any issues relative to the analysis contained in the Draft SEA. Since this comment does not raise any issues relative to CEQA during the comment period for the Draft SEA, no further response is necessary under CEQA. [CEQA Guidelines Section 15088(a)]. Please refer to Response to Comment 37-3 in Appendix C of the Final Staff Report for PAR 1111 and PAR 1121.

Response 2-4

Comment 2-4 contains summary remarks about the energy analysis in the Draft SEA for PAR 1111 and PAR 1121 which are explained in more detailed comments provided in Appendix B of this letter which are bracketed as Comments 2-9, 2-10 and 2-11. Please refer to Responses 2-9, 2-10 and 2-11.

Response 2-5

Comment 2-5 does not raise any issues relative to the analysis contained in the Draft SEA. Since this comment does not raise any issues relative to CEQA during the comment period for the Draft SEA, no further response is necessary under CEQA. [CEQA Guidelines Section 15088(a)]. Please refer to Response to Comment 37-5 in Appendix C of the Final Staff Report for PAR 1111 and PAR 1121.

Response 2-6

Comment 2-6 does not raise any issues relative to the analysis contained in the Draft SEA. Since this comment does not raise any issues relative to CEQA during the comment period for the Draft SEA, no further response is necessary under CEQA. [CEQA Guidelines Section 15088(a)]. Please refer to Response to Comment 37-6 in Appendix C of the Final Staff Report for PAR 1111 and PAR 1121.

Response 2-7

Comment 2-7 does not raise any issues relative to the analysis contained in the Draft SEA. Since this comment does not raise any issues relative to CEQA during the comment period for the Draft

¹ [https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/draft-par-1111-par-1121-appendix-c-\(1\).pdf](https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/draft-par-1111-par-1121-appendix-c-(1).pdf)

SEA, no further response is necessary under CEQA. [CEQA Guidelines Section 15088(a)]. Please refer to Response to Comment 37-7 in Appendix C of the Final Staff Report for PAR 1111 and PAR 1121.

Response 2-8

Detailed analysis for the cost-effectiveness calculations can be found in Chapter 2 of the Draft Staff Report.² It is important to note that the calculation of fuel switching costs does not rely upon appliance efficiencies; instead, the fuel switching cost calculation relies on fuel use data provided in the 2019 California Residential Appliance Saturation Study.³ Project costs for both PAR 1111 and PAR 1121 are derived from the TECH Clean California Installation Data, where the cost of electrical service upgrades are included in the project costs.

Please refer to Response to Comment 37-3 of Appendix C of the Draft Staff Report which provides a detailed explanation of how cost-effectiveness was calculated.

Response 2-9

Comment 2-9 questions the reasonableness of the assumed space heater operational hours and the reliance on the electricity use data for Northern California when the electricity use in Southern California might differ, and suggests that South Coast AQMD could rely on data from the Residential Appliance Saturation Survey (RASS) instead.

Public Resources Code Section 21159 allows an agency to utilize numerical ranges or averages where specific data is not available; however, the agency shall not be required to engage in speculation or conjecture in the environmental analysis. The Final Program EIR for the 2022 AQMP, upon which the analysis in the Draft SEA for PAR 1111 and PAR 1121 relies, quantified energy use from data provided by Silicon Valley Power which was presented in terms of kilowatt-hours (kWh) per hour of operation for each unit. In order to estimate the potential hours of operation for these appliances, an assumption of the annual operating hours usage rate for space heaters and the number of appliances utilized was applied to the calculation. Similarly, the RASS data presents statewide averages of electricity use for appliances in terms of watt-hours per year per unit and as such, would also require an assumption of the annual operating hours usage rate for space heaters and the number of appliances utilized. In addition, under CEQA Guidelines Sections 15151 and 15144, South Coast AQMD, as Lead Agency, has discretion to select reasonable assumptions and methodologies supported by substantial evidence. The existence of other data sources does not render the analysis invalid. Additionally, the commenter was provided an opportunity to comment on the Draft Program EIR for 2022 AQMP during the public review period, consistent with CEQA Guidelines Section 15207 and Public Resources Code Section 21091(d)(1), but did not raise this concern at that time.

Nonetheless, to explore the commenter's suggestion to rely on RASS data instead, the following table shows a subset of information from Table 4.3-2 of the Final Program EIR for the 2022 AQMP and Table 4-6 of the Draft SEA, relative to the initial assumptions and electricity estimates for Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 for the 2022 AQMP and PAR 1111 and PAR 1121, respectively, and compares these estimates to the updated total electricity use that

² <https://www.aqmd.gov/docs/default-source/rule-book/proposed-rules/1111-and-1121/par-1111-par-1121-draft-staff-report.pdf>

³ 2019 California Residential Appliance Saturation Study (RASS), <https://www.energy.ca.gov/publications/2021/2019-california-residential-appliance-saturation-study-rass>

would result from implementing PAR 1111 and PAR 1121 if the electricity use factors from the RASS were applied instead.

Comparison of Parameters To Calculate Electricity Use¹

| Final Program EIR for 2022 AQMP | Control Measure | Total Number of Affected Units | Estimated Electricity Use ⁽¹⁾ | Estimated Total Electricity Use (GWh/yr) |
|--|-------------------------|---|--|---|
| | 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 | | 1.5 kWh/hr | 600 |
| | C-CMB-02 ⁽⁶⁾ | 200,000 commercial buildings will convert to zero-emission technology with 50% of applicable sources replaced; mitigation fee for other 50% ^{(1), (3)} | 10 kWh/hr | 400 |
| Total | | | | 7,000 |
| Draft SEA for PAR 1111 and PAR 1121 (Original Rule Concept) | Control Measure | Total Number of Affected Units | Estimated Electricity Use ⁽¹⁾ | Estimated Total Electricity Use (GWh/yr) |
| | 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 ⁽⁶⁾ | 112,435 space heaters in commercial buildings will convert to zero-emission technology. | 10 kWh/hr | 450 |
| Total | | | | 34,428 |
| 2019 California Residential Appliance Saturation Study | Control Measure | Total Number of Affected Units | Estimated Electricity Use ⁽⁴⁾ | Estimated Total Electricity Use (GWh/yr) |
| | R-CMB-01 | 5,128,800 water heaters installed | 2,401 kWh/yr per single-family home (RASS report, p. 20) | 12,314 |
| | R-CMB-02 | 5,350,000 space heaters installed | 2,024 kWh/yr per single-family home (RASS report, p. 22) | 10,828 |
| | C-CMB-02 ⁽⁶⁾ | 112,435 space heaters in commercial buildings will convert to zero-emission technology. | 789 kWh for apartments in buildings with five or more units ⁽⁵⁾ | 89 |
| Total | | | | 23,231 |

⁽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 degrees Fahrenheit (refer to Table 4.2-6 of the Final Program EIR for 2022 AQMP).

⁽⁴⁾ 2019 California Residential Appliance Saturation Study (RASS), <https://rass.dnv.com/envodig/api/site/media/CEC-200-2021-005-RSLTS.pdf>

⁽⁵⁾ There is no data available for commercial buildings so closest scenario to commercial buildings was taken from page 25 of RASS report, <https://rass.dnv.com/envodig/api/site/media/CEC-200-2021-005-RSLTS.pdf>

⁽⁶⁾ The revised rule concept removed Control Measure C-CMB-02 from PAR 1111, so the portion of electricity usage associated with commercial applications has been presented in this table for completeness for comparison purposes but will no longer contribute to the overall energy impacts of PAR 1111 and PAR 1121 (refer to Table 4-3 of the Final SEA for PAR 1111 and PAR 1121 which has been updated to reflect the revised rule concept).

If the electricity use rate data from the 2019 RASS is applied instead of the electricity use rate data from Silicon Valley Power, the total projected electricity use would be substantially less than what was presented in the Draft SEA, which would risk underestimating the overall electricity impacts from implementing PAR 1111 and PAR 1121. Specifically, the analysis conducted in the Draft SEA results in a substantially larger overall electricity use (34,428 GWh/yr) and represents a worst-case analysis when compared to relying on the electricity use rate data from the 2019 RASS (23,231 GWh/yr). The Draft SEA concluded that implementing PAR 1111 and PAR 1121 will result in significant adverse impacts to the environmental topic of air quality during construction and to the environmental topic of energy from electricity and natural gas demand. Even if the electricity use rate data from the 2019 RASS was applied instead, PAR 1111 and PAR 1121 will continue to result in significant adverse impacts to the environmental topic of air quality from the production of electricity and to the environmental topic of energy from electricity and natural gas demand, but these impacts would not represent worst-case conditions. Thus, the Draft SEA did not underestimate the electricity use impacts.

It is important to note that the electricity use impacts that were analyzed in the Draft SEA were based on the original rule concept which projected a wide distribution and deployment of zero-NOx emission installations. However, the revised rule concept, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and low-NOx units to be sold and installed for use. With the revised rule concept providing more flexibility to select appliances best suited to individual needs, consumers will be able to choose either zero-emission appliance options or conventional natural gas-fired appliance options that comply with emission limits. In addition, the revised rule concept removed Control Measure C-CMB-02 from PAR 1111, so the portion of electricity usage associated with commercial applications will no longer contribute to the energy impacts. As such, Table 4-3 of the Final SEA has been updated accordingly.

Since the revised rule concept is anticipated to result in fewer zero-NOx emission installations, the overall electricity use impacts will be less than what was analyzed for the original rule concept. Nonetheless, due to the large volume of equipment that is anticipated to be replaced over time under the revised rule concept, the electricity use impacts are expected to remain significant, though to a lesser extent than what would occur under the original rule concept.

Response 2-10

Comment 2-10 seeks clarification on the reasons why the energy impacts analysis concluded cumulatively significant increases in electricity and natural gas demand while the cumulative energy impacts were concluded to be less than significant.

The SEA for PAR 1111 and PAR 1121 is a subsequent analysis to the Final Program EIR for the 2022 AQMP, and the analysis in the Draft SEA indicated that the electricity demand, as noted in Response 2-9, and natural gas demand will be greater than the initial projections in the 2022 AQMP for specifically implementing Control Measures R-CMB-01, R-CMB-02, and C-CMB-02.

Regarding natural gas, the Final Program EIR for the 2022 AQMP acknowledged a short-term increase in natural gas use that would be needed for electricity generation. The Draft SEA updates this conclusion further and states that the total electric generation load from natural gas is expected to decline from 245 billion cubic feet in 2020 to 182 billion cubic feet in 2035, representing an annual decrease of approximately 2.0 percent. While the commenter projects the total natural gas demand to decline by one percent per year between 2020 and 2035, the near-term increase in

natural gas demand associated with additional electricity generation to meet 2035 goals was anticipated and this increase was considered in the cumulative impact determination. The temporary increase in natural gas consumption is expected to be balanced by the broader transition to zero-emission technologies to reduce NOx emissions which is consistent with California's goal of achieving 100 percent renewable electricity by 2045 under SB 100. The significant and unavoidable cumulative energy demand impacts are the direct result of efforts to reduce air pollution via zero-emission technology. In this context, the use of energy to support air pollution reduction efforts is not considered a wasteful, unnecessary, or inefficient use of energy which is criterion that was initially applied in the Notice of Preparation/Initial Study (NOP/IS) prepared for the 2022 AQMP as memorialized in the Final Program EIR for the 2022 AQMP.⁴ Relative to the analysis of cumulative energy demand impacts, the Final Program EIR for the 2022 AQMP (see p. 4.3-43) made the following conclusion:

“Cumulative impacts to energy demand for past, present, and reasonably foreseeable future projects would remain significant and unavoidable for electricity, natural gas, and hydrogen demand. The cumulative impacts on other energy resources are expected to be less than significant. In addition, use of energy to comply with ambient air quality standards, as well as climate change goals, would not result in the wasteful, unnecessary, or inefficient use of energy and these impacts are less than significant.”

The Draft SEA for PAR 1111 and PAR 1121 (see p. 4-23) concluded “cumulative energy impacts from increased electricity and natural gas demand remain significant and unavoidable.” The Draft SEA then states that, similar to the Final Program EIR for the 2022 AQMP, “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.”

Section 4.3.1 of the Draft SEA for PAR 1111 and PAR 1121 states that “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.

The last criterion, use of non-renewable energy resources in a wasteful and/or inefficiency manner, is evaluated differently than the second or third criterion, which were determined to be significantly affected due to the increase in electricity and natural gas usage beyond one percent of the baseline. The potential emissions increase in energy usage will be balanced by corresponding, substantial reductions in NOx emissions due to the implementation of cleaner technologies; therefore, the energy use is not considered to be wasteful and/or inefficient.

⁴ This criterion is taken directly from the Environmental Checklist from Appendix G of the CEQA Guidelines, Section VI a). This identical criterion is located in Section VI f) of the NOP/IS for the 2022 AQMP (see p. 2-24) which is also labeled as Appendix A of the Final Program EIR for the 2022 AQMP, (see p. A-74), <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.pdf>.

It is important to note that the revised rule concept, which includes zero-NO_x emission sales targets for manufacturers, will allow for both zero-NO_x emission units and NO_x-emitting units to be sold and installed for use. With the revised rule concept providing more flexibility to select appliances best suited to individual needs, consumers will be able to choose either zero-emission appliance options or conventional low-NO_x appliance options. In addition, the revised rule concept removed Control Measure C-CMB-02 from PAR 1111, so the portion of electricity and natural gas usage associated with commercial applications will no longer contribute to the overall energy impacts.

As a practical matter, if more conventional low-NO_x appliances are installed in lieu of zero-NO_x emission units under the revised rule concept, the anticipated reduction of natural gas usage in the appliances themselves may not be realized to the same extent that was previously expected in the Draft SEA. Similarly for electricity production, if more conventional low-NO_x appliances are installed in lieu of zero-NO_x emission units under the revised rule concept, the amount of natural gas that may be needed to generate electricity to operate the zero-NO_x emission units may not be as great as was previously expected in the Draft SEA. Nonetheless, even if the amount of natural gas that would be needed to produce electricity is not as great as originally projected, due to the large number of zero-NO_x emission units that could be potentially installed, the conclusion of electricity and natural gas demand will remain significant if the revised rule concept is implemented. Further, even under the revised rule concept, the analysis and conclusion of cumulative impacts relative to whether the proposed project would result in wasteful, unnecessary, or inefficient use of energy will remain unchanged.

South Coast AQMD staff has clarified the last sentence to read: “Therefore, relative to the question of whether the proposed project would result in wasteful, unnecessary, or inefficient use of energy, the cumulative energy impacts are less than significant.”

Response 2-11

Similar to Comment 2-9, this comment questions the reasonableness of the assumed space heater operational hours and the reliance on the electricity use data for Northern California when the electricity use in Southern California might differ, and suggests that South Coast AQMD could rely on data from the Residential Appliance Saturation Survey (RASS) instead. Please refer to Response 2-9.

Response 2-12

Comment 2-12 points to the discussion of environmental topic areas in “Potential Impacts Found Not to Be Significant” to assert that the Draft SEA relies on inconsistent assumptions about whether and how much new construction the proposed project might entail. However, in the discussions relative to the impacts of construction activities on the environmental topics of air quality and greenhouse gas emissions, and energy, which have been concluded to have significant impacts, the following statement was included in the Draft SEA, as follows:

“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.”

Discussions of the environmental topic areas in “Potential Impacts Found Not to Be Significant” section of the Draft SEA have been updated in the Final SEA to clarify that construction is expected. It is important to note that the construction activities that were assumed to occur and their associated impacts that were analyzed in the Draft SEA were based on the original rule concept which projected a wider distribution and deployment of zero-NOx emission installations. However, the revised rule concept, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and low-NOx units to be sold and installed for use. With the revised rule concept providing more flexibility to select appliances best suited to individual needs, consumers will be able to choose either zero-emission appliance options or conventional low-NOx appliance options. In addition, the revised rule concept removed Control Measure C-CMB-02 from PAR 1111, and as a result, construction activities associated with commercial applications under C-CMB-02 are no longer expected. However, construction activities associated with R-CMB-01 and R-CMB-02 are still anticipated, and the Final SEA continues to conclude that construction-related air quality impacts to be potentially significant, though to a lesser extent than what was originally disclosed in the Draft SEA. As such, the Final SEA has been updated accordingly.

For these reasons, fewer zero-NOx emission installations are anticipated under the revised rule concept which means that the construction activities will also be less than the original rule concept because the replacement of an existing NOx-emitting natural gas-fired unit with a new low-NOx unit is expected to occur within an existing footprint and would require minimal construction activities primarily involving hand tools.

Response 2-13

Comment 2-13 seeks clarification on why the Draft SEA does not address whether implementation of the proposed project might result in renters experiencing rent increases and moving elsewhere.

CEQA Guidelines Section 15131 states that economic or social information may be included in a CEQA analysis or may be presented in whatever form the agency desires. South Coast AQMD practice is to address the economic effects of proposed projects in the staff report and Socioeconomic Impact Assessment, and not in the CEQA analysis, because economic effects typically do not cause environmental impacts. Further, pursuant to CEQA Guidelines Section 15131(a) the economic or social effects of a project shall not be treated as significant effects on the environment. A CEQA document may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes. [CEQA Guidelines Section 15131(a)] Public Resources Code Sections 21100 and 21151 also state that significant effects are limited to physical conditions. No direct or indirect economic or social effects that could cause physical impacts to the environment were identified as a result of implementing PAR 1111 and PAR 1121. The proposed project does not require the displacement of existing tenants or construction of replacement housing. Moreover, any impact on rental rates does not make the physical changes that may occur from implementing PAR 1111 and PAR 1121 significant.

It is important to note that the equipment replacement activities that were assumed to occur and the associated construction impacts that were analyzed in the Draft SEA were based on the original rule concept which projected a wider distribution and deployment of zero-NOx emission installations. However, the revised rule, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and low-NOx units to be sold and installed for use. Under the revised rule concept, the decision to replace appliances at residences will occur at the end of the existing equipment's useful life. Also, under the revised rule concept, consumers, including rental property owners, will be able to choose either zero-emission appliance options or conventional low-NOx appliance options which will provide more flexibility to consumers to select appliances best suited to individual needs. Specifically, rental property owners will have a wide variety of options to purchase and install PAR 1111/PAR 1121-compliant equipment that will fit within the existing footprint, which will in turn minimize construction activities since like-for-like replacements tend to involve minimal construction activities primarily involving hand tools. The revised rule concept has been crafted in a way that is expected to involve minimal, if any, disruptions to renters when property owners replace the affected equipment. Also, because the revised rule concept does not require equipment replacements earlier than the end of the existing equipment's useful life, the costs of replacement will incur on an as needed basis, which is no different than the existing setting.

A separate Socioeconomic Impact Assessment for PAR 1111 and PAR 1121 has been prepared which analyzed the costs of upgrading to new, compliant furnaces and space heaters. The analysis in the Draft Socioeconomic Impact Assessment concluded that implementation of PAR 1111 and PAR 1121 is not expected to cause sweeping increases in rental rates. The Draft Socioeconomic Impact Assessment for PAR 1111 and PAR 1121 was released on April 1, 2025 and is available from South Coast AQMD's website at: <https://www.aqmd.gov/home/rules-compliance/socioeconomic-analysis/socioeconomic-analyses---year-2025>. The Final Socioeconomic Impact Assessment for PAR 1111 and PAR 1121 will be available as an attachment to the June 6, 2025 Governing Board package which will be posted on this webpage no later than 72 hours prior to the public hearing: <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes?filter=Governing%20Board>

Response 2-14

Comment 2-14 recommends incorporating delayed compliance dates into Alternative C: Less Stringent than the Proposed Project, as a contrast to Alternative B: More Stringent than the Proposed Project, which has expedited compliance dates.

The purpose of the alternatives analysis is to identify other scenarios that could achieve fewer impacts than the proposed project or eliminate the impacts altogether. Further, when alternatives are crafted, their ability to meet the project objectives is compared to the proposed project's ability to meet the project objectives as a means to determine the overall effectiveness of the alternative in achieving the project objectives.

In theory, lengthening the compliance timelines could be expected to potentially reduce a portion of the short-term air quality construction impacts under very limited circumstances when construction equipment may be needed for the equipment installations (e.g. for larger residential buildings needing an electrical panel upgrade) since the installation activities will be spread out over a longer period of time. As a practical matter, however, the extent of the potential reduction in air quality impacts during construction would not likely be substantial because there are multiple

possibilities or permutations of what type of equipment the property owners would install combined with the fact that the majority of equipment installations would not be expected to require the use of construction equipment since most installations can be accomplished with hand tools. Further, lengthening the compliance timelines will undermine the need for and ability to achieve the required NOx emission reductions according to the timing set forth in the 2022 AQMP (e.g., 0.30 tpd of NOx emission reductions by 2031 for Control Measure R-CMB-01 and 0.28 tpd of NOx emission reductions by 2031 for Control Measure R-CMB-02) and thus, would risk not satisfying the basic project objectives of PAR 1111 and PAR 1121, thereby making such an alternative infeasible under CEQA. For these reasons, an alternative for lengthening the compliance timelines in the manner suggested by the comment was not included in the SEA.

