BOARD MEETING DATE: March 2, 2018 AGENDA NO. 33

PROPOSAL: Certify Final Subsequent Environmental Assessment and Amend Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces; and Recognize Revenue

SYNOPSIS: In 2009, Rule 1111 was amended to lower the NOx emission limit for natural-gas-fired fan-type residential furnaces. In 2014, Rule 1111 was amended to provide manufacturers additional time to develop and commercialize compliant units by allowing a mitigation fee option. Although three manufacturers have certified furnaces, only one has a commercialized product available for sale. Additional time is needed to commercialize a range of compliant units for the various categories. Proposed Amended Rule 1111 will increase and extend the mitigation fee alternative compliance option and will also prevent the installation of propane furnaces in the SCAQMD capable of being fired on natural gas without proper certification. A companion to the proposed rule amendments is a rebate program to encourage manufacturers to commercialize compliant furnaces and incentivize consumers to purchase them.

COMMITTEE: Stationary Source, November 17, 2017, January 19 and February 16, 2018; Reviewed

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, Fan-Type Central Furnaces;
2. Amending Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces; and
3. Recognizing into the Air Quality Investment Fund (27), upon receipt of the increased amounts beyond the current mitigation fees paid by the furnace manufacturers, as potential funding for the Rule 1111 consumer rebate program.

Wayne Nastri
Executive Officer

PMF:SN:TG:GQ:YZ

Background
Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces was adopted in December 1978 to reduce emissions of nitrogen oxides (NOx) from residential and commercial gas-fired fan-type space heating furnaces with a rated heat input capacity of less than 175,000 BTU per hour and applies to manufacturers, distributors, sellers, and installers of such furnaces. Rule 1111 was amended in 2009 to lower the NOx emission limit from 40 to 14 ng/Joule (ng/J), and was again amended in 2014 to include a mitigation fee option where manufacturers can pay a per-unit fee in lieu of meeting the 14 ng/J compliant limit. The mitigation fee is currently $200 per unit for condensing furnaces and $150 per unit for other types of furnaces. Under Rule 1111, the mitigation fee option will end between March 31, 2018 and September 30, 2018, depending on the unit type.

Currently, all manufacturers are paying the mitigation fee in lieu of meeting the 14 ng/J NOx emission limit for at least some of their products. However, three manufacturers have developed and certified furnaces meeting the 14 ng/J NOx limit and one of the three manufacturers, Lennox, commercialized their compliant non-condensing units in the size of 60,000, 80,000, and 100,000 btu/hr. Although there has been progress, additional time is needed to allow manufacturers to develop, test, and commercialize compliant units to ensure adequate choices for the consumer.

Public Process
Prior to the rule development process for Proposed Amended Rule (PAR) 1111, staff held Task Force meetings which included all stakeholders on April 27, 2017 and May 25, 2017. When rule development formally commenced, staff held PAR 1111 working group meetings on July 27, 2017, September 21, 2017, November 15, 2017, and January 9, 2018. Staff held over 40 individual meetings with manufacturers prior to and during the rulemaking process to maintain confidentiality regarding technology development status. A Public Workshop was conducted on October 19, 2017.

Proposed Amendments
Based on considerations of technology development, implementation status, stakeholder input, and the need to encourage development and sale of compliant products, PAR 1111 will maintain the 14 ng/J NOx limit with modifications to the mitigation fee. Changes to the mitigation fee are as follows:

- Extending the mitigation fee alternative compliance option by 1.5 years for condensing furnaces, and one year for non-condensing and weatherized furnaces;
- Increasing the mitigation fee in two phases to a range of $350 to $450 for condensing furnaces and $300 to $400 for non-condensing and weatherized furnaces, depending on the furnace heat input capacity, of which the increased amount will potentially be utilized for additional funding of the companion consumer rebate program for compliant products; and

- Providing an exemption from the mitigation fee increase for units already committed in a contractual agreement.

PAR 1111 also includes an exemption for natural gas furnaces to be installed with a propane conversion kit for propane firing only that meets specific labeling and reporting requirements, and removes the 120-day lead time requirement for certification application submittal. Separate from the rule development, but related to implementation of Rule 1111, staff is developing a consumer rebate program for the purchase and installation of compliant furnaces in the SCAQMD to encourage consumers to purchase and manufacturers to commercialize compliant furnaces.

Key Issues

Staff has worked with stakeholders throughout the rulemaking process to resolve a majority of their concerns. The following are the remaining key issues:

Sell-through

Some stakeholders requested a sell-through period beyond the end of the extended mitigation fee period. Staff believes that the mitigation fee functions in a similar manner as a sell-through provision. At the February 16, 2018 Stationary Source Committee meeting, the committee members recommended that staff report back to the Stationary Source Committee in 12 months and, if needed, staff can incorporate a 90-day sell-through provision in Rule 1111. The Resolution includes a commitment consistent with those recommendations.

Tiered and phased mitigation fee approach

Some stakeholders have commented that the mitigation fee approach is too complex while others have commented that the tiered and phase approach is manageable. The phased portion of the mitigation fee is to encourage manufacturers to develop compliant units before the second phase of the mitigation fee is implemented. The tiered portion of the mitigation fee reflects comments to lower fees for smaller units and mobile home units (lower income consumers) and increase fees for condensing units.

Commercialization of Compliant Units

One of the manufacturers has commented that the purpose of the mitigation fee and rebate should be to provide an incentive to commercialize and encourage purchase of compliant units. This manufacturer stated that the proposed mitigation fee in combination with the proposed rebate does not provide adequate support to manufacturers that are selling compliant units, especially non-condensing units. Staff believes that the mitigation fee increase which is $150 to $450, depending on the furnace type and heat input capacity combined with a consumer rebate of $500 for the first 6,000 compliant units and thereafter providing a $300 rebate for the remaining condensing furnaces and a $200 rebate for the remaining non-condensing, weatherized, and mobile home furnaces is a substantial incentive to manufacturers. The proposed

rebate program will make compliant products more competitive in the market. Staff will closely monitor compliant unit sales, and return to the Board to recommend any necessary adjustments to the rebate program to help increase sales of compliant units, and increase the amount of money for the rebate program, if needed.

California Environmental Quality Act (CEQA)

The proposed amendments to Rule 1111 are considered to be modifications to a previously approved project (the amendments to Rule 1111 in September 2014) and are considered to be a "project" as defined by the CEQA. Therefore, a Subsequent Environmental Assessment (SEA) is the appropriate CEQA document. The previous CEQA document to the SEA is publically available upon request and can be reviewed by calling the SCAQMD Public Information Center at (909) 396-2001 or by visiting SCAQMD's website at www.aqmd.gov. The direct link to this document is also referenced in the Final SEA. Based on staff's review of PAR 1111, the proposed project has the potential to generate significant adverse operational air quality impacts but it would not generate significant adverse environmental impacts to any other environmental topic areas.

The Draft SEA was released for a 45-day public review and comment period from December 26, 2017, to February 9, 2018. Three comment letters were received and responses have been prepared. The comment letters and responses are included in an appendix to the Final SEA (Appendix D). Since the release of the Draft SEA, minor modifications were made to PAR 1111, and some revisions were made in response to verbal and written comments on the project's effects. SCAQMD staff has reviewed the modifications to PAR 1111 and concluded that none of the modifications constitute significant new information or a substantial increase in the severity of an environmental impact, nor provide new information of substantial importance relative to the Draft SEA. In addition, revisions to PAR 1111 in response to verbal or written comments would not create new, significant effects. As a result, these revisions do not require recirculation of the CEQA document pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Thus, the Draft SEA has been revised to reflect the aforementioned modifications and to include the comment letters and responses to comments such that it is now a Final SEA and is included as an attachment to the Board package (Attachment H).

Prior to making a decision on the adoption of PAR 1111, the Board must review and certify the Final SEA as providing adequate information on the potential adverse environmental impacts that may occur as a result of adopting PAR 1111.

Socioeconomic Impact Assessment

PAR 1111 would potentially affect the manufacturers of gas-fired fan-type furnaces, classified under the industry group 333 in the North American Industry Classification System (NAICS). However, none of these manufactures are located within the SCAQMD's four-county region. There are, however, many downstream businesses located within this region, including wholesalers and retailers of these furnaces (NAICS 423 and 444) and contractors that install or repair them (NAICS 238 and 811). Based on industry-wide data, a majority of the affected businesses in these downstream industries would be likely classified as a small business according to SCAQMD's Rule 102 definition. PAR 1111 is expected to be more economically advantageous to original equipment manufacturers (OEMs) selling non-compliant furnaces than the current rule, as it extends the alternative compliance period, during which non-compliant furnaces can still be sold within SCAQMD's jurisdiction, if an increased mitigation fee is paid. At the same time, those OEMs selling compliant furnaces are expected to benefit from the rebate program, which would lower the effective price and potentially increase the demand for their products. PAR 1111 is therefore found not to have adverse socioeconomic impacts additional to those that have been analyzed for the current rule.

Resource Impacts

Existing staff resources are adequate to implement the proposed rule amendments. The companion rebate program will be implemented by a third-party contractor selected for RFP #P2018-05 with minimal staff resources required.

Attachments

A. Summary of Proposal
B. Key Issues and Responses
C. Rule Development Process
D. Key Contacts List
E. Resolution and Attachment 1 to the Resolution
F. Proposed Amended Rule 1111
G. Final Staff Report
H. Final Subsequent Environmental Assessment
I. Board Meeting Presentation

ATTACHMENT A

SUMMARY OF PROPOSAL

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

Summary of Proposed Amendments

- Extend mitigation fee option by the schedule below:
  - Condensing (High Efficiency): 1.5 years (to October 2019)
  - Non-condensing (Standard): 1 year (to October 2019)
  - Weatherized: 1 year (to October 2020)
  - Mobile Home: No change (remains October 2021)

- Increase mitigation fee for non-compliant products based on size, and phase in over time as described in the PAR 1111 Table 2, summarized below:
  - Fee increase varies by size in three tiers (≤ 60 kbtu/hr; > 60 kbtu/hr and ≤ 90 kbtu/hr; > 90 kbtu/hr)
  - Phase one (50% of total fee increase) effective on May 1, 2018, for condensing units and October 1, 2018, for others; Phase two (full fee increase) effective on October 1, 2018, for condensing units and April 1, 2019, for others
  - No fee increase for mobile home units
  - Phase one payment is in addition to current payment schedule

- Exempt mitigation fee increase for units in a contractual agreement by OEMs or distributors for future or planned construction that was signed prior to January 1, 2018

- Exempt rule applicability for natural gas furnace to be installed with a propane conversion kit for propane firing only, with the defined labeling and reporting requirements

- Remove 120-day lead time requirement for certification application submittal

ATTACHMENT B

KEY ISSUES AND RESPONSES

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

Issue – Sell-through: Some stakeholders requested a sell-through period beyond the end of the extended mitigation fee period.

Response: *Staff believes that the mitigation fee functions in a similar manner as a sell-through provision. At the February 16, 2018 Stationary Source Committee meeting, the committee members recommended that staff report back to the Stationary Source Committee in 12 months and, if needed, a 90-day sell-through provision could be added to Rule 1111. The Resolution includes a commitment consistent with recommendations.*

Issue – Tiered and phased mitigation fee approach: Some stakeholders have commented that the mitigation fee approach is too complex while others have commented that the tiered and phase approach is manageable.

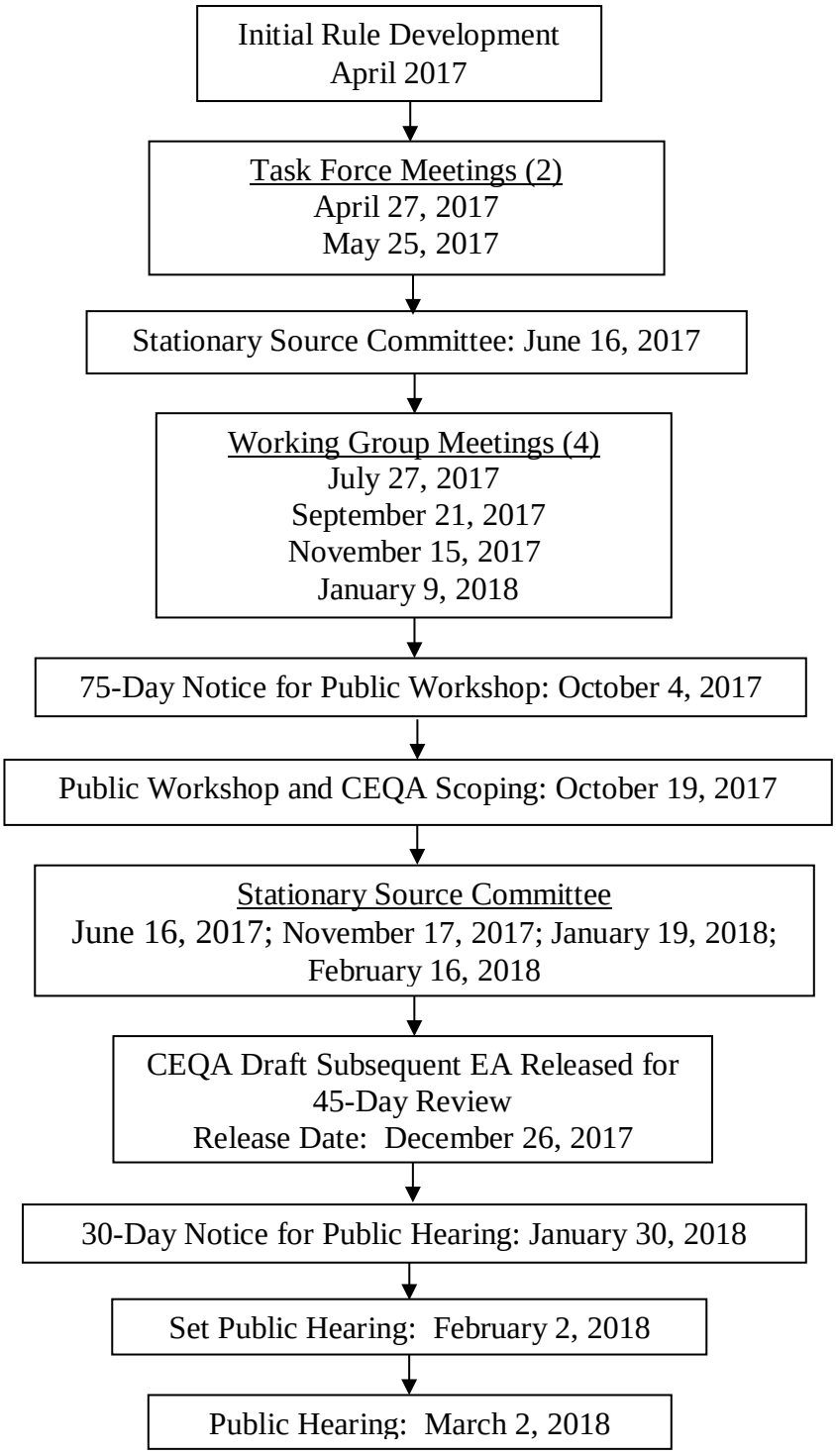
Response: *The phased portion of the mitigation fee is to encourage manufacturers to develop compliant units before the second phase of the mitigation fee is implemented. The tiered portion of the mitigation fee reflects comments to lower fees for smaller units and mobile home units (lower income consumers) and increase fees for condensing units.*

Issue – Commercialization of compliant units: One of the manufacturers has commented that the purpose of the mitigation fee and rebate should be to provide an incentive to commercialize and encourage purchase of compliant units. This manufacturer claims that the proposed mitigation fee in combination with the proposed rebate does not provide adequate support to manufacturers that are selling of compliant units, especially non-condensing units.

Response: *Staff believes that the mitigation fee increase which is $150 to $450, depending on the furnace type and heat input capacity combined with a consumer rebate of $500 for the first 6,000 compliant units and thereafter providing a $300 rebate for the remaining condensing furnaces and a $200 rebate for the remaining non-condensing, weatherized, and mobile home furnaces is a substantial incentive to manufacturers. The proposed rebate program will make compliant products more competitive in the market. Staff will closely monitor compliant unit sells, making any necessary adjustments to the rebate program to help increase sales of compliant units, and increase the amount of money for the rebate program, if needed.*

ATTACHMENT C
RULE DEVELOPMENT PROCESS

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



Eleven (11) months spent in rule development
One (1) Public Workshop
Two (2) Task Force Meeting
Four (4) Working Group Meetings
Over 40 individual meetings with stakeholders

ATTACHMENT D

KEY CONTACTS LIST

Rheem Manufacturing

Goodman Manufacturing Company

Johnson Controls

Ingersoll Rand (Trane)

Lennox International Inc. (+Allied)

Nortek Global HVAC

Carrier Corporation

Bard Manufacturing

Beckett Gas, Inc.

Bekaert Combustion Technology

Lantec Products, Inc.

The Air Conditioning, Heating, and Refrigeration Institute (AHRI)

Gas Technology Institute (GTI)

Heating, Air-conditioning & Refrigeration Distributors International (HARDI)

Air-Tro

Howard Industries

ATTACHMENT E

RESOLUTION NO.18_____

A Resolution of the SCAQMD Governing Board certifying the Final Subsequent Environmental Assessment (SEA) for Proposed Amended Rule 1111 - Reduction of NOx Emissions From Natural-Gas-Fired, Fan-Type Central Furnaces.

A Resolution of the South Coast Air Quality Management District (SCAQMD) Governing Board amending Rule 1111 - Reduction of NOx Emissions From Natural-Gas-Fired, Fan-Type Central Furnaces.

WHEREAS, the SCAQMD Governing Board finds and determines with certainty that Proposed Amended Rule 1111 is considered a modification to a previously approved project (the amendments to Rule 1111 on September 5, 2014) and is considered to be a "project" as defined by the California Environmental Quality Act (CEQA); and

WHEREAS, the SCAQMD has had its regulatory program certified pursuant to Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l), and has conducted a CEQA review and analysis of Proposed Amended Rule 1111 pursuant to such program (SCAQMD Rule 110); and

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

WHEREAS, the SCAQMD staff has prepared a Draft SEA pursuant to its certified regulatory program and CEQA Guidelines Sections 15251, 15252, and 15162, setting forth the potential environmental consequences of Proposed Amended Rule 1111 and determined that the proposed project would have the potential to generate significant adverse environmental impacts; and

WHEREAS, the Draft SEA was circulated for a 45-day public review and comment period, from December 26, 2017 to February 9, 2018; and

WHEREAS, three comment letters were received relative to the analysis presented in the Draft SEA and responses were prepared for each individual comment in the letters. None of the comments in these comment letters identify an existing significant impact that is made substantially more severe or new potentially significant adverse impacts from the proposed project, and the Draft SEA has been revised to include the comments received on the Draft SEA and the responses, so that it is now a Final SEA; and

WHEREAS, it is necessary that the SCAQMD 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 adopting Proposed Amended Rule 1111, including the response to comments received relative to the Draft SEA; and

WHEREAS, it is necessary that the SCAQMD prepare Findings and a Statement of Overriding Considerations pursuant to CEQA Guidelines Sections 15091 and 15093, respectively, regarding potentially significant adverse environmental impacts that cannot be mitigated to insignificance; and

WHEREAS, Findings and a Statement of Overriding Considerations have been prepared and are included in Attachment 1 to this Resolution, which is attached and incorporated herein by reference; and

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

WHEREAS, the SCAQMD Governing Board voting to adopt Proposed Amended Rule 1111 has reviewed and considered the information contained in the Final SEA, including responses to comments, the Findings, and the Statement of Overriding Considerations, and all other supporting documentation, prior to its certification, and has determined that the Final SEA document, including the response to comments received, has been completed in compliance with CEQA; and

WHEREAS, Proposed Amended Rule 1111 and supporting documentation, including but not limited to, the Final SEA and the Final Staff Report, were presented to the SCAQMD Governing Board and the SCAQMD Governing Board has reviewed and considered the entirety of this information, and has taken and considered staff testimony and public comment prior to approving the project; and

WHEREAS, the Board package includes the Final SEA and other supporting documentation, and this information was presented to the SCAQMD Governing Board and that the Board has reviewed and considered the entirety of this information before approving the staff recommendations; and

WHEREAS, the Final SEA reflects the independent judgment of the SCAQMD; and

WHEREAS, the SCAQMD Governing Board finds and determines that all changes made in the Final SEA after the public notice of availability of the Draft SEA, were not substantial revisions and do not constitute significant new information within the meaning of CEQA Guidelines Section 15073.5 or 15088.5, because no new 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, the SCAQMD 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) of the Administrative Code), that the modifications which have been made to Proposed Amended Rule 1111 since notice of public hearing was published are not so substantial as to significantly affect the meaning of the proposed amended rule within the meaning of Health and Safety Code Section 40726 because: (a) the changes do not worsen the estimated NOx emission reductions foregone, (b) the changes do not affect the number or type of sources regulated by the rule, (c) the changes are consistent with the information contained in the notice of public hearing, and (d) the effects of Proposed Amended Rule 1111 do not exceed the effect of the range of alternatives analyzed in the CEQA document; and

WHEREAS, Proposed Amended Rule 1111 and supporting documentation, including but not limited to, the Final SEA, the Socioeconomic Impact Assessment, the Final Staff Report, and this March 2, 2018 Board letter were presented to the SCAQMD Governing Board and the SCAQMD Governing Board has reviewed and considered the entirety of this information, as well as has taken and considered staff testimony and public comment prior to approving the project; and

WHEREAS, the SCAQMD Governing Board has determined that there is a problem of limited product availability that Proposed Amended Rule 1111 will help alleviate by extending the alternate compliance option with accompanying mitigation fee increases, and providing limited exemptions for units encumbered in contractual agreements and for units to be converted and installed for propane firing only; and

WHEREAS, California Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the SCAQMD 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 SCAQMD Governing Board has determined that a need exists to amend Rule 1111 to extend the alternate compliance option with accompanying mitigation fee increases, and providing limited exemptions for units encumbered in contractual agreement and for units to be converted and installed for propane firing only; and

WHEREAS, the SCAQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from Sections 39002, 40000, 40001, 40440, 40441, 40702, 40725 through 40728, 41508, and 41700 of the California Health and Safety Code; and

WHEREAS, the SCAQMD Governing Board has determined that Proposed Amended Rule 1111 is written or displayed so that its meaning can be easily understood by the persons directly affected by it; and

WHEREAS, the SCAQMD Governing Board has determined that Proposed Amended Rule 1111 is in harmony with, and not in conflict with or contradictory to, existing federal or state statutes, court decisions, or regulations; and

WHEREAS, the SCAQMD Governing Board has determined that Proposed Amended Rule 1111 does not impose the same requirements as any existing state or federal regulation and the proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the District; and

WHEREAS, the SCAQMD Governing Board has determined that Proposed Amended Rule 1111 references the following statutes which the SCAQMD hereby implements, interprets or makes specific: Health and Safety Code Sections 40001(a) (rules to meet air quality standards); 40440(a) (rules to carry out the plan); and 40702 (adoption of rules and regulations); and

WHEREAS, the SCAQMD Governing Board has determined that Proposed Amended Rule 1111 does not make an existing emission limit or standard more stringent, and therefore the requirements of Health and Safety Code Section 40727.2 are satisfied; and

WHEREAS, the SCAQMD Governing Board has determined that the Socioeconomic Impact Assessment, as contained in the Final Staff Report, of Proposed Amended Rule 1111 is consistent with the March 17, 1989, Governing Board Socioeconomic Resolution for rule adoption; and

WHEREAS, the SCAQMD Governing Board has determined that Proposed Amended Rule 1111 will not result in increased costs to the affected industries, as analyzed in the Socioeconomic Impact Assessment, as contained in the Final Staff Report; and

WHEREAS, the SCAQMD Governing Board has determined that the Socioeconomic Impact Assessment, as contained in the Final Staff Report, is consistent with the provisions of Health and Safety Code Sections 40440.8, 40728.5, and 40920.6; and

WHEREAS, the SCAQMD Governing Board has actively considered the Socioeconomic Impact Assessment, as contained in the Final Staff Report, and has made a good faith effort to minimize such impacts; and

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

WHEREAS, the SCAQMD Governing Board has held a public hearing in accordance with all provisions of law; and

WHEREAS, the SCAQMD Governing Board specifies the Manager of Proposed Amended Rule 1111 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

WHEREAS, the SCAQMD Governing Board has determined that Proposed Amended Rule 1111 should be adopted for the reasons contained in the Final Staff Report; and

NOW, THEREFORE, BE IT RESOLVED, that the SCAQMD Governing Board does hereby certify that the Final SEA for Proposed Amended Rule 1111, including responses to comments and other supporting documentation, was completed in compliance with CEQA and Rule 110 provisions; and finds that the Final SEA was presented to the Governing Board, whose members reviewed, considered, and approved the information therein prior to acting on Proposed Amended Rule 1111 and finds that the Final SEA reflects the SCAQMD's independent judgment and analysis; and

BE IT FURTHER RESOLVED, that the SCAQMD Governing Board adopts the Findings and Statement of Overriding Considerations pursuant to CEQA Guidelines Sections 15091 and 15093, respectively, as required by CEQA and which are included in Attachment 1 to this Resolution and incorporated herein by reference; and

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

BE IT FURTHER RESOLVED, that the South Coast Air Quality Management District Board directs the Executive Officer to fund NOx emission reduction projects or series of projects that will offset and mitigate the excess emissions from sale of non-compliant heating furnaces under the Rule 1111 mitigation fee alternate compliance plans using Fund 27 – Air Quality Investment Fund; and

BE IT FURTHER RESOLVED, that the South Coast Air Quality Management District Board directs the Executive Officer to recognize into Fund 27 (Air Quality Investment Fund) upon receipt $200 of the mitigation fee from the sale of each non-compliant condensing unit and $150 of the mitigation fee from the sale of each other non-compliant unit paid by heating furnace manufacturers and designate those funds for projects to mitigate excess emissions from the sale of non-compliant furnaces pursuant to Proposed Amended Rule 1111(c)(5); and

BE IT FURTHER RESOLVED, that the South Coast Air Quality Management District Board directs the Executive Officer to recognize into Fund 27 upon receipt the incremental amount beyond the $200 mitigation fee for each condensing unit and the $150 mitigation fee for each other unit paid by the furnace manufacturers as funding for the Rule 1111 rebate program; and

BE IT FURTHER RESOLVED, that the South Coast Air Quality Management District Board directs staff to report on the status of compliant furnaces and the effectiveness of the exemption for propane-fired units to the Stationary Source Committee no later than February 15, 2019. This report shall include, but not be limited to, an assessment of the quantity and range of available compliant furnace models within the SCAQMD. If necessary, this report will include recommendations to further enhance the sale of compliant furnaces within the SCAQMD; and

BE IT FURTHER RESOLVED, that the South Coast Air Quality Management District Board directs staff to report to the Stationary Source Committee no later than February 15, 2019 regarding the potential need for a proposed rule amendment for a 90-day sell-through period for non-compliant products beyond the end of the mitigation fee; and

BE IT FURTHER RESOLVED, that the South Coast Air Quality Management District Board requests that Proposed Amended Rule 1111 be submitted into the State Implementation Plan; and

BE IT FURTHER RESOLVED, that the Executive Officer is hereby directed to forward a copy of this Resolution and Proposed Amended Rule 1111 to the California Air Resources Board for approval and subsequent submittal to the U.S. Environmental Protection Agency for inclusion into the State Implementation Plan; and

BE IT FURTHER RESOLVED, that the SCAQMD Governing Board does hereby adopt, pursuant to the authority granted by law, Proposed Amended Rule 1111, as set forth in the Attachment F and incorporated herein by reference.

Dated:_____ _____

Clerk of the Boards

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Attachment 1 to the Governing Board Resolution for:
Final Subsequent Environmental Assessment to the September 2014 Final Environmental Assessment for Proposed Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired, Fan-Type Central Furnaces

Findings and Statement of Overriding Considerations

SCAQMD No. 140722JI/12012017RB
State Clearinghouse No: 2017121067

February 2018

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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Supervisor, First District
County of Los Angeles

EXECUTIVE OFFICER:
WAYNE NASTRI

TABLE OF CONTENTS

INTRODUCTION

The proposed amendments to Rule 1111 - NOx Reductions From Miscellaneous Sources, are considered a "project" as defined by the California Environmental Quality Act (CEQA) (California Public Resources Code Sections 21000 et seq.). The SCAQMD, as Lead Agency for the proposed project, prepared a Subsequent Environmental Assessment (SEA) in lieu of an Environmental Assessment (EA), which analyzed new potentially significant adverse effects of operational air quality that may result from implementation of PAR 1111. Since PAR 1111 may have statewide, regional, or areawide significance, a CEQA scoping meeting is required (pursuant to Public Resources Code Section 21083.9(a)(2)) and was held at the SCAQMD's headquarters in conjunction with the Public Workshop on October 19, 2017. No comments related to CEQA were made at the CEQA scoping meeting.

The Draft SEA was released for a 45-day public review and comment period from Tuesday, December 26, 2017, to Friday, February 9, 2018, at 5:00 p.m. During the public comment period, the SCAQMD received three comment letters relative to the Draft SEA. Comments received relative to the CEQA analysis in the Draft SEA have been responded to and are included in Appendix D of the Final SEA.

PAR 1111 contains amendments that revise existing requirements included in Rule 1111, as amended in September 2014, based on considerations of technology development and implementation status, stakeholders' input, and the need to encourage development and sale of compliant products. In particular, PAR 1111 would increase the mitigation fee from $200 for each non-compliant condensing furnace and $150 each for all other non-compliant furnaces regulated under this rule to a two-phased mitigation fee increase that ranges between $300 and $450 based on the furnace type and heat input capacity for non-compliant condensing, non-condensing, and weatherized units. PAR 1111 would also extend the dates during which the mitigation fee may be paid in lieu of complying with the NOx limit for the following equipment categories: 1) condensing furnaces from April 1, 2018, to October 1, 2019; 2) non-condensing furnaces from October 1, 2018, to October 1, 2019; and 3) weatherized furnaces from October 1, 2019, to October 1, 2020. For mobile home units, there will be no increase in the mitigation fee or change in the mitigation fee option end date.

If the mitigation fee end dates are extended, PAR 1111 is expected to result in foregone NOx emissions reductions of 0.07 to 0.09 tons per day in 2018, 0.26 to 0.32 tons per day in 2023, and 0.26 to 0.32 tons per day in 2031, all of which exceed the SCAQMD's regional air quality CEQA significance threshold for NOx during operation. Analysis of PAR 1111 indicates that the estimated NOx emission reductions that were originally projected to be achieved as part of the September 2014 amendments to Rule 1111 will be delayed. As such, SCAQMD staff has determined that PAR 1111 contains new information of substantial importance which was not known and could not have been known at the time the Final Environmental Assessment (EA) was certified for the September 2014 amendments to Rule 1111 (referred to herein as the September 2014 Final EA). However, aside from the topic of air quality, PAR 1111 is not expected to create new significant effects for any other environmental topic areas. Thus, analysis of the proposed project indicates that the type of CEQA document appropriate for the proposed project is a Subsequent Environmental Assessment (SEA), in lieu of an EA. The SEA is a substitute CEQA document, prepared in lieu of a Subsequent Environmental Impact Report (EIR) with significant impacts (CEQA Guidelines Section 15162(b)), pursuant to the SCAQMD's Certified Regulatory Program (CEQA Guidelines Section 15251(l); codified in SCAQMD 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.

Further, pursuant to CEQA Guidelines Section 15252, since significant adverse impacts were identified, an alternatives analysis and mitigation measures are required. However, since PAR 1111 contains adjustments to mitigation fee end dates for certain types of residential and commercial gas-fired fan-type space heating furnaces and alternatives to the project that are either the 'no project' alternative, or different adjustments to the mitigation fee end date, NOx limit, or mitigation fee than what is proposed in PAR 1111 (see Chapter 5 of the Final SEA), the analysis in the Final SEA concluded that there are no feasible mitigation measures that would eliminate or reduce the significant adverse operational air quality impacts for NOx emissions to less than significant levels.

Subsequent to release of the Draft SEA, modifications were made to PAR 1111.Some of the revisions were made in response to verbal and written comments on the project's effects. At the time the Draft SEA was released for public review and comment, the estimate of total NOx emission reductions foregone of 0.07 to 0.09 tons per day in 2018, 0.26 to 0.33 tons per day in 2023, and 0.26 to 0.33 tons per day in 2031 included an extension of the alternative compliance option for mobile home furnaces. However, subsequent to the release of the Draft SEA, the proposed project was modified to: 1) increase the mitigation fee in two phases to a range of $300 to $450, depending on the furnace type and heat input capacity; 2) extend the mitigation fee alternative compliance option by 1.5 years for condensing furnaces, and one year for non-condensing furnaces and weatherized furnaces; 3) provide an exemption from the mitigation fee increase for units encumbered in a contractual agreement by OEMs and distributors for new construction, if contracts were signed prior to January 1, 2018; 4) provide an exemption of rule applicability for natural gas furnaces installed with a propane conversion kit for propane firing only, with a defined labeling requirement; and 5) remove the 120 day lead time requirement for certification application submittal. The modifications to the mitigation fee alternative compliance option are expected to result in a minor reduction in the amount of foregone NOx emissions reductions from 0.33 tons per day in 2023 and 2031 to 0.32 tons per day in 2023 and 2031. The modifications to PAR 1111 since the release of the Draft SEA would result in less foregone NOx emissions; however the foregone NOx emissions would remain above the NOx significance threshold of 55 pounds per day. Staff has reviewed the modifications to PAR 1111 and concluded that none of the modifications constitute significant new information or a substantial increase in the severity of an environmental impact, nor provide new information of substantial importance relative to the draft document. In addition, revisions to PAR 1111 in response to verbal or written comments 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.

SUMMARY OF THE PROPOSED PROJECT

SCAQMD staff is proposing to amend Rule 1111 to reflect recommendations made by stakeholders throughout the rule development process and to resolve technology development and implementation issues that have been raised by stakeholders. If adopted, PAR 1111 would further extend the end dates for the mitigation fee compliance option established in Rule 1111 for the following equipment categories: 1) condensing furnaces from April 1, 2018, to October 1, 2019; 2) non-condensing Furnaces from October 1, 2018, to October 1, 2019; and 3) weatherized

furnaces from October 1, 2019, to October 1, 2020. For mobile home units, there will be no increase in the mitigation fee or change in the mitigation fee compliance option end date. If the mitigation fee end dates are extended, PAR 1111 is expected to result in foregone NOx emissions reductions of 0.07 to 0.09 tons per day in 2018, 0.26 to 0.32 tons per day in 2023, and 0.26 to 0.32 tons per day in 2031, all of which exceed the SCAQMD's regional air quality CEQA significance threshold. As such, analysis of PAR 1111 in the Draft SEA identified potentially significant adverse environmental impacts in the topic of air quality, specifically operational air quality, as an area that may be adversely affected by the proposed project. However, the emissions reductions will eventually be achieved because existing furnaces will be eventually replaced and upgraded over time. In addition, the following changes that are proposed in PAR 1111 would:

- Increase the mitigation fee to a two-phased mitigation fee increase that ranges between $300 and $450 based on the furnace type and heat input capacity for non-compliant condensing, non-condensing, and weatherized units [see paragraph (c)(5) and Table 2 – Alternative Compliance Plan with the Phase One and Phase Two Mitigation Fee Schedule].

- Provide an exemption of rule applicability for natural gas furnaces installed with propane conversion kits for propane firing only, with a defined labeling requirement.

- Extend the mitigation fee alternative compliance option by 1.5 years for condensing furnaces, and one year for non-condensing furnaces and weatherized furnaces.

- Provide an exemption from the mitigation fee increase for units encumbered in a contractual agreement by OEMs and distributors for new construction, if contracts were signed prior to January 1, 2018.

- Remove the 120 day lead time requirement for certification application submittal.

In addition, a rebate program is separately proposed to incentivize the purchase of the lower emitting compliant furnaces on a more cost-competitive level. Other minor changes are also proposed for clarity and consistency throughout the rule.

SIGNIFICANT ADVERSE IMPACTS WHICH CAN BE REDUCED BELOW A SIGNIFICANT LEVEL OR WERE CONCLUDED TO BE INSIGIFICANT

The September 2014 amendments to Rule 1111 provided manufacturers additional time to produce residential furnaces that meet the NOx emission limit of 14 nanograms per Joule (ng/J). Because the September 2014 amendments to Rule 1111 would not have had any significant adverse effects on the environment, SCAQMD staff prepared an environmental assessment with no significant impacts (e.g., the September 2014 Final EA). The September 2014 Final EA evaluated 17 environmental topic areas and only the topic of air quality and greenhouse gas emissions was identified as having the potential to be adversely affected if the September 2014 amendments to Rule 1111 were implemented. After an assessment of air quality and greenhouse gas emissions impacts was conducted, the September 2014 amendments to Rule 1111 were estimated to result in a delay of NOx emission reductions from October 1, 2014, until April 1, 2015, of up to 46 pounds per day, which is below the SCAQMD Mass Daily Air Quality Significance Threshold for operational NOx emissions (55 pounds per day). Thus, the September 2014 Final EA concluded that the impacts to air quality would be less than significant. All of the remaining 16 environmental topic areas were also concluded to have no significant or less than significant direct or indirect adverse effects.

The effects of implementing PAR 1111 would result in foregone NOx emissions reductions of 0.07 to 0.09 tons per day in 2018, 0.26 to 0.32 tons per day in 2023, and 0.26 to 0.32 tons per day in 2031, all of which exceed the SCAQMD Mass Daily Air Quality Significance Threshold for operational NOx emissions (55 pounds per day). As with the September 2014 Final EA for Rule 1111, the operational air quality impacts from implementing PAR 1111 are the only environmental topic area identified as having the potential to cause significant adverse environmental impacts. As such, no other environmental topic areas were required to be evaluated in the Final SEA. Thus, the PAR 1111 Final SEA is consistent with the conclusions reached in the previously certified document (e.g., the September 2014 Final EA) that aside from the topic of operational air quality, there would be no other environmental topic areas with significant adverse effects from implementing PAR 1111. Thus, PAR 1111 would have no significant or less than significant direct or indirect adverse effects on the following environmental topic areas.

- aesthetics
- air quality during construction and greenhouse gas emissions during construction and operation
- agriculture and forestry resources
- biological resources
- cultural resources
- energy
- geology and soils
- hazards and hazardous materials
- hydrology and water quality
- land use and planning
- mineral resources
- noise
- population and housing
- public services
- recreation
- solid and hazardous waste
- transportation and traffic

POTENTIAL SIGNIFICANT ADVERSE IMPACTS THAT CANNOT BE REDUCED BELOW A SIGNIFICANT LEVEL

The Final SEA identified the topic of operational air quality as the only area that may be significantly adversely affected by the proposed project.

Operational Air Quality Impacts

The air quality analysis for PAR 1111 in the Final SEA indicates that the operational air quality emissions associated with implementing PAR 1111 would exceed the SCAQMD's significant operational threshold for NOx (55 pounds per day). Thus, the operational air quality impacts from implementing PAR 1111 are considered to be significant. However, the NOx emission reductions

will be eventually achieved because existing units will be eventually replaced and upgraded over time. If significant adverse environmental impacts are identified in a CEQA document, the CEQA document shall describe feasible measures that could minimize the impacts of the proposed project. Adjustments to the mitigation fee end date for certain types of equipment are proposed in PAR 1111 because most OEMs do not yet have commercially available Rule 1111-compliant equipment. Consequently, the previously estimated NOx emission reductions in the September 2014 amendments to Rule 1111 have also not occurred. If compliant equipment were widely available on the market, PAR 1111 would not be necessary. By allowing manufacturers more time to develop compliant units as proposed in PAR 1111, the originally projected NOx emission reductions will continue to be delayed. PAR 1111 includes an extension of the mitigation fee compliance option, portions of which will be used to offset forgone emission reductions. A Request for Proposals (RFP) has been issued to solicit bids to utilize these funds for NOx emission reduction projects. Because no proposals in response to the RFP have been received and evaluated to date, the details and extent to which future projects will offset the foregone NOx emission reductions from PAR 1111 are unknown at this time. As such, aside from having compliant equipment available on the market, there are no feasible mitigation measures that would eliminate or reduce the significant adverse operational air quality impacts for NOx emissions to less than significant levels if PAR 1111 is implemented.