Instead, there are two other alternatives, referred to Alternatives B and C which considered a wider variety of options to examine whether the potentially significant impacts to air quality during construction and energy due to electricity and natural gas demand could be reduced or eliminated.

Under the original rule concept, the installation of zero-NOx emission heating units in new residences and commercial buildings would be required to occur by a certain compliance date, while the replacement of associated equipment in existing buildings would occur at the end of the existing equipment's useful life. Alternatives B and C considered variations of the compliance timing and the affected equipment, as summarized in the following bullet points:

Alternative B:

- New Equipment - The compliance date will start one year earlier than proposed project;
- Existing Equipment - The compliance date will be the same as for the proposed project; and
- 100% of zero-emission equipment will be required and deployed at the compliance date.

Alternative C:

- Existing and New Equipment: The compliance date will be the same as for the proposed project but a mix of 50% low NOx equipment and 50% zero-emission equipment will be deployed.

While Alternative C has the same compliance dates as the proposed project, the feature that makes Alternative C less stringent than the proposed project is the assumption that a mix of 50% low NOx equipment and 50% zero-emission units would be utilized, which would have the effect of reducing the adverse impacts associated with construction activities occurring in existing buildings which tend to bear the brunt of the construction impacts. Alternative C was deliberately crafted to have the same compliance dates as the proposed project to illustrate the relationship between how having fewer adverse impacts associated with construction activities overlap the reduced benefits. Alternative C would result in fewer NOx emission reductions than what would occur when compared to the proposed project.

For contrast, under Alternative B, the compliance dates are not only shifted to one year earlier than for the proposed project, but existing equipment would be required to be replaced by zero-emission heating technology by specified compliance dates as opposed to waiting until the end of the equipment's useful life. Alternative C considered a situation where zero-emission heating technology is not required to be installed at all for a certain subset of the equipment universe.

It is important to note that the equipment replacement activities that were assumed to occur for the proposed project and for Alternative C as analyzed in the Draft SEA were based on the original rule concept which projected a wider distribution and deployment of zero-NOx emission installations. However, the revised rule concept, which includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and low-NOx units to be sold and installed for use. Under the revised rule concept for the proposed project, the decision to replace appliances will occur at the end of the existing equipment's useful life. Also, under the revised rule concept, consumers will be able to choose either zero-emission appliance options or conventional low-NOx appliance options.

The revised rule concept of the proposed project itself now includes extended compliance timelines. Specifically, PAR 1111 and PAR 1121 have been modified to:

- 1) extend the zero-emission requirements by one year;
- 2) remove commercial fan-type central furnaces; and
- 3) exempt existing mobile homes from the zero-emission standards set forth in PAR 1111 and PAR 1121.

The Final SEA, including the alternatives analysis in Chapter 5, has been updated to reflect the revised rule concept. For both the original rule concept and the revised rule concept, implementation of PAR 1111 and PAR 1121 and Alternative C are both expected to result in significant and unavoidable increases in electricity and natural gas demand impacts. Please also see Response to Comment 2-9 for a detailed discussion on these energy impacts.

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Air Quality Specialist
South Coast Air Quality Management District
21865 Copley Dr, Diamond Bar, CA 91765

Re: Comments on Draft Supplemental Environmental Assessment for Proposed Amended Regulations 1111 and 1121

Dear Ms. Afshar:

We write on behalf of BizFed, the Los Angeles County Business Federation, an alliance of more than 200 business organizations representing more than 400,000 employers in Los Angeles County, including large and small businesses in a wide range of industries throughout the South Coast Air Basin (SCAB). We are writing regarding Proposed Amended Rule (PAR) 1111 – Reduction of NO_x Emissions From Natural Gas-Fired Furnaces and PAR 1121 – Reduction of NO_x Emissions From Natural Gas-Fired Water Heaters (collectively, Rules), specifically in regards to the Draft Supplemental Environmental Assessment (a Supplemental Environmental Impact Report (EIR)-equivalent document prepared under the California Environmental Quality Act (CEQA) by the South Coast Air Quality Management District (SCAQMD) pursuant to its Certified Regulatory Program) (Draft SEA). The Draft SEA was released for public comment on September 26, 2024.

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As we are sure you are aware, we have previously submitted comments and provided extensive information addressing the impacts on the business community as a whole, as well as the specific concerns of our diverse membership, regarding the Rules. We continue to be concerned about these impacts and, as outlined more fully below, we do not believe that the Draft SEA satisfies the requirements of CEQA. In particular the Draft SEA fails to contain the required analysis of socioeconomic impacts proximately caused by, or resulting from, adoption of the Rules. The Draft SEA also does not include a legally sufficient alternatives analysis. In addition, the Draft SEA fails to mitigate significant energy impacts.

Background and Prior CEQA Analysis

As you know, and as described in the Draft SEA, PAR 1121 is intended to implement 2022 Air Quality Management Plan (2022 AQMP) Control Measure R-CMB-01. PAR 1111 is intended to implement 2022 AQMP Control Measures R-CMB-02 and C-CMB-02. (These three 2022 AQMP Control Measures are referred to collectively as the Control Measures in the remainder of this letter). The Control Measures were evaluated in an Environmental

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Impact Report for the 2022 AQMP (2022 Final Program EIR).¹ The 2022 Final Program EIR describes the Control Measures as follows:

"R-CMB-01: Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Water Heating: This control measure seeks to reduce NOx emissions from residential building water heating sources that are subject to Rule 1121 – Control of Oxides of Nitrogen (NOx) from Residential Type, Natural Gas-Fired Water Heaters. The measure proposes to 1) develop a rule to require zero emission water heating units for installations in both new and existing residences; and 2) allow low NOx technologies as a transitional alternative when installing a zero-emission unit is determined to be infeasible (e.g., colder climate zones, or architecture design obstacles). This control measure would include incentive funds to facilitate the transition to zero emission technologies and promote further emission reductions earlier than required. A primary zero emission residential water heating technology is currently available with the all-electric heat pump water heater.

R-CMB-02: Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Space Heating: This control measure seeks to reduce NOx emissions from residential space heating sources regulated by Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces (Rule 1111). This control measure proposes to 1) develop a rule to require zero emission space heating units for installations in both new and existing residences; and 2) allowing low NOx technologies as a transitional alternative when installing a zero-emission unit is determined to be infeasible. This control measure would also provide incentive funds to facilitate adoption of zero emission technologies that would promote further emission reductions earlier than required.

C-CMB-02: Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Commercial Space Heating: This control measure seeks to reduce NOx emissions from commercial building space heating sources. (i.e., forced air furnaces) with a rated heat input capacity between 175,000 and 2,000,000 British Thermal Units per hour (BTU/hr). Those sources are currently not subject to the South Coast AQMD NOx rules. The measure proposes to 1) develop rules to require zero emission commercial space heating units for installations in both new and existing buildings; and 2) allow low NOx technologies as a transitional alternative when installing a zero-emission unit is determined to be infeasible. This control measure would also provide incentive funds to facilitate adoption of zero emission technologies that would promote further emission reductions earlier than required. Heat pumps have been broadly applied in commercial applications as the primary zero emission technology." 2022 Final Program EIR, pgs. 2-16 – 2-17.

Control Measures R-CMB-01 and R-CMB-02 were expected to affect 2 million residential water and space heaters, respectively, and were evaluated with an implementation date of

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¹ Final Program Environmental Impact Report for Proposed 2022 Air Quality Management Plan, November 2022, State Clearinghouse No. 2022050287.

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2029 in the 2022 Final Program EIR. See, 2022 Final Program EIR, Table 4.2-6, pg. 4.2-32 and Table 2.7-1, pg. 2-14. Control Measure C-CMB-02 was expected to affect 200,000 commercial space heaters and was evaluated with an implementation date of 2031. See, 2022 Final Program EIR, Table 4.2-6, pg. 4.2-32 and Table 2.7-1, pg. 2-14. The 2022 Final Program EIR concluded that implementation of the Control Measures would have potentially significant adverse air quality impacts from construction necessary to install lower and zero emission units, and from operational energy impacts related to electricity demand and increased use of natural gas to generate electricity caused by electrifying space and water heating appliances that are currently natural gas-fired. 2022 Final Program EIR pgs. 4.3-10 – 4.3-11.

As described in the Draft SEA, which tiers off of the 2022 Final Program EIR, PAR 1111 is expected to affect 5,350,000 space heaters. Draft SEA, pg. 1-16. PAR 1111 requires zero-NOx space heaters in new construction starting on January 1, 2026, and zero-NOx replacement space heaters at the end of appliance life starting on January 1, 2028 for units in existing buildings. Par 1121 is expected to affect 5,128,000 water heaters. Draft SEA, pg. 1-16. PAR 1121 requires zero-NOx water heaters in new construction starting on January 1, 2026, and zero-NOx replacement water heaters at the end of appliance life starting on January 1, 2028 for units in existing buildings. Thus, together, the Rules are expected to affect nearly 10.5 million natural gas-fired appliances in the SCAB.

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The Draft SEA analysis concludes that the potentially significant adverse air quality impacts from construction and from energy impacts due to electricity and natural gas demand found in the 2022 Final Program EIR “will be substantially made more severe if [the Rules] are implemented.” Draft SEA, pg. 1-5. For the types of physical changes resulting from the implementing of the Rules, the Draft SEA attributes the increase in severity to the increased number of units affected. Draft SEA pg. 1-16. However, the Draft SEA fails to fully acknowledge that some of the increased severity of the environmental impacts is due to accelerating implementation of low- and zero-NOx appliance replacements compared to implementing the Control Measures as analyzed in the 2022 Final Program EIR. As set forth more fully below, this failure results in the Draft SEA failing to comport with the requirements of CEQA.

The Draft SEA Fails To Analyze Impacts Reasonably Foreseeable from Implementing the Rules

CEQA requires an analysis of socioeconomic impacts when proximately caused by, or resulting from, an agency action.² Urban decay, or blight, is required to be evaluated by SCAQMD and the absence of this analysis is a fatal flaw in the Draft SEA for the Rules. The proposed rules impose billions of dollars of unfunded mandates on owners of residential and commercial properties, as well as landlords – who are legally entitled to pass these costs on to renters. Owners of structures who are unable or unwilling to pay these costs will be operating illegal structures, which insurance policies and mortgage covenants prohibit –

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² *Bakersfield Citizens for Local Control v City of Bakersfield* (2004) 124 Cal.App.4th 1184; *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173.

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resulting in foreclosures, uninsured structures, and blight from vacant or underutilized properties. This blight outcome extends to both commercial and residential structures.

The commercial market is already staggering with vacancies from hybrid/remote work and job losses in critical industries such as entertainment; the retail market is similarly staggering with the ever-increasing volumes of e-commerce. Large commercial structures are already defaulting on loans, and other structures are selling at steep discounts with uncertain future utilization rates. Just a small fraction of the largest commercial property defaults is reported in this recently published article.³

Housing is even more challenging. The median price of a California home (not simply a home in a coastal county) now exceeds \$900,000 – 10 times more than median income; a healthy housing market includes ample supplies of homes priced at 3-5 times median income.⁴ Average monthly rents in Los Angeles County are already \$2,452, and a chronic and growing shortage of less expensive housing, made worse by the continued growth of the homeless population, has caused about 59% of LA households to pay more than 30% of their income on rent⁵ – a level considered unaffordable by federal government standards. There are about 650,000 apartments covered by rent control, and hundreds of thousands of newer apartments not covered by rent control. All of the older apartments, and most of the new apartments, will eventually need costly retrofits to comply with the ban on gas-fired appliances contained in the Rules. And the evidence is clear: landlords and lenders do not have the resources to make the extraordinarily costly modifications needed to comply with the Rules. In a 2024 article,⁶ for example, it is reported that multi-family housing is already struggling to renew loans. Construction of new multi-family units have slowed significantly in markets like Los Angeles – data reflects that by the end of the first half of 2024, there was a decline of 34.6% in the completion of new apartments, and the sale volumes for multi-family apartment buildings worth more than \$5 million have dropped by 40%.⁷

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The Rules also assume massive increases in electric supplies, and electric transmission, distribution, and substation equipment – none of which is funded, and all of which will further burden ratepayers who already pay among the highest electricity costs in the nation. There continues to be a shortfall of electric supplies, and a shortage of critical infrastructure needed to bring supplies to where people live and work. Imposing a premature transition to all-electric appliances will foreseeably result in brownouts and blackouts that have caused catastrophic public safety and health consequences, especially to sensitive needs

³ <https://therealdeal.com/la/2024/01/02/brookfield-dtia-towers-lead-socals-top-defaults-in-2023/>

⁴ <https://www.metroabundance.org/what-would-it-look-like-to-take-an-outcome-oriented-approach-to-housing-abundance/>

⁵ <https://laist.com/news/housing-homelessness/los-angeles-housing-rent-control-increase-caps-rso-limits-economic-roundtable-report>

⁶ <https://www.globest.com/2024/08/14/refinancing-hurdles-and-market-slowdown-in-la-multifamily-sector/?slreturn=20241030133840>

⁷ <https://www2.naicapital.com/l-a-county-multifamily-market-shifts-as-vacancies-rise-and-rents-reach-new-highs-offering-opportunities-for-capital-ready-investors/#:~:text=Elevated%20interest%20rates%20have%20made.Recently%2C%20Blackstone%20Inc.>

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populations dependent on critical medical equipment.⁸ The Draft SEA analysis ignores this immediate adverse health consequence while asserting via “models” purported health benefits of removing gas-fired appliances from people’s homes. These appliances have been safely operated for a century or more.

The unfunded mandates represented by the Rules impose billions of dollars of cost burdens on a region already suffering from unaffordable cost burdens. Imposing these unfunded mandates will make the housing crisis worse, drive even more commercial and retail businesses out of the region (and eliminate associated jobs), and result in vacant and underutilized buildings, reduce the tax revenues needed for critical public services like fire, public safety and medical care, and cause disproportionate harms to already distressed disadvantaged communities. It is fiscally, socially and environmentally reckless to impose these costs to obtain the miniscule fraction of NOx reductions attributable to these widespread retrofits mandated by the Rules.

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Our region has many pressing needs, but we are at the end of an era where each special interest agency can, within its own silo, unilaterally impose billions of dollars of unfunded mandates without considering the adverse consequences to health, safety, and critical crises like our housing, homeless and poverty crises. The CEQA analysis performed by SCAQMD for the Rules is fundamentally flawed, and must be revised to acknowledge, analyze, and mitigate for these consequences – and importantly must include a thorough alternatives analysis that includes achieving the purported health benefits of removing safe gas appliances from structures through other, far less damaging and costly, methods.

The Draft SEA Fails To Analyze Adequate Alternatives

The Draft SEA is further inadequate because it fails to properly analyze a reasonable range of alternatives. Under CEQA, a proper analysis of alternatives is essential to comply with CEQA’s mandate that significant environmental impacts be avoided or substantially lessened where feasible.⁹ The analysis of alternatives lies at the “core of an EIR,”¹⁰ and an EIR must “ensure that all reasonable alternatives to proposed projects are thoroughly assessed by the responsible official.”¹¹

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The purpose of the requirement to contemplate alternatives is to identify ways to mitigate or avoid the significant effects of a project.¹² “[A]n agency may not approve a proposed project if feasible alternatives exist that would substantially lessen its significant

⁸ <https://pinkerton.com/our-insights/blog/the-impact-of-power-outages#:~:text=Power%20outages%20and%20impact%20on,heat%20stroke%2C%20and%20food%20ins,ecurity>.

⁹ Pub. Resources Code, § 21002; CEQA Guidelines, §§ 15002(a)(3), 15021(a)(2), 15126(d); *Citizens for Quality Growth v. City of Mount Shasta* (1988) 198 Cal.App.3d 433, 443–45.

¹⁰ *Citizens of Goleta Valley v. Bd. of Supervisors* (1990) 52 Cal.3d 553, 564.

¹¹ *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 735; see also Pub. Resources Code, § 21002.1(a).

¹² Pub. Resources Code, § 21002.1.

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environmental effects.”¹³ The alternatives discussion must be “meaningful” and must “contain analysis sufficient to allow informed decision making.”¹⁴ The alternatives analysis is critical to the integrity of an EIR.¹⁵ An EIR must “ensure that all reasonable alternatives to proposed projects are thoroughly assessed by the responsible official.”¹⁶ An alternatives analysis under CEQA must focus on potentially feasible alternatives to the project, even if these alternatives would impede to some degree the attainment of project objectives, or would be more costly.¹⁷

As noted above, the 2022 Final Program EIR concluded that implementing the Control Measures would result in significant and unavoidable impacts in the environmental topic areas of air quality and energy. The Draft SEA concludes that implementing the Rules would make those impacts substantially more severe. As noted above, the Draft SEA attributes that increased severity to the greater number of units affected by the Rules.

In addition to the “No Project” alternative (“Alternative A”) required to be analyzed under CEQA, the Draft SEA evaluates three other alternatives – “Alternative B” is described as the “more stringent” alternative (advances the compliance date for new construction to January 1, 2025 for PAR 1111 and mandates changeout of existing appliances by the compliance date at which end of life replacements would occur under the Rules as drafted); “Alternative C” is described as the “less stringent” alternative (keeps same compliance dates and structure as the Rules as drafted, but allows replacement of existing units with low-NOx (rather than zero-NOx) units where the Rules as drafted allow temporary alternative compliance options (estimated to be 50% of replacements)); and “Alternative D” (keeps the compliance dates and rule structure the same as the Rules as drafted, but provides additional incentive funding which is estimated to result in about 1% (rather than .5%) of existing units being changed out before the end of useful life).

Notably, none of the alternatives examines the effect of a compliance date later than January 1, 2028 for space heaters and January 1, 2030 for water heaters. This is the case despite the fact that The 2022 Final Program EIR analyzed 2029 and 2031 compliance dates for these appliances respectively. This is a fundamental failure to present an adequate and legally

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¹³ *Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503, 52 (citations omitted); see also Pub. Resources Code, §21081(a); CEQA Guidelines, §15091(a)(3); *Cal. Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 1002.

¹⁴ *Laurel Heights Improvement Association of San Francisco, Inc. v. Regents of the University of California* (1988) 47 Cal.3d 376 at 403-04.

¹⁵ *In re Bay-Delta Programmatic Env'tl. Impact Report Coordinated Proceedings*, 43 Cal.4th 1143, 1162 (2008) (“The EIR is the heart of CEQA, and the mitigation and alternatives discussion forms the core of the EIR.”).

¹⁶ *San Joaquin Raptor/Wildlife Rescue Center, supra*, 27 Cal.App.4th at 735; see also Pub. Resources Code, § 21002.1(a).

¹⁷ CEQA Guidelines, § 15126.6(b), (f); see also Pub. Resources Code, § 21102.1(a) (“The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided.”).

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sufficient alternatives analysis that examines all reasonable alternatives to inform the public and the responsible officials of feasible alternatives as required by CEQA.¹⁸

Moreover, although the Draft SEA acknowledges that the impacts on natural gas demand that the Draft SEA finds severe and unavoidable will diminish as renewable energy use grows and reliance on natural gas for heating appliances decreases (Draft SEA, pg. 5-6), no alternative is analyzed that takes this into account. Indeed, California Senate Bill 100 (2018) established a goal for grid power of 60% renewable and zero-carbon resources by 2030. In light of this fact, a legally sufficient alternatives analysis would include at least one alternative that examines whether extending the compliance date until more renewables are available on the grid would ameliorate some or all of the severe and unavoidable impacts found. For example, an alternative that tied the compliance date to the accomplishment of a defined level of renewable power on the grid would inform decision makers and the public about the important trade-offs inherent in the decision making around the Rules as required by CEQA. Whether these or other reasonable and feasible alternatives would decrease the impacts of the Rules cannot be known because the Draft SEA fails in its fundamental purpose to present them for consideration. The Draft SEA for the Rules is fundamentally flawed and must be revised to properly analyze all reasonable and feasible alternatives as outlined above. The Revised SEA must then be recirculated for public comment before it and the Rules can be further considered by SCAQMD.

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The Draft SEA Fails to Mitigate Significant Energy Impacts

The discussion of a proposed project's environmental impacts is an essential component of an EIR.¹⁹ The fundamental purpose of CEQA is to "inform the public and its responsible officials of the environmental consequences of their decisions before they are made."²⁰ To do so, an EIR must contain facts and analysis, not just an agency's bare conclusions.²¹

CEQA also requires an EIR to describe and adopt all feasible mitigation measures to address a project's significant environmental impacts.²² Mitigation measures must be "fully enforceable through permit conditions, agreements, or other legally binding instruments."²³ Generally, the "[f]ormulation of mitigation measures should not be deferred until some future time."²⁴ As an exception, "measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way."²⁵ Crucially, there is a "distinction between stating a generalized goal and

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¹⁸ That these later compliance dates are reasonable and feasible alternatives is further demonstrated by the fact that the Bay Area Air Quality Management District (Bay Area AQMD) adopted amendments in March of 2023 to its Regulation 9, Rule 6 which sets forth a zero-NOx compliance date of January 1, 2031 for typical residential water heaters, and its Regulation 9, Rule 4 which contains a zero-NOx compliance date of January 1, 2029 for furnaces.