It is important to note that PAR 1111 focuses on reducing NOx emissions, and emissions of other criteria pollutants (e.g., CO, VOC, SOx, PM10, and PM2.5) and toxic air contaminants are not expected to change as a result of PAR 1111 compared with the current requirements for the affected sources under Rule 1111. Thus, PAR 1111 will not result in significant adverse operational air quality impacts for CO, VOC, SOx, PM10, PM2.5 and toxic air contaminants.

FINDINGS

Public Resources Code Section 21081 and CEQA Guidelines Section 15091(a) state that no public agency shall approve or carry out a project for which a CEQA document has been completed which identifies one or more significant adverse 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. Additionally, the findings must be supported by substantial evidence in the record (CEQA Guidelines Section 15091(b)). As identified in the Final SEA and summarized above, the proposed project has the potential to create significant adverse operational air quality impacts. The SCAQMD 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 SCAQMD Governing Board are based on the following significant adverse impact identified in the Final SEA.

Potential NOx emission reductions foregone exceed the SCAQMD's applicable significance air quality thresholds and cannot be mitigated to insignificance.

Finding and Explanation:

As explained earlier, except for NOx emissions, no other criteria pollutant or toxic air contaminant emissions exceed the SCAQMD's applicable significance thresholds during operation. Thus, PAR 1111 is concluded to result in adverse significant operational NOx air quality impacts.

The Governing Board finds that there are no feasible mitigation measures that would eliminate or reduce the significant adverse operational air quality impacts for NOx emissions to less than significant levels. 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 finds further that the Final SEA considered alternatives pursuant to CEQA Guidelines Section 15126.6, but, aside from the No Project Alternative, there are no other alternatives that would reduce to insignificant levels the significant air quality impacts identified for the proposed project and still achieve the objectives of the proposed project.

Conclusion

The Governing Board finds that the findings required by CEQA Guidelines Section 15091(a) are supported by substantial evidence in the record. The administrative record for the CEQA document and adoption of the rule amendments is maintained by the Office of Planning, Rule Development and Area Sources. The record of approval for this project may be found in the SCAQMD's Clerk of the Board's Office located at SCAQMD headquarters in Diamond Bar, California.

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 significant 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, including region-wide or statewide environmental 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, including region-wide or statewide environmental 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 the potentially significant adverse operational NOx air quality impacts resulting 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 Decision for the proposed project.

Despite the inability to incorporate changes into the proposed project to mitigate potentially significant adverse operational air quality impacts to a level of insignificance, the SCAQMD's 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 NOx emission reductions delayed from the proposed project.

2. The potential significant adverse impacts from implementing PAR 1111 consist of a delay in achieving anticipated NOx emission reductions, and do not involve any emission increases of NOx or any other pollutant.

3. In consideration of the total net accumulated NOx emission reductions projected overall, the delay in NOx emission reductions would not interfere with the air quality progress and attainment demonstration projected in the AQMP. At the time of the September 2014 amendments to Rule 1111, the 2012 AQMP allocated one ton per day of NOx emissions in the state implementation plan (SIP) set aside account for every year starting in year 2013 to year 2030 in the event that NOx emission reductions were not achieved via rule adoptions or amendments. This NOx set aside account was re-evaluated and revised in the Final 2016 AQMP based on expected growth and the number of projects expected to take place in near future years to 2.0 tons per day for every year starting in year 2017 to year 2025 and 1.0 ton per day for every year starting in year 2026 to year 2031. As a result, even though PAR 1111 would delay NOx emission reductions, implementation of other control measures in the 2016 AQMP will provide human health benefits by reducing population exposures to existing NOx emissions. The cumulative air quality impacts from the proposed project and all other AQMP control measures, when considered together, are not expected to be significant because ongoing implementation of the control measures in both the 2012 AQMP and the 2016 AQMP is expected to result in net NOx emission reductions and overall air quality improvement.

4. The proposed project will help relieve certain affected industries of the compliance challenges currently being experienced with the existing Rule 1111 and will ensure that equipment manufacturers are not unnecessarily burdened with compliance costs.

The SCAQMD's Governing Board finds that the aforementioned considerations outweigh the unavoidable significant effects to the environment as a result of the proposed project.

MITIGATION MONITORING PLAN

When making findings as required by Public Resources Code Section 21081 and CEQA Guidelines Section 15091, the lead agency must adopt a reporting or monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment [Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097(a)]. However, SCAQMD found there are no feasible mitigation measures that would eliminate or reduce the significant adverse operational air quality impacts for NOx emissions to less than significant levels. Therefore, no mitigation monitoring plan has been developed for PAR 1111 at this time.

CONCLUSION

Based on a "worst-case" analysis, the potential adverse operational air quality impacts from the adoption and implementation of PAR 1111 are considered significant and unavoidable. No feasible mitigation measures have been identified that would reduce the significant adverse operational air quality impacts associated with implementing the PAR 1111 from the entire project to less than significant levels. Further, no project alternatives have been identified that would reduce these impacts to insignificance.

ATTACHMENT F

(Adopted December 1, 1978)(Amended July 8, 1983)(Amended November 6, 2009)
(Amended September 5, 2014)(PAR 1111 March 2, 2018)

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

(a) Purpose and Applicability

The purpose of this rule is to reduce NOx emissions from ~~natural gas-fired,~~ fan-type central furnaces, 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) 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.

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

(4) FAN--TYPE CENTRAL FURNACE is a self-contained space heater using natural gas, or any fan-type central furnace that is ~~to be installed~~ 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.

(5) HEAT INPUT means the higher heating value of the fuel to the furnace measured as BTU per hour.

(6) NOx EMISSIONS means the sum of nitrogen oxide and nitrogen dioxide (oxides of nitrogen) in the flue gas, collectively expressed as nitrogen dioxide.

(7) RATED HEAT INPUT CAPACITY means the gross HEAT INPUT of the combustion device.

(8) 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.

(9) 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.

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

(11) 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.

(12) WEATHERIZED means designed for installation outside of a building, equipped with a protective jacket and integral venting, and labeled for outdoor installation.

(c) Requirements

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

(3) ~~Natural-gas-fired,~~ F~~f~~an-type central furnaces shall:

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

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

(4) On or after October 1, 2012, a person shall not manufacture, supply, sell, offer for sale, or install, for use in the South Coast Air Quality Management District, ~~natural-gas-fired,~~ fan-type central furnaces subject to this rule, unless such furnace complies with the applicable emission limit and compliance date set forth in Table 1 and is certified in accordance with subdivision (d) of this rule.

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

* Nanograms of oxides of nitrogen (calculated as NO_2) per joule of useful heat delivered to the heated space

(5) Any manufacturer of fan-type central furnaces regulated by this rule may elect to pay a per unit mitigation fee ~~of $200 for each condensing, furnace and $150 for each non-condensing, weatherized, or mobile home furnace distributed or sold into the SCAQMD~~ 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 SCAQMD, 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.~~ A manufacturer may elect to pay the per unit mitigation fee for a time period of no more than 36 months after the applicable compliance date in Table 1 of paragraph (c)(4).~~

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	~~April 15~~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, 2020
	Mobile Home	October 1, 2018	$150	April 1, 2019	$150	September 30, 2021
> 60,000 Btu/hr and ≤ 90,000 BTU/hr	Condensing	~~April 15~~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, 2020
	Mobile Home	October 1, 2018	$150	April 1, 2019	$150	September 30, 2021
> 90,000 BTU/hr	Condensing	~~April 15~~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, 2020
	Mobile Home	October 1, 2018	$150	April 1, 2019	$150	September 30, 2021

(C) ~~A manufacturer shall s~~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~~A~~) ~~Any manufacturer electing to comply using this mitigation fee option shall~~ Ssubmits to the SCAQMD an alternate compliance plan no later than 60 days prior to the applicable compliance date, or no later than ~~April 1, 2018~~ March 16, 2018 for the condensing furnace

compliance plan starting on ~~April 15, 2018~~April 1, 2018, which~~that~~ 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 SCAQMD during the alternate compliance period, which estimate shall be based on total distribution and sales records or invoices of condensing, non-condensing, weatherized or mobile home fan-type central furnaces that were distributed or sold into the SCAQMD during the 12 month period of July 1 to June 30 prior to the applicable compliance date, along with supporting documentation;

(iii) a completed SCAQMD 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, section (c)).

(E~~B~~) ~~The manufacturer shall s~~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 SCAQMD 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 SCAQMD during the alternate compliance period. The report and the payment of mitigation fees must be submitted to the SCAQMD 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 ~~6-month~~ 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 SCAQMD 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 SCAQMD and a check for payment of mitigation fees to the SCAQMD no later than October 30, 2019.

(d) Certification

(1) The manufacturer shall have each appliance model tested in accordance with the following:

(A) Oxides of nitrogen measurements, test equipment, and other required test procedures shall be in accordance with SCAQMD Method 100.1.

(B) Operation of the furnace shall be in accordance with the procedures specified in Section 4.0 of Code of Federal Regulations, Title 10, Part 430, Subpart B, Appendix N.

(2) One of the two formulas shown below shall be used to determine the nanograms of oxides of nitrogen per joule of useful heat delivered to the heated space:

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

Where:

N = nanograms of emitted oxides of nitrogen per joule of useful heat.

P = concentration (ppm volume) of oxides of nitrogen in flue gas as tested.

U = volume percent CO_2 in water-free flue gas for stoichiometric combustion.

H = gross heating value of fuel, BTU/cu.ft. (60^oF, 30-in. Hg).

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

E = AFUE, percent (calculated using Table 2).

Y = volume percent of O_2 in flue gas.

Z = heating value of gas, joules/cu. meter (0.0^oC, 1 ATM).

(3) ~~*At least 120 days p*~~Prior to the date a furnace model is first shipped to a location in the SCAQMD for use in the District, the manufacturer shall ~~*submit to the Executive Officer the following*~~ obtain Executive Officer's approval for the emission test protocol and emission test results verifying compliance with the applicable NOx limit specified in Table 1, submitting the following:

(A) A statement that the model is in compliance with subdivision (c). (The statement shall be signed by a responsible official and dated, and shall attest to the accuracy of all statements.)

(B) General Information

(i) Name and address of manufacturer.

(ii) Brand name.

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

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

~~*(D) Executive Officer approved emission test protocol and emission test results verifying compliance with the applicable NOx limit specified in Table 1.*~~

(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 NOx 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 Air Quality Management District for distribution or sale outside of the District shall have a label on the shipping container identifying the furnace as not certified for use in the District.

(f) Enforcement

The Executive Officer may periodically conduct such tests as are deemed necessary to ensure compliance with subdivision (c), (d), and (e)~~, and (h)~~.

(g) 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 Air Quality Management District 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 District, 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 ~~an OEM~~ or distributor for future or planned construction, the manufacturer shall be allowed to sell the units within the SCAQMD 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% 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 District;

(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)~~(4)~~(A) through (g)(3)~~(4)~~(D) shall result in the requirement to pay~~ing~~ or retroactively pay~~ing~~ the corresponding mitigation fee specified in paragraph (c)(5) within 30 days upon notification from the Executive Officer.

(4) The manufacturer of any natural gas furnace that is not certified to meet 14 ng/J of NOx emission and is ~~distributed with a propane conversion kit, for the unit,~~ to be installed with a propane conversion kit for propane firing only in the SCAQMD, is exempt from subdivisions (c) and (d), provided ~~that~~:

(A) Effective June 1, 2018, the shipping carton or~~and~~ 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 SCAQMD Rule 1111~~It is not certified to comply with SCAQMD Rule 1111 in natural gas firing mode~~."

(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 SCAQMD for the applicable compliance plan period;

(ii) The quantity of propane conversion kits for furnaces distributed or sold into the SCAQMD 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 section (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 SCAQMD without meeting above requirements shall be in violation of SCAQMD Rule 1111.

~~(h) Rebate Incentives for Early Compliance~~

~~Any manufacturer of natural-gas-fired, fan-type central furnaces subject to this rule that distributes and sells into the District furnaces that comply with the 14 nanograms/Joule emission limit 90 days prior to the applicable compliance date in Table 1 of paragraph (c)(4) may submit a compliance plan for early compliance to the Executive Officer and to receive on a first-come first-served basis from the AQMD a rebate payment of $75 for each 14 nanograms/Joule certified furnace and $90 for each high efficiency 14 nanograms/Joule certified furnace with AFUE of 90% or greater distributed and sold into the District, provided funds are available on the date documentation on the number of units distributed and sold is submitted to the AQMD. Total rebate payments to all manufacturers shall not exceed $3,000,000.~~

~~(i) Technology Assessment~~

~~On or before April 1, 2013, the Executive Officer shall conduct a technology assessment and shall report to the Governing Board on the status of manufacturers' progress towards compliance with the 14 nanograms/Joule emission limit for nitrogen oxides.~~

ATTACHMENT G

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Staff Report
Proposed Amended Rule 1111 – NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces

March 2018

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Rule 1111 reduces emissions of nitrogen oxides (NOx) from residential and commercial gas-fired fan-type ~~residential~~ space heating furnaces 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. The rule applies to manufacturers, distributors, sellers, and installers of such furnaces.

Rule 1111 was adopted by the SCAQMD Governing Board in December 1978 and amended in 1983, 2009, and 2014. The more significant changes included lowering the NOx emissions from 40 to 14 nanograms per Joule (ng/J) and providing an alternate compliance option.

As required by the 2009 amendment, the SCAQMD worked with the original equipment manufacturers (OEMs) to develop prototype residential furnaces that meet the new 14 ng/J NOx limit in Rule 1111. The technology assessment demonstrated the new lower Rule 1111 NOx limit was achievable. However, additional time would be needed to commercialize compliant furnaces. In the 2014 amendment, an alternative compliance option allows the OEMs to pay a per unit mitigation fee of $200 for each condensing furnace and $150 for each other type of furnace, in lieu of meeting the new lower NOx emission limit, for up to 36 months past the applicable compliance date.

Currently, all of the OEMs are using the alternate compliance option by paying the mitigation fee for at least some of their product line. However, compliant furnaces have been developed by three OEMs and certified by the SCAQMD to meeting 14 ng/J NOx limit. Furthermore, on December 4, 2017, one of the OEMs launched commercialization of their compliant products.

Based on considerations of technology development and implementation status, stakeholders' input, and the need to encourage development and sale of compliant products, SCAQMD staff recommends maintaining the 14 ng/J NOx limit and has proposed the following amendments for Rule 1111: (1) increasing the mitigation fee in two phases to a range of $300 to $450, depending on the furnace type and heat input capacity; (2) extending the mitigation fee alternative compliance option by 1.5 years for condensing furnaces, and one year for non-condensing and weatherized furnaces; (3) providing an exemption from the mitigation fee increase for units encumbered in a contractual agreement by OEMs and distributors for new construction ~~developments~~, if contracts were signed prior to January 1, 2018; (4) providing an exemption of rule applicability for natural gas furnaces to be installed with propane conversion kits for propane firing only, with a defined labeling requirement; and ~~(4) preventing circumvention of the rule (i.e., propane furnaces)~~ (5) removing the 120 day lead time requirement for certification application submittal.

As a companion of the rule amendment, staff has also proposed to establish a rebate program for consumers who purchase and install compliant furnaces in the SCAQMD to benefit consumers and incentivize the purchase of lower emitting compliant furnaces. The SCAQMD Governing Board authorized issuance of Request for Proposal (RFP) #P2018-05 on December 1, 2017, to solicit proposals to administer the rebate program and will approve the proposal selection on March 2, 2018.

CHAPTER 1: BACKGROUND

INTRODUCTION
REGULATORY HISTORY
EQUIPMENT AND PROCESS
REQUIREMENTS AND TESTS FOR NEW TECHNOLOGY
AFFECTED INDUSTRIES
IMPLEMENTATION STATUS
TECHNOLOGY DEVELOPMENT STATUS
PUBLIC PROCESS

INTRODUCTION

The purpose of Rule 1111 – NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces is to reduce NOx emissions from residential and commercial gas-fired fan-type space heating furnaces 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. The rule applies to manufacturers, distributors, sellers, and installers of such furnaces. It requires manufacturers to certify that each furnace model offered for sale in the SCAQMD complies with the emission limit using specific test methods approved by the SCAQMD and U.S. EPA. The current rule provides manufacturers an alternate compliance option of paying a per-unit mitigation fee for up to 36 months past the applicable compliance date. Most single family homes, many multi-unit residences, and some small commercial building in the SCAQMD use this type of space heating equipment.

REGULATORY HISTORY

Rule 1111 was adopted by the SCAQMD Governing Board in December 1978, addressing all sizes of space heating furnaces. The original rule required all residential and commercial space heating furnaces to meet a NOx emission limit of 40 nanograms per Joule (ng/J) of heat output (equivalent to 61 ppm at a reference level of 3% oxygen and 80% Annual Fuel Utilization Efficiency (AFUE)) beginning January 1, 1984. At the December 1978 rule adoption Hearing, a rule requirement that all space heating furnaces meet a 12 ng/J NOx emission limit by 1995 was considered by the Governing Board but not adopted.

Rule 1111 was later amended in July 1983 in order to limit applicability based on a unit's size and to exempt larger commercial space heaters. The rule amendment limited applicability to furnaces with a heat input 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. The July 1983 amendment also exempted units manufactured for use in mobile homes (manufactured housing), revised the definition of efficiency, and clarified testing procedures.

In November 2009, Rule 1111 was amended to be consistent with the objectives of the 2007 Air Quality Management Plan (AQMP) Control Measure CMB-03. The 2009 amendment established a new lower NOx emission limit of 14 ng/J (equivalent to 22 ppm at a reference level of 3% oxygen and 80% AFUE), and required the three major categories of residential furnace – condensing (high efficiency), non-condensing (standard), and weatherized – 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, had to meet a NOx limit of 40 ng/J by October 1, 2012, with a future limit of 14 ng/J on October 1, 2018. The new lower NOx emission limit of 14 ng/J reflects a 65% reduction from the then current limit of 40 ng/J. To facilitate the depletion of existing inventories and to ensure smooth transition to the new limits, Rule 1111 also provided a temporary 10-month exemption (a sell-through period) for units manufactured and delivered into the SCAQMD prior to the compliance date.

To encourage and accelerate technology development, the 2009 Rule 1111 amendment provided an incentive for early compliance with the 14 ng/Joule NOx emission limit, and a $3 million fund was approved for this purpose. Manufacturers that delivered 14 ng/J furnaces into the SCAQMD prior to the applicable compliance date were given the opportunity to receive a payment of $75 for each standard efficiency furnace and $90 for each high-efficiency unit sold and delivered into the SCAQMD 90 days prior to the applicable compliance date. However, to date, no manufacturer has applied for this incentive.

The 2009 Rule 1111 amendment also required a technology assessment and status report to the Governing Board. This technology assessment evaluated both the feasibility of the new lower NOx emission limit and the rule implementation schedule. The SCAQMD Technology Advancement Office (TAO) initiated a Request for Proposals (RFP) to develop prototype residential furnaces that meet the new 14 ng/J NOx limit. The technology development projects were initiated in 2010 and completed in 2013. The total cost of the four projects was $1,447,737 with $447,737 provided by The Gas Company and $50,000 provided by the San Joaquin Valley Unified Air Pollution Control District. The prototype furnaces developed through these four projects demonstrated that the new lower Rule 1111 NOx limit is achievable in all of the types of forced air residential heating furnaces produced for the United States market. However, additional time may be needed to commercialize 14 ng/J furnaces. This technology assessment was presented to the Governing Board meeting on January 10, 2014.

Rule 1111 was last amended in September 2014 to delay the compliance date for condensing furnaces and provide an alternate compliance option. The alternate compliance option allows manufacturers subject to Rule 1111 to pay a per unit mitigation fee of $200 for each condensing furnace and $150 for each other type of furnace distributed or sold into the SCAQMD, in lieu of meeting the new lower NOx emission limit. The mitigation fee alternative compliance option can be used for up to 36 months past the applicable compliance date. Depending on furnace type, the mitigation fee option will end, and the NOx limit of 14 ng/J will phase in, over the period from April 1, 2018, to October 1, 2021. Industry endorsed the mitigation fee approach. The 2014 amendment was State Implementation Plan (SIP) approved in March 2016, and the mitigation fee will be used to offset foregone emissions reductions.

In April 2016, the Air Conditioning Heating and Refrigeration Institute (AHRI) and OEMs met with SCAQMD staff asserting that safety and reliability concerns had prevented the development of a compliant unit for commercialization. In response, staff conducted a survey with manufacturers from May to July 2016 and have been closely monitoring the technology development status. Furthermore, staff has been meeting with individual stakeholders (eight OEMs, two burner manufacturers, and other interested parties) since March~~,~~ 2017. Task Force meetings were held on April 27, 2017, and May 25, 2017, in which implementation status and rule recommendations were discussed. As a result of these investigations, it was found that all the OEMs are paying the mitigation fee for at least some of their product line; however, three OEMs have developed products complying with the Rule 1111 NOx 14 ng/J limit with field tests underway. Moreover, ~~one manufacturer indicated that they would have a compliant product commercially available prior to the 2017 winter season. O~~on December 4, 2017, ~~this~~ one manufacturer (Lennox) launched ~~production~~ a product line of compliant products (non-

condensing units in the size of 60,000, 80,000, and 100,000 btu/hr), which are now commercially available.

EQUIPMENT AND PROCESS

Fan-type gas-fired furnaces heat a building by circulating air from inside the building through the furnace. In a fan-type furnace, air is heated when it passes through a heat exchanger. Combustion gases heat up the inside of the heat exchanger, and building air moving past the outside of the heat exchanger removes heat from the outside surface. A blower (fan) pulls air through one or more intake ducts and pushes the air past the heat exchanger and through another set of ducts, which direct the heated air to different parts of the building. The heated air circulates through the building before it is again pulled into the intake ducts and re-heated. This process continues until a specific temperature is detected by a thermostat in the building, which then shuts off the furnace. When the temperature at the thermostat goes below a set point, the thermostat sends a signal for the furnace to turn on.

REQUIREMENTS AND TESTS FOR NEW TECHNOLOGY

Gas furnaces in the United States must meet the ANSI Z21.47/CSA 2.3 standard referred as CSA certification, mainly to ensure safety. To be sold and installed in the SCAQMD jurisdiction, they must also be certified by the SCAQMD for Rule 1111 NOx emission limit compliance by specific test methods approved by the SCAQMD and U.S. EPA. OEMs also participate in AHRI certification program ~~for verification test of~~to verify output heating capacity and annual fuel utilization efficiency. As gas furnaces should be installed according to building h~~H~~eating, ventilation, and air conditioning (HVAC) requirements, manufacturers have training programs for installers. New technology may trigger additional training; however, one OEM that is proposing early commercialization expressed that there is no new field technical training required for their compliant products. For gas furnaces with new technology, OEMs conduct extensive internal lab testing, as well as field testing, to ensure safety and reliability. Staff understands that OEMs generally apply for NOx certification after internal lab testing, but may do it before or during any phase of field testing.

AFFECTED INDUSTRIES

Proposed Amended Rule 1111 affects manufacturers (NAICS 333), distributors and wholesalers (NAICS 423), and retailers and dealers (NAICS 444) of residential and some commercial furnaces. Because heating units regulated by the rule are used in most residential and many commercial settings for heating small buildings, construction and building contractors and installers (NAICS 238 and 811) related to residential furnaces are also affected by PAR 1111. The Air Conditioning Heating and Refrigeration Institute (AHRI), the major manufacturer's trade organization, indicates that there are no manufacturers of fan-type gas-fired residential furnaces in the SCAQMD. However, these companies do maintain regional sales offices and distribution centers in the SCAQMD and there are manufacturers of other types of heating furnaces in the SCAQMD.

IMPLEMENTATION STATUS

Except for ~~the~~ mobile home units, the compliance dates for all furnace types have expired. The compliance date for mobile home furnaces to meet the 14 ng/J NOx limit is October 1, 2018.

All the OEMs are currently using the alternate compliance option and paying the mitigation fee for at least some, if not all, of the condensing, non-condensing, and weatherized units in their product line; this alternative compliance option ends on April 1, 2018, October 1, 2018, and October 1, 2019, respectively. For mobile home units, OEMs have until October 1, 2021, to utilize the alternative compliance option.

TECHNOLOGY DEVELOPMENT STATUS

On September 20, 2016, Rheem's natural gas fired furnace Model *801TA070317UUA was determined to meet the 14 ng/J emission limit and thus was issued a Rule 1111 NOx certification by the SCAQMD. The evaluation was based on a source test conducted on June 1, 2016 (STE Source Test File Reference #R16314) with results indicating NOx emission of 7.0 ng/J. This unit is a non-condensing furnace with a maximum input rate about 70,000 btu/hr.

Since August 2016, Multicalor, a Belgium furnace manufacturer, has commercialized a line of Rule 1111 emission compliant furnaces (Udara furnace) in Belgium and Netherlands with six different capacities, ranging from 34,000 btu/hr to 170,000 btu/hr. Udara furnaces are single heater exchanger condensing furnaces, but can be redesigned into non-condensing compliant furnaces. Multicalor is in the process of introducing Udara furnaces to the United Kingdom market.

On August 15, 2017, Goodman's natural gas fired furnace base Models GMES960403BU**, GMES960603BU**, and GMES960805CU** were issued Rule 1111 NOx certifications by the SCAQMD. The emission test conducted on model GMES960805CU (STE Source Test File Reference #17216) indicates NOx emissions of 3.8 ng/J. The certified furnace models cover condensing furnaces with maximum input rates of 40,000, 60,000, and 80,000 btu/hr.

On September 19, 2017, Lennox's four base Models SL280UH060NV36A-*, SL280UH080NV48B-*, SL280UH080NV60C-*, and SL280UH100NV60C-* were issued Rule 1111 NOx certifications by the SCAQMD. The emission test conducted on model SL280UH100NV60C-01 (STE Source Test File Reference #17303) indicates NOx emissions of 7.0 ng/J. The certified furnace models cover non-condensing furnaces with maximum input rates of 60,000, 80,000, and 100,000 btu/hr.

On December 4, 2017, Lennox launched their line of certified compliant products and made them commercially available for sale.

PUBLIC PROCESS

The rule development effort for PAR 1111 is part of an ongoing process to evaluate low NOx technologies for combustion equipment. SCAQMD staff has held two Task Force meetings (on April 27, 2017, and May 25, 2017), and four Working Group meetings* (on July 27, 2017, September 21, 2017, November 15, 2017, and January 9, 2018). The discussions at these meetings included technology development and rule implementation status, recommended changes to the rule, and incentive and public awareness programs. Ongoing individual meetings with stakeholders (eight OEMs, two burner manufacturers, and others) have also been held prior to and during the rulemaking process to maintain confidentiality regarding technology development status.

PAR 1111 has been discussed at the Stationary Source Committee (SSC) meetings on June 16, 2017, November 17, 2017, ~~and~~ January 19, 2018, and February 16, 2018. The Public Workshop was held on October 19, 2017. The Public Hearing for PAR 1111 is scheduled for March 2, 2018.

* The District refers to a meeting with stakeholders prior to the rulemaking process as a Task Force meeting, and a meeting with stakeholders during the rulemaking process as a Working Group meeting.

CHAPTER 2: SUMMARY OF PROPOSED AMENDED RULE 1111

PROPOSED AMENDMENTS TO RULE REQUIREMENTS

PROPOSED AMENDMENTS TO RULE REQUIREMENTS AND A NEW REBATE PROGRAM

Staff has some primary considerations with regards to the proposed amendments. First of all, OEMs have their development targeted at 14 ng/J, and all the compliant condensing and non-condensing furnaces are certified below 10 ng/J for NOx. It is also important to continue to maintain a competitive market among OEMs with adequate coverage, which will help ensure sufficient customer choices and more reasonably priced units. On the other hand, OEMs who have invested heavily and developed compliant products should be rewarded for the commercialization, not penalized if their compliant furnaces are unable to compete in a market of cheaper, noncompliant furnaces. Staff also considered the need to ensure that the compliant products adequately cover the size ranges. Additional considerations include ensuring safety and reliability with more testing, the fact that smaller furnaces may emit less, and the concern that many mobile home furnace consumers are low income. Lastly, in addition to the emission reductions needed for this area, there should be a clear path for the higher efficiency furnaces, as the application of high efficiency equipment is in line with the 2016 AQMP goal.

Based on these considerations and input from stakeholders, SCAQMD staff recommends maintaining the 14 ng/J NOx limit and has proposed the following amendments for Rule 1111.

Alternate Compliance Option Extension and Mitigation Fee Increase

In lieu of meeting the lower NOx emission limit in Table 1 of subdivision (c), paragraph (c)(5) currently provides furnace manufacturers that are subject to Rule 1111 an option to pay a per unit mitigation fee for up to 36 months past the compliance date. As the compliance dates have expired for all but mobile home furnaces, all OEMs are utilizing the mitigation fee option for at least some, if not all, ~~of~~ condensing, non-condensing, and weatherized furnaces. This alternate compliance option will end on April 1, 2018, for condensing units; October 1, 2018, for non-condensing units; October 1, 2019, for weatherized units; and on October 1, 2021, for mobile home units.

OEMs have been most focused on the development of non-condensing units, followed by condensing units, weatherized units, and then mobile home units. To date, two OEMs have certified non-condensing units and one OEM has certified condensing units complying with the Rule 1111 NOx 14 ng/J limit with field tests at different stages. Furthermore, on December 4, 2017, one of the OEMs launched a line of compliant products (non-condensing units in the size of 60,000, 80,000, and 100,000 btu/hr) and has made them commercially available for sale in their SCAQMD distribution center. Yet, considering customer choices and some other OEMs' request for additional heating seasons to conduct field testing to ensure safety and liability, staff proposes to extend the alternate compliance mitigation fee option.

The current mitigation fee is $200 for each condensing furnace and $150 for each non-condensing, weatherized, and mobile home furnace distributed or sold into the SCAQMD. Staff expected this fee not only to mitigate emission reduction delays but also to encourage commercialization of compliant products. All OEMs have been paying the mitigation fee and

passing the fee along the supply chain to consumers. When there were no compliant products available, the mitigation fee had not acted to motivate compliant product commercialization. With technology development maturing, one OEM has made compliant furnaces commercial available, while other OEMs are now able to project commercialization timelines for their compliant products. Consequently, the mitigation fee may serve a more effective purpose going forward, especially when the fee is increased for non-compliant products concurrent with a rebate program for compliant products.

On this basis, for the alternate compliance option, staff recommends a 1.5-year extension (ending on September 30, 2019) for condensing units, a 1-year extension (ending on September 30, 2019) for non-condensing units, a 1-year extension (ending on September 30, 2020) for weatherized units, and no extension (ending on September 30, 2021) for mobile home units. This extension provides assurance that there will be a variety of compliant products available to the consumer.

Staff also recommends increasing the mitigation fee in two phases for non-compliant condensing, non-condensing, and weatherized furnaces based on furnace heat input capacity (fee analysis included in the next section for rebate), according to the schedule set forth below in Table 2-1. There is no mitigation fee increase for mobile home furnaces. For condensing furnaces, manufacturers will continue to pay the current per unit mitigation fee of $200 when the next compliance cycle starts on April 1, 2018, but will start the phase one fee on ~~April 15~~ May 1, 2018.

Table 2-1 – Alternate Compliance Plan with the Phase One and Phase Two Mitigation Fee Schedules

Furnace		Phase One Mitigation Fee		Phase Two Mitigation Fee		Phase Two Mitigation Fee Option End Date
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)	
≤ 60,000 BTU/hr	Condensing	~~April 15~~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, 2020
	Mobile Home	October 1, 2018	$150	April 1, 2019	$150	September 30, 2021
> 60,000 Btu/hr and ≤ 90,000 BTU/hr	Condensing	~~April 15~~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, 2020
	Mobile Home	October 1, 2018	$150	April 1, 2019	$150	September 30, 2021
> 90,000 BTU/hr	Condensing	~~April 15~~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, 2020
	Mobile Home	October 1, 2018	$150	April 1, 2019	$150	September 30, 2021

❖ Please note that this table is referred to as Table 2 in PAR 1111

The alternate compliance plan cycle remains the same for each 12 month time period after the applicable compliance date in the rule. The OEMs continue to be required to submit an alternate compliance plan no later than 60 days prior to the applicable compliance date (beginning of each compliance plan period), and submit a report and payment for the actual sales of the compliance

plan period within 30 days after the end of the compliance plan period. However, an exception applies for sales of phase one period specified in above Table 2-1. The proposed amendment would require OEMs to pay mitigation fees for the phase one period no later than thirty (30) days after the end the phase one period, with the purpose of replenishing Rule 1111 rebate program fund in a more timely manner. Moreover, the final compliance plan for condensing units ends on September 30, 2019, by in the proposalproposed rule, covering only 6 months instead of the regular 12 months,; therefore payment of the applicable mitigation fees would be due to the SCAQMD no later than October 30, 2019.

Rebate to End Users

The mitigation fee by itself has not been effective enough to motivate technology development. In addition, based on information provided by some OEMs, the compliant products will be more expensive than non-compliant products, even if the mitigation fee for non-compliant products is increased as shown above in Table 2-1. In order to alleviate the resulting cost differential for customers between compliant and non-compliant products, and continue to encourage cleaner technologies, a rebate program* has been supported in meetings by many of the OEMs. Some OEMs suggested that the District provides rebates to end users of up to $400 or $500.

Staff collected cost information from OEMs for analysis with regards to the rebate and mitigation fee change. To manufacturing a compliance furnace, the medium median cost increase for an OEM would be $150 per unit regardless of furnace type. OEMs suggested the price markup through the supply chain to the consumer could be two or three times of the manufacturing cost increase. Staff also referred to DOE's 2015 technical support document for their its residential furnaces energy efficiency program for overall price mark up. As a result, a price increase of $500 per compliance furnace for customers was considered representative for subsequent analysis.

To fund a rebate program, staff has identified two sources. The first funding source is the $3,000,000 authorized by the Board on November 6, 2009 (Agenda #30) from the Fund 27 Rule 1121 mitigation fee program. Since there had not been any compliant furnaces introduced into the market until recently, the fund remains intact. The other is the incremental mitigation fee as a result of the proposed Rule 1111 amendment to be adopted on March 2, 2018.

When compliant product annual sales make up 40% of the total annual sales market of approximately 150,000 in the SCAQMD, a rebate of $200 to $300 per compliant unit would require a mitigation fee increase of $133 to $300, not taking into consideration any market behavior variables. To support this estimate, staff also developed an economic optimization model characterized by a partial equilibrium of the market for furnaces in the South Coast Air Basin. This type of model can consider a single market with producers, consumers, and policy requirements and estimate the "equilibrium" price and quantity/sales, where producer supply is equal to consumer demand. The model was also developed based on the aforementioned cost and sales market information. In the modeling exercise, a 40-percent market share of compliant

* It should be noted that the rebate program is not part of the proposed rule requirements.

furnaces would correspond to a rebate program that includes a rebate of $300 per compliant unit and an increase in the mitigation fee by $200 per non-complaint unit.

Staff proposes establishing a $500 rebate for the first 6,000 compliant units utilizing the $3,000,000 fund, and thereafter providing a $300 rebate for the remaining condensing furnaces and a $200 rebate for the remaining non-condensing, weatherized, and mobile home furnaces, which will be supported by the increased portion of the mitigation fee. Purchasers of compliant units will be eligible for rebates until the funds run out or six calendar months beyond the mitigation end date. Please note that the current mitigation fee ($200 for condensing units and $150 for others) is dedicated to mitigating forgone emission reductions that are delayed by using the alternate compliance plan. Therefore, only the incremental portion of the mitigation fee could be used to fund the rebate program.

The rebate program was suggested by the Working Group to be implemented via a third party contractor. On December 1, 2017, the Board authorized: (1) utilization of the $3,000,000 fund previously allocated for Rule 1111 rebates, as well as any additional incremental mitigation fee funding from future Rule 1111 amendments (March 2, 2018); and (2) issuance of RFP #P2018-05 to solicit proposals for a third party contractor to administer the rebate program for consumers who purchase and install compliant furnaces in the SCAQMD. Subsequently, three proposals were received by the RFP close date of January 9, 2018. The proposal selection is to be presented to the Governing Board for approval on March 2, 2018. A contract is expected to be executed about one month later. Specifications of the rebate implementation may further be discussed with the Working Group prior to the contract execution.

In general, the OEMs are divided on staff's proposal on the mitigation fee and rebate amount.

Other Proposed Rule Changes

Rule 1111 does not regulate propane fired furnaces (about 4% of residential heating in California). Some manufacturers sell 40 ng/J natural gas furnaces with propane conversion kits. With the conversion kit, natural gas furnaces can be converted to propane firing, and also back to natural gas firing. Some stakeholders have commented that, as the mitigation fee increases, there is a greater possibility for manufacturers to claim the sales of propane furnaces to avoid paying the mitigation fee, while the units are actually installed in the natural gas firing mode. Some other manufacturers have stated that establishing a separate production line for propane furnace would increase the manufacturing cost, eventually placing the burden on propane furnace consumers. On that basis, they have requested to be allowed to continue to sell 40 ng/J natural gas furnaces with propane conversion kits to convert natural gas furnaces to be operated with ~~to~~ propane ~~furnaces~~. To prevent rule circumvention, some stakeholders have suggested working with the supply chain to track and audit the installations with conversion kits, while others suggested labeling the unit for ~~dedication~~ dedicated ~~of~~ propane use only. In order to avoid significant cost increase for propane ~~firing~~ fired units while maintaining adequate rule enforceability, staff proposes to exempt from Rule 1111 requirements ~~for a~~ natural gas furnaces that ~~is~~ are not certified to meet 14 ng/J of NOx emissions and ~~is~~ are ~~distributed with a propane conversion kit for the unit~~ to be installed with a propane conversion kit for propane firing only, provided that the labeling on the shipping carton ~~and~~ 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~~ SCAQMD Rule 1111~~It is not certified to comply with SCAQMD Rule 1111 at natural gas firing mode~~." In addition, staff proposes that a reporting of the quantity of propane conversion kits distributed or sold into SCAQMD is to be provided along with the compliance plan report for the applicable period.

For furnaces that are subject to a contractual agreement, signed prior to January 1, 2018, by an OEM or distributor for ~~new construction development~~ future or planned construction, the manufacturer may be exempted from the proposed fee increase and only needs to pay the current mitigation fee to satisfy the alternate compliance plan. To qualify for this fee increase exemption, the OEM ~~should~~ must provide, along with the application: the contractual agreement for the units sold or to be sold in the District; quantity, model number, and serial number of the subject units; contract execution date; and names(s) of the contractor(s). The OEM must also demonstrate that the total quantity of furnaces identified in its exemption application(s) does not exceed 15% of the total number of furnaces distributed and sold in the previous compliance plan period.

Rule 1111 paragraph (d)(3) requires at least 120 days prior to the date a furnace model is first shipped to the SCAQMD for certification application submittal. This requirement is no longer feasible at promoting quick commercialization of compliant products. Staff proposes to remove this 120 day lead time requirement. However, manufacturers are still required to obtain approval for the emission test protocol and emission test results verifying compliance with the applicable NOx limit prior to the shipment.