¹⁹ See CEQA Guidelines, § 15126.2(a) ("An EIR shall identify and focus on the significant effects of the proposed project on the environment.") (emphasis added).

²⁰ *Laurel Heights*, *supra*, 6 Cal.4th at 1123.

²¹ *Citizens of Goleta Valley*, *supra*, 52 Cal.3d at 568.

²² Pub. Resources Code, § 21002; CEQA Guidelines, § 15126.4(a)(1).

²³ CEQA Guidelines, § 15126.4(a)(1)(B), (a)(2).

²⁴ CEQA Guidelines, § 15126.4(a)(1)(B).

²⁵ *King & Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814, 856.

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adopting specific performance criteria,” and “[s]imply stating a generalized goal for mitigating an impact does not allow the measure to qualify for the exception to the general rule against the deferred formulation of mitigation measures.”²⁶ Further, even where the deferred formulation of mitigation might be allowable, there is a point beyond which delayed implementation is not allowed: “[o]nce the project reaches the point where activity will have a significant adverse effect on the environment, the mitigation measures must be in place.”²⁷ “Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified.”²⁸

All of the mitigation for energy impacts identified in the Draft SEA are lifted from the 2022 Final Program EIR. The Draft SEA states as follows:

“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.”

Draft SEA, pgs. 4-20 – 4-21.

None of these mitigation measures were adequate when they were included in the 2022 Final Program EIR and they remain inadequate in the context of the Draft SEA. Even a cursory examination of these “measures” reveals that they express aspirational goals at best. None of the measures are enforceable, as required by CEQA, through “permit conditions, agreements, or other binding instruments” by South Coast AQMD or anyone else. In addition, none of these measures specifies any sort of performance standard that could lead to formulation of appropriate mitigation in the future. Moreover, other than explaining that

²⁶ *Id.* at 856.

²⁷ *Id.* at 860, quoting *POET, LLC v. Cal. Air Resources Bd.* (2013) 218 Cal.App.4th 681, 738.

²⁸ CEQA Guidelines, § 15126.4(a)(1)(E).

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some of the measures that were included in the 2022 Final Program EIR are inapplicable to mitigating energy impacts, the Draft SEA provides no explanation for the assertion that these specific measures will address the energy impacts that the Draft SEA describes as more severe than the impacts found in the 2022 Final Program EIR. See Draft SEA, pg. 4-20. In short, the mitigation measures identified in the Draft SEA that purport to reduce the potential electricity demand impacts that have been identified are wholly inadequate under CEQA. To address this inadequacy, the Draft SEA must be revised to identify and analyze appropriate mitigation measures for energy impact. The revised Draft SEA must then be recirculated for public comment before it and the Rules can be further considered by SCAQMD.

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For the reasons set forth above, we urge SCAQMD to revise its analysis, prepare and circulate a revised Draft SEA, and, ultimately, to reject the Rules. We reserve the right to identify new issues, provide additional information, and propose additional mitigation measures during SCAQMD's ongoing decision-making process for the Rules.

Thank you for your thoughtful consideration of these critical issues.

Sincerely,



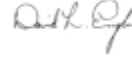
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BizFed Association Members

Action Apartment Association
Advanced Medical Technology Association
Alhambra Chamber
American Beverage Association
Antelope Valley Chamber formerly Lancaster Chamber of Commerce
Apartment Association of Greater Los Angeles
Apartment Association of Orange County
Apartment Association, CA Southern Cities, Inc.
Apartment Association of California
Arcadia Association of Realtors
AREAA North Los Angeles SPV SCV
Armenian American Business Association
Armenian Trade & Labor Association
Arts District Los Angeles
ASCM Inland Empire Chapter
Associated Builders & Contractors SoCal (ABC SoCal)
Associated General Contractors
Association of Independent Commercial Producers
AV Edge California
Azusa Chamber
Bell Chamber
Beverly Hills Chamber
BioCom
Black Business Association
Black Professional Network

Boyle Heights Chamber of Commerce
Bridge Compton Org
Building Industry Association - LA/Ventura Counties
Building Industry Association of Southern California
Building Industry Association- Baldyview
Building Owners & Managers Association of Greater Los Angeles
Burbank Association of Realtors
Burbank Chamber of Commerce
Business and Industry Council for Emergency Planning and Preparedness
Business Resource Group
CalAsian Chamber
CalChamber
California African American Chamber of Commerce
California Apartment Association- Los Angeles
California Asphalt Pavement Association
California Bankers Association
California Black Chamber of Commerce
California Business Properties
California Business Roundtable
California Cleaners Association
California Contract Cities Association
California Council for Environmental & Economic Balance (CCEEB)
California Fuels & Convenience Alliance- Formerly

California Independent Oil Marketers Association (CIOIMA)
California Gaming Association
California Grocers Association
California Hispanic Chamber
California Hotel & Lodging Association
California Independent Petroleum Association
California Infrastructure Delivery Coalition
California Life Sciences Association
California Manufacturers & Technology Association
California Metals Coalition
California Natural Gas Producers Association
California Restaurant Association
California Retailers Association
California Self Storage Association
California Small Business Alliance
California Travel Association (CalTravel)
California Trucking Association
Californians For Smarter Sustainability
Carson Chamber of Commerce
Carson Dominguez Employers Alliance
Central City Association
Century City Chamber of Commerce
Chatsworth Porter Ranch Chamber of Commerce
Citrus Valley Association of Realtors
Civil Justice Association of California CJAC
Claremont Chamber of Commerce

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Commerce Business Council formerly Commercial
Industrial Council/Chamber of Commerce
Compton Chamber of Commerce
Compton Community Development Corporation
Compton Entertainment Chamber of Commerce
Construction Industry Air Quality Coalition
Construction Industry Coalition on Water Quality
Council of Infill Builders
Crenshaw Chamber of Commerce
Culver City Chamber of Commerce
Downey Chamber of Commerce
Downtown Alliance
Downtown Long Beach Alliance
DTLA Chamber of Commerce
El Monte/South El Monte Chamber
El Salvador Corridor Association
El Segundo Chamber of Commerce
Employers Group
Energy Independence Now E2N
Engineering Contractor's Association
EXP The Opportunity Engine
FastLink DTLA
Filipino American Chamber of Commerce
Friends of Hollywood Central Park
FuturePorts
Gardena Valley Chamber
Gateway to LA
Glendale Association of Realtors
Glendale Chamber
Glendora Chamber
Greater Antelope Valley AOR
Greater Bakersfield Chamber of Commerce
Greater Coachella Valley Chamber of Commerce
Greater Downey Association of REALTORS
Greater Lakewood Chamber of Commerce
Greater Laimert Park Crenshaw Corridor BID
Greater Los Angeles African American Chamber
Greater Los Angeles Association of Realtors
Greater Los Angeles New Car Dealers Association
Greater San Fernando Valley Chamber
Harbor Association of Industry and Commerce
Harbor Trucking Association
Historic Core BID of Downtown Los Angeles
Hollywood Chamber
Hospital Association of Southern California
Hotel Association of Los Angeles
ICBWA- International Cannabis Women Business
Association
Independent Cities Association
Independent Hospitality Coalition
Industrial Environmental Association
Industry Business Council
Inglewood Board of Realtors
Inland Empire Economic Partnership
Irwindale Chamber of Commerce
Kombucha Brewers International
La Cañada Flintridge Chamber
LA County Medical Association
LA Fashion District BID
LA South Chamber of Commerce
Larchmont Boulevard Association
Latin Business Association
Latino Food Industry Association
Latino Golfers Association
Latino Restaurant Association
LAX Coastal Area Chamber
Licensed Adult Residential Care Association-
LARC
Long Beach Area Chamber
Long Beach Economic Partnership
Long Beach Major Arts Consortium
Los Angeles Area Chamber
Los Angeles Economic Development Center
Los Angeles Gateway Chamber of Commerce
Los Angeles Latino Chamber
Los Angeles LGBTQ Chamber of Commerce
Los Angeles Parking Association
Los Angeles Regional Food Bank
MADIA Tech Launch
Malibu Chamber of Commerce
Manhattan Beach Chamber of Commerce
Manhattan Beach Downtown Business &
Professional Association
Marina Del Rey Lassava Association
Marketplace Industry Association
Monrovia Chamber
Motion Picture Association of America, Inc.
MoveLA
MultiCultural Business Alliance
NAIOP Southern California Chapter
NAREIT
National Association of Minority Contractors
National Association of Theatre Owners
CA/Nevada
National Association of Women Business Owners
National Association of Women Business Owners -
LA
National Association of Women Business Owners-
California
National Federation of Independent Business

Owners California
National Hookah
National Latina Business Women's Association
Norwegian American Chamber of Commerce
Offso Community Foundation
Orange County Business Council
Orange County Hispanic Chamber of Commerce
Pacific Merchant Shipping Association
Panorama City Chamber of Commerce
Paramount Chamber of Commerce
Pasadena Chamber
Pasadena Foothills Association of Realtors
PGA
Pharmaceutical Care Management Association
PHRMA
Pico Rivera Chamber of Commerce
Pomona Chamber
Rancho Southeast REALTORS
ReadyNation California
Recording Industry Association of America
Regional CAL Black Chamber, SVF
Regional Hispanic Chambers
San Gabriel Valley Economic Partnership
San Pedro Peninsula Chamber of Commerce
Santa Clarita Valley Chamber
Santa Clarita Valley Economic Development Corp.
Santa Monica Chamber of Commerce
Secure Water Alliance
Sherman Oaks Chamber
Signal Hill Chamber
South Bay Association of Chambers
South Bay Association of Realtors
South Gate Chamber of Commerce
Southern California Contractors Association
Southern California Golf Association
Southern California Grantmakers
Southern California KFC Franchise
Southern California Leadership Council
Southern California Minority Suppliers
Development Council Inc.
Southern California Water Coalition
Southland Regional Association of Realtors
Specialty Equipment Market Association
Structural Engineers Association of Southern
California
Sunland/Tujunga Chamber
Sunset Strip Business Improvement District
Swiss American Chamber of Commerce
Thai American Chamber of Commerce
The Bridge Network
The LA Coalition for the Economy & Jobs
The Los Angeles Taxpayers Association
The Two Hundred for Homeownership
Torrance Area Chamber
Tri-County Association of Realtors
United Chambers - San Fernando Valley & Region
United Contractors
United States-Mexico Chamber
Unmanned Autonomous Vehicle Systems
Association
Urban Business Council
US Green Building Council
US Resiliency Council
Valley Economic Alliance, The
Valley Industry & Commerce Association
Veniss Chamber of Commerce
Vernmont Silicon Economic Development
Corporation
Veterans in Business
Vietnamese American Chamber
Village of Sherman Oaks BID
Warner Center Association
West Covina Chamber
West Hollywood Chamber
West Hollywood Design District
West Los Angeles Chamber
West San Gabriel Valley Association of Realtors
West Valley/Warner Center Chamber
Westchester BID
Western Electrical Contractors Association
Western Manufactured Housing Association
Western Propane Gas Association
Western States Petroleum Association
Westside Council of Chambers
Westwood Community Council
Whittier Chamber of Commerce
Wilmington Chamber
World Trade Center
Yes in My Backyard
7-Eleven Franchise Owners Association of
Southern California

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**RESPONSE TO COMMENT LETTER #3 – BizFed Los Angeles Business Federation,
October 31, 2024****Response 3-1**

Comment 3-1 contains introductory remarks which summarize the concerns regarding the Draft SEA for PAR 1111 and PAR 1121. Specifically, BizFed raises issues about the sufficiency of the Draft SEA, particularly regarding its analysis of socioeconomic impacts, alternatives analysis, and energy impacts. More detailed comments relating to these topics are provided in Comments 3-2 to 3-5. See Responses to Comments 3-2 to 3-5 regarding each concern.

Response 3-2

Comment 3-2 provides a summary of the CEQA history for: 1) Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 and the evaluation of the associated environmental impacts in the Final Program EIR for 2022 AQMP; and 2) PAR 1111 and PAR 1121 and the updated analysis provided in the Draft SEA. Comment 3-2 also alleges that the Draft SEA failed to acknowledge the fact that the increased severity of certain environmental impacts stems from the accelerated implementation date of low- and zero-NOx appliance replacements in comparison to what was analyzed in the Final Program EIR for the 2022 AQMP.

The entire analysis of the Draft SEA focused on the potential impacts of having more appliances installed according to the applicable timelines presented in PAR 1111 and PAR 1121, and compared them to what was contemplated in the Final Program EIR for the 2022 AQMP. Moreover, the alternatives analysis in Chapter 5 of the Draft SEA contemplated an even more expedited implementation schedule under Alternative B to illustrate the potential intensity and worsening of the significant adverse air quality and energy impacts. As required by CEQA for when potentially significant impacts are identified, the Draft SEA also included a full suite of mitigation measures as required to address the potentially significant air quality impacts during construction and the potentially significant energy impacts.

The rule development team received extensive comments about the original rule concept, including comments expressing concerns about the accelerated implementation timeline. In response to these comments, a revised rule concept was developed which: 1) includes zero-NOx emission sales targets for manufacturers; and 2) allows for both zero-NOx emission units and low-NOx units to be sold and installed for use. Under the revised rule concept, the decision to replace appliances will occur at the end of the existing equipment's useful life. Also, under the revised rule concept, consumers will be able to choose either zero-emission appliance options or conventional low-NOx appliance options. The analysis in the Final SEA has been updated to reflect the revised rule concept and the implementation timeline.

Response 3-3

Comment 3-3 alleges that the Draft SEA fails to properly analyze the socioeconomic impacts that could result from the proposed project, specifically highlighting potential adverse consequences such as urban blight, foreclosures, and economic harm to low-income households, commercial property owners, and tenants. The comment also suggests that PAR 1111 and PAR 1121 could impose billions of dollars in unfunded mandates that may lead to disproportionate burdens on these groups, exacerbating the region's existing housing crisis, poverty, and economic instability. Lastly, the comment alleges that the SEA fails to adequately consider the socioeconomic costs and impacts on small businesses, including potential disruptions to the broader regional economy.

CEQA Guidelines Section 15131 states that economic or social information may be included in a CEQA analysis or may be presented in whatever form the agency desires. South Coast AQMD practice is to address the economic effects of proposed projects in the staff report and Socioeconomic Impact Assessment, instead of the CEQA analysis, because economic effects typically do not cause environmental impacts. Further, pursuant to CEQA Guidelines Section 15131(a) the economic or social effects of a project shall not be treated as significant effects on the environment. A CEQA document may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes. [CEQA Guidelines Section 15131(a)] Public Resources Code Sections 21100 and 21151 also state that significant effects are limited to physical conditions. No direct or indirect economic or social effects that could cause physical impacts to the environment were identified as a result of implementing PAR 1111 and PAR 1121.

The rule development team received extensive comments about the original rule concept, including comments expressing concerns about the costs associated with implementing the proposed project according to the accelerated. In response to these comments, a revised rule concept was developed which: 1) includes zero-NOx emission sales targets for manufacturers; and 2) allows for both zero-NOx emission units and low-NOx units to be sold and installed for use. Under the revised rule concept, the decision to replace appliances will occur at the end of the existing equipment's useful life. Also, under the revised rule concept, consumers will be able to choose either zero-emission appliance options or conventional low-NOx appliance options. In addition, the revised rule concept removed Control Measure C-CMB-02 from PAR 1111, which means commercial businesses will no longer be affected. As such, PAR 1111 and PAR 1121 will not contribute to vacant or underutilized commercial buildings, because the revised rule concept no longer contains provisions that would be applicable to commercial buildings. Thus, there will be no costs to small businesses.

In addition, PAR 1111 and PAR 1121 will not contribute to vacant or underutilized residential buildings and any associated socioeconomic impacts because there is an existing housing shortage within the South Coast AQMD jurisdiction and the replacement of affected units with PAR 1111/PAR 1121-compliant units would occur at the end of the existing equipment's useful life. Moreover, PAR 1111 and PAR 1121 provide flexibility and financial incentives to choose either zero-NOx or low-NOx equipment, whenever the replacements actually occur. Occupants of residential dwellings would not be expected to abandon their residences simply because their water or space heating equipment is no longer functioning. Instead, the property owners will likely seek to quickly find replacement equipment that will fit within the existing footprint. Owners of rental properties would be required to replace the equipment to provide tenants with the same features available in the terms of the existing lease agreements. PAR 1111 and PAR 1121 contain no provisions that would require modifications to a renter's lease agreement. Please also see Response to General Comment 2 in Appendix A of the Final Staff Report for more information on costs and incentive programs that will be available to consumers to help offset the costs.

In addition, a separate Socioeconomic Impact Assessment for PAR 1111 and PAR 1121 has been prepared which analyzed the costs of upgrading to new, compliant furnaces and space heaters. The analysis considered the range of probable costs or savings, and impact on employment and the

regional economy. The preliminary analysis estimates overall unit lifetime savings as the lower operational costs would offset the higher upfront costs. The Draft Socioeconomic Impact Assessment for PAR 1111 and PAR 1121 was released on April 1, 2025 and is available from South Coast AQMD's website at: <https://www.aqmd.gov/home/rules-compliance/socioeconomic-analysis/socioeconomic-analyses---year-2025>. The Final Socioeconomic Impact Assessment for PAR 1111 and PAR 1121 is available as an attachment to the June 6, 2025 Governing Board package which is available from the following webpage: <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes?filter=Governing%20Board>.

Response 3-4

Comment 3-4 alleges that the Draft SEA fails to properly analyze a reasonable range of alternatives in accordance with the requirements of CEQA that would reduce or eliminate the potentially significant air quality and energy impacts, and suggests that the Draft SEA needs to be revised and recirculated. The comment also suggests evaluating an alternative that would propose delayed compliance dates.

The rule development team received extensive comments about the original rule concept, including comments expressing concerns about the timing and the circumstances when equipment replacements would occur. In response to these comments, a revised rule concept was developed which: 1) includes zero-NOx emission sales targets for manufacturers; and 2) allows for both zero-NOx emission units and low-NOx units to be sold and installed for use. Under the revised rule concept, the decision to replace existing appliances will occur at the end of the existing equipment's useful life. For new construction, implementation of PAR 1111 and PAR 1121 under the revised rule concept proposes to delay the 2026 compliance date to 2027 to align with when the building code which will also require new buildings to be "electric ready."

The Final SEA, including the alternatives analysis in Chapter 5, has been updated to reflect these changes to the proposed project under the revised rule concept. Nonetheless, the environmental impacts as a result of this update will continue to result in significant and unavoidable adverse air quality and energy impacts, even after the mitigation measures are applied, though to a lesser extent than what would occur under the original rule concept. Lastly, since implementation of the revised rule concept allows for both zero-NOx emission units and low-NOx units to be sold and installed as opposed to only zero-NOx emission units, and allows for replacements to occur at the end of the equipment's useful life, the commenter's requested revision seeking an additional alternative that contemplates a delayed compliance date is moot.

It is important to note that lengthening the compliance timelines will undermine the need for and ability to achieve the required NOx emission reductions according to the timing set forth in the 2022 AQMP (e.g., 030 tpd of NOx emission reductions by 2031 for Control Measure R-CMB-01 and 0.28 tpd of NOx emission reductions by 2031 for Control Measure R-CMB-02) and thus, would risk not satisfying the basic project objectives of PAR 1111 and PAR 1121, thereby making such an alternative infeasible under CEQA. For these reasons, an alternative for lengthening the compliance timelines in the manner suggested by the comment was not included in the SEA.

Evaluation of the modifications made to PAR 1111 and PAR 1121 in response to the revised rule concept, which occurred after the release of the Draft SEA for public review and comment, concluded that none of the revisions constitute significant new information, because: 1) no new significant environmental impacts would result from the proposed project; 2) there is no substantial

increase in the severity of an environmental impact; 3) no other feasible project alternative or mitigation measure was identified that would clearly lessen the environmental impacts of the project and was considerably different from others previously analyzed, and 4) the Draft SEA did not deprive the public from meaningful review and comment. Consequently, revisions to PAR 1111 and PAR 1121 and the updated analysis in the SEA would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft SEA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5.

Response 3-5

Comment 3-5 alleges that the mitigation measures identified in the certified Final Program EIR for the 2022 AQMP which were crafted to address the potentially significant energy impacts from implementing all of control measures, including Control Measures R-CMB-01, R-CMB-02, and C-CMB-02 (the control measures upon which the original rule concept was based), were inadequate and cannot be relied upon in the Draft SEA to mitigate the potentially significant energy impacts that will be worsened if PAR 1111 and PAR 1121 are implemented. This comment also alleges that other mitigation measures need to be identified specific to reducing the energy impacts that will result from PAR 1111 and PAR 1121 such that the Draft SEA will need to be revised and recirculated accordingly.

The Final Program EIR for the 2022 AQMP identified feasible 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, and potential fire hazard from reformulations of coatings, solvents, adhesives and lubricants; 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. However, only the mitigation measures for reducing potential hazards and hazardous materials impacts related to flammable reformulations of coatings, solvents, adhesives, and lubricants were determined to be capable of reducing these impacts to less than significant levels. Thus, mitigation measures were made a condition of project approval and were adopted. Further, since mitigation measures were adopted, a Mitigation, Monitoring, and Reporting Plan, pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines 15097 was also required and adopted. In addition to the adopted mitigation measures, the Final Program EIR for the 2022 AQMP included an alternatives analysis as required by CEQA Guidelines 15126. The South Coast AQMD Governing Board certified the Final Program EIR for the 2022 AQMP and the Mitigation, Monitoring, and Reporting Plan and approved the project on December 2, 2022.

Energy mitigation measures for project-specific impacts are identified in the Mitigation Monitoring and Reporting Plan of the Final Program EIR for the 2022 AQMP (e.g., E-1 through E-7 for electricity demand, E-8 through E-9 for natural gas demand, and E-10 through E-12 for hydrogen demand). Relative to the claim that these adopted energy mitigation measures to address the potentially significant increased electricity, natural gas, and hydrogen demand as identified in the Final Program EIR for the 2022 AQMP were inadequate, the administrative record indicates that the commenter did not provide any written comments relative to the Draft Program EIR during the public review and comment period. For reference, the list of commenters, their letters and their responses are included in Appendix C of the Final Program EIR.⁵ In addition, as part of the South

⁵ South Coast AQMD, 2022. Final Program EIR for the 2022 AQMP, available at: <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.pdf>

Coast AQMD Governing Board's certification of the Final Program EIR for the 2022 AQMP, a Mitigation, Monitoring, and Reporting Plan, which included these aforementioned energy mitigation measures, was also adopted in accordance with CEQA Guidelines Section 15097.⁶ The Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP has been incorporated by reference in this Final SEA and is included as an appendix to the Findings and Statement of Overriding Considerations that has been prepared for PAR 1111 and PAR 1121 which is labeled as Attachment 1 to the Governing Board Resolution (see Attachment F of the Governing Board package).

As explained in the Draft SEA, 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 changes associated with the proposed NO_x limits and compliance dates presented in the original rule concept, the types of physical changes were expected to be similar and would cause similar secondary adverse environmental impacts for the same environmental topic areas that were identified and previously analyzed in the Final Program EIR for the 2022 AQMP. However, regarding the scope of the affected equipment universe under the 2022 AQMP, 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 over five million space heaters would be affected under the original rule concept for PAR 1111. Similarly, Control Measure R-CMB-01 was estimated to affect two million residential water heaters, whereas over five million water heaters would be affected under the original rule concept for PAR 1121.

The original rule concept was expected to have similar secondary adverse environmental impacts as would occur for the 2022 AQMP for the environmental topic areas of construction air quality and GHG emissions, but that there would be increased and more severe 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 when compared to what was previously analyzed in the Final Program EIR for the 2022 AQMP.

The Draft SEA also explained that 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 that these impacts will remain the same under the original rule concept. In addition, the Draft SEA explained that 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 would have potentially significant adverse air quality impacts from construction and energy impacts from electricity and natural gas demand and the analysis in the Draft SEA determined that these impacts will be made more severe if the original rule concept was implemented.

Because the energy impacts from implementing 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. However, in the context of PAR 1111 and PAR 1121, since 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, these mitigation measures are not applicable to the original rule

⁶ South Coast AQMD, 2022. Attachment 1 to the Governing Board Resolution for the Final Program EIR for the 2022 AQMP - Findings, Statement of Overriding Considerations, and Mitigation, Monitoring, and Reporting Plan, available at: <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-attachment1toresolution.pdf>

concept since these electric vehicles and mobile sources are not affected by Control Measures R-CMB-01, R-CMB-02, and C-CMB-02.

Thus, the Draft SEA concluded that 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 the original rule concept. No other feasible mitigation measures were identified.

It is important to note that under the revised rule concept which was developed after the Draft SEA was released for public review and comment, requirements applicable to commercial facilities under Control Measure C-CMB-02 were no longer included in PAR 1111. In addition, the revised rule concept includes zero-NOx emission sales targets for manufacturers, will allow for both zero-NOx emission units and low-NOx units to be sold and installed for use.

Also, under the revised rule concept, the decision to replace existing appliances will occur at the end of the existing equipment's useful life. For new construction, implementation of PAR 1111 and PAR 1121 under the revised rule concept proposes to delay the 2026 compliance date to 2027 to align with when the building code which will also require new buildings to be "electric ready." Thus, if low-NOx units are installed in lieu of zero-NOx units, the need for electricity from the grid will be lesser than what was analyzed in the Draft SEA. Moreover, by allowing replacements to occur at the end of each existing unit's useful life, the concentration or intensity of zero-NOx units' demand for electricity will be less than what was analyzed and disclosed in the Draft SEA.

As a result, the revised rule concept will result in fewer affected units upon full implementation than what was analyzed in the Draft SEA under the original rule concept, and the potential increased electrical demand from all control measures in the 2022 AQMP would increase from 10.9 percent to 30.3 percent. Similarly for natural gas, while significant impacts are also concluded for increased natural gas demand under the revised rule concept, more units are anticipated to be replaced with more efficient low-NOx units in lieu of zero-NOx units than what was analyzed in the Draft SEA for the original rule concept. As a result, the anticipated increase in natural gas demand needed for electricity production will be significant under the revised rule concept but to a lesser extent than what was initially estimated in the Draft SEA for the original rule concept. The Final SEA has been updated accordingly.

Energy mitigation measures E-1 to E-4, and E-7 from the Final Program EIR for the 2022 AQMP were developed to target electricity producers (e.g., utilities) and the projects they would implement to provide sufficient electricity in support of the 2022 AQMP Control Measures R-CMB-01, R-CMB-02, and C-CMB-02. The Draft SEA also included these energy mitigation measures since the changes that utility providers may employ would help provide electricity for the operation of 100 percent of zero-NOx units under the original rule concept. While the revised rule concept only implements Control Measures R-CMB-01 and R-CMB-02, the same energy mitigation measures remain germane to the utility providers in the event they make facility modifications to help provide electricity to support the operation of zero-NOx units, even if fewer zero-NOx units would be installed under the revised rule concept. Thus, under the revised rule concept, energy mitigation measures E-1 to E-4, and E-7 will remain in effect and enforceable. [CEQA Guidelines Section 15168 (c)(3)].

It is important to note, that as of the date of publication, South Coast AQMD has not received any details from the utility providers regarding any proposed modifications to their infrastructure to support generating more electricity. However, when the utility providers embark on future

modifications to their electricity generation equipment, air permits will be needed and these projects will be subject to CEQA review, and mitigation measures will be required and enforced if significant impacts are identified. For these future utility-specific projects, the CEQA evaluation will examine whether additional mitigation measures are necessary, and whether the applicable aforementioned mitigation measures as adopted in the Final Program EIR for the 2022 AQMP and the corresponding Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP, need to be modified. For these reasons, no additional feasible mitigation measures have been identified in this SEA.

Regarding the enforceability of mitigation measures, CEQA Guidelines Section 15097 requires a Mitigation, Monitoring, and Reporting Program to ensure that mitigation measures are fully implemented and enforceable. The Mitigation, Monitoring, and Reporting Program for the 2022 AQMP, in particular Table A which contains implementation requirements and specified monitoring actions along with an identification of the enforcement agency, and monitoring agency and monitoring phase, provided the framework to enforce these measures, including requirements for tracking and verifying the completion of mitigation actions.⁷ Therefore, the mitigation measures presented in the SEA are enforceable through the Mitigation, Monitoring, and Reporting Plan adopted for the 2022 AQMP, ensuring that any identified energy impacts will be addressed and mitigated in a legally binding manner. Moreover, Public Resources Code Section 21081.6 further supports the enforceability of mitigation measures by requiring the lead agency to adopt a program for monitoring the implementation of mitigation measures and ensuring compliance with CEQA. The Final Program EIR for the 2022 AQMP and the Findings, a Statement of Overriding Considerations, and a Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP, upon which the Final SEA relies, were incorporated by reference pursuant to CEQA Guidelines Section 15150. Thus, mitigation measures AQ-1 through AQ-26, E-1 to E-4, and E-7 to E-9 and the corresponding components of the Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP applicable to these aforementioned mitigation measures will remain in effect and enforceable. [CEQA Guidelines Section 15168 (c)(3)]. Thus, the mitigation measures are not merely aspirational but are embedded within an enforceable framework through the aforementioned Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP and corresponding compliance mechanisms, such as permit conditions, in accordance with CEQA's requirements for enforceability.

Regarding the suggestion that the Draft SEA needs to be recirculated, the analysis and calculations have been updated to reflect the revised rule concept which resulted in fewer affected units overall and fewer impacts than what was identified in the Draft SEA. However, none of the revisions made contain the type of significant new information that would require recirculation of the Draft SEA for further public review under CEQA Guidelines Sections 15073.5 and 15088.5. Further, none of the comments indicate that the proposed project will result in a significant new environmental impact not previously disclosed in the Draft SEA. Also, none of the comments provided specific recommendations for new or revised mitigation, including those relating to electricity impacts. Additionally, none of comments indicate that there would be a substantial increase in the severity of a previously identified environmental impact that will not be mitigated, or that there would be any of the other circumstances requiring recirculation as described in CEQA Guidelines Sections 15073.5 and 15088.5. Thus, recirculation of the Draft SEA is not required.

⁷ South Coast AQMD, 2022. Attachment 1 to the Governing Board Resolution for: Final Program Environmental Impact Report (EIR) for the 2022 Air Quality Management Plan (AQMP), 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>.

ATTACHMENT K

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

**Final Socioeconomic Impact Assessment For
Proposed Amended Rule 1111 – Reduction of NO_x Emissions from
Natural Gas-Fired Furnaces
Proposed Amended Rule 1121 – Reduction of NO_x Emissions from
Residential-Type Natural Gas-Fired Water Heaters**

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EXECUTIVE SUMMARY

On March 17, 1989, the South Coast Air Quality Management District (South Coast AQMD) Governing Board adopted a resolution which requires an analysis of the economic impacts associated with adopting and amending rules and regulations. In addition, Health and Safety Code Section 40440.8 requires a socioeconomic impact assessment for any proposed rule, rule amendment, or rule repeal which “will significantly affect air quality or emissions limitations.” Health and Safety Code Section 40728.5 requires the South Coast AQMD Governing Board to actively consider the socioeconomic impacts of regulations, make a good faith effort to minimize adverse socioeconomic impacts and include small business impacts. Lastly, Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis for a proposed rule or amendment which imposes Best Available Retrofit Control Technology (BARCT) or “all feasible measures” requirements relating to emissions of ozone, carbon monoxide (CO), sulfur oxides (SOx), nitrogen oxides (NOx), volatile organic compounds (VOC), and their precursors.

Proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces (PAR 1111) aims to further reduce NOx emissions from natural gas-fired furnaces and implement the 2022 Air Quality Management Plan (AQMP) Control Measure R-CMB-02 – Emission Reductions from Replacement with Zero Emission or Low NOx Appliances, targeting emission reductions from the replacement of gas-fired furnaces used for interior space heating with zero-emission options. Similarly, Proposed Amended Rule 1121 – Reduction of NOx Emissions from Residential Type Natural Gas-Fired Water Heaters (PAR 1121) focuses on reducing NOx emissions from residential natural gas-fired water heaters and aims to implement the 2022 AQMP Control Measure R-CMB-01 – Emission Reductions from Replacement with Zero Emissions or Low NOx Appliances – Residential Water Heating.

A socioeconomic impact assessment has been conducted to assess the impacts from implementing the new rule concept for PAR 1111 and PAR 1121 which was released on February 7, 2025 (the proposed project) and the following presents a summary of the analysis and findings.

| | |
|---|---|
| Key Elements of PAR 1111 and 1121 | PAR 1111 and PAR 1121 establish zero NOx-emission limits for space and water heating appliances, with separate compliance dates for units installed in new and existing buildings. The proposed project also includes a Zero-NOx Manufacturer (ZEM) alternative compliance option, which sets progressive sales targets for both NOx-emitting and zero-NOx appliances, aiming to transition to zero-NOx technology over time. Manufacturers are required to pay a mitigation fee for each NOx-emitting appliance sold, which is substantially higher for the sales beyond the established compliance targets. |
| Affected Facilities and Industries | The proposed project is applicable to manufacturers, distributors, retailers, resellers, and installers of space- and water-heating systems, and would affect over 10 million furnaces and water heaters in more than five million buildings, which are mostly residential. Due to the widespread use of space furnaces and water heaters, the proposed project is expected to apply to nearly all the residents in the four-county region. Since the proposed project would mostly apply to residential buildings, a small-business analysis is not conducted. |

Analytical Assumptions

This analysis is based on an estimated universe of approximately 10.37 million affected units, including 5.24 million residential furnaces and 5.13 million residential water heaters. Approximately 96% of the affected universe is assumed to be installed in conventional homes, while the remaining 4% is assumed to be installed in mobile homes. Additionally, 90% of the affected units are for existing buildings, with the remaining 10% will be installed in newly constructed buildings. The analysis is based on compliance beginning in 2027 and continuing through year 2060, the latest forecast year available in the Regional Economic Modeling Inc. (REMI) model.

Based on the 2023 United States Census American Housing Survey, 87% of homes in the four-county region are assumed to have both an air conditioner (AC) and a furnace, while the remaining 13% only have a furnace. For the homes with both an AC and a furnace, a heat pump with heating and cooling dual functionality will replace the furnace and AC.

The analysis assumes that manufacturers would choose the ZEM alternative compliance option, which has compliance targets by phases with the last phase having a 90% zero-emission compliance target starting in 2036, resulting in the replacement of 90% of the affected units with zero-emission units by the end of the forecast period. This analysis also assumes that the age of all existing units is uniformly distributed over the full useful life, indicating a linear transition of units to zero-emission. Specifically, each year, an equal number of units are assumed to reach the end of its useful life, with 90% of these units to be replaced with zero-emission units while the remaining 10% will be replaced with NO_x-emitting natural gas-fired units. By 2060, 90% of the entire universe of affected units will be zero-NO_x emitting. Additionally, the analysis assumes that electrical panel upgrades may be needed for 4% and 16% of existing homes replacing gas-fired furnaces and water heaters with heat pumps, respectively, based on TECH Clean California real-world 2024 installation data.¹

The recurring fuel switching costs/savings have been estimated using data from the 2019 Residential Appliance Saturation Survey², combined with utility price forecasts from the California Energy Commission Integrated Energy Policy Report for years 2023 and 2024.^{3,4}

The proposed project is expected to yield overall cost savings, mainly due to energy bill savings over the equipment lifetime. For some equipment categories, there will be upfront incremental costs for purchasing and installing zero-

¹ TECH Clean California, Heat Pump Data – Download Data, “TECH Working Data Set – Single-Family”, <https://techcleanca.com/heat-pump-data/download-data/>, accessed March 2025.

² Cost data contained in the sheet “Original capital cost from AECOM”: <https://www.ethree.com/e3-quantifies-the-consumer-and-emissions-impacts-of-electrifying-california-homes/>, accessed March 2025.

³ California Energy Commission, Baseline Demand Forecast File for Natural Gas, <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2023-integrated-energy-policy-report/2023-1>, accessed March 2025.

⁴ California Energy Commission, 2024 IEPR Electricity Rate Forecast SCE and LADWP <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report-iepr/2024-integrated-energy-policy-report>, accessed March 2025.

emission units, which will be offset by an energy-cost saving over time, resulting in overall savings. The present value of cost savings over the forecast period is estimated to be \$5.14 billion and \$2.68 billion, for a discount rate of 1% and 4%, respectively. The annual average savings are estimated to be \$250.34 million and \$191.25 million, for a 1% and 4% real interest rate, respectively.

The following table presents the average annual costs/savings of the proposed project by equipment category. Note that the fuel-switching savings outweigh the upfront incremental costs, leading to an overall average annual cost saving.

| Cost Categories | Annual Average (2027-2060) | |
|---|----------------------------|------------------------|
| | 1% Interest Rate | 4% Interest Rate |
| Capital Costs | | |
| Furnace Only Replaced by Heat Pump | \$52,346,553 | \$79,253,111 |
| Wall & Floor Furnace Replaced by Heat Pump | \$3,196,274 | \$4,839,185 |
| Water Heater Replaced by Heat Pump | \$33,903,189 | \$51,329,707 |
| Furnace & AC Replaced by New NOx-Emitting Gas Unit | \$622,810 | \$942,939 |
| Furnace only Replaced by New NOx-Emitting Gas Unit | \$93,064 | \$140,899 |
| Wall & Floor Furnace Replaced by New NOx-Emitting Gas Unit | \$176,752 | \$267,605 |
| Water Heater Replaced by New NOx-Emitting Gas Unit | \$437,023 | \$661,657 |
| Electrical Panel upgrade - Furnace & AC Replaced by Heat pump | \$3,430,435 | \$5,193,707 |
| Electrical Panel Upgrade - Furnace Only Replaced by Heat Pump | \$512,594 | \$776,071 |
| Electrical Panel Upgrade - Wall & Floor Furnace Replaced by Heat Pump | \$973,553 | \$1,473,967 |
| Electrical Panel Upgrade - Water Heater Replaced by Heat Pump | \$19,257,003 | \$29,155,260 |
| Recurring Savings | | |
| Furnace & AC Replaced by Heat Pump | (\$79,093,570) | (\$79,093,570) |
| Furnace Only Replaced by Heat Pump | (\$11,818,580) | (\$11,818,580) |
| Wall & Floor Furnace Replaced by Heat Pump | (\$6,601,954) | (\$6,601,954) |
| Water Heater Replaced by Heat Pump | (\$267,773,180) | (\$267,773,180) |
| Total | (\$250,338,033) | (\$191,253,176) |

Note: Costs are presented in black text and savings are presented in green text in parentheses.

Job Impacts The direct effects of the proposed project are used as inputs to the REMI model to assess the secondary induced impacts for all the industries in the four-county economy over the period from 2027 – 2060.

When the costs/savings from compliance are annualized using a 4% real interest rate, the REMI analysis forecasts 580 net jobs gained annually in the four-county economy on average over the forecast period, representing 0.0045% of total jobs in the region.

The largest job impact will occur in 2027, the first assumed compliance year, with a forecast of 1,792 jobs gained, relative to the baseline scenario. Among all the industries, the Retail Trade industry (NAICS 44-45) is projected to have the most jobs gained (319 jobs) over the forecast period, while the Utilities sector (NAICS 22) has the most jobs foregone (172 jobs) over the period.

Sensitivity Analysis To explore cost- and job-impacts under different assumptions, staff performed a sensitivity analysis, which assumed no savings would occur from fuel-switching when transitioning to zero-emission (ZE) units. The sensitivity analysis estimated the cost of transitioning to ZE units at \$174.03 million for a 4% real interest rate, with 500 jobs gained annually forecasted over the 2027 to 2060 period.

Health Benefits Upon full implementation, PAR 1111 and PAR 1121 are projected to reduce NOx emissions by 4.05 and 2.07 tons per day (tpd), respectively, which would have substantial positive impacts (benefits) on public health. This analysis employs an incidence-per-ton (IPT) and benefit-per-ton (BPT) method based on the results of the health benefit analysis in the 2022 AQMP to estimate benefits from the proposed project. The analysis period spans from 2027 to 2053, as it is based on the first compliance year and the useful life of the affected appliances, which can vary. The last appliances will reach the end of their useful life by 2053, which is the reason why the health benefits analysis extends through that year. NOx emission reductions that may be achieved from implementing PAR 1111 and PAR 1121 are anticipated to prevent approximately 2,490 premature ~~mortalities~~ deaths, 10,200 cases of newly onset asthma, 170,000 school loss days, 2,484 emergency room visits, 1,170,000 minor restricted activity days, and many other negative health outcomes within the South Coast AQMD jurisdiction. The monetized present value of these health benefits is estimated to be \$25.43 billion with a 4% discount rate, over the 2027 to 2053 period.

Competitiveness and Prices All industries in the region are anticipated to experience a slight increase in relative delivered price and cost of production by 0.0007% and 0.0008%, respectively, over the forecast period.

Impacts of CEQA Alternatives Four alternatives to the proposed project were developed for the CEQA analysis in the Final Draft Subsequent Environmental Assessment (SEA): Alternative A – No Project, Alternative B – More Stringent, Alternative C – Less Stringent,

and Alternative D – Additional Incentives. The average annual job impacts of these alternatives range from 369 to 1,025 jobs gained. Additionally, the annual average cost savings range from \$139.66 million to \$287.35 million, based on a 4% real interest rate, over the forecast period.

INTRODUCTION

Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces reduces nitrogen oxide emissions (NOx) from gas-fired fan-type space heating furnaces with a rated heat input capacity of less than 175,000 British thermal units per hour (Btu/hr) or, for combination heating and cooling units, with a cooling rate of less than 65,000 Btu per hour. Rule 1111 also requires fan-type central furnaces to meet a NOx emission limit of 14 nanograms per Joule (ng/J) but allows the installation of mobile home furnaces that meet a NOx emission limit of 40 ng/J if a mitigation fee is paid by the manufacturer. PAR 1111 proposes zero-NOx emission limits for space heating appliances with compliance dates differentiated for units installed in new or existing buildings.