CHAPTER 3: IMPACT ASSESSMENT

IMPACT ANALYSIS

Based on the District's 2016 AQMP emission inventory for fuel consumption, the annual average NOx emissions from residential heating using natural gas were 9.51 tons per day in 2012. Staff estimates that there are about four million residential type heating furnaces in the SCAQMD. Based on a furnace life of 25 years, a typical furnace emits 1.5 to 2.0 pounds of NOx per year. The emission rate reduction from 40 ng/J to 14 ng/J results in more than one pound per year of NOx emissions reductions for each furnace. Based on a furnace life of 20 to 25 years, the current rule is estimated to reduce annual average emissions of NOx by about 0.80 to 1.00 ton per day in 2018 and 2.03 to 2.54 tons per day in 2023 with emissions mitigation included. It is estimated that complete replacement with 14 ng/J furnaces will not occur until 2046. The complete emission reduction benefit of this rule is estimated to be about 6.18 tons per day (annual average) from the 9.51 tons per day baseline emissions.

PAR 1111 would delay the NOx emissions reductions from residential furnaces by 0.07 to 0.09 tons per day in 2018, 0.26 to 0.32 tons per day in 2023, and 0.26 to 0.32 tons per day in 2031. However, the proposed amendment does not cause any overall change for future year emissions. A mitigation fee is collected for the period the alternative compliance option is utilized, ~~and~~ which will then be used to fund emission reductions through a variety of projects that ha~~s~~ve cost effectiveness in the range of $10,000 to $16,000 per ton.

According to the Air Conditioning Heating and Refrigeration Institute (AHRI), the manufacturer's trade organization, there are no facilities manufacturing fan-type gas-fired residential furnaces in the SCAQMD. However, the affected companies do maintain regional sales offices and distribution centers in the SCAQMD.

COST EFFECTIVENESS

Cost effectiveness analysis is not required for PAR 1111. The proposed amendment does not impose additional requirements on manufacturers of compliant residential furnaces meeting the 14 ng/J NOx emission limit. While a mitigation fee increase is proposed, it is only for manufacturers selling noncompliant units through the alternate compliance option. On the other hand, manufacturers of compliant furnaces will have their customers incentivized by a rebate funded by the increased portion of mitigation fee.

The cost effectiveness analysis was performed in support of the 2009 amendment when the 14 ng/J NOx limit was introduced. Staff used three different approaches to estimate the cost effectiveness for that amendment. The results of that analysis estimated a cost effectiveness of between $8,600 and $19,000 per ton with an increased cost to the consumer of between $108 and $240 per furnace.

Table 3-1 – Cost Effectiveness Summary

Cost Effectiveness Approach	Cost Effectiveness
Previous Rule Amendments	$10,000 to $16,000 per ton
Water Heater Price Increases	$19,000 per ton
Material Cost & Markups	$8,600 per ton

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) ANALYSIS

~~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 SCAQMD 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 once the secretary of the resources agency has certified the regulatory program. The SCAQMD's regulatory program was certified by the secretary of resources agency on March 1, 1989, and has been adopted as, and is implemented by, SCAQMD Rule 110 – Rule Adoption Procedures to Assure Protection and Enhancement of the Environment. Pursuant to Rule 110, the SCAQMD typically prepares an Environmental Assessment (EA) to evaluate the environmental impacts for rule projects proposed for adoption or amendment.~~

~~PAR 1111 is considered a "project" as defined by CEQA. 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 SCAQMD 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.~~

~~PAR 1111 contains amendments that revise existing requirements included in Rule 1111, as amended in September 2014, in order to resolve compliance issues raised by stakeholders. In the version of PAR 1111 released in October 2017, PAR 1111 would increase the mitigation fee from $200 for each non-compliant condensing furnace and $150 each for all other non-compliant furnaces regulated under this Rule to $400 for all non-compliant units and extend the dates for complying with the NOx limit for the following equipment categories: 1) condensing furnaces from April 1, 2018, to October 1, 2019; 2) non-condensing furnaces from October 1, 2018, to October 1, 2019; 3) weatherized furnaces from October 1, 2019, to October 1, 2020; and 4) mobile home furnaces from October 1, 2021, to October 1, 2022. If the compliance dates are extended, PAR 1111 was shown to result in foregone NOx emissions reductions of 0.07 to 0.09 tons per day in 2018, 0.26 to 0.33 tons per day in 2023, and 0.26 to 0.33 tons per day in 2031, all of which exceed the SCAQMD's regional air quality CEQA significance threshold for NOx during operation. Analysis of PAR 1111 indicates that the estimated amount of NOx emission reductions foregone will substantially revise the existing requirements included in Rule 1111 as last amended in September 2014. As such, SCAQMD staff has determined that PAR 1111 contains new information of substantial importance which was not known and could not have been known at the time the Final Environmental Assessment (EA) was certified for the September 2014 amendments to Rule 1111 (referred to herein as the September 2014 Final EA).~~

~~However, aside from the topic of air quality, PAR 1111 is not expected to create new significant effects for any other environmental topic areas. Thus, analysis of the proposed project indicates that the type of CEQA document appropriate for the proposed project is a Subsequent Environmental Assessment (SEA), in lieu of an EA. The SEA is a substitute CEQA document, prepared in lieu of a Subsequent Environmental Impact Report (EIR) with significant impacts (CEQA Guidelines Section 15162(b)), pursuant to the SCAQMD's Certified Regulatory Program (CEQA Guidelines Section 15251(l); codified in SCAQMD 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.~~

~~Because the new potentially significant adverse effects to operational air quality that may result from implementing PAR 1111 were not analyzed in the September 2014 Final EA, the SCAQMD, as lead agency for the proposed project has prepared a Subsequent EA (SEA) with significant impacts pursuant to its Certified Regulatory Program. The September 2014 Final EA identified the topic of operational air quality in the environmental checklist as the only topic that would be affected by the proposed rule amendments at that time. However, the analysis in the September 2014 Final EA concluded that the operational air quality impacts were at less than significant levels. Since PAR 1111 is now shown to have potentially significant adverse air quality impacts during operation as a result of projected NOx emission reductions foregone, the focus of the analysis in the SEA is limited to the operational air quality as the only environmental topic area to be analyzed. In addition, since PAR 1111 may have statewide, regional, or area wide significance, a CEQA scoping meeting is required pursuant to Public Resources Code Section 21083.9(a)(2) and was held at the SCAQMD's Headquarters in conjunction with the Public Workshop on October 19, 2017. No CEQA comments were made at the Public Workshop/CEQA scoping meeting relative to PAR 1111. Further, pursuant to CEQA Guidelines Section 15252, since significant adverse impacts were identified, an alternatives analysis and mitigation measures are required. The Draft SEA has been released for a 45-day public review and comment period from Tuesday, December 26, 2017 to Friday, February 9, 2018 at 5:00 p.m. For any comments received relative to CEQA analysis in the Draft SEA, SCAQMD staff will include the comment letters along with responses to comments in an appendix to the Final SEA. In addition, since release of the preliminary draft for PAR 1111, PAR 1111 contains revisions that will be reflected in the Final SEA.~~

~~The September 2017 Final EA, upon which the SEA relies, is available from the SCAQMD's website at: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2014/par_1111_fea_wapps.pdf; by visiting the Public Information Center at SCAQMD Headquarters located at 21865 Copley Drive, Diamond Bar, CA 91765; or by contacting Fabian Wesson, Public Advisor by phone at (909) 396-2039 or by email at PICrequests@aqmd.gov.~~

~~Prior to making a decision on the adoption of PAR 1111, the SCAQMD 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.~~

The proposed amendments to Rule 1111 are considered to be modifications to a previously approved project (the amendments to Rule 1111 in September 2014) and are considered to be a

"project" as defined by the California Environmental Quality Act (CEQA). Therefore, a Subsequent Environmental Assessment (SEA) is the appropriate CEQA document. The previous CEQA document to the SEA is publically available upon request and can be reviewed by calling the SCAQMD Public Information Center at (909) 396-2001 or by visiting SCAQMD's website at www.aqmd.gov. The direct link to this document is also referenced in the Final SEA. Based on SCAQMD staff's review of PAR 1111, the proposed project has the potential to generate significant adverse operational air quality impacts but that it would not generate significant adverse environmental impacts to any other environmental topic areas.

The Draft SEA was released for a 45-day public review and comment period from December 26, 2017, to February 9, 2018. Three comment letters were received and responses have been prepared. The comment letters and responses are included in an appendix to the Final SEA (see Appendix D). Since the release of the Draft SEA, minor modifications were made to PAR 1111 and some revisions were made in response to verbal and written comments on the project's effects. SCAQMD staff has reviewed the modifications to PAR 1111 and concluded that none of the modifications constitute significant new information or a substantial increase in the severity of an environmental impact, nor provide new information of substantial importance relative to the Draft SEA. In addition, revisions to PAR 1111 in response to verbal or written comments would not create new, significant effects. As a result, these revisions do not require recirculation of the CEQA document pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Thus, the Draft SEA has been revised to reflect the aforementioned modifications and to include the comment letters and responses to comments such that it is now a Final SEA and is included as an attachment to the Governing Board package (see Attachment H of this Board package).

Prior to making a decision on the adoption of PAR 1111, the SCAQMD Governing Board must review and certify the Final SEA as providing adequate information on the potential adverse environmental impacts that may occur as a result of adopting PAR 1111.

SOCIOECONOMIC IMPACT ASSESSMENT

Proposed Amended Rule 1111 will extend the compliance deadline for OEMs to attain the 14 ng/J NOx emission standard for furnaces. It also amends the alternate compliance plan, which allows for mitigation fees to be paid in lieu of compliance with the standard. The proposed amendments to the alternate compliance plan will result in mitigation fees being set at a tiered rate based on the size and type of the furnace. These fees will range from $150-$325 for the Phase One period and range from $150-$450 for the Phase Two period as specified in Table 2 of PAR 1111. In conjunction with these proposed amendments to the rule, a rebate program for compliant furnaces sold in the region will be instituted and funded by the mitigation fees as described in earlier sections of this report.

As described in the affected industries section, PAR 1111 would potentially affect manufacturers (NAICS 333), distributors and wholesalers of furnaces (NAICS 423), retailers and dealers of furnaces (NAICS 444), and construction and building contractors and installers (NAICS 238 and 811). No manufacturers of the gas fired fan-type furnaces regulated under this rule are located within SCAQMD's four-county region. There are, however, many downstream businesses located within this region, including wholesalers and retailers of these furnaces and contractors that install or repair them. Based on these industry classifications and recent data, the number of establishments in these industries within the four-county region are included below, however

only a portion of these establishments will have business with furnaces covered under Rule 1111. There are approximately 18,800 establishments in the merchant wholesalers of durable goods industry (NAICS 423), 2,450 establishments in the building material and garden equipment and supplies dealers industry (NAICS 444), 17,600 establishments in the specialty trade contractors industry (NAICS 238), and 16,500 in repair and maintenance industry (NAICS 811).[1] Of these establishments a majority would be classified as a small business[2] according to SCAQMD's Rule 102 definition.[3]

Rule 1111 currently requires that OEMs begin selling furnaces that comply with the 14 ng/J NOx emission limit as early as April 2018, without an option to pay a mitigation fee. While the mitigation fees would increase for the OEMs selling non-compliant furnaces, it is expected to be economically more advantageous than the current rule requirement where there will be no alternate compliance option for non-condensing and condensing furnaces by April 2018 and October 2018, respectively. At the same time, those OEMs selling compliant furnaces are expected to benefit from the rebate program through the increased demand for their products, which is associated with the lower effective prices that would be paid by the end-users receiving the rebate. Furthermore, the increased mitigation fee is intended to level out the cost difference between compliant and non-compliant furnaces while sustaining the rebate program. As discussed in Chapter 2, a fee and rebate proposal within the range of that being proposed was evaluated with a partial equilibrium, economic optimization model and was found to equalize the average price of compliant and non-compliant furnaces. Based on these factors, staff finds that PAR 1111 does not create a competitive disadvantage for OEMs producing compliant furnaces. PAR 1111 would encourage further commercialization of compliant products while continuing to provide an option for the sales of non-compliant products. Ultimately, the effect of the increased mitigation fees and rebates will be to induce a mixture of compliant and non-compliant furnaces being sold in the region during the extended alternate compliance period. This outcome will be less costly to the regional economy than requiring OEMs, which pass through the higher cost of compliant furnaces to end-users through higher prices, to only sell compliant furnaces into SCAQMD's jurisdiction as early as April 2018 as required by the current rule. Therefore, PAR 1111 will not have adverse socioeconomic impacts additional to those that have been analyzed for the current rule.

[1] U.S. Census Bureau, 2015 County Business Patterns. Los Angeles, Orange, Riverside, and San Bernardino counties. https://www.census.gov/programs-surveys/cbp.html

[2] The SCAQMD defines a "small business" in Rule 102 for purposes of fees as one which employs 10 or fewer persons and which earns less than $500,000 in gross annual receipts. The SCAQMD also defines "small business" for the purpose of qualifying for access to services from the SCAQMD's Small Business Assistance Office (SBAO) as a business with an annual receipt of $5 million or less, or with 100 or fewer employees. In addition to the SCAQMD's definition of a small business, the federal Clean Air Act Amendments (CAAA) of 1990 and the federal Small Business Administration (SBA) also provide definitions of a small business. The CAAA classifies a business as a "small business stationary source" if it: (1) employs 100 or fewer employees, (2) does not emit more than 10 tons per year of either VOC or NOx, and (3) is a small business as defined by SBA. The SBA definitions of small businesses vary by six-digit North American Industrial Classification System (NAICS) codes. In general terms, a small businesses must have no more than 500 employees for most manufacturing and mining industries, and no more than $7 million in average annual receipts for most nonmanufacturing industries.

[3] Based on County Business Patterns for California. U.S. Census Bureau, 2015 County Business Patterns. https://www.census.gov/programs-surveys/cbp.html

For CEQA analysis purposes, four alternatives to PAR 1111 were developed and described in the ~~Draft Subsequent Environmental Assessment (SEA)~~ Final SEA. As illustrated in Table 1-2 of the Final SEA, these alternatives are: No Project (Alternative A), More Stringent NOx Limit (Alternative B), Less Stringent Timing (Alternative C), and More Mitigation (Alternative D). The No Project alternative would not amend the current rule; there are no adverse socioeconomic impacts additional to those that have been analyzed for the current rule.

The More Stringent NOx Limit alternative differs from PAR 1111 in that it will require OEMs to comply with a 10 ng/J emission standard starting in April 2018 while maintaining the proposed extension of the alternate compliance option, therefore potentially resulting in lower emission reductions foregone than the current rule or proposed amendments. However, it would present a challenge to OEMs to make furnaces commercially available that achieve this lower standard than what is required in the current rule and could require increased expenditures on research, development, and deployment for some OEMs. Therefore, this alternative may result in adverse socioeconomic impacts additional to those that have been analyzed for the current rule.

The Less Stringent Timing alternative differs from PAR 1111 in that it would allow more time for OEMs to achieve the 14 ng/J standard and use the alternate compliance option in the meantime. This option is less stringent and potentially less costly than both the proposed amendments and the current rule. Therefore, it would not have adverse socioeconomic impacts additional to those that have been analyzed for the current rule.

The More Mitigation alternative differs from PAR 1111 in that it would increase the mitigation fee further above the proposed fee increases, but maintain the proposed extension of compliance deadline for the 14 ng/J ~~emissio~~emission standard. This alternative is expected to be economically more advantageous than the current rule requirement where there will be no alternate compliance option. Additionally, the proposed mitigation fee incurred by OEMs selling non-compliant furnaces under this alternative is not expected to exceed the average incremental cost of compliant furnaces. Therefore, this alternative is not expected to have adverse socioeconomic impacts additional to those that have been analyzed for the current rule.

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

California Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the SCAQMD 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. In order to determine compliance with Sections 40727, 40727.2 require a written analysis comparing the proposed amended rule with existing regulations.

The following provides the draft findings.

Necessity: A need exists to amend Rule 1111 to provide residential furnace manufacturers additional time to develop the technology to meet the NOx emission limit.

Authority: The SCAQMD obtains its authority to adopt, amend, or repeal rules and regulations from California Health and Safety Code Sections 39002, 40000, 40001, 40440, 40440.1, 40702, 40725 through 40728, 41508, and 41700.

Clarity: PAR 1111 has been written or displayed so that its meaning can be easily understood by the persons affected by the rule.

Consistency: PAR 1111 is in harmony with, and not in conflict with or contradictory to, existing federal or state statutes, court decisions, or federal regulations.

Non-Duplication: PAR 1111 does not impose the same requirement as any existing state or federal regulation, and is necessary and proper to execute the powers and duties granted to, and imposed upon, the SCAQMD.

Reference: In amending this rule, the SCAQMD hereby implements, interprets, or makes specific reference to the following statues: Health and Safety Code sections 39002, 40001, 40702, 40440(a), and 40725 through 40728.5.

INCREMENTAL COST-EFFECTIVENESS

Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis for Best Available Retrofit Control Technology (BARCT) rules or emission reduction strategies when there is more than one control option that would achieve the emission reduction objective of the proposed amendments, relative to ozone, CO, SOx, NOx, and their precursors.

The only option for reducing NOx emission from equipment affected by PAR 1111 is replacement of current burners in newly manufactured equipment with low NOx burners. Some furnaces do use electricity to provide heat and other kinds of units use heated water from a small boiler or water heater. However, these equipment are either not regulated by the SCAQMD (electric furnaces or heat pumps) or are regulated by other SCAQMD rules (Rules 1121 or 1146.2). Because this rule amendment provides furnace manufacturers with an alternate compliance option and there is only one control option, a typical incremental cost-effectiveness analysis cannot be prepared.

However, for the 2009 rule amendment, staff did evaluate the incremental cost effectiveness as compared to a less stringent option. The same technology used to achieve a NOx limit of 14 ng/J can also be used to achieve less stringent limits of 17 ng/J (25 ppm) or the upper bound limit of 20 ng/J (30 ppm) included in Control Measure CMB-03. For these less stringent limits the cost of the technology is the same but because emission reductions are less, the cost effectiveness deteriorates rapidly. In other words, the less stringent option is less cost-effective.

COMPARATIVE ANALYSIS

Under Health and Safety Code Section 40727.2, the SCAQMD is required to perform a comparative written analysis when adopting, amending, or repealing a rule or regulation. The comparative analysis is relative to existing federal or state requirements, existing or proposed

SCAQMD rules, and air pollution control requirements and guidelines that are applicable to industrial, institutional, and commercial combustion equipment.

The SCAQMD is not aware of any state or federal requirements regulating air pollution that are applicable to new or in-use PAR 1111 units. Rule 1111 is also the only SCAQMD rule regulating this type of equipment. Because there are no state or federal requirements for PAR 1111 units, the proposed amendments are not in conflict with and do not duplicate any SCAQMD, state, or federal requirement.

CONCLUSION AND RECOMMENDATIONS

Although compliant condensing and non-condensing furnace products have been demonstrated seven years ago, only one manufacturer currently has a non-condensing compliant product commercially available for sale. Recent product certifications have shown that additional commercialized compliant products are forthcoming within the next few months. However, based on stakeholder input, meeting customer demands and developing broader product availability would require additional time beyond the current mitigation fee period. In addition, the application of economic modeling shows that compliant product availability will be enhanced with an increase in the mitigation fee in conjunction with the application of a rebate. All of these recommendations introduced into Rule 1111 will lead to the much needed SIP-approved NOx emissions reductions.

REFERENCES

REFERENCES

SCAQMD, 2009. *Staff Repot: Proposed Amended Rule 1111 – NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces*. South Coast Air Quality Management District, November 2009.

SCAQMD, 2014. *Rule 1111 Technology Assessment for Residential Furnaces*. South Coast Air Quality Management District, January 2014.

SCAQMD, 2014. *Staff Repot: Proposed Amended Rule 1111 – NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces*. South Coast Air Quality Management District, September 2014.

SCAQMD, 2017. *Final 2016 Air Quality Management Plan.* South Coast Air Quality Management District, March 2017.

DOE, 2015. *Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Residential Furnaces.* U.S. Department of Energy, February 2015.