Rule 1121 – Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters aims to reduce NOx emissions from natural gas-fired residential water heaters with a rated heat input capacity less than 75,000 Btu/hr. Rule 1121 also requires water heaters to meet a NOx emission limit of 10 ng/J except for mobile home water heaters, which need to meet a NOx emission limit of 40 ng/J. This rule does not apply to water heaters used in recreational vehicles or large water heaters subject to Rule 1146.2.⁵ PAR 1121 proposes zero-NOx emission limits for water heating appliances with compliance dates differentiated for units installed in new or existing buildings.

PAR 1111 and PAR 1121 apply to manufacturers, distributors, retailers, resellers, and installers of specified space heating equipment and water heaters. Both PAR 1111 and PAR 1121 exempt space and water heating appliances in existing mobile homes from the zero-NOx emission standards. Mobile home appliances must meet zero-NOx emission standards in new mobile homes or when existing mobile homes are replaced with new mobile homes. PAR 1111 and PAR 1121 provide a ZEM alternative compliance option, which sets targets for the sale of NOx-emitting and zero-NOx appliances that evolve over time to transition the market to zero-NOx appliances. This option also requires manufacturers to pay mitigation fees for all NOx-emitting appliances sold for use within South Coast AQMD jurisdiction, with higher fees applied to those exceeding the established compliance targets. Mitigation fees for NOx-emitting appliances will be adjusted for California CPI after 2027, with the adjustment capped at 3%. Due to the widespread usage of space heating equipment and water heaters, the proposed project is anticipated to affect over five million existing and new buildings in the four-county region.

Upon full implementation, PAR 1111 and PAR 1121 are projected to reduce NOx emissions by 4.05 and 2.07 tons per day (tpd), respectively.

LEGISLATIVE MANDATES

The legal mandates directly related to the assessment of PAR 1111 and PAR 1121 include South Coast AQMD Governing Board resolutions and various sections of the Health and Safety Code.

South Coast AQMD Governing Board Resolution

On March 17, 1989, the South Coast AQMD Governing Board adopted a resolution that calls for an economic analysis associated with adopting and amending rules and regulations that considers all of the following elements:

⁵ South Coast AQMD, June 2024, Rule 1146.2, <https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1146-2.pdf>, accessed March 2025

- Affected industries
- Range of probable costs
- Cost-effectiveness of control alternatives
- Public health benefits

Health and Safety Code Requirements

The state legislature adopted legislation which reinforces and expands the South Coast AQMD Governing Board resolution requiring socioeconomic impact assessments for rule development projects. Health and Safety Code Section 40440.8, which went into effect on January 1, 1991, requires a socioeconomic impact assessment for any proposed rule, rule amendment, or rule repeal which "will significantly affect air quality or emissions limitations."

To satisfy the requirements in Health and Safety Code Section 40440.8, the scope of the socioeconomic impact assessment should include all of the following information:

- Type of affected industries;
- Impact on employment and the regional economy;
- Range of probable costs, including those to industry;
- Availability and cost-effectiveness of alternatives to the rule;
- Emission reduction potential; and
- Necessity of adopting, amending, or repealing the rule in order to attain state and federal ambient air quality standards.

Health and Safety Code Section 40728.5, which went into effect on January 1, 1992, requires the South Coast AQMD Governing Board to: 1) actively consider the socioeconomic impacts of regulations; 2) make a good faith effort to minimize adverse socioeconomic impacts; and 3) include small business impacts. To satisfy the requirements in Health and Safety Code Section 40728.5, the socioeconomic impact assessment should include the following information:

- Type of industries or business affected, including small businesses; and
- Range of probable costs, including costs to industry or business, including small business.

Finally, Health and Safety Code Section 40920.6, which went into effect on January 1, 1996, requires an incremental cost-effectiveness analysis for a proposed rule or amendment which imposes BARCT or "all feasible measures" requirements relating to emissions of ozone, carbon monoxide (CO), sulfur oxides (SO_x), NO_x, volatile organic compounds (VOC) and their precursors. The BARCT and cost-effectiveness analyses for the PAR 1111 and PAR 1121 were conducted and are included in Chapters 2 and 5 of the Final Draft Staff Report, respectively.⁶

⁶ South Coast AQMD, Draft Staff Report for Proposed Amended Rule 1111 - Reduction of NO_x Emissions from Natural Gas-Fired Furnaces and Proposed Amended Rule 1121 – Reduction of NO_x Emissions from Residential Type Natural Gas-Fired Water Heaters, <https://www.aqmd.gov/home/rules-compliance/residential-and-commercial-building-appliances>, accessed March 2025. The Final Staff Report is located in Attachment I of the June 6, 2025 Governing Board Package for PAR 1111 and PAR 1121, which will be available 72 hours prior to the Governing Board meeting at <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes?filter=Governing%20Board>.

AFFECTED EQUIPMENT

The proposed project would affect furnaces and water heaters primarily used in residential settings. Specifically, PAR 1111 applies to residential furnaces for space heating with a rated heat input capacity of less than 175,000 Btu/hr, or for combination heating and cooling units with a cooling rate of less than 65,000 Btu per hour. In addition, PAR 1121 pertains to water heaters with a rated heat input capacity of less than 75,000 Btu/hr, used in residential settings for domestic hot water needs. Thus, the proposed project would directly affect the type of equipment used in residences rather than industrial and commercial facilities in the jurisdiction of South Coast AQMD.

Data from the 2023 United States Census American Community Survey (ACS)⁷ was relied upon to estimate the universe of the affected units of furnaces and water heaters. Table 1 shows that the estimated universe includes almost 10.37 million affected units in South Coast AQMD jurisdiction, which are in conventional residential dwellings and mobile homes. This analysis assumed that 96% of all affected units are located in conventional residential dwellings, while the remaining 4% are located in mobile homes. Additionally, 90% of the affected units are assumed to be in existing buildings, while the remaining 10% are projected to be installed in new buildings, for both conventional and mobile homes. Note that existing mobile homes will be exempt from the zero-emission mandates. Therefore, this analysis does not account for existing mobile homes even though the owners may voluntarily replace their units with zero-emission equipment.

Table 1: Estimated Universe of Affected Units

| Rule | Equipment Categories | Subcategories | Estimated Universe |
|--------------|--------------------------------------|---|--------------------|
| PAR 1111 | Residential Fan-Type Central Furnace | Residential Fan-Type Central Furnace (Furnace & AC) | 3,654,000 |
| | | Residential Fan-Type Central Furnace (Furnace only) | 546,000 |
| | Wall Furnaces and Floor Furnaces | NA | 1,037,000 |
| PAR 1121 | Water Heaters | NA | 5,128,000 |
| Total | | | 10,365,000 |

Small Business Analysis

PAR 1111 and PAR 1121 are applicable to furnaces and water heaters in residential settings. Since the proposed project is not applicable to facilities, a small business analysis is not required and thus, was not conducted.

COMPLIANCE COSTS

This section provides estimates of the compliance costs of implementing PAR 1111 and PAR 1121, related to the purchase, installation, and operation of zero-emission space/water heating equipment. Note that some values in this section may not sum due to rounding, and all costs/savings have been adjusted to 2024 dollars.

⁷ United States Census Bureau, 2023 American Community Survey, <https://www.census.gov/programs-surveys/ahs/data.html>, accessed March 2025.

For the cost analysis, the unit costs for equipment purchase and installation of heat pumps were derived from the TECH Clean California incentive program public data set, which tracks real-world project costs for heat pump installations.⁸ For natural-gas units, the cost assumptions were derived from the 2019 Energy and Environmental Economics (E3) Residential Building Electrification in California study (E3 study), which contains detailed project-level cost estimates for both gas-fired and electric heating, ventilation, and air conditioning (HVAC) appliances and water heaters.⁹ The project-level cost includes the equipment price, ductwork or wiring modifications, and installation costs.¹⁰ The same cost assumptions were applied to both existing and new buildings, and conventional residential dwellings and mobile homes.

This socioeconomic analysis assumes that all the manufacturers of furnaces and water heaters will opt for the ZEM compliance option, such that 90% of the affected units will be gradually replaced with zero-NOx emitting units, with the remaining 10% will be replaced with new NOx-emitting gas-fired units. Specifically, the remaining useful life of the affected units is assumed to be uniformly distributed over their entire useful life. Thus, each year, an equal number of units will need to be replaced. This linear transition to zero-emission units will occur over a forecast period from 2027 to 2060¹¹; by the year 2060, 90% of all affected units in each equipment category will have transitioned to zero-emission equipment, while the remaining 10% will continue to be NOx-emitting gas-fired units. Finally, this analysis assumes that the manufacturers will pass through all the mitigation fees for NOx-emitting natural-gas units onto consumers, resulting in an increase in the price of NOx-emitting natural-gas units. Table 2 presents the mitigation fee per unit for different natural gas-fired equipment. Assuming that 100% of the cost will be passed through to consumers, the prices of natural gas-fired furnaces and water heaters will be increased by \$100 and \$50, respectively, after the proposed project is implemented. The higher prices will constitute incremental costs for the 10% NOx-emitting natural gas-fired units when they expire and need to be replaced with new NOx-emitting natural gas-fired units. Table 2 summarizes the cost assumptions used in this analysis.

Table 2: Mitigation Fee by Rule

| Rule | Mitigation Fee |
|-------------|--|
| PAR 1111 | \$100/NOx-emitting furnace in 2027 and CPI adjusted after 2027 |
| PAR 1121 | \$50/NOx-emitting water heater in 2027 and CPI adjusted after 2027 |

⁸ TECH Clean California, Heat Pump Data – Download Data, “TECH Working Data Set – Single-Family”, <https://techcleanca.com/heat-pump-data/download-data/>, accessed March 2025.

⁹ Cost data contained in the sheet “Original capital cost from AECOM”: <https://www.ethree.com/e3-quantifies-the-consumer-and-emissions-impacts-of-electrifying-california-homes/>, accessed March 2025.

¹⁰ The installation costs usually include both labor and design expenses.

¹¹ Note that 2027 is the first year in which the proposed project will be implemented, and the REMI analysis cannot analyze impacts beyond year 2060.

Capital/One-Time Costs

Residential Fan-Type Central Furnace and AC Replaced with Heat Pump

According to the United States Census American Housing Survey (AHS), approximately 87% of residential buildings in the counties of Los Angeles, Orange, San Bernardino, and Riverside have both a furnace and an AC.¹² Given the dual heating and cooling functionality of heat pumps, this analysis assumes that a heat pump will replace both the existing furnace and AC and bases the incremental capital costs on the difference between a single heat pump unit relative to the combined cost of both furnace and AC replacement. The cost to replace both an AC unit and natural gas furnace is \$20,600, while a new heat pump costs \$17,200 without including electrical upgrade costs which are considered separately, resulting in an incremental savings of \$3,400 per unit. However, considering that heat pump is a relatively new technology and its price in the future is quite uncertain, the analysis takes a conservative approach by assuming that a new heat pump will cost \$20,600 – the same cost of replacing an AC and natural gas furnace. As such, the incremental cost of transitioning to zero-emission units is zero for this equipment category.

Residential Fan-Type Central Furnace-Only Replacements with Heat Pumps

According to AHS data, 13% of existing homes in the counties of Los Angeles, Orange, San Bernardino, and Riverside do not have air conditioners. Thus, this analysis assumes that 13% of the Residential Fan-Type Central Furnace equipment category will consist of furnace-only replacements, for both existing and new buildings. The estimated equipment and installation costs for a natural gas furnace and a heat pump are \$11,000 and \$17,200, respectively. This results in an incremental capital cost of \$6,200 for replacing a natural gas furnace with a heat pump, totaling \$2.94 billion if 473,928 new heat pumps are installed. The assumption that 473,928 furnace-only units will be replaced by heat pumps is based on an estimated universe of 4.2 million Residential Fan-Type Central Furnaces, with 13% assumed to be furnace-only replacements (546,000 units). Of these, 96% are assumed to be located in conventional homes (524,160), with 90% replaced by heat pumps (471,744), and 4% are assumed to be located in mobile homes (21,840), with 10% replaced by heat pumps (2,184). Table 3 presents the calculation steps.

Table 3: Calculations for Estimating Furnace-only Replacements with Heat Pumps

| | |
|--|--------------------------------------|
| Total Universe of Fan-Type Central Furnaces | 4,200,000 |
| Furnace-Only Replacements (13%) | $4,200,000 \times 0.13 = 546,000$ |
| Units in Conventional Homes (96%) | $546,000 \times 0.96 = 524,160$ |
| Units in Mobile Homes (4%) | $546,000 \times 0.04 = 21,840$ |
| Conventional Homes Transitioning to Heat Pump (90%) | $524,160 \times 0.90 = 471,744$ |
| Mobile Homes Transitioning to Heat Pump (10%) | $21,840 \times 0.10 = 2,184$ |
| Total Number of Furnace-Only Replacements with Heat Pumps | $471,744 + 2,184 = \mathbf{473,928}$ |

¹² United States Census Bureau, 2023 American Housing Survey, <https://www.census.gov/programs-surveys/ahs/data.html>, accessed March 2025.

The total number of furnace-only replacements with heat pumps is 473,928. After applying the incremental capital cost of \$6,200 per unit, the total cost of furnace-only replacements with heat pumps is \$2.94 billion, as shown in the following equation:

$$473,928 \text{ (estimated units to be replaced)} \times \$6,200 \text{ (incremental cost to transition to heat pump)} = \$2.94 \text{ Billion (total cost)}$$

Wall and Floor Furnace Replacements with Heat Pumps

According to AHS data, approximately 1,037,000 existing residences use wall and floor furnaces for heating. The estimated capital cost for replacing each of these furnaces with a heat pump is \$5,900, while replacing them with a natural gas furnace is estimated at \$5,700, resulting in an incremental cost of \$200 per unit. The total capital costs amount to \$180.02 million for roughly 900,116 new heat pumps that will be installed in both existing and new buildings. The assumption that 900,116 units will be replaced with heat pumps is based on an estimated universe of 1,037,000 existing units. Of these, 96% are assumed to be located in conventional residential dwellings (995,520), with 90% replaced by heat pumps (895,968), and 4% are assumed to be located in mobile homes (41,480), with 10% replaced by heat pumps (4,148). The total will be 895,968 replacements in conventional residential dwellings plus 4,148 replacements in mobile homes, which totals 900,116 units. Table 4 presents the calculation steps.

Table 4: Calculations for Estimating Wall and Floor Furnace Replacements with Heat Pumps

| | |
|--|--------------------------------------|
| Total Universe of Wall and Floor Furnaces | 1,037,000 |
| Units in Conventional Homes (96%) | $1,037,000 \times 0.96 = 995,520$ |
| Units in Mobile Homes (4%) | $1,037,000 \times 0.04 = 41,480$ |
| Conventional Homes Transitioning to Heat Pump (90%) | $995,520 \times 0.90 = 895,968$ |
| Mobile Homes Transitioning to Heat Pump (10%) | $41,480 \times 0.10 = 4,148$ |
| Total Number of Wall and Floor Furnace Replacements with Heat Pumps | $895,968 + 4,148 = \mathbf{900,116}$ |

The total number of wall and floor furnace replacements with heat pumps is 900,116. After applying the incremental capital cost of \$200 per unit, the total cost of replacing wall and floor furnaces with heat pumps is \$180.02 million, as shown in the following equation:

$$900,116 \text{ (estimated units to be replaced)} \times \$200 \text{ (incremental cost to transition to heat pump)} = \$180.02 \text{ Million (total cost)}$$

Natural Gas Water Heater Replacements with Heat Pump Water Heaters

Heat pump water heaters are projected to cost an average of \$3,700 for equipment and installation, compared to \$3,300 for natural gas units. This results in an estimated incremental cost of \$400 per unit. When applied to an estimated 4,451,104 water heaters, this translates to a total incremental equipment cost of \$1.78 billion. The assumption that 4,451,104 units will be replaced to heat pump water heaters is based on an estimated universe of 5.13 million water heaters. Of these 96% are

assumed to be located in conventional homes (4,922,880), with 90% replaced by heat pump water heaters (4,430,592), and 4% are assumed to be located in mobile homes (205,120), with 10% replaced by heat pump water heaters (20,512). The total will be 4,430,592 replacements in conventional homes plus 20,512 replacements in mobile homes, which totals 4,451,104 units. Table 5 presents the calculation steps.

Table 5: Calculations for Estimating Water Heater Replacements with Heat Pumps

| | |
|---|--|
| Total Universe of Natural Gas Water Heaters | 5,128,000 |
| Units in Conventional Homes (96%) | $5,128,000 \times 0.96 = 4,922,880$ |
| Units in Mobile Homes (4%) | $5,128,000 \times 0.04 = 205,120$ |
| Conventional Homes Transitioning to Heat Pump (90%) | $4,922,880 \times 0.90 = 4,430,592$ |
| Mobile Homes Transitioning to Heat Pump (10%) | $205,120 \times 0.10 = 20,512$ |
| Total Number of Natural Gas Water Heater Replacements with Heat Pump Water Heaters | $4,430,592 + 20,512 = 4,451,104$ |

The total number of natural gas water heater replacements with heat pump water heaters is 4,451,104. After applying the incremental capital cost of \$400 per unit, the total cost of replacing natural gas water heaters with heat pump water heaters is \$1.78 billion, as shown in the following equation:

$$4,451,104 \text{ (estimated units to be replaced)} \times \$400 \text{ (incremental cost to transition to heat pump)} = \$1.78 \text{ Billion (total cost)}$$

Residential Fan-Type Central Furnace and AC Replaced with New NOx -Emitting Gas Furnace and AC Unit, Residential Fan-Type Central Furnace Only Replaced with New NOx-Emitting Gas Furnace, Wall and Floor Furnace Replaced with New NOx-Emitting Gas Wall and Floor Furnace, and Natural Gas Water Heater Replaced with New NOx-Emitting Gas Water Heater

Based on the ZEM compliance option, this analysis assumes that at the end of the forecast period, 10% of the affected units for each equipment category and subcategory will not be expected to transition to zero-NOx emitting units and instead, will be replaced with new NOx-emitting gas units at the end of each unit's useful life. Assuming that 100% of the mitigation fee of \$100 per-unit for a gas-fired furnace (e.g., a central furnace and AC unit, a fan-type central furnace only unit, or a gas-fired wall and floor furnace) will be passed through onto the consumer, the incremental cost of replacing an old furnace with a new NOx-emitting gas unit will be exactly \$100. Similarly, the mitigation fee of \$50 per-unit for a NOx-emitting gas-fired water heater will be passed through onto the consumer such that the incremental cost of replacing an old gas-fired water heater with a new NOx-emitting gas unit will be \$50.

Electrical Panel Upgrades

According to the TECH dataset, 4% of existing residences in the region required electrical panel upgrades to add more amperage needed to operate electric space heaters, while 16% needed electrical panel upgrades for operating electric water heaters. This analysis applies these estimates and assumes that 4% of all residences will require electrical panel upgrades for electric space heaters, and 16% for water heaters. The cost of each electrical panel upgrade will be \$1,700 with a useful life of 30 years. In total, an estimated 800,897 existing buildings will require electrical panel upgrades, with the total projected cost of approximately \$1.36 billion as shown in the following equation:

$$\begin{aligned} & \mathbf{800,897 \text{ (estimated existing residences needing an electrical panel upgrade)} * \$1,700} \\ & \mathbf{\text{(electrical panel upgrade cost)} = \$1.36 \text{ Billion (total cost)}} \end{aligned}$$

Operation & Maintenance (O&M) Costs

Fuel-Switching Costs or Savings

In addition to incremental upfront costs, the implementation of the proposed project will also result in recurring fuel-switching costs or savings due to the transition from natural gas-fired units to zero-emission electric units. In general, electricity is more expensive on a per-unit basis than natural gas. However, the higher electricity cost is often offset by the increased efficiency of heat pump units which collect heat from the ambient air and produce more heat energy than the electricity used, while natural gas heaters can only produce as much heat energy as is contained in the gas consumed.

To estimate the fuel switching costs and savings of transitioning from natural gas to electric water and air heating, the analysis considered the anticipated energy demand and forecasted prices in the future for both natural gas and electricity. The forecasted electricity rates are sourced from the 2024 California Energy Commission (CEC) Integrated Energy Policy Report (IEPR) and the forecasted natural gas rates are sourced from the 2023 CEC IEPR.^{13,14} Note that the CEC has a separate electricity price forecast for both the Los Angeles Department of Water and Power (LADWP) and Southern California Edison (SCE) planning areas. The analysis relied upon an average of the two forecasted rates weighted by population. Specifically, since LADWP serves roughly 23% of the population in the region, it is assigned a weight of 0.23, while the weight of SCE is 0.77. For natural gas, the analysis solely relied on the Southern California Gas (SCG) forecast, since it is the primary gas utility in the South Coast AQMD region. The analysis also relied upon the forecasted residential utility rate forecast for all categories. For each category of units, the steps used to estimate the recurring fuel switching cost/saving are:

¹³ California Energy Commission, 2024 IEPR Electricity Rate Forecast SCE and LADWP <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report-iepr/2024-integrated-energy-policy-report>, accessed March 2025.

¹⁴ California Energy Commission, Baseline Demand Forecast File for Natural Gas, <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2023-integrated-energy-policy-report/2023-1>, accessed March 2025.

1. Estimate the annual electricity demand for heat pump and natural gas units by relying on the 2019 Residential Appliance Saturation Study (RASS)¹⁵ released by the CEC to estimate demand. The RASS includes information on the energy use of both electric and natural gas appliances in homes located throughout California.
2. Calculate the average forecasted utility rates for electricity and natural gas from the CEC IEPR forecast.
3. Calculate the annual average energy cost by multiplying the energy demand for each appliance by its respective forecasted utility rate.
4. Take the difference between the annual average energy cost of the electric unit and natural gas unit.

Table 6 presents average annual demand and price forecasts for natural gas and electricity and the resulting annual fuel switching costs and savings for each category. Note that the average rates are based on the equipment's useful lifespan, which may lead to different forecast rates across equipment types, as shown in Table 6. For a detailed description of the methods used to estimate energy inputs, please refer to Chapter 2 of the PAR 1111 and PAR 1121 Final Draft Staff Report.¹⁶

Table 6: Energy Demand, and Fuel Switching Costs (Savings) by Unit Type

| Unit Type | Annual Natural Gas Demand (Therms) | Annual Electric Demand Equivalent (kWh) | Natural Gas Rate (\$/therm) | Electricity Rate (\$/kWh) | Annual Fuel Switching Cost (Savings) |
|---|------------------------------------|---|-----------------------------|---------------------------|--------------------------------------|
| Furnace & AC Replacement by Heat Pump (PAR 1111) | 173 | 1190 | \$2.55 | \$0.33 | (\$48.45) |
| Furnace Replacement by Heat Pump (PAR 1111) | 173 | 1190 | \$2.55 | \$0.33 | (\$48.45) |
| Wall & Floor Furnace Replacement by Heat Pump (PAR1111) | 69 | 490 | \$2.55 | \$0.33 | (\$14.25) |
| Water Heater Replacement by Heat Pump (PAR 1121) | 190 | 1,036 | \$2.36 | \$0.32 | (\$116.88) |

Note: The average natural gas and electricity rates are based on the useful life of each unit type. PAR 1111 units have a useful life of 25 years, while PAR 1121 units have a useful life of 15 years. As a result, averages are calculated over different time periods, which leads to differing average rates for PAR 1111 and PAR 1121 units.

¹⁵ California Energy Commission, 2019 California Residential Appliance Saturation Study (RASS), <https://www.energy.ca.gov/publications/2021/2019-california-residential-appliance-saturation-study-rass>, accessed October 2024.

¹⁶ South Coast AQMD, Draft Staff Report for Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural Gas-Fired Furnaces and Proposed Amended Rule 1121 – Reduction of NOx Emissions from Residential Type Natural Gas-Fired Water Heaters, <https://www.aqmd.gov/home/rules-compliance/residential-and-commercial-building-appliances>, accessed March 2025.

It is important to note that the forecasted utility rates may not match observed electric and natural gas prices in any given year and may differ materially. Current prices are affected by demand and supply shocks, geopolitical factors, and other considerations which are all unforecastable. However, the CEC forecasts are created through a rigorous modeling process which considers population change, electrification of vehicles and buildings, anticipated effects of climate change, and many other variables, thus reflecting the best available expectation for future prices in the region.

Total Compliance Costs of PAR 1111 and PAR 1121

The compliance cost analysis covers the period from 2027, which represents the first year the units are expected to be replaced, to 2060, which is the latest forecast year the REMI model is capable of analyzing. The analysis in this Socioeconomic Impact Assessment relies on discount rates which consider the real rate of return on long-term U.S. government debt, risk and the long period of analysis among others, which is consistent with guidance provided in Circular No. A-4.¹⁷

It is important to note, however, that nominal interest rates, such as published financial rates in bank advertisements for a mortgage, etc., are not utilized for quantifying compliance costs because there is no reliable way to forecast inflation rates for projects with long implementation timelines such as PAR 1111 and PAR 1121. The following equation illustrates the relationship between nominal and real interest rates:

$$\textit{Nominal Interest Rate} = \textit{Real Interest Rate} + \textit{Inflation rate}$$

For this reason, all costs in this Socioeconomic Impact Assessment are presented in real terms, adjusted for inflation to 2024 dollars; the real interest rates are used in the amortization or annualization process. The capital cost for each equipment type subject to PAR 1111 and PAR 1121 is amortized over its useful life and added to the recurring cost or savings in each year. Note that the mitigation fee for each gas unit sold will be adjusted for California CPI after 2027, and the annual adjustment will be capped at 3%.

Due primarily to the savings on recurring energy cost, PAR 1111 and PAR 1121 are anticipated to result in overall net savings. The present value of cost savings over the forecast period is estimated to be \$5.14 billion and \$2.68 billion, respectively, for a discount rate of 1% and 4%. The annual average savings are estimated to be \$250.34 million or \$191.25 million for a 1% and 4% real interest rate, respectively. Note that while average savings are anticipated for full implementation of both PAR 1111 and PAR 1121, certain equipment categories and specific circumstances may lead to higher purchase, construction and installation costs for individual consumers. Table 7 presents both the present value and annual average savings for each equipment category of PAR 1111 and PAR 1121.^{18 19}

¹⁷ Circular No. A-4, Regulatory Analysis - November 9, 2023, p.76, <https://whitehouse.gov/wp-content/uploads/2023/11/CircularA-4.pdf>, accessed May 2025.

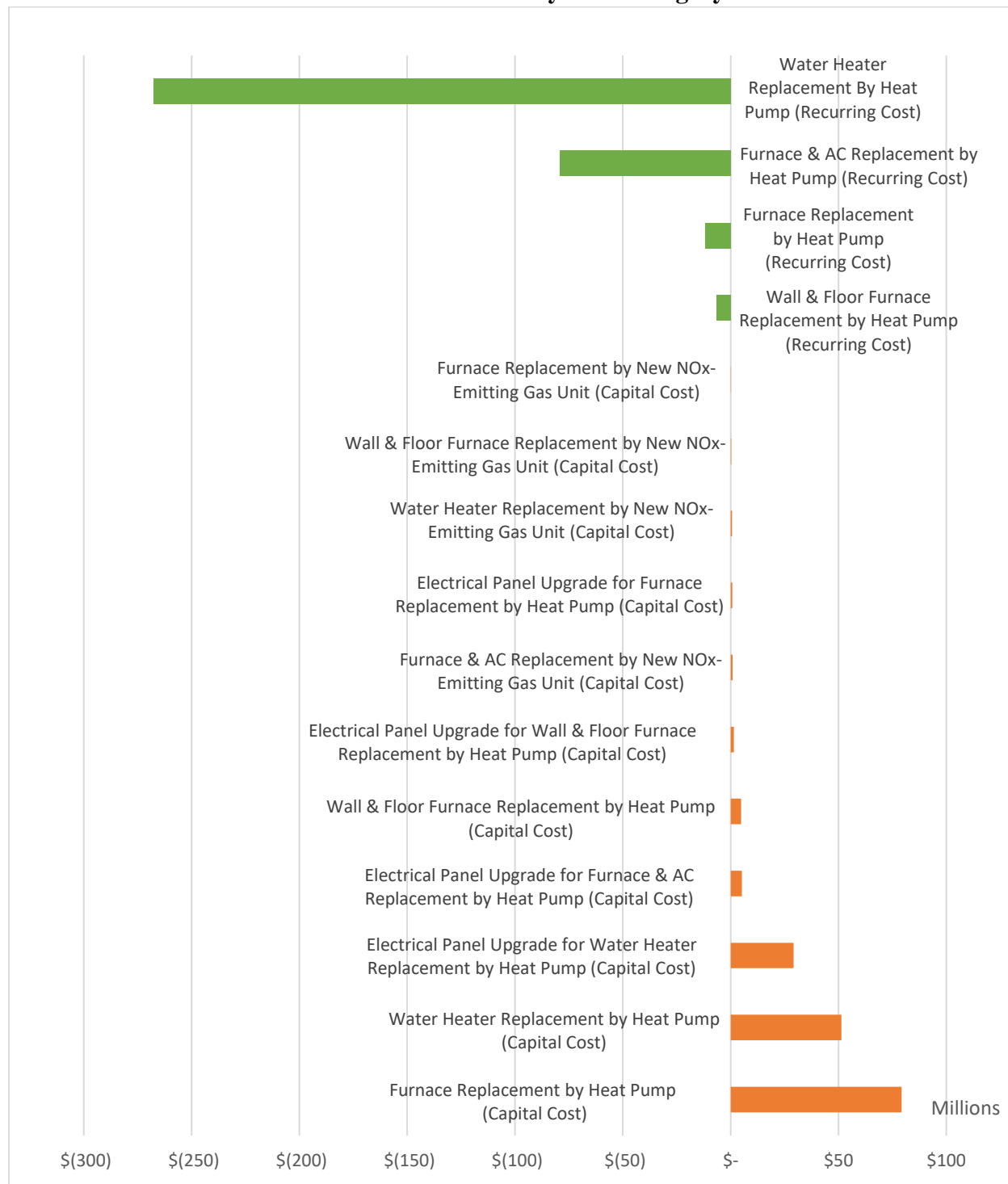
¹⁸ In Table 7, the capital cost for each category includes the equipment price, installation costs (covering contractor labor and design), as well as costs related to ductwork or wiring modifications.

¹⁹ The overall annual net saving implies that tenants' rent is not likely to go up in the region upon the implementation of the proposed project, which alleviates stakeholders' concern about the burden on home renters.

**Table 7: Present Value and Average Annual Estimated Costs and Savings
of PAR 1111 and PAR 1121**

| Cost Categories | Present Value (2025) | | Annual Average (2027-2060) | |
|---|--------------------------|--------------------------|----------------------------|------------------------|
| | 1% Discount Rate | 4% Discount Rate | 1% Interest Rate | 4% Interest Rate |
| | Capital Costs | | | |
| Furnace Only Replaced by Heat Pump | \$2,129,229,077 | \$1,108,985,584 | \$52,346,553 | \$79,253,111 |
| Wall & Floor Furnace Replaced by Heat Pump | \$130,010,460 | \$67,714,521 | \$3,196,274 | \$4,839,185 |
| Water Heater Replaced by Heat Pump | \$1,379,033,616 | \$718,254,516 | \$33,903,189 | \$51,329,707 |
| Furnace & AC Replaced by New NOx-Emitting Gas Unit | \$25,333,173 | \$13,194,505 | \$622,810 | \$942,939 |
| Furnace Only Replaced by New NOx-Emitting Gas Unit | \$3,785,417 | \$1,971,593 | \$93,064 | \$140,899 |
| Wall & Floor Furnace Replaced by New NOx-Emitting Gas Unit | \$7,189,519 | \$3,744,582 | \$176,752 | \$267,605 |
| Water Heater Replaced by New NOx-Emitting Gas Unit | \$17,776,206 | \$9,258,542 | \$437,023 | \$661,657 |
| Electrical Panel upgrade - Furnace & AC Replaced by Heat pump | \$139,535,119 | \$72,675,334 | \$3,430,435 | \$5,193,707 |
| Electrical Panel Upgrade - Furnace Only Replaced by Heat Pump | \$20,850,075 | \$10,859,533 | \$512,594 | \$776,071 |
| Electrical Panel Upgrade - Wall & Floor Furnace Replaced by Heat Pump | \$39,599,868 | \$20,625,156 | \$973,553 | \$1,473,967 |
| Electrical Panel Upgrade - Water Heater Replaced by Heat Pump | \$783,290,738 | \$407,968,380 | \$19,257,003 | \$29,155,260 |
| | Recurring Savings | | | |
| Furnace & AC Replaced by Heat Pump | (\$2,124,942,833) | (\$1,106,753,141) | (\$79,093,570) | (\$79,093,570) |
| Furnace Only Replaced by Heat Pump | (\$317,520,193) | (\$165,376,906) | (\$11,818,580) | (\$11,818,580) |
| Wall & Floor Furnace Replaced by Heat Pump | (\$177,369,339) | (\$92,380,872) | (\$6,601,954) | (\$6,601,954) |
| Water Heater Replaced by Heat Pump | (\$7,194,044,931) | (\$3,746,939,304) | (\$267,773,180) | (\$267,773,180) |
| Total | (\$5,138,244,028) | (\$2,676,197,979) | (\$250,338,033) | (\$191,253,176) |

Figure 1: Annual Average Estimated Costs and Savings of PARs 1111 and 1121 by Cost Category



Note: Green bars indicate savings while orange bars indicate costs.

To better understand the distribution of the costs across categories, Figure 1 presents the estimated annual average compliance costs or savings of the proposed project, categorized by equipment type, using a 4% real interest rate. Negative values indicate cost savings, while positive values

indicate costs. The largest cost saving is roughly \$267.77 million per year on energy for heat pump water heaters, while the largest capital cost is \$79.25 million per year for furnaces replaced by heat pumps.

Sensitivity Analysis

The primary analysis, referred to as the "standard case," estimates fuel-switching savings associated with the transition from natural gas to electric water and space heating. In response to stakeholders' concerns over the uncertainty of future electricity costs, staff conducted a sensitivity analysis which explores an alternate scenario where all the recurring fuel-switching savings will be removed from the calculations. This sensitivity analysis offers a more conservative approach by assuming that no savings will be realized from transitioning to zero-NOx appliances. Table 8 summarizes the estimated costs and savings of the proposed project for both the standard case, which includes the fuel-switching savings, and the sensitivity analysis which excludes the fuel-switching savings. In contrast to the estimated savings for the standard case, the sensitivity analysis estimates an annual average cost of \$174.03 million with a 4% real interest rate; and the present value of the costs over the forecast period is estimated at \$2.44 billion with a 4% discount rate.

**Table 8: Present Value and Annual Average Cost and Savings
for Standard and Sensitivity Analyses**

| Scenario | Present Value (2025) | | Annual Average (2027-2060) | |
|-----------------------------|----------------------|-------------------|----------------------------|------------------|
| | 1% Discount Rate | 4% Discount Rate | 1% Interest Rate | 4% Interest Rate |
| Standard Case | (\$5,138,244,028) | (\$2,676,197,979) | (\$250,338,033) | (\$191,253,176) |
| Sensitivity Analysis | \$4,675,633,268 | \$2,435,252,245 | \$114,949,250 | \$174,034,108 |

Note: Costs are presented in black text and savings are presented in green text in parentheses.

MACROECONOMIC IMPACTS ON THE REGIONAL ECONOMY

The Regional Economic Modeling Inc. (REMI, PI+ v3) model was used to assess the total socioeconomic impacts of the anticipated implementation of PARs 1111 and 1121.^{20, 21} The model, which is comprised of analytical modules with embedded datasets and econometric features, links the economic activities occurring in the counties of Los Angeles, Orange, Riverside, and San Bernardino, and for each county and considers five interrelated blocks: 1) output and demand; 2)

²⁰ Regional Economic Modeling Inc. (REMI). Policy Insight® for the South Coast Area (70-sector model). Version 3. 2023.

²¹ REMI v3 has been updated based on The U.S. Economic Outlook for 2022-2024 from the University of Michigan's Research Seminar in Quantitative Economics (RSQE) release on May 19, 2023, The Long-Term Economic Projections from CBO (supplementing CBO's March 2023 report, The 2023 Long-Term Budget Outlook).

labor and capital; 3) population and labor force; 4) wages, prices and costs; and 5) market shares.²² It should be noted that the REMI model is not designed to assess impacts on individual operations. The model was used to assess the impacts of the proposed project on various industries that make up the local economy.

Impacts of PAR 1111 and PAR 1121

The assessment herein is performed relative to a baseline (“business as usual”) forecast where the PAR 1111 and PAR 1121 would not be implemented. This analysis assumes that the affected households and industries would finance the capital and installation costs of zero-emission appliances at a 4% real interest rate and that these one-time costs are amortized and incurred over the life of the equipment. These amortized capital costs are added to the recurring fuel switching costs or savings, the sum of which are used as inputs to the REMI model.

Compliance costs from the proposed project are used as inputs to the REMI model in order to assess secondary and induced impacts for all the industries in the four-county economy on an annual basis and across a user-defined horizon. This assessment begins in 2027, the earliest date when equipment replacements are expected to occur, and ends in 2060, which is the latest forecast year the REMI model is capable of analyzing. Direct effects of the proposed project that were used as inputs to the model include:

1. Costs from equipment purchase and installation of zero-emission air and water heating equipment, as well as electrical panels. The costs resulting from residential appliances are modeled as changes in disposable income that affect households’ consumption.
2. Increase in the revenues of equipment suppliers and electrical panel installers. Incremental upfront costs will be modeled as increases in their revenues. To capture the impacts of spending changes across the supply chain, 50% of total increased spending on equipment is assumed to impact retailers (NAICS 44-45) in South Coast AQMD jurisdiction; 30% is allocated to wholesalers/distributors (NAICS 42), and the remaining 20% to manufacturers (NAICS 332 and 335), based on a discussion with REMI staff. Within the manufacturing sector, 18% of total increased spending is allocated to the electrical equipment, appliance, and component manufacturing industry (NAICS 335), and 2% is allocated to the fabricated metal product manufacturing industry (NAICS 332).
3. Decrease in the revenues of utility companies (NAICS 22) resulting from anticipated energy cost savings due to the shift to electric powered equipment.
4. Increase in the revenues of construction companies (NAICS 23) resulting from increased demand for electrical panel upgrades in 4% and 16% of existing homes replacing gas-fired furnaces and water heaters with heat pumps, respectively.
5. Increase in the revenues of local government (NAICS 92) due to the collection of mitigation fees.

²² Within each county, the industrial sectors are made up of 156 private non-farm industries and sectors, three government sectors, and a farm sector. Trade flows are captured between sectors as well as across the four counties and the rest of U.S. Market shares of industries are dependent upon their product prices, access to production inputs, and local infrastructure. The demographic/migration component has 160 ages/gender/race/ethnicity cohorts and captures population changes in births, deaths, and migration. For details, please refer to REMI online documentation at <http://www.remi.com/products/pi>.

Table 9 presents the categories of costs and savings along with the industries and households that will incur the costs or benefit from the savings, and the industries that will be directly affected by the compliance costs and savings due to implementation of the proposed project.

**Table 9: Industries Affected by Compliance Costs and Savings
of PAR 1111 and PAR 1121**

| Source of Compliance Costs and Savings | REMI Industries Incurring Costs and Savings | REMI Industries Affected by Costs and Savings (NAICS) |
|--|---|--|
| Heat Pump + Install Capital Costs | Private Households | Fabricated Metal Product Manufacturing (332) |
| New NOx-Emitting Natural-Gas Unit + Install Capital Cost | | Electrical Equipment, Appliance, and Component Manufacturing (335) |
| | | Wholesale Trade (42) |
| | | Retail Trade (44-45) |
| Electrical Panel Upgrades | | Construction (23) |
| Fuel Switching | | Utilities (22) |
| Mitigation Fee | | State and Local Government (92) |

Regional Job Impacts

When the compliance cost is annualized using a 4% real interest rate, the model predicts an annual average of 580 jobs gained over the forecast period 2027-2060, relative to the baseline forecast, which represents 0.0045% of total employment in South Coast AQMD jurisdiction. The sectors with the most jobs gained include Retail Trade (NAICS 44-45) and Wholesale Trade (NAICS 42), which benefit from increased spending on the purchase and installation of zero-emission heat pumps. In addition, households will benefit from the overall savings, and thus consume more, which will lead to increased revenues and jobs gained in other sectors. On the other hand, the sector of Utilities (NAICS 22) will undergo the most jobs foregone, mainly due to lost revenues as a result of massive savings resulting from fuel-switching. Overall, the positive job impacts will outweigh the negative job impacts, and therefore, lead to net jobs gained on average over the forecast period.

Note that the projected job impacts are based on the assumptions and analysis using the REMI model. The actual job impacts may vary depending on various factors in the economy and evolving industry dynamics. Table 10 presents simulated job impacts for selected industries and years and shows that many sectors in the regional economy which are not directly affected by the

implementation of the proposed project will undergo job impacts sooner or later because of the secondary or induced effects of PAR 1111 and PAR 1121.