RESPONSE TO COMMENTS

RESPONSE TO COMMENTS

SCAQMD staff held a public workshop and CEQA scoping meeting on October 19, 2017, in the SCAQMD Diamond Bar headquarters. Twelves public comment letters or emails were received by the comment end date of November 9, 2017. These responses also reflect comment letters and emails that were received prior to February 12, 2018. The comments and staff's responses are summarized below:

Mitigation Fee Increase

1. **Comment:** The mitigation fee increase will negatively impact companies located within the District versus business outside of the District.

   Response: Because the South Coast Basin experiences some of the worse air pollution in the nation, air emission regulations within the District will be stricter than areas outside of the District. However, great care is taken to implement the most cost effective means to reduce air emissions from all regulated sources of emissions, including home furnaces subject to Rule 1111. Based on the current mitigation fee, it is the SCAQMD staff's understanding that manufacturers and distributors have been passing this fee to consumers. The goal is to commercialize compliant products that consumers will purchase. The mitigation fee is a compliance option that is to encourage manufacturers to commercialize compliant products. The rebate will encourage consumers to purchase compliant products.

2. **Comment**: The mitigation fee increase will make homeowners opt to repair older furnaces versus replacing with new and technologically advanced equipment.

   Response: The Rule 1111 40 ng/J NOx limit has been in place since 1984; ~~R~~repairing a malfunctioning 40 ng/J unit does not reset the life span of the unit, and doing so would result in a much shorter useful life until replacement is necessary versus initial replacement with a new 40 ng/J non-compliant unit. In addition, the proposed consumer rebate will help motivate installation of compliant units.

3. **Comment**: The mitigation fee increase will encourage non-compliance.

   Response: The SCAQMD enforcement staff will continue to maintain a high level of enforcement for illegal sales. Stakeholders are encouraged to report any non-compliance and also provide recommendations in identifying potential paths to rule circumvention.

4. **Comment**: The mitigation fee increase will restrict consumer choice.

   Response: To date, there are three OEMs and various models being certified for condensing and non-condensing units. Some other OEMs expect to seek

certification in the near future. On December 4, 2017, Lennox launched a line of compliant products (non-condensing units in the size of 60,000, 80,000, and 100,000 btu/hr), which are now commercially available for sale. Moreover, Lennox representative also stated that they will provide a full portfolio of compliant products to meet the market demand by the current compliance dates for all types of furnaces. All other manufacturers expect or mentioned the possibility of commercializing compliant non-condensing products in October – December, 2018. On this basis, it is not anticipated the consumer choice will be restricted.

5. Comment: The current mitigation fee already can buy more offsets than the forgone emission reductions by using the NOx credit price in the RECLAIM program.

Response: The Rule 1111 mitigation fee is based on the cost effectiveness of other NOx reduction projects for the forgone emission reductions as set forth in the staff report for the previous Rule 1111 amendment. There is no justification to compare the cost effectiveness of NOx emission reductions needed under Rule 1111 to the NOx credit price in the RECLAIM program. That is, the RECLAIM NOx credit ~~exchange~~ is only allowed to be used among facilities in this program~~, subject to a price that is controlled by an open market~~. Furthermore, it is not realistic to purchase RTCs because the Governing Board has directed that the RECLAIM program be sunsetted long before excess Rule 1111 emissions will cease (over 20 years).

6. Comment: An increase in the mitigation fee will not accelerate ~~the~~ compliance with Rule 1111.

Response: The purpose of the mitigation fee has been to provide the OEMs an alternative compliance option while compliant ~~en~~ units ~~could not be made~~were not available. The increase in the fee is intended to level the cost difference between compliant and non-~~-~~compliant products. The mitigation fee increase, along with the proposed rebate, are intended to encourage commercialization of ~~compliance~~ compliant products and encourage the purchase of compliant units.

7. Comment: The proposed fee increase is not only punitive, it might also be an unconstitutional tax.

Response: Paying the mitigation fee is an alternative option for OEMs that will not have furnaces available for sale that comply with the 14 ng/J NOx emission limit by the compliance date. While some OEMs have already certified compliant units, others are planning to certify and sell furnaces that meet the emission limit by the compliance date, and still others are choosing to pay the mitigation fee. Because it is optional, the mitigation fee is not considered a tax.

8. Comment: The mitigation fee increase would drive lower income mobile home customers to repair vs. replace the appliance or opt for a less costly and less efficient product substitute.

Response: There is no mitigation fee increase by the current proposal for mobile home furnaces.

9. Comment: Recommend not to change the current mitigation fee.

Response: Under staff's proposal, the mitigation fee increase would be used to fund the proposed rebate program while slightly favoring the purchase of compliant units. To that end staff, believes that the current proposal fulfills that objective. However, staff recognizes that the fee increase must also take into consideration such things as the economic impact on low income residents.

10. Comment: As an OEM, our company supports the SCAQMD to increase the mitigation fee for non-compliant furnaces to $400.

Response: Staff continues to agree with the commenter on a mitigation fee increase. By the current proposal, there is no fee increase for mobile home units, while for the other type of units, the mitigation fee will be increased to $300 to $450 depending on furnace type and size.

Fee Increase Effective Date

11. Comments:

(1) The current proposal to increase the mitigation fee and introduce a rebate for compliant furnaces prior to the end of the original 3 year schedule, and with short notice, does not allow sufficient time to adjust our product development and production schedules. Any change in the fee should be implemented after the 3-year period for the mitigation fee option currently specified in the rule has expired.

(2) Provide OEMs with a reasonable period of adjustment by having the new fees in effect not less than 8 months from the date of the proposed amendment.

(3) Mitigation fee increase should only be applied when any type of product becomes available in the market.

(4) Delaying approval and implementation of the proposed amendment will severely and negatively impact manufacturers who invested, while rewarding those manufacturers who did not, and may lead to additional delays in the introduction and commercialization of compliant products. Recommends SCAQMD proceed with the proposed amendment schedule and immediately implement.

Response: Comments on the mitigation fee are considerably diverse. Compliant non-condensing units have been commercially available since December 4, 2017 and compliant condensing units are expected to be commercially available by April 1, 2018. Staff has updated the proposal to have the fee increase effective at the beginning of the next compliance plan cycle for all but condensing units. For condensing units, the fee increase shall be effective on May 1, 2018, about 60 days after rule amendment and~~, 14~~ 30 days after the beginning of the next compliance plan cycle.

Cost and Fee Analysis

12. Comments:

(1) The manufacturer does not have complete control over the process by which the final installed cost of the furnace is established, and thus does not agree with the cost analysis used to justify the mitigation increase.

(2) The District has not yet produced the economic model details it uses as the basis for its proposed fee increase and rebate program or its environmental analysis.

(3) One OEM finds the economic analysis conducted by SCAQMD to be valid and strongly supports the Amendment proposal.

Response: Staff's cost analysis is based on market share, cost information, and other input provided by OEMs, including data relating to markups and the resulting final installed cost for the units. The proposed rebate program is self-sustaining due to the mitigation fee increase. As described in the staff report in Chapter 2, the Partial Equilibrium economic model, explained in detail below, ~~only~~ provided staff with ~~a sense of direction~~support ~~in~~ for the cost analysis ~~as explained in the staff report~~. ~~Because of its very limited use there is no need to provide a detailed description of the economic model in the staff report.~~The model was presented at the September 21, 2017 Working Group meeting and the October 19, 2017 Public Workshop. It was also part of a discussion with the OEM who raised comment 12(2) in an October 26, 2017 conference call.

Technical Description of Economic Modeling

A partial-equilibrium model, specified as a price-endogenous sector model, was used in order to evaluate the research question. Partial equilibrium refers to the market-clearing price and quantity/sales, where consumers' marginal willingness to pay for an additional unit of product is equated to producers' marginal cost to supply an additional unit of the same product. The price-endogenous framework allows for simultaneous decisions by utility-maximizing consumers and profit-maximizing producers, with the equilibrium or market-clearing price being endogenously determined at the intersection of producers' supply curve and consumers' demand curve (McCarl and Spreen 1980). The equilibrium quantity supplied and demanded in the regional market for

furnaces was determined by maximizing social welfare in this market, which is comprised of the profit earned by producers and the value of the product to consumers, subject to a policy requirement to achieve a given market share of compliant furnaces.

The model was calibrated based on the information described above for the market for furnaces in the South Coast Air Basin. Perfect competition was assumed so that, at equilibrium, the marginal cost of production corresponds to a product's market price. The costs of producing compliant and non-compliant furnaces, respectively, were modeled as constant marginal costs of production, based on the assumption that the producers could supply sufficient furnaces for this region without an increase in cost above the $1,250 and $1,750 assumed. The consumers' demand curve for furnaces, which describes consumer behavior, was calibrated based on the current market situation with an average price of $1,250 per unit and an annual market of 150,000 furnaces and a price elasticity of demand of -0.22, a value empirically derived for household appliances (Taylor and Houthakker 2009).[6]

The model is specified mathematically as:

$$\underset{\{q_c, q_{nc}\}}{Max} \; W = (a + bQ)Q - (c_c - r)q_c - (c_{nc} + f)q_{nc} \quad (1)$$

Subject to:

$$\frac{q_c}{q_{nc}} \geq \gamma \quad (2)$$

$$fq_{nc} - rq_c = 0 \quad (3)$$

$$q_c + q_{nc} = Q \quad (4)$$

$$q_c, q_{nc} \geq 0 \quad (5)$$

where, *a* and *b* are the intercept and slope of the demand curve, respectively. c_c and c_{nc} are the marginal costs of the compliant and non-compliant units, respectively. *r* is the amount of the rebate for the compliant units and *f* is the amount of the mitigation fee for non-compliant units. q_c and q_{nc} are the quantities of compliant and non-compliant furnaces produced for the South Coast Air Basin and γ is the ratio of compliant to non-compliant furnaces to be achieved by a proposed policy. *W* is the social welfare function which consists of consumer and producer surpluses and is maximized subject to the constraints (equations 2-4).

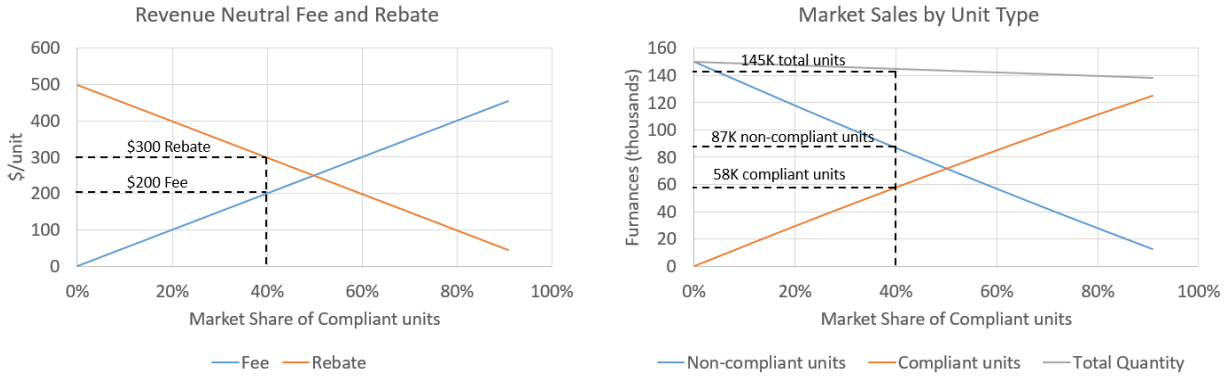
A non-linear solver is used to solve this maximization problem numerically, yielding the results illustrated in Figures 1a and 1b. The equilibrium price (P^*) can be found by evaluating the demand function $P = (a + bQ)$ at the solution to the problem: $Q^* = q_c^* + q_{nc}^*$, and also be

[6] Price elasticity of demand indicates the percentage change in quantity demanded in response to a one percent change in price.

shown to be equal to the weighted average of the marginal cost of furnaces $P^* = c_c \frac{q_c^*}{Q^*} + c_{nc} \frac{q_{nc}^*}{Q^*}$. The amounts of the mitigation fee and rebate are implicit in the solution of the problem, being the difference between the average price and the marginal cost, such that $f = P^* - c_{nc}$ and $r = c_c - P^*$.

Figure 1 – Partial Equilibrium Model Analysis for Mitigation Fee Increase and Rebate

(a) (b)



References

McCarl, Bruce A., and Thomas H. Spreen. 1980. "Price Endogenous Mathematical Programming As a Tool for Sector Analysis." *American Journal of Agricultural Economics* 62 (1): 87–102. doi:10.2307/1239475.

Taylor, Lester D., and H. S. Houthakker. 2009. *Consumer Demand in the United States: Prices, Income, and Consumption Behavior*. Springer Science & Business Media.

Fee Increase to Fund Rebate

13. Comments:

(1) It is understandable to have mitigation fees cover the cost of a rebate, but the proposed $400 fee allows $150 per unit for an unspecified 'administrative cost' which is an exorbitant amount. A fee at or around $300 is more reasonable.

(2) It is anticipated that the already collected funds and the projected collection for next year using the current fee structure would provide sufficient funds for a consumer rebate program.

Response: The current mitigation fee, $200 for each condensing unit and $150 for each other types, can and will only be used for projects to offset the forgone emission reductions from selling Rule 1111 non-compliant products; as such this amount is *not* for an "unspecified 'administrative cost,'" as asserted by the commenter. ~~.~~ Only the increased portion of the proposed mitigation fee can be used for rebate program.

14. Comment: The increased mitigation fee has no rational relationship to the actual cost of offsetting excess emissions but rather attempts to influence customer behavior through market price.

Response: The proposed mitigation fee will maintain the original portion of the fee for emission mitigation projects, and the increased portion of the fee will be used to fund the Rule 1111 rebate program. The increase in the fee is intended to level out the cost difference between compliant and non--compliant products while sustaining the rebate program. Without such a program, OEMs would be penalized for timely developing compliant, but more expensive, products that meet the compliance deadlines established in the current version of Rule 1111, because less expensive, non-compliant products would dominate the market. This approach should also encourage commercialization of compliant products while continuing to provide an option for the sales of non-compliant products.

15. Comment: Support the increase of the mitigation fees to a minimum of $400 for all furnaces and the use of the $250 increase in the mitigation fees to incentivize consumers to purchase compliant units.

Response: Thank you for the support. Staff is considering all the comments with regards to the mitigation fee, including this comment. ~~This comment is also under consideration.~~

16. Comment: Recommends the rebate program to be retro-active 120 days prior to its final approval.

Response: Staff is considering retro-actively implementing the rebate program. Details will be worked out in the contract with the third party contractor for implementation.

Consideration of Condensing Furnace

17. Comment: Compared to non-condensing furnaces, condensing furnaces should have a higher incentive for compliant products and higher penalty for non-compliant products.

Response: Staff is proposing a higher incentive and higher mitigation fee for condensing furnaces.

18. Comment: For OEMs focused on condensing furnace development, it is unfair to start the mitigation fee increase at the same time for condensing and non-condensing units.

Response: Staff has updated the proposal to have the fee increase ~~to be~~begin on ~~April 15~~ May 1, 2018, instead of April 1, 2018, for condensing units, and at the

beginning of the next compliance plan cycle for non-condensing units (i.e. October 1, 2018). ~~Nevertheless, even with this proposed change, t~~The fee increase for condensing units will start before the fee increase for non-condensing units.

CEQA

19. Comment: Are the materials/information used for the proposed Rule 1111 compliance with CEQA available?

Response: The CEQA document was released on December 26, 2017, for a 45-day comment period. The comment period ~~will~~ closed on February 9, 2018.

Emission Limit

20. Comment: There are currently no furnaces being sold which can meet the 14 ng/J low-NOx specification.

Response: Lennox International Inc. has manufactured compliant non-condensing products (in the size of 60,000, 80,000, and 100,000 btu/hr) that have been commercially available since December 4, 2017.

21. Comment: The mitigation fee is not the underlying driver in providing compliant units to the district; ensuring consumer safety, product reliability, and fully developing the technology to meet the emission standards are time consuming activities. In addition, all of the OEMs have been designing their furnaces to achieve the 14 ng/J NOx limit.

Response: The OEMs with compliant products that are ready for the market now or in the near future are confident that their product will operate safely and reliably.

22. Comment: SCAQMD must maintain the 14 ng/J emission limit.

Response: Staff agrees that the 14 ng/J NOx emission limit should not change. It is also worth noting that for the condensing and non-condensing models certified for three OEMs, the tested emissions were all at or below 7 ng/J.

Others

23. Comment: Provide projected emissions reductions including the operating hours, the number of furnaces, emissions reduction of each replacement, and expected replacement.

Response: Emissions reduction for Rule 1111 was estimated by a top-down approach, versus the bottom-up approach alluded to by the commenter. As an area

source with no SCAQMD permit requirement, staff estimated baseline emission for the whole population of this source based on their natural gas consumption~~,~~ and an equipment life-time of 20 to 25 years.

24. Comment: Distributors should not be responsible to pay mitigation fees for units coming into their warehouses in SCAQMD but are subsequently distributed outside of SCQAMD.

Response: The same comment was raised during the 2014 rulemaking process. Staff holds the same response as in Staff Report dated on September 5, 2014, as below.

"The proposed rule would allow units intended for sale outside the SCAQMD to be exempt from the mitigation fee. However, to avoid paying a mitigation fee for all units shipped to the SCAQMD, the manufacturer and distributor must have in place and implement a plan to clearly identify all units. The manufacturer and distributor must place labels on each unit and the outside of each unit's shipping container identifying those units that may be sold into the SCAQMD pursuant to the 10 month sell through period in the rule, those units stored for sale outside the SCAQMD, and those units sold pursuant to a mitigation fee alternate compliance plan. In addition, the manufacturer and distributor must have in place a system to identify the date each unit was shipped to the distribution center in the SCAQMD, the date each unit arrived at the distribution center, the dates each unit was sold and shipped out of the distribution center, the address where each unit was shipped to (for units sold into and out of the SCAQMD) and the person or business who purchased each unit."

25. Comment: The rebate program should be well-communicated to stakeholders with appropriate lead time prior to the start of the rebate availability.

Response: Staff has been engaged in discussion regarding the rebate program and its implementation with stakeholders since the September 21, 2017, Working Group meeting. As a result of the discussion, District staff determined that contracting with a third party for implementation was the optimal solution. The Request for Proposal (RFP) was approved by the Governing Board ~~approval~~ on December 1, 2017. The RFP was posted on the SCAQMD website with a lead time of over 30 days prior to its approval, and any selected proposal and resulting contract with details of the rebate implementation are open to public record request. Approval for the selection is scheduled for the March 2, 2018, Governing Board meeting. In addition, the rebate program continues to be a discussion topic in any individual meeting or Working Group meeting with the stakeholders.

26. Comment: With respect to the October 19, 2017, Public Workshop, we request an extension until December 4, 2017, to file comments.

Response: The public comment was extended for one week, with the ending date changed from November 2, 2017, to November 9, 2017.

27. Comment: Staff should analyze the impact of an increased mitigation fee not only on homeowners of single family homes, but also on residents of multi-family homes.

Response: The applicability is based on rated heat input capacity. This analysis considered multi-family units if they fall into the heat input range.

28. Comment: Any extension of the mitigation must be balanced not to punish manufacturers that already invested significantly in the development of compliant products.

Response: Staff agrees with the commenter and has worked with the OEMs that have developed compliant products to ensure that such investments are not compromised with the proposed rule amendments.

29. Comment: Some stakeholders have requested a sell-through for existing inventory of non-compliant furnaces beyond the end of the extended mitigation fee period.

Response: Staff believes that the mitigation fee functions in a similar manner as a sell-through provision. At the February 16, 2018 Stationary Source Committee meeting, Mayor Benoit recommended that staff report back to the Stationary Source Committee in 12 months and if needed, staff can incorporate a 90-day sell-through provision in Rule 1111. The Resolution includes a commitment consistent with recommendations staff received at the February Stationary Source Committee meeting.

30. Comment: Some stakeholders have commented that the mitigation fee approach is too complex while others have commented that the tiered and phase approach is manageable.

Response: The phased portion of the mitigation fee is to encourage manufacturers to develop compliant units before the second phase of the mitigation fee is implemented. The tiered portion of the mitigation fee reflects comments to lower fees for smaller units and mobile home units (lower income consumers) and increase fees for condensing units.