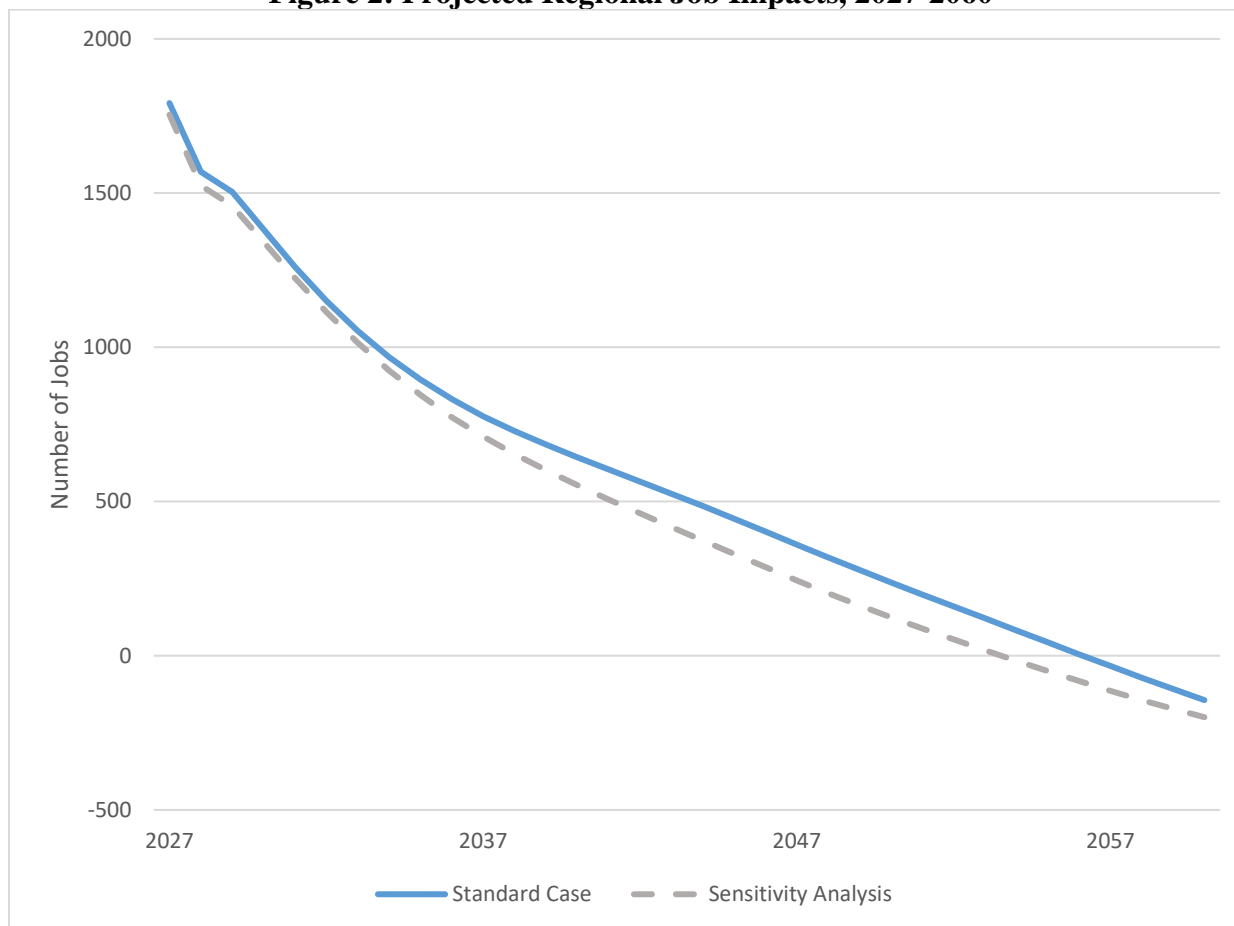
**Table 10: Projected Job Impacts of PAR 1111 and PAR 1121
for Selected Industries and Years**

| Industry | 2030 | 2040 | 2050 | 2060 | Average (2027 - 2060) | Baseline Number of Jobs | % of Baseline |
|---|-------------|------------|------------|-------------|--------------------------|-------------------------------|------------------|
| Utilities (22) | -48 | -154 | -233 | -291 | -172 | 21,163 | 0.8127 |
| Professional, scientific, and technical services (54) | 44 | -58 | -152 | -234 | -88 | 1,083,637 | 0.0081 |
| Construction (23) | 211 | -72 | -153 | -209 | -52 | 588,717 | 0.0088 |
| Administrative and support services (561) | 46 | -16 | -54 | -84 | -23 | 895,295 | 0.0026 |
| Fabricated metal product manufacturing (332) | 11 | 2 | -1 | -3 | 3 | 68,740 | .0044 |
| Electrical equipment, appliance, and component manufacturing (335) | 5 | 4 | 3 | 3 | 4 | 14,867 | .0269 |
| State and Local Government (NA) | 92 | 31 | -14 | -48 | 19 | 985,260 | 0.0019 |
| Social assistance (624) | 22 | 36 | 45 | 45 | 37 | 689,252 | 0.0054 |
| Personal and laundry services (812) | 34 | 53 | 69 | 78 | 57 | 452,017 | 0.0126 |
| Wholesale trade (42) | 101 | 72 | 56 | 43 | 70 | 412,166 | 0.0170 |
| Ambulatory health care services (621) | 62 | 106 | 141 | 153 | 114 | 752,937 | 0.0151 |
| Retail trade (44-45) | 456 | 337 | 255 | 188 | 319 | 874,680 | 0.0365 |
| All other industries | 345 | 302 | 278 | 215 | 293 | 6,186,652 | 0.0047 |
| Total | 1382 | 644 | 238 | -144 | 580 | 13,025,381 | 0.0045 |

Note: Totals may not sum due to rounding.

For the sensitivity analysis which excludes the savings due to fuel-switching, the REMI analysis resulted in an annual average of approximately 500 jobs gained in the South Coast AQMD jurisdiction over the forecast period, which is about 0.0038% of total jobs in the region. Figure 2 presents a time series of projected job impacts over the 2027 - 2060 period for both the standard case and sensitivity analysis.

Figure 2: Projected Regional Job Impacts, 2027-2060



Health Benefits

The emissions reductions anticipated from PAR 1111 and PAR 1121 would have substantial public health benefits. This assessment estimates these benefits using incidence-per-ton (IPT) and benefit-per-ton (BPT) values derived from estimated health benefits and the projected NOx emission reductions in the Final Socioeconomic Report for the 2022 AQMP.²³ The IPT and BPT method provides robust, reasonable estimates of the magnitude of health benefits and is consistent with previously employed approaches by South Coast AQMD, as well as the United States Environmental Protection Agency (USEPA) and the California Air Resources Board

²³ South Coast AQMD, Final Socioeconomic Report for the 2022 AQMP, <https://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/final/aqmp-2022-socioeconomic-report-main-final.pdf> accessed March 2025.

(CARB).^{24,25,26} The Final Socioeconomic Impact Report for the 2022 AQMP estimated the health benefits for year 2032 and 2037 based on: 1) modeled reductions in ambient ozone and PM_{2.5} concentrations across the Basin; and 2) USEPA's Environmental Benefits Mapping and Analysis Program – Community Edition (BenMAP-CE) model. This analysis utilizes the projected NO_x emissions reductions and associated health benefits attributed to the 2022 AQMP to generate average IPT and BPT estimates. These estimated IPT and BPT factors were then used to generate estimates of the quantity and monetized value of health benefits resulting from anticipated emission reductions from PAR 1111 and PAR 1121. Since NO_x is a key precursor to the formation of PM_{2.5} and ozone, the IPT and BPT estimates for both PM_{2.5}-specific and ozone-specific benefits were developed by dividing the results of the health benefits from the 2022 by the total NO_x emission reductions from the 2022 AQMP.

This reduced-form approach relies upon an estimate of the average health impact for each ton of pollutant emissions (and/or its precursors) reduced. This average estimate is based on the benefits derived from the 2022 AQMP air quality modeling, which accounts for potential nonlinearities between NO_x emissions and ozone concentrations in the Basin. Thus, although a variable marginal impact of emissions on benefits is not employed, the average IPT and BPT of the 2022 AQMP implementation implicitly reflects the impacts of nonlinear air quality chemistry on the overall expected health benefits. Additional methodological assumptions include:

- Changes in incidence are proportional to ambient PM_{2.5} or ozone concentrations.
- Changes in primary pollutant concentrations are proportional to changes in directly emitted NO_x.
- The IPT and BPT values are specific to the year (2032 and 2037) being evaluated.
- For years prior to 2032, IPT and BPT values are not calculated. Instead, health benefits grow linearly from zero benefits in 2026 to the estimated 2032 total benefits (based upon 2032 IPT and BPT values).
- For intermediate years between 2032 and 2037, IPT and BPT values grow linearly.
- For years beyond 2037, 2037 IPT and BPT values are projected through 2053 based on either future population growth (IPT and cost-of-illness based BPT estimates), or both future population growth and income growth (willingness-to-pay based BPT estimates).

This analysis assesses the public health benefits for which epidemiological studies have demonstrated an association between increases in ambient air pollution exposure and increases in illness and other health effects (morbidity endpoints) or increases in death rates from various causes (mortality endpoints) and are the same health endpoints quantified in the Final

²⁴ IPT and BPT estimates were used in the health benefits analysis of the South Coast AQMD August 2024 amendment process for Rule 2306 – Freight Rail Yards, <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2024/2024-aug2-026.pdf>, accessed March 2025.

²⁵ U.S. EPA, Technical Support Document: Estimating the Benefit per Ton of Reducing PM_{2.5} Precursors from 17 Sectors, https://www.epa.gov/sites/default/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf, accessed March 2025.

²⁶ CARB, Estimating the Community Level Health Benefits from Air Pollution Control Programs, <https://ww2.arb.ca.gov/resources/documents/estimating-community-level-health-benefits-air-pollution-control-programs#:~:text=CARB%20uses%20a%20California%20specific,available%20on%20the%20CARB%20website>, accessed March 2025.

Socioeconomic Report for the 2022 AQMP. Additional details concerning the selection of quantified health effects, and the generation of health benefits results are available in Chapter 3 and Appendices 3-A and 3-B of the Final Socioeconomic Report for the 2022 AQMP.²⁷

Table 11 presents the estimated NOx emissions inventory for PAR 1111 and PAR 1121. In this analysis, NOx emission reductions are assumed to be zero in the year before implementation for each category; and then grow linearly to the year of full implementation, which is 2053. Upon full implementation, PAR 1111 is expected to reduce NOx emissions by 4.05 tpd, while PAR 1121 will reduce NOx emissions by 2.07 tpd, with a total of 6.12 tpd.

Table 11: NOx Emission Reductions for PAR 1111 and PAR 1121

| Proposed Amended Rule | NOx Emission Reductions (tpd) |
|------------------------------|--|
| 1111 | 4.05 |
| 1121 | 2.07 |
| Total | 6.12 |

The estimated IPT factors were used in conjunction with projected annual NOx emission reductions to estimate the health benefits presented in Table 12. In total, PAR 1111 and PAR 1121 are estimated to prevent approximately 2,490 premature deaths, 10,200 cases of newly onset asthma, 1.17 million minor restricted activity days, and other outcomes, from 2027 to 2053.

²⁷ South Coast AQMD, Appendices to the Final Socioeconomic Report for the 2022 AQMP, <https://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/final/aqmp-2022-socioeconomic-report-appendices-final.pdf>, accessed March 2025.

Table 12: Health Effect Estimates of PAR 1111 and PAR 1121

| Health Effects | Annual Average | Total 2027-2053 |
|---|-----------------------|----------------------------|
| Premature Deaths Avoided, All Cause | | |
| Long-Term Ozone Exposure | 22 | 590 |
| Long-Term PM2.5 Exposure | 69 | 1,900 |
| Reduced Morbidity Incidence | | |
| Long-Term Ozone Exposure | | |
| Asthma, New Onset | 280 | 7,500 |
| Short-Term Ozone Exposure | | |
| Asthma Symptoms (Chest Tightness, Cough, Shortness of Breath, Wheeze) | 51,000 | 1,400,000 |
| Emergency Room Visits (ED), Asthma | 19 | 510 |
| ED Visits, All Respiratory | 44 | 1,200 |
| HA, Asthma | 530 | 14,000 |
| Minor Restricted Activity Days | 21,000 | 560,000 |
| School Loss Days, All Cause | 6,100 | 170,000 |
| Long-Term PM2.5 Exposure | | |
| Asthma, New Onset | 99 | 2,700 |
| HA, Alzheimer's Disease | 7.1 | 190 |
| HA, Parkinson's Disease | 3.0 | 80 |
| Incidence, Hay Fever/Rhinitis | 470 | 13,000 |
| Incidence, Lung Cancer (non-fatal) | 5.7 | 150 |
| Short-Term PM2.5 Exposure | | |
| Acute Myocardial Infarction, Nonfatal | 1.0 | 28 |
| Asthma Symptoms, Albuterol use | 17,000 | 450,000 |
| ED Visits, Asthma | 3.5 | 94 |
| ED Visits, All Cardiac Outcomes | 7.6 | 210 |
| ED Visits, All Respiratory | 17 | 470 |
| Emergency Hospitalizations (EHA), Asthma | 0.18 | 4.9 |
| HA, All Cardiac Outcomes | 2.6 | 70 |
| HA, All Respiratory | 7.3 | 200 |
| Incidence, Ischemic Stroke | 4.1 | 110 |
| Incidence, Out-of-Hospital Cardiac Arrest | 0.69 | 19 |
| Minor Restricted Activity Days | 23,000 | 610,000 |
| Work Loss Days | 3,900 | 100,000 |

¹ Health effects of ozone are quantified for the summer planning period only (i.e., May 1 to September 30). There are potentially more premature mortalities and morbidity conditions avoided outside the ozone peak season.

² Expressed in person-days. Minor Restricted Activity Days refer to days when some normal activities are avoided due to illness.

³ Values are rounded to two significant figures.

In addition, Table 13 presents the monetized value of the anticipated health benefits. Roughly 98% of the monetized value of these health benefits are attributable to avoided premature mortalities. The estimates are based on a value of statistical life (VSL) of \$12.74 million²⁸ and the assumption that the willingness-to-pay for mortality risk reductions will increase as per-capita income grows. Specifically, a one percent increase in income is assumed to raise the VSL by 1.1%. These assumptions result in a total undiscounted public health benefit of \$59.08 billion dollars over the 2027-2053 implementation period, or a \$25.43 billion present value at a 4% discount rate.

**Table 13: Monetized Value of Health Benefits from PAR 1111 and PAR 1121
(Billions of 2024 Dollars)**

| Type of Health Benefit | Total (2027-2053) | Annual Average (2027-2053) | Present Value - 4% Discount Rate |
|-----------------------------|----------------------|-------------------------------|--|
| Mortality-related benefits | \$57.71 | \$2.14 | \$24.80 |
| Long-Term Ozone Exposure | \$14.02 | \$0.52 | \$5.98 |
| Long-Term PM2.5 Exposure | \$43.69 | \$1.62 | \$18.82 |
| Morbidity-related benefits | \$1.37 | \$0.05 | \$0.63 |
| Total | \$59.08 | \$2.19 | \$25.43 |

*Note: numbers may not sum due to rounding.

Competitiveness and Prices

According to the REMI modeling results, PAR 1111 and PAR 1121 would increase the relative cost of production in the region by 0.0008% on average and raise the relative delivered price of products in the region by 0.0007%. The slight increase in production costs may reduce the region's competitive advantage relative to equipment manufacturers located outside the region. Additionally, this overall increase in prices could negatively impact consumers by reducing their purchasing power. However, these effects are considered minimal.

CEQA ALTERNATIVES

The California Environmental Quality Act (CEQA) requires an evaluation of alternatives when a proposed project may have significant adverse environmental impacts. The implementation of PAR 1111 and PAR 1121 has the potential to result in energy impacts from increased electricity demand that are more severe than was previously analyzed in the Final Program EIR for the 2022 AQMP²⁹ for Control Measures R-CMB-01 and R-CMB-02. For this reason, four alternatives were developed for the CEQA analysis conducted in the Final Draft Subsequent Environmental Assessment (SEA): Alternative A – No Project, Alternative B – More Stringent, Alternative C –

²⁸ Industrial Economics Inc. and Lisa Robinson, Review of Mortality Risk Reduction Valuation Estimates for 2016 Socioeconomic Assessment, https://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/iecmemos_november2016/scmortalityvaluation_112816.pdf, accessed March 2025.

²⁹ South Coast AQMD, November 2022, Final Program EIR for the 2022 AQMP, <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.pdf>, accessed March 2025.

Less Stringent, and Alternative D – Additional Incentives.³⁰ This section provides a description of each CEQA alternative as well as an assessment of the possible socioeconomic impacts resulting from the event that any of these alternatives are implemented in lieu of the proposed project.

The socioeconomic analysis of the CEQA alternatives assumes that all the affected units will transition to zero-emissions by the specific compliance dates as specified in Table 2 in the rule languages of both PAR 1111 and PAR 1121.

Alternative A – No Project

The No Project Alternative outlines what would happen if PAR 1111 and PAR 1121 were not implemented. In this case, all the affected units in new and existing residential buildings would not need to comply with the proposed zero-emission limit. As a result, the No Project alternative would not involve any new capital or recurring costs and thus would have no socioeconomic impacts.

Alternative B – More Stringent

The More Stringent Alternative would involve imposing earlier compliance dates. Under Alternative B, the deadline for installing compliant equipment in new buildings is 12 months earlier than for the proposed project. Existing equipment in existing buildings would be required to be replaced by the compliance date listed in PAR 1111 and PAR 1121, rather than being replaced at the end of useful life. This rapidly accelerates the installation of zero-emission units relative to the proposed project. This more stringent alternative will begin the phase-in process for existing households in 2026 and will achieve full compliance by 2029. Overall, Alternative B proposes a much more stringent approach by requiring earlier compliance with the proposed zero-emission limits for existing households. These more stringent deadlines would place considerable stress on supply chains for zero-emission units and on equipment installers.

Alternative C – Less Stringent

Under Alternative C, equipment in new buildings would meet the proposed NOx emission limits as specified in PAR 1111 and PAR 1121. Furnaces and water heaters in existing buildings, however, would be allowed to be replaced with low-NOx equipment in situations where alternative compliance options would be necessary. This analysis assumes that 50% of equipment in existing buildings would be replaced with zero-emission equipment, while the remaining 50% would be low NOx.

Alternative D – Additional Incentive Funding

Alternative D considers the effect of providing financial incentives to encourage the early replacement of furnaces and water heaters, while holding all other aspects of the proposed project the same. The standard forecast for the proposed project does not currently evaluate the impact of any incentives. Incentives would help offset any upfront costs and would enable households and to install zero-emission units sooner than they otherwise would. This alternative assumes that a

³⁰ South Coast AQMD, Draft Subsequent Environmental Assessment for PAR 1111 and PAR 1121, <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2024/draft-sea---par-1111-amp-1121.pdf> , accessed March 2025. The Final Subsequent Environmental Assessment is located in Attachment J of the June 6, 2025 Governing Board Package for PAR 1111 and PAR 1121, which will be available 72 hours prior to the Governing Board meeting at <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes?filter=Governing%20Board>.

\$1,000 incentive will be provided to the units that are replaced early, and 1% of the affected units are assumed to be replaced before the end of their useful life in this alternative.

Summary of CEQA Alternatives Analysis

Table 14 summarizes the estimated annual average costs, net present value (NPV) of those costs, and the annual average job impacts for the CEQA alternatives. Alternatives B, C, and D will all result in annual cost savings and job gains, ranging from 369 to 1,025 jobs. One possible reason for the large number of jobs gained in Alternative B is that there is substantial spending occurring at the beginning of the forecast period, which brings about a large number of new jobs in labor-intensive sectors such as retail and wholesale trade.

**Table 14: Average Annual Costs and Savings, NPV and Job Impacts
For CEQA Alternatives**

| Comparison of Proposed Project with CEQA Alternatives ¹ | NPV (4% Discount Rate) | Average Annual Costs/Savings at 4% Interest Rate | Average Annual Job Impacts |
|--|---------------------------|--|----------------------------|
| Proposed Project (PAR 1111 and PAR 1121) | (\$3,728,247,520) | (\$241,106,932) | 677 |
| Alternative A – No Project ¹ | \$0 | \$0 | 0 |
| Alternative B - More Stringent | (\$5,121,252,536) | (\$287,353,276) | 1,025 |
| Alternative C - Less Stringent | (\$2,097,479,701) | (\$139,655,355) | 369 |
| Alternative D - Additional Incentives | (\$3,831,434,444) | (\$246,468,195) | 658 |

Note: Costs are presented in black text and savings are presented in green text in parentheses.

¹ Analyses of the proposed project and the other CEQA alternatives are based on the assumption that all affected units will transition to zero-emissions by the specific compliance dates as specified in Table 2 – Zero-Emission Limits and Compliance Schedule of both PAR 1111 and PAR 1121.

² Alternative A would not result in any compliance expenditure and thus has no costs or job impacts.