31. Comment: The fee increase effective date for condensing units is too soon (at the time of rule amendment or beginning of the next compliant cycle on April 1, 2018).

Response: Staff is proposing the fee increase to commence at the beginning of the next compliance cycle. In addition, more time is provided for condensing units

due to the limited time between rule adoption and the start of the next compliance cycle (60 days from adoption).

32. Comment: The requirement in Rule 1111 (d)(3) of 120 days prior to shipment for certification application submittal is not feasible for quick commercialization of compliant products.

Response: Staff has proposed to remove this 120 days lead time requirement and states simply that units must be certified before being shipped into the SCAQMD jurisdiction.

33. Comment: Some of the OEMs commented that the proposed mitigation fee change could cause pricing problems for units encumbered in a contractual agreement prior to the rule amendment requested, and thus an exemption of the mitigation fee increase for those units is needed; one OEM commented that this exemption would allow planned load-in of non-compliant products.

Response: This exemption has been added to ensure the prices for the units encumbered in a contract are not affected by the rule amendment.

34. Comment: Some of the OEMs suggested they should be able to continue to sell 40 ng/J natural gas furnaces to be converted to propane furnaces with conversion kit at installation; they claimed having a separate propane furnace production line would add cost burden to consumers and the compliant 14 ng/J furnace is not technically compatible for conversion to propane furnace.

Response: Although one manufacturer stated they have a propane kit for the lower emitting furnace unit, the proposed amended rule will allow sales of natural gas furnaces that are not certified to meet 14 ng/J of NOx emission and are to be installed with a propane conversion kit and for propane firing only, providing the OEM meets specific labeling and reporting requirements.

35. Comment: One of the manufacturers has commented that the purpose of the mitigation fee and rebate should be to provide an incentive to commercialize and encourage purchase of compliant units. This manufacturer claims that the proposed mitigation fee in combination with the proposed rebate does not provide adequate support to manufacturers that are selling of compliant units, especially non-condensing units.

Response: Staff believes that the mitigation fee increase which is $150 to $450, depending on the furnace type and heat input capacity combined with a consumer rebate of $500 for the first 6,000 compliant units and thereafter providing a $300 rebate for the remaining condensing furnaces and a $200 rebate for the remaining non-condensing, weatherized, and mobile home furnaces is a substantial incentive to manufacturers. The proposed rebate program will make compliant products more competitive in the market. Staff

will closely monitor compliant unit sales, seeking Board approval to make any necessary adjustments to the rebate program to help increase sales of compliant units, and increase the amount of money for the rebate program, if needed.

36. Comment: The proposed rebate of $500 for the first 6,000 furnaces is excessive and very disruptive to the market, and it is unfair for manufacturers that are on track to launch compliant furnaces.

Response: The proposed rebate program intends to alleviate the resulting cost differential for customers between compliant and non-compliant products, and continue to encourage cleaner technologies. Please see response to above Comment #35 for more details.

37. Comment: Contractors could potentially promise rebate funds to the end-consumer that may already be exhausted.

Response: Staff will be working with the Working Group and the selected rebate implementation contractor for the best way to prevent this kind of situation.

ATTACHMENT H

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Subsequent Environmental Assessment to the September 2014 Final Environmental Assessment for Proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces

February 2018

SCAQMD No. 140722JI/12012017RB
State Clearinghouse No: 2017121067

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PREFACE

This document constitutes the Final Subsequent Environmental Assessment (SEA) for Proposed Amended Rule (PAR) 1111 – Reduction of NOx Emissions From Natural-Gas-Fired, Fan-Type Central Furnaces. SCAQMD prepared a Draft Subsequent Environmental Assessment (SEA) that was released for a 45-day public review and comment period from Tuesday, December 26, 2017, to Friday, February 9, 2018, at 5:00 p.m. Analysis of PAR 1111 in the Draft SEA identified the topic of operational air quality as the only environmental topic area that may be significantly adversely affected. In addition, since PAR 1111 may have statewide, regional, or areawide significance, a CEQA scoping meeting was held at the SCAQMD's Headquarters in conjunction with the Public Workshop on October 19, 2017. No comments related to CEQA were made at the CEQA scoping meeting. The comment letters received relative to the Draft SEA and the responses to the comments are included in Appendix D of this Final SEA.

Analysis of operational air quality in the Draft SEA confirmed that operational air quality emissions associated with implementation of PAR 1111 would exceed the SCAQMD's significant operational threshold for NOx. No other environmental topic areas that would be significantly adversely affected were identified as a result of the analysis of PAR 1111 in the Draft SEA. The Draft SEA analyzed four alternatives to the proposed project based on the effectiveness to achieve the project objectives and the environmental effects of each alternative. Analysis of each alternative in the Draft SEA concluded that the proposed project is the best choice to achieve the project objectives and minimize the significant adverse environmental impacts to operational air quality.

Subsequent to the release of the Draft SEA, modifications were made to PAR 1111. To facilitate identification, modifications to the document are included as <u>underlined text</u> and text removed from the document is indicated by ~~strikethrough~~. To avoid confusion, minor formatting changes are not shown in underline or strikethrough.

Staff has reviewed the modifications to PAR 1111 and concluded that none of the revisions constitute: 1) significant new information; 2) a substantial increase in the severity of an environmental impact; or 3) new information of substantial importance relative to the draft document. In addition, revisions to the proposed project in response to verbal or written comment would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the document pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, this document now constitutes the Final SEA for PAR 1111.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

EXECUTIVE SUMMARY

INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (SCAQMD) in 1977[1] as the agency responsible for the development and enforcement of air pollution control rules and regulations in the South Coast Air Basin (Basin) and portions of the Salton Sea Air Basin and Mojave Desert Air Basin. In 1977, amendments to the federal Clean Air Act (CAA) included requirements for submitting State Implementation Plans (SIPs) for nonattainment areas that fail to meet all federal ambient air quality standards (CAA Section 172), and similar requirements exist in state law (Health and Safety Code Section 40462). The federal CAA was amended in 1990 to specify attainment dates and SIP requirements for ozone, carbon monoxide (CO), nitrogen dioxide (NO2), and particulate matter with an aerodynamic diameter of less than 10 microns (PM10). In 1997, the United States Environmental Protection Agency (U.S. EPA) promulgated ambient air quality standards for particulate matter with an aerodynamic diameter less than 2.5 microns (PM2.5). The California Clean Air Act (CCAA), adopted in 1988, requires the SCAQMD to achieve and maintain state ambient air quality standards for ozone, CO, sulfur dioxide (SO2), 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 U.S. EPA is required to periodically update the national ambient air quality standards (NAAQS).

By statute, the SCAQMD is required to adopt an air quality management plan (AQMP) that demonstrates compliance with all federal and state ambient air quality standards for areas within SCAQMD[2] jurisdiction. The SCAQMD must also adopt rules and regulations that carry out the AQMP[3]. The AQMP is a regional blueprint for how the SCAQMD will achieve air quality standards and healthful air. The 2016 AQMP was adopted by the SCAQMD Governing Board on March 3, 2017[4]. The 2016 AQMP implements regulatory measures to reduce emissions of particulate matter (PM), oxides of sulfur (SOx), and oxides of nitrogen (NOx) to attain the state and national ambient air quality standards for ozone, particulate matter with an aerodynamic diameter of 10 microns or less (PM10), and particulate matter with an aerodynamic diameter of 2.5 microns or less (PM2.5). The 2016 AQMP states that both NOx and volatile organic compounds (VOC) emissions need to be addressed. However, the 2016 AQMP emphasizes that NOx emission reductions are more effective to reduce the formation of ozone and PM2.5. Ozone is a criteria pollutant shown to adversely affect human health and is formed when volatile organic compounds (VOCs) react with NOx in the atmosphere. NOx is a precursor to the formation of ozone and PM2.5, and NOx emission reductions are necessary to achieve the ozone standard attainment. NOx emission reductions also contribute to attainment of PM2.5 standards.

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 Title 14 of the California Code of Regulations, 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."

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1 The Lewis-Presley Air Quality Management Act, 1976 Cal. Stats., ch. 324 (codified at Health and Safety Code Sections 40400-40540).
2 Health and Safety Code Section 40460(a).
3 Health and Safety Code Section 40440(a).
4 SCAQMD, Final 2016 Air Quality Management Plan, March 2017. http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp

Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces was adopted in December 1978 and later amended in July 1983, November 2009, and September 2014. Rule 1111 was developed to reduce NOx emissions from residential and commercial gas-fired fan-type space heating furnaces with a rated heat input capacity of 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. Rule 1111 applies to manufacturers, distributors, sellers, and installers of ~~residential~~ furnaces and requires manufacturers to certify that each furnace model offered for sale in the SCAQMD complies with the emission limit using specific test methods approved by the SCAQMD and U.S. EPA. Rule 1111 provides manufacturers an alternative compliance option to pay a per-unit mitigation fee for up to 36 months past the applicable compliance date. Most single family homes, many multi-unit residences, and some small commercial buildings in the SCAQMD use this type of space heating equipment.

When first adopted, Rule 1111 addressed all sizes of space heating furnaces and required all residential and commercial space heating furnaces to meet a NOx emission limit of 40 nanograms per Joule (ng/J) of heat output. The July 1983 amendments limited applicability to units sized for residences and exempted larger commercial space heaters (e.g., furnaces with a heat input 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). The July 1983 amendments also exempted units manufactured for use in mobile homes (manufactured housing), revised the definition of efficiency, and clarified testing procedures.

In November 2009, Rule 1111 was amended to make it consistent with the objectives of the 2007 Air Quality Management Plan (AQMP) Control Measure CMB-03 - Reductions from Commercial Space Heating by establishing a more stringent NOx emission limit of 14 ng/J, and required the three major categories of residential furnace – condensing (high efficiency), non-condensing (standard), and weatherized – to meet the lower 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 November 2009 amendments, had to meet a NOx limit of 40 ng/J by October 1, 2012, and 14 ng/J by October 1, 2018. At the time, the NOx emission limit of 14 ng/J reflected a 65 percent reduction from the previous NOx emission limit of 40 ng/J. To facilitate the depletion of existing inventories and to ensure a smooth transition to equipment that complied with the more stringent NOx limit, Rule 1111 also provided a temporary 10-month exemption (e.g., sell-through period) for units manufactured and delivered into the SCAQMD prior to the compliance date.

To encourage and accelerate the development of cleaner technology, the November 2009 amendments provided a financial incentive for achieving early compliance with the 14 ng/J NOx emission limit, and three million dollars was allocated for this purpose. Specifically, for any manufacturer that delivered and sold furnaces that complied with the 14 ng/J NOx emission limit into the SCAQMD 90 days prior to the applicable compliance date were eligible to receive a $75 payment for each standard efficiency furnace and $90 for each high-efficiency unit. However, to date, no manufacturer applied for this incentive~~, as products have yet to be fully commercialized~~.

The November 2009 amendments also required a technology assessment, which was presented to the Governing Board on January 10, 2014. The technology assessment evaluated both the feasibility of the more stringent NOx emission limit and the implementation schedule. The SCAQMD Technology Advancement Office (TAO) initiated a Request for Proposals (RFP) to develop prototype residential furnaces that would meet the 14 ng/J NOx emission limit. Four

technology development projects were initiated in 2010 and completed in 2013. Of the total cost of $1,447,737, The Gas Company provided $447,737 and the San Joaquin Valley Unified Air Pollution Control District provided $50,000. The prototype furnaces developed through these four projects demonstrated that the 14 ng/J NOx emission limit is achievable for all types of forced air residential heating furnaces produced for the United States market. However, the technology assessment concluded that additional time would be needed to commercialize 14 ng/J furnaces.

The September 2014 amendments delayed the compliance date for condensing furnaces from April 1, 2015, to April 1, 2018; for non-condensing furnaces from October 1, 2015, to October 1, 2018, for weatherized furnaces from October 1, 2016, to October 1, 2019; and for mobile home furnaces from October 1, 2018, to October 1, 2021. These amendments also provided an alternative compliance option that allowed manufacturers to pay a per unit mitigation fee of $200 for each condensing furnace and $150 for each other type of furnace distributed or sold into the SCAQMD, in lieu of meeting the 14 ng/J NOx emission limit. The mitigation fee was to be used to offset the NOx emissions reductions foregone by funding other NOx emission reduction projects. The September 2014 amendments allow the mitigation fee/alternative compliance option to be used for up to 36 months past the applicable compliance date. Depending on furnace type, the mitigation fee option will end~~,~~ and can no longer be used as an alternative to meeting the 14 ng/J NOx emission limit ~~will phase in,~~ over the period from April 1, 2018, to October 1, 2021. At that time, the manufacturers endorsed the mitigation fee/alternative compliance option. All manufacturers have been submitting mitigation fees that correspond to recent sales of non-compliant furnaces.

In April 2016, the Air Conditioning Heating and Refrigeration Institute (AHRI) and original equipment manufacturers (OEMs) met with SCAQMD staff and asserted that safety and reliability concerns, among other issues, had prevented the development of compliant units for commercialization. To monitor the status of technology development, SCAQMD staff surveyed manufacturers from May 2016 to July 2016 and scheduled individual meetings with stakeholders (eight OEMs, two burner manufacturers, and other interested parties) in March, April, and May 2017. SCAQMD staff also held two Task Force meetings on April 27, 2017, and May 25, 2017 to discuss implementation status and rule recommendations. As a result of these efforts, SCAQMD staff was able to confirm that compliant furnaces had not been introduced into the market~~;~~. However, since that time, three OEMs have~~, to date, developed~~ certified 14 ng/J compliant products that a~~we~~re undergoing field testing. Moreover, on December 4, 2017, one manufacturer (Lennox) launched a product line of compliant products (non-condensing units in the size of 60,000, 80,000, and 100,000 BTU per hour), which are now commercially available.~~indicated that a compliant product would be commercially available prior to the 2017 winter season.~~ Initial recommendations by SCAQMD staff for Rule 1111 amendments were made to the Stationary Source Committee and staff proceeded with rule-making to provide additional time ~~for compliance~~to develop compliant products through the use of the mitigation fee option. As a result, SCAQMD staff now ~~contains~~ includes a proposal in Proposed Amended Rule (PAR) 1111 to further extend the ~~compliance~~ end dates ~~in~~ for the alternative compliance option for condensing furnaces, non-condensing furnaces, weatherized furnaces, and mobile home furnaces in accordance with feedback received from OEMs. PAR 1111 also contains a proposal to increase the mitigation fee for non-compliant units.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

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 SCAQMD 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 once the secretary of the resources agency has certified the regulatory program. The SCAQMD's regulatory program was certified by the secretary of resources agency on March 1, 1989, and has been adopted as, and is implemented by, SCAQMD Rule 110 – Rule Adoption Procedures to Assure Protection and Enhancement of the Environment. Pursuant to Rule 110, the SCAQMD typically prepares an Environmental Assessment (EA) to evaluate the environmental impacts for rule projects proposed for adoption or amendment.

PAR 1111 is considered a "project" as defined by CEQA. 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 SCAQMD 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.

PAR 1111 contains amendments that revise existing requirements included in Rule 1111, as amended in September 2014, based on considerations of technology development and implementation status, stakeholders' input, and the need to encourage development and sale of compliant products~~in order to resolve compliance issues raised by stakeholders~~. In particular, PAR 1111 would increase the mitigation fee from $200 for each non-compliant condensing furnace and $150 each for all other non-compliant furnaces regulated under this rule to ~~$400~~a two phased mitigation fee increase that ranges between $300 and $450 based on the furnace type and heat input capacity for ~~all~~ non-compliant condensing, non-condensing, and weatherized ~~non-compliant~~ units. ~~and~~ PAR 1111 would also extend the dates ~~for~~ during which the mitigation fee may be paid in lieu of complying with the NOx limit for the following equipment categories: 1) condensing furnaces from April 1, 2018, to October 1, 2019; 2) non-condensing furnaces from October 1, 2018, to October 1, 2019; and 3) weatherized furnaces from October 1, 2019, to October 1, 2020.~~; and 4) mobile home furnaces from October 1, 2021, to October 1, 2022.~~ For mobile home units, there will be no increase in the mitigation fee or change in the mitigation fee option end date.

If the ~~compliance~~ mitigation fee end dates are extended, PAR 1111 is expected to result in foregone NOx emissions reductions of 0.07 to 0.09 tons per day in 2018, 0.26 to ~~0.33~~ 0.32 tons per day in 2023, and 0.26 to ~~0.33~~ 0.32 tons per day in 2031, all of which exceed the SCAQMD's regional air quality CEQA significance threshold for NOx during operation. Analysis of PAR 1111 indicates that the estimated NOx emission reductions that were originally projected to be achieved as part of the September 2014 amendments to Rule 1111 will be delayed~~estimated amount of NOx emission reductions foregone will substantially revise the existing requirements included in Rule~~

~~1111 as last amended in September 2014~~. As such, SCAQMD staff has determined that PAR 1111 contains new information of substantial importance which was not known and could not have been known at the time the Final Environmental Assessment (EA) was certified for the September 2014 amendments to Rule 1111 (referred to herein as the September 2014 Final EA). However, aside from the topic of air quality, PAR 1111 is not expected to create new significant effects for any other environmental topic areas. Thus, analysis of the proposed project indicates that the type of CEQA document appropriate for the proposed project is a Subsequent Environmental Assessment (SEA), in lieu of an EA. The SEA is a substitute CEQA document, prepared in lieu of a Subsequent Environmental Impact Report (EIR) with significant impacts (CEQA Guidelines Section 15162(b)), pursuant to the SCAQMD's Certified Regulatory Program (CEQA Guidelines Section 15251(l); codified in SCAQMD 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.

Because the new potentially significant adverse effects to operational air quality that may result from implementing PAR 1111 were not analyzed in the September 2014 Final EA, the SCAQMD, as lead agency for the proposed project has prepared this Subsequent EA (SEA) with significant impacts pursuant to its Certified Regulatory Program. The September 2014 Final EA identified the topic of operational air quality in the environmental checklist as the only topic that would be affected by the proposed rule amendments at that time. However, the analysis in the September 2014 Final EA concluded that the operational air quality impacts were at less than significant levels. Since PAR 1111 is now shown to have potentially significant adverse air quality impacts during operation as a result of projected NOx emission reductions foregone, the focus of the analysis in this Final SEA is limited to operational air quality as the only environmental topic area to be analyzed. In addition, since PAR 1111 may have statewide, regional, or areawide significance, a CEQA scoping meeting is required pursuant to Public Resources Code Section 21083.9(a)(2) and was held at the SCAQMD's Headquarters in conjunction with the Public Workshop on October 19, 2017. No CEQA comments were made at the Public Workshop/CEQA scoping meeting relative to PAR 1111. Further, pursuant to CEQA Guidelines Section 15252, since significant adverse impacts were identified, an alternatives analysis and mitigation measures are required. The Draft SEA ~~has been~~was released for a 45-day public review and comment period from Tuesday, December 26, 2017 to Friday, February 9, 2018 at 5:00 p.m. ~~For any~~ Comments received relative to CEQA analysis in ~~this~~ the Draft SEA have been responded to and are included in Appendix D of the Final SEA~~, SCAQMD staff will include the comment letters along with responses to comments in an appendix to the Final SEA~~.

The September 2014 Final EA, upon which this SEA relies, is available from the SCAQMD's website at: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2014/par_1111_fea_wapps.pdf; by visiting the Public Information Center at SCAQMD Headquarters located at 21865 Copley Drive, Diamond Bar, CA 91765; or by contacting Fabian Wesson, Public Advisor by phone at (909) 396-2039 or by email at PICrequests@aqmd.gov.