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Proposed Amended Rule 1111 – Reduction Of NO_x Emissions From Natural Gas-Fired Furnaces

Proposed Amended Rule 1121 – Reduction of NO_x Emissions From Residential Type, Natural Gas-Fired Water Heaters

*Governing Board Meeting
June 6, 2025*

Attachment L

Background



Rules 1111 and 1121

- Adopted in 1978
- Establishes NOx emission limits for natural gas space and water heaters
- Regulated through manufacturer, distributor, retailer and installer

Applicability

- Rule 1111 applies to residential-sized furnaces less than 175,000 Btu/hr
- Rule 1121 applies to residential-sized water heaters less than 75,000 Btu/hr
- Over 10 million furnaces and water heaters covered by the rules
- Implemented through natural replacement or purchase of new unit

Need for PAR 1111 and PAR 1121

NOx reductions needed to meet federal ozone ambient air quality standards

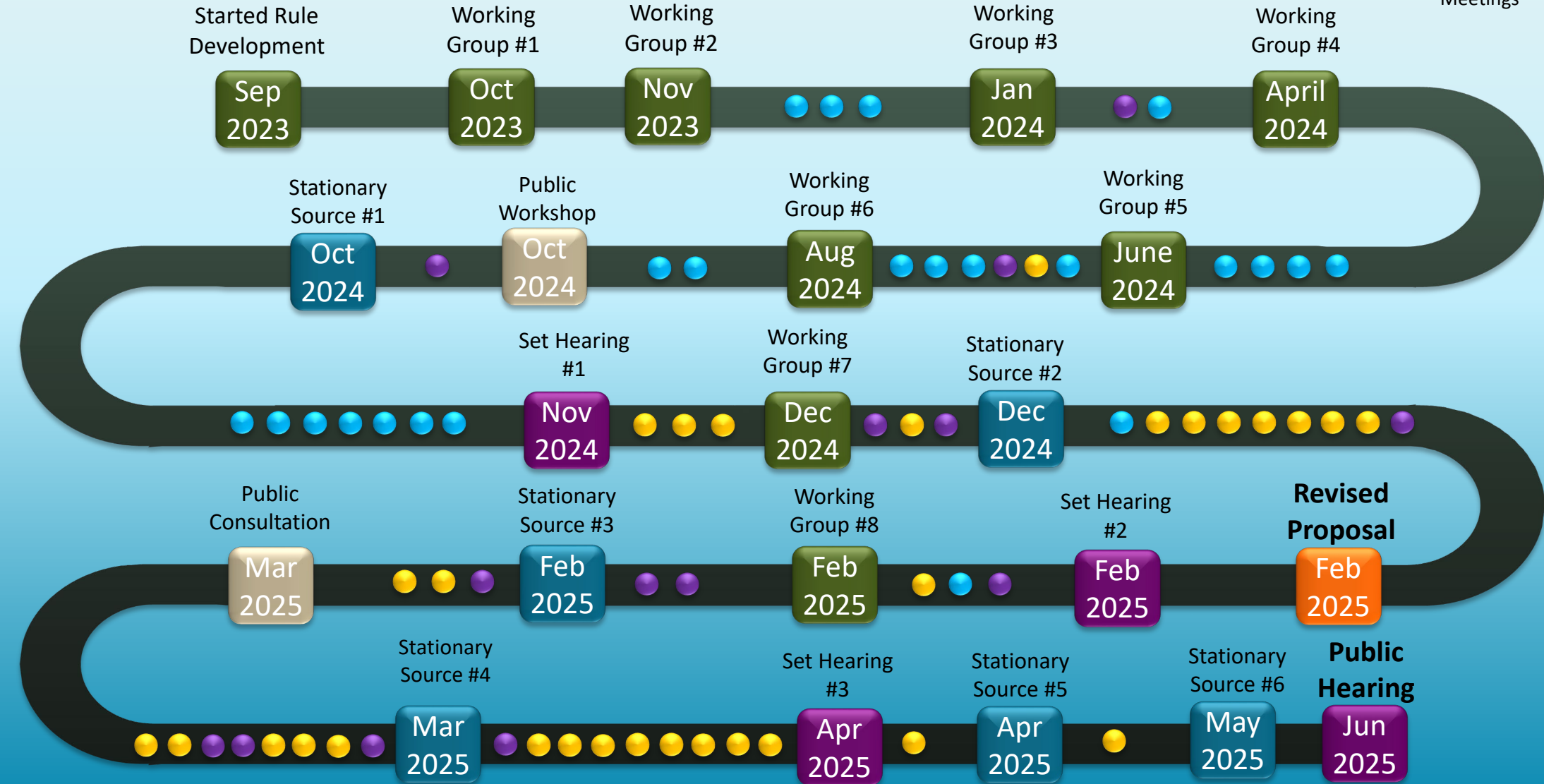
Under the federal Clean Air Act, failure to meet air quality standards can result in sanctions and other more stringent measures

Proposed amended rules will reduce 6.1 tons of NOx per day based on proposed sales targets

Implements R-CMB-01 – Residential Water Heating and R-CMB-02 – Residential Space Heating in 2022 AQMP

Extensive Rulemaking Process

- Site Visits
- Enhanced Outreach Meetings
- Manufacturer Meetings



Outreach Efforts

40

**Presentations to Cities,
COGS and Other Orgs**
Presented original and revised
rule concept

100+

Stakeholder Meetings
Met with utilities,
manufacturers, community
groups, and agencies

14,500+

Comment Letters
Received more than 14,500
comment letters

17,000+

Myths vs. Facts
Distributed “Myths vs Facts” to
over 17,000 emails



Myths vs Facts

Understanding the Proposed Space and Water Heating Appliance Rules (1111/1121)

MYTH: Building appliance rules are a new concept.

FACT:

- Building appliances have been regulated since the late 1970s.
- Concepts for zero-emission technology replacements began with the 2016 AQMP.



MYTH: Proposed rules limit consumer choice to only zero-emission units.

FACT:

- Proposed rules allow consumer choice between gas units (e.g., natural gas furnace, water heater) and zero-emission units (e.g., heat pump).



MYTH: Proposed rules will eliminate all natural gas appliances.

FACT:

- Manufacturers can continue to offer consumers the choice of natural gas units even while sales of zero-emission units are expected to increase.



MYTH: These proposed rules will not significantly reduce pollution.

FACT:

- The proposed rules are expected to achieve a reduction of 6 tons per day of NOx emissions from residential building appliances.
- For context by 2037:
 - Power plants emit 3 tons/day.
 - Refineries emit 4 tons/day.
 - Passenger vehicles emit 7 tons/day.



MYTH: The new proposed rules were developed quickly without much input from stakeholders.

FACT:

- Proposed rule development has been underway for over 2 years.
- More than 100 stakeholder meetings have contributed to shaping the rules.



South Coast Air Quality Management District
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V1 3/25

Initial Proposal:
Zero-emission
mandate beginning
2027 and expanded
applicability



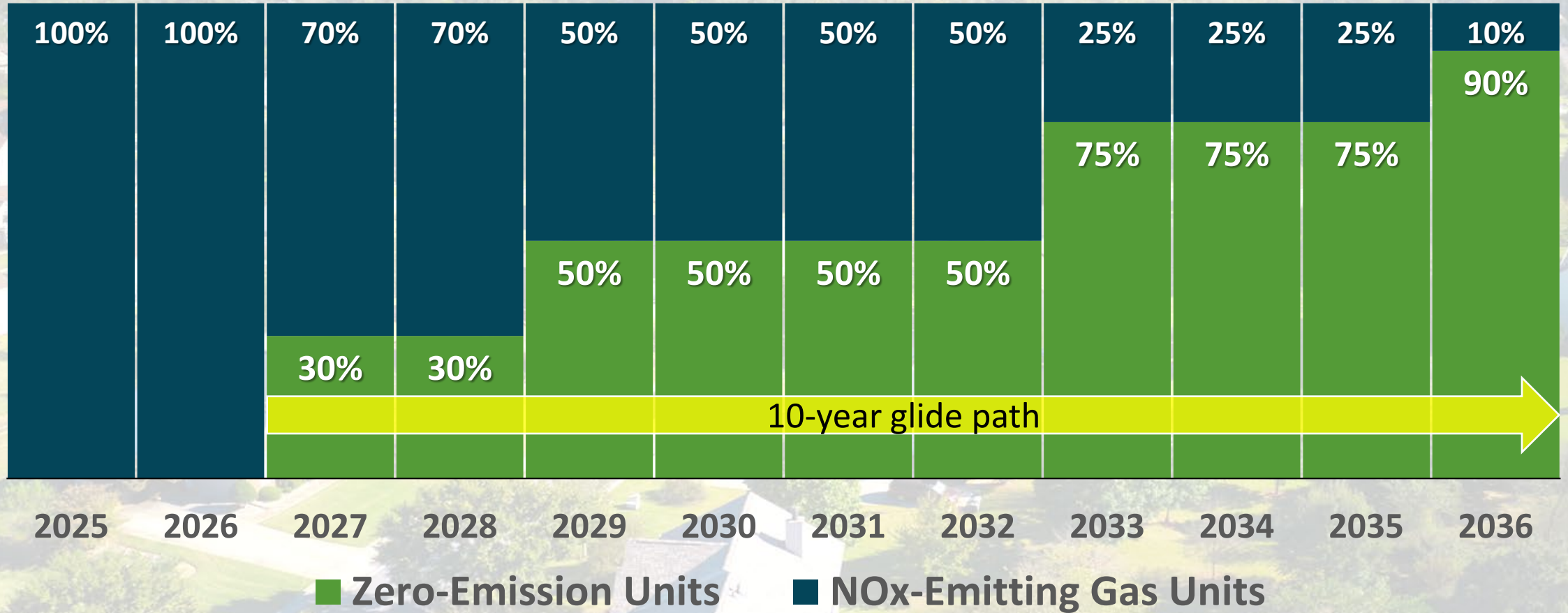
Revised Proposal:
Allow for consumer choice
and maintain residential-
sized applicability with
gradual implementation

Current rule proposal is not a mandate



**Revised Proposal Includes Option to Sell Both
NOx-Emitting Gas Units and Zero-Emission Units**

Manufacturer Targets for Zero-Emission and NOx-Emitting Gas Units



Mitigation Fee on NOx-Emitting Gas Units

Proposed Mitigation Fees for NOx-Emitting Gas Units

Units sold within targets

\$100 per
furnace

\$50 per
water heater

Units sold over targets

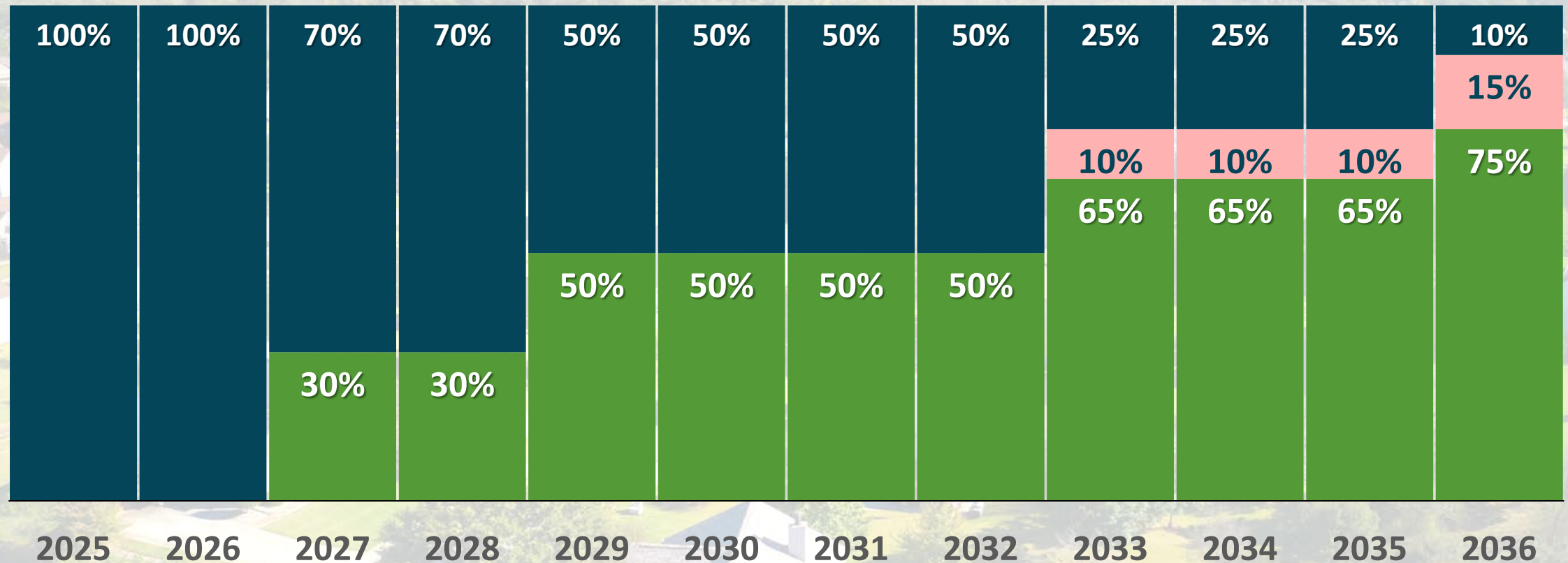
\$500 for
each furnace

\$250 per
water heater

Mitigation fees increase annually to reflect consumer price index

Mitigation fees seek to address affordability while funding GO ZERO


Example of How Manufacturers Can Sell NOx-Emitting Gas Units Above Targets



■ Zero-Emission Units ■ Above Target ■ NOx-Emitting Gas Units

■ \$100/\$50 Mitigation Fee

■ \$500/\$250 Mitigation Fee



**Mitigation fee over the target is about 2 to 10%
of total project cost**

**Mitigation fee within the target is 1%
of total project cost**

How Mitigation Fee Affects NOx-Emitting Gas Unit Replacement Costs

Fees are upfront fees but translate to:

- \$4.00/year for 25-year life of furnace
- \$3.30/year for 15-year life of water heater

Fees can be offset with SoCalGas rebates:

- \$84 - \$1,500 for medium size furnaces
- \$75 for water heaters

Mitigation Fee Structure

Comments are diverse

- Higher mitigation fees to encourage staying within targets
- Lower mitigation fees to address affordability
- Flat fee to ease manufacturer implementation

Proposal provides options

- Mitigation fees set at low level to address affordability
- Higher above sales target fee to encourage market transition
- Targets with flat fees would just maintain business as usual

Technology check-in will provide opportunity to assess mitigation fee levels



Comment Letters Received

Over 14,500 comments letters and emails as of May 30, 2025

Opposition Letters Cite:

Zero-emission appliance mandate

- Rules allow consumer choice, do not mandate transition to zero-emission units

Increased cost of NOx-emitting gas units

- Upfront mitigation fees equivalent to ~\$3-4 per year for 15-25 years

Outdated or incomplete information

- Myths vs. Facts sheet distributed to over 17,000 emails


Support Letters Cite:

Necessity of NOx reductions

- Needed to meet air quality standards and protect public health

Need higher fees

- Strike balance between affordability and funding Go Zero incentives



Manufacturer targets
and GO ZERO incentives
encourage transition to
zero-emission units

**Consumers
Can Choose**

Proposed rules allow
manufacturers to go
above targets, with a
higher mitigation fee

Affordability



Under the Target Mitigation Fees No More than One Percent of Total Cost*

SoCalGas Rebates for NOx-Emitting Gas Units Higher than Proposed Mitigation Fees

GO ZERO and Other Incentives Available for Zero-Emission Units

Zero-Emission Units will Become More Affordable with Further Market Penetration

* Unit and installation cost



Manufacturer Implementation

- All manufacturers previously implemented mitigation fee alternative compliance option
- All manufacturers sell both NOx-emitting gas units and zero-emission units
- Manufacturers ready to increase supply of zero-emission units to meet demand
- Staff will assess the implementation after the first compliance year



**7 Space Heater
Manufacturers**



**3 Water Heater
Manufacturers**

**1 Sells
Both**

State and Local Utility Grid Readiness Planning

State agencies (e.g., CPUC, CEC)
regulate/plan state power supply

CEC 2024
Integrated
Energy Policy
Report

Forecast demand
includes increases
from zero-
emission building
appliance
regulations

Local utilities (e.g., LADWP, SCE)
supply power

Local utilities
ensure
energy needs
are captured

SCE recent study
noted “combination of
adoption of new
equipment and
sufficient planning
horizons, SCE should
be able to
accommodate these
impacts.”

10-year implementation glide path will ease impact

Cost Data Used for Analysis

Zero-Emission Project Costs

TECH Clean California real-world heat pump installations

Over 11,000 data points within region

NOx-Emitting Gas Unit Costs

E3 “Residential Building Electrification in California” for NOx-emitting appliance cost

Used State Data for Fuel Use

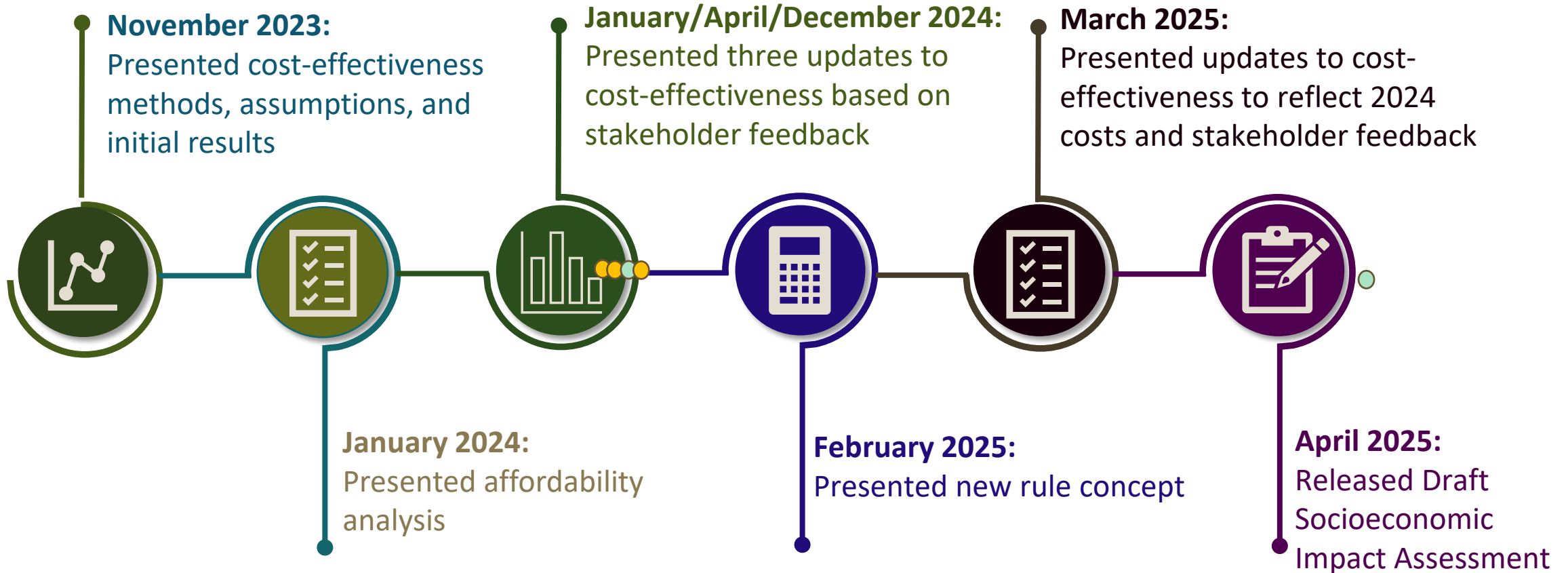
Natural gas usage based on California Energy Commission’s Residential Appliance Saturation Study

Used State Data for Future Gas and Electricity Rates

Future rates based on California Energy Commission’s Integrated Energy Policy Report

Cost-Effectiveness

Presented and discussed cost data during public working group meetings and adjusted assumptions based on stakeholder feedback



● BizFed comments in October 2024

● SoCalGas comments in October 2024 and April 2025

Socioeconomic Impact Assessment Methodology

Regional Economic Modeling Inc. (REMI) model

- Founded in 1980 as a tool to test economic effects of policies before they are implemented
- Utilized for assessing job impacts and regional employment

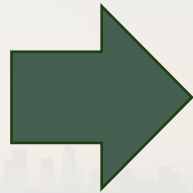
BenMAP model

- Developed by the U.S. EPA to estimate the health and economic impacts of changes in air quality
- Utilized for analyzing health benefits

Socioeconomic team led by a Ph.D. level economist with extensive experience conducting economic analyses

Cost of Living Council Economic Report

Third-party economic analysis cites total costs of \$8.9 billion annually between 2027 and 2040



- Assessment based on original mandate
- Up-front costs do not reflect real-world costs
- Uses worst-case outlier cost (\$47,800) and applies to all homes
- Assumes all units are financed and applies a high 7% *real* interest rate (~10% nominal interest rate)
- Rejects use of less costly plug-in heat pump water heaters
- Fails to consider savings from fuel switching

Socioeconomic Impact Assessment



\$174 million cost to
\$191 million in cost savings
(average annual range) over
forecast period



Projected Job Gains:
500 - 580 each year



Monetized health benefits of \$25.43 billion
(present value)

Health Benefits of PAR 1111 and PAR 1121

One of the largest NOx emission reductions for any rule project considered by the South Coast AQMD

Premature deaths
avoided

2,490



Emergency room
visits avoided

2,484



School loss days
avoided

170,000



Asthma onset
avoided

10,200



Technology Check-in Third Quarter 2028

Scheduled after the first year implementing the manufacturer compliance option



Number
of Units
Sold

Sales
Target
Goals

Mitigation
Fees
Collected

Assess if changes to target goals or mitigation fees needed

Staff Recommendations

Adopt the Resolution:



Certifying Final Subsequent Environmental Assessment



Amending Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired Furnaces



Amending Rule 1121 – Reduction of NOx Emissions from Residential Type, Natural Gas-Fired Water Heaters