Subsequent to the release of the Draft SEA, modifications were made to PAR 1111 and some of the revisions were made in response to verbal and written comments on the project's effects. At the time the Draft SEA was released for public review and comment, extension of the compliance dates was shown to result in foregone NOx emission reductions of 0.07 to 0.09 tons per day in 2018, 0.26 to 0.33 tons per day in 2023, and 0.26 to 0.33 tons per day in 2031. However, subsequent to the release of the Draft SEA, the proposed project was modified to: 1) increase the

mitigation fee in two phases to a range of $300 to $450, depending on the furnace type and heat input capacity; 2) extend the mitigation fee alternative compliance option by 1.5 years for condensing furnaces, and one year for non-condensing furnaces and weatherized furnaces; 3) provide an exemption from the mitigation fee increase for units encumbered in a contractual agreement by OEMs and distributors for new construction, if contracts were signed prior to January 1, 2018; 4) provide an exemption of rule applicability for natural gas furnaces installed with a propane conversion kit for propane firing only, with the defined labeling and reporting requirement; and 5) remove the 120 day lead time requirement for certification application submittal. The removal of the alternative compliance extension option for mobile home units is expected to result in a minor adjustment in the amount of foregone NOx emission reductions shown in the Draft SEA. The effect of the modifications to PAR 1111, after the release of the Draft SEA, would result in foregone NOx emission reductions of 0.07 to 0.09 tons per day in 2018, 0.26 to 0.32 tons per day in 2023, and 0.26 to 0.32 tons per day in 2031. The modifications to PAR 1111 since the release of the Draft SEA would result in less foregone NOx emissions, however the foregone NOx emissions reductions would remain above the NOx significance threshold of 55 pounds per day. Staff has reviewed the modifications to PAR 1111 and concluded that none of the modifications constitute: 1) significant new information; 2) a substantial increase in the severity of an environmental impact; or 3) new information of substantial importance relative to the draft document. In addition, revisions to PAR 1111 in response to verbal or written comments would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft SEA pursuant to CEQA Guidelines Section 15073.5 and 15088.5. Thus, the Draft SEA has been revised to reflect the aforementioned modifications such that it is now a Final SEA.

Prior to making a decision on the adoption of PAR 1111, the SCAQMD 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.

PREVIOUS CEQA DOCUMENTATION FOR RULE 1111

This Final SEA is a comprehensive environmental document that analyzes potential environmental impacts from PAR 1111. SCAQMD 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, and lack of progress in advancing the effectiveness of control technologies to comply with requirements in technology forcing rules, etc.). Rule 1111 was adopted in December 1978 and amended in July 1983, November 2009, and September 2104. A CEQA document was prepared for the amendments to Rule 1111 in 2009 and 2014.

The following summarizes the two previously prepared CEQA documents for Rule 1111 and is included for informational purposes. These documents are available for downloading from the SCAQMD's website via the weblinks immediately following the summaries. In addition, hardcopies of these CEQA documents can be obtained by submitting a Public Records Act request to the SCAQMD's Public Records Unit.

Final Environmental Assessment for Proposed Amended Rule 1111 (November 2009)

Final EA for Proposed Amended Rule 1111 – NOx Emissions from Natural Gas-Fire, Fan-type Central Furnaces; November 2009 (SCAQMD No. 090902JI; State Clearinghouse No. 2009091100): The November 2009 Rule 1111 amendment established a NOx emission limit of

14 ng/J, and required the three major categories of residential furnaces – condensing, non-condensing, and weatherized – to meet the new emission limit by October 1, 2014, October 1, 2015, and October 1, 2016 respectively. The November 2009 amendments to Rule 1111 was estimated to reduce NOx emissions by less than 0.1 ton per day by 2014 and 3.1 tons per day by 2023. The November 2009 amendments to Rule 1111 also required a technology assessment be performed to evaluate the feasibility of the 14 ng/J NOx emission limit and the rule implementation schedule. A Draft EA for the November 2009 amendments to Rule 1111 was prepared and no significant adverse environmental impacts were identified. The Draft EA for the November 2009 amendments to Rule 1111 was released for a 30-day public review and comment period from September 24, 2009 to October 23, 2009 and no comment letters were received. The Final EA was certified by the SCAQMD Governing Board on November 6, 2009. This document can be obtained by visiting the following website at:
http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2009/final-environmental-assessment-for-proposed-amended-rule-1111.pdf

Final Environmental Assessment for Proposed Amended Rule 1111 (September 2014)
Final EA for Proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces; September 2014 (SCAQMD No. 140722JI; State Clearinghouse No. 2009091100): The September 2014 amendments to Rule 1111 delayed the compliance date for condensing furnaces and provided an alternative compliance option that allowed manufacturers subject to Rule 1111 to pay a per unit mitigation fee in lieu of meeting the 14 ng/J NOx emission limit that was scheduled to phase in between April 1, 2018, and October 1, 2021. The mitigation fee option was based on furnace type. The September 2014 amendments to Rule 1111 were estimated to result in a delay of NOx emission reductions by 46 pounds per day during until the compliance date. A Draft EA for the September 2014 amendments to Rule 1111 was prepared and no significant adverse environmental impacts were identified. The September 2014 amendment to Rule 1111 were approved into the State Implementation Plan (SIP) in March 2016 and the mitigation fee was earmarked to offset NOx emissions reductions foregone. A Draft EA for the September 2014 amendments to Rule 1111 was released for a 30-day public review and comment period from July 29, 2014 to August 27, 2014 and no comment letters were received. The Final EA was prepared and certified by the SCAQMD Governing Board on September 5, 2014. This document can be obtained by visiting the following website at:
http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2014/par_1111_fea_wapps.pdf

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 SCAQMD Governing Board and the public with information on the environmental effects of the proposed project; and b) be used as a tool by the SCAQMD 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 SCAQMD's Governing Board which will consider the SEA for PAR 1111 in their decision-making, the California Air Resources Board (a state agency) and the United States Environmental Protection Agency (a federal agency) will be reviewing PAR 1111 and all supporting documents, including the SEA, as part of the process for considering the inclusion of PAR 1111 into the State Implementation Plan. There are no permits or other approvals required to implement PAR 1111. Moreover, PAR 1111 is not subject to any other related environmental review or consultation requirements.

To the extent that local public agencies, such as cities, county planning commissions, et cetera, are responsible for making land use and planning decisions related to projects that must comply with the requirements in PAR 1111, they could possibly rely on this SEA during their decision-making process. Similarly, other single purpose public agencies approving projects that utilize compliant equipment subject to PAR 1111 may rely on this SEA.

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 the proposed project, concerns regarding PAR 1111 were expressed by representatives of industry and environmental groups, either in public meetings or in written comments, which are highlighted in Table 1-1.

Table 1-1
Areas of Controversy

Area of Controversy	Topics Raised by the Public	SCAQMD Evaluation
Lack of availability of compliant products in the market and the expiration of the ~~compliance dates~~mitigation fee alternative compliance option for all but one type of furnace.	OEMs claimed that the lack of adequate safety and reliability testing had prevented the development of compliant units for commercialization.	SCAQMD staff conducted a survey of manufacturers and ~~staff~~ has continued to monitor the status of technology development. The compilation of the survey responses indicated that while compliant furnaces were not yet fully introduced into the market, the OEMs developed products that have been demonstrated during field tests to comply with the NOx emission limit of 14 ng/J. One OEM has released a compliant non-condensing product that is commercially available for the winter 2017 season. SCAQMD staff recommended providing additional time in PAR 1111 to allow OEMs to develop compliant units.
Mitigation Fee	OEMs opined that the new mitigation fee was too high and would impact businesses and consumers.	SCAQMD staff proposed a fee increase to incentivize early conversion in light of the ~~delayed~~ extended alternative compliance date and to pay for a rebate program, which is a separate action from the rule amendment. Staff ~~will also consider~~developed a tiered approach to the mitigation fee to reduce spikes in fiscal burden.
Compliance Dates	OEMs raised concerns over the ability to comply with proposed new compliance dates in Rule 1111.	SCAQMD ~~will consider~~developed a tiered approach to the compliance dates to lessen the financial impact to businesses and consumers.

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 PAR 1111 have been evaluated in Chapter 4 of this SEA. No direct or indirect physical changes resulting from economic or social effects have been identified as a result of implementing PAR 1111.

To date, no other controversial issues relevant to the CEQA analysis were raised as a part of developing the proposed project.

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 Final SEA consists of the following chapters: Chapter 1 – Executive Summary; Chapter 2 – Project Description; Chapter 3 – Existing Setting, Chapter 4 – Potential Environmental Impacts and Mitigation Measures; Chapter 5 – Project Alternatives; and various appendices. The following subsections briefly summarize the contents of each chapter.

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 SCAQMD 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

PAR 1111 reflects the proposed project and is a culmination of recommendations made throughout the public engagement process including the April 2016 meeting between the Air Conditioning Heating and Refrigeration Institute and OEMs, the survey of manufacturers conducted between May 2016 and July 2016, the Task Force meetings held on April 27, 2017 and May 25, 2017, the Working Group Meetings held on July 27, 2017, September 21, 2017, and November 15, 2017, and the Public Workshop/CEQA Scoping Meeting held on October 19, 2017. If adopted, PAR 1111 would increase the mitigation fee to a two-phased mitigation fee increase that ranges between $300 and $450 based on the furnace type and heat input capacity ~~$400~~ for non-compliant condensing, non-condensing, and weatherized units and further extend the dates ~~for~~ during which the mitigation fee may be paid in lieu of complying with the NOx limit established in Rule 1111 for the following equipment categories: 1) condensing furnaces from April 1, 2018, to October 1, 2019; 2) non-condensing furnaces from October 1, 2018, to October 1, 2019; and 3) weatherized furnaces from October 1, 2019, to October 1, 2020.~~; and 4) mobile home furnaces from October 1, 2021, to October 1, 2022.~~ For mobile home units, there will be no increase in the mitigation fee or change in the mitigation fee end date.

If PAR 1111 is adopted and the alternative compliance option is extended, PAR 1111 is expected to result in foregone NOx emissions reductions of 0.07 to 0.09 tons per day in 2018, 0.26 to ~~0.33~~ 0.32 tons per day in 2023, and 0.26 to ~~0.33~~ 0.32 tons per day in 2031, all of which exceed the SCAQMD's regional air quality CEQA significance threshold. However, the NOx emission reductions foregone will be eventually achieved because existing units will be eventually replaced and upgraded over time.

Other minor changes are also proposed for clarity and consistency throughout the rule. A copy of PAR 1111 can be found in Appendix A of this SEA.

Summary of Chapter 3 - Existing Setting

Pursuant to the CEQA Guidelines Section 15125, Chapter 3 – Existing Setting includes a description of the environmental topics areas as being potentially adversely affected by the proposed project. As previously explained, PAR 1111 is a revision to the previously approved

project that was analyzed in the September 2014 Final EA and only the topic of operational air quality was identified as having less than significant adverse environmental impacts. All other environmental topic areas analyzed in the September 2014 Final EA were shown to have no significant impacts. Since PAR 1111 is now shown to have potentially significant adverse air quality impacts during operation as a result of projected NOx emission reductions foregone, the focus of the analysis in this SEA is limited to the operational air quality as the only environmental topic area to be analyzed. The following discussion briefly highlights the existing setting for the topic of air quality.

Air Quality

Air quality in the area of the SCAQMD's jurisdiction has shown substantial improvement over the last two decades. Nevertheless, some federal and state air quality standards are still exceeded frequently and by a wide margin. Of the NAAQS established for seven criteria pollutants (ozone, lead, sulfur dioxide, nitrogen dioxide, carbon monoxide, PM10 and PM2.5), the area within the SCAQMD's jurisdiction is only in attainment with the NAAQS for carbon monoxide, sulfur dioxide, and nitrogen dioxide. Chapter 3 provides a brief description of the existing air quality setting for each criteria pollutant, as well as the human health effects resulting from exposure to each criteria pollutant.

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.

Potential Environmental Impacts Found To Be Significant

Operational air quality is the only environmental topic area identified in this Final SEA that has a potentially significant adverse impact and is reviewed in Chapter 4.

Potential Environmental Impacts Found Not To Be Significant

The September 2014 amendments to Rule 1111 provided manufacturers additional time to produce residential furnaces that meet the NOx emission limit of 14 ng/J. Because the September 2014 amendments to Rule 1111 would not have any significant adverse effects on the environment, SCAQMD staff prepared an environmental assessment with no significant impacts (e.g., the September 2014 Final EA). The September 2014 Final EA evaluated 17 environmental topic areas and only the topic of air quality and greenhouse gas emissions was identified as having the potential to be adversely affected if the September 2014 amendments to Rule 1111 were implemented. However, after an assessment of air quality and greenhouse gas emissions impacts,

the September 2014 amendments to Rule 1111 were expected to result in a delay of NOx emission reductions from October 1, 2014, until April 1, 2015, of up to 46 pounds per day, which is below the SCAQMD Mass Daily Air Quality Significance Threshold for operational NOx emissions (55 lbs/day). Thus, the September 2014 Final EA concluded that the impacts to air quality would be less than significant. All of the remaining 16 environmental topic areas were also concluded to have no significant or less than significant direct or indirect adverse effects.

The effects of implementing PAR 1111 would result in foregone NOx emissions reductions of 0.07 to 0.09 tons per day in 2018, 0.26 to ~~0.33~~ 0.32 tons per day in 2023, and 0.26 to ~~0.33~~ 0.32 tons per day in 2031, all of which exceed the SCAQMD Mass Daily Air Quality Significance Threshold for operational NOx emissions (55 lbs/day). By preparing a SEA for PAR 1111, since the topic of air quality is the only environmental topic area that would be affected by PAR 1111, no other environmental topic areas have been evaluated in this SEA. Thus, the PAR 1111 Final SEA is consistent with the conclusions reached in the previously certified document (e.g., the September 2014 Final EA) that aside from the topic of operational air quality, there would be no other significant adverse effects from the implementation of PAR 1111. Thus, PAR 1111 would have no significant or less than significant direct or indirect adverse effects on the following environmental topic areas.

- aesthetics
- air quality during construction and greenhouse gas emissions during construction and operation
- agriculture and forestry resources
- biological resources
- cultural resources
- energy
- geology and soils
- hazards and hazardous materials
- hydrology and water quality
- land use and planning
- mineral resources
- noise
- population and housing
- public services
- recreation
- solid and hazardous waste
- transportation and traffic

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 relationship between short-term uses and long-term productivity. (CEQA Guidelines Section 15065(a)(2).) Additional analysis of the proposed project confirms that it 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 proposed project is not expected to achieve short-term goals at the expense of long-term environmental productivity or goal achievement.

Summary Chapter 5 - Alternatives

Four alternatives to the proposed project are summarized in Table 1-2: Alternative A (No Project), Alternative B (More Stringent NOx Limit), Alternative C (Less Stringent Timing), and Alternative D (More Mitigation). 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 operational air quality impacts from each of the project alternatives for the individual rule components that comprise the proposed project is provided in Table 1-3. Aside from operational air quality impacts, no other potentially significant adverse impacts were identified for the proposed project or any of the project alternatives. The proposed project is considered to provide the best balance between the remaining emission reductions that other components of Rule 1111 may continue to achieve and the adverse environmental impacts due to operation activities (from emission reductions foregone) while meeting the objectives of the project. Therefore, the proposed project is preferred over the project alternatives.

Table 1-2
Summary of the Proposed Project and Alternatives

KEY RULE COMPONENTS	PROPOSED PROJECT	ALTERNATIVE A No Project	ALTERNATIVE B More Stringent NOx Limit	ALTERNATIVE C Less Stringent Timing	ALTERNATIVE D More Mitigation
NOx Limit	• 14 ng/J for all equipment types currently in effect • 14 ng/J for mobile home furnaces by October 1, 2018	• 14 ng/J for all equipment types currently in effect • 14 ng/J for mobile home furnaces by October 1, 2018	• **10 ng/J for all equipment types** • **10 ng/J for mobile home furnaces** by October 1, 2018	• 14 ng/J for all equipment types currently in effect • 14 ng/J for mobile home furnaces by October 1, 2018	• 14 ng/J for all equipment types currently in effect • 14 ng/J for mobile home furnaces by October 1, 2018
Alternate Compliance Option to Meeting NOx Limit[1]	Allowed to pay a mitigation fee in lieu of meeting NOx limit but with **extended compliance dates and increased mitigation fees <u>for all units, except mobile home units</u>** Mitigation Fee Schedule: • **Condensing Unit** $<u>350 - $450</u> ~~400~~ per unit ~~*Date of Adoption*~~*<u>April, 15, 2018</u>* – *September 30, 2019* • **Non-condensing Unit** $<u>300 - $</u>400 per unit ~~*Date of Adoption*~~*<u>October 1, 2018</u>* – *September 30, 2019* • **Weatherized Unit** $400 per unit ~~*Date of Adoption*~~*<u>October 1, 2018</u>* – *September 30, 2020* • **Mobile Home Unit** $<u>150</u> ~~400~~ per unit *October 1, 2018 – September 30, <u>2021</u>* ~~*2022*~~	Allowed to pay a mitigation fee in lieu of meeting NOx limit with **existing rule compliance dates** Mitigation Fee Schedule: • **Condensing Unit** $200 per unit *April 1, 2015 – March 31, 2018* • **Non-condensing Unit** $150 per unit *October 1, 2015 – September 30, 2018* • **Weatherized Unit** $150 per unit *October 1, 2016 – September 30, 2019* • **Mobile Home Unit** $150 per unit • *October 1, 2018 – September 30, 2021*	Allowed to pay a mitigation fee in lieu of meeting NOx limit but with extended compliance dates and increased mitigation fees Mitigation Fee Schedule: • **Condensing Unit** $<u>350 - $450</u> ~~400~~ per unit ~~*Date of Adoption*~~*<u>April, 15, 2018</u>* – *September 30, 2019* • **Non-condensing Unit** $<u>300 - $</u>400 per unit ~~*Date of Adoption*~~*<u>October 1, 2018</u>* – *September 30, 2019* • **Weatherized Unit** $<u>300 - $</u>400 per unit ~~*Date of Adoption*~~*<u>October 1, 2018</u>* – *September 30, 2020* • **Mobile Home Unit** $<u>150</u> ~~400~~ per unit *October 1, 2018 – September 30, <u>2021</u>* ~~*2022*~~	Allowed to pay the mitigation fee in lieu of meeting NOx limit but with an increased mitigation fee and a **three year extension of the compliance dates** Mitigation Fee Schedule: • **Condensing Unit** $<u>350 - $</u>400 per unit *<u>April, 15, 2018</u>* ~~*Date of Adoption*~~ – *March 31, 2021* • **Non-condensing Unit** $<u>300 - $</u>400 per unit *<u>October 1, 2018</u>* ~~*Date of Adoption*~~ – *September 30, 2021* • **Weatherized Unit** $<u>300 - $</u>400 per unit *<u>October 1, 2018</u>* ~~*Date of Adoption*~~ – *September 30, 2022* • **Mobile Home Unit** $<u>150</u> ~~400~~ per unit *October 1, 2018 – September 30, 2024*	Allowed to pay a mitigation fee in lieu of meeting NOx limit but with **extended compliance dates and increased mitigation fees** Mitigation Fee Schedule: • **Condensing Unit $500 per unit** *<u>April, 15, 2018</u>* ~~*Date of Adoption*~~ – *September 30, 2019* • **Non-condensing Unit $500 per unit** *<u>October 1, 2018</u>* ~~*Date of Adoption*~~ – *September 30, 2019* • **Weatherized Unit $500 per unit** *<u>October 1, 2018</u>* ~~*Date of Adoption*~~ – *September 30, 2020* • **Mobile Home Unit $500 per unit** *October 1, 2018 – September 30, <u>2021</u>* ~~*2022*~~

[1] The mitigation fee schedule and fee increase is based on unit size and equipment type and will be implemented in two phases. The fee increase range presented in Table 1-2 is the Phase 2 fee schedule. The complete fee schedule is located in Table 2 in PAR 1111.

Table 1-3
Comparison of Adverse Environmental Impacts of the Proposed Project and Alternatives

CATEGORY	PROPOSED PROJECT	ALTERNATIVE A No Project	ALTERNATIVE B More Stringent NOx Limit	ALTERNATIVE C Less Stringent Timing	ALTERNATIVE D More Mitigation
Air Quality (During Operation)	Expected to result in NOx emission reductions foregone of 0.07 to 0.09 tons per day in 2018, 0.26 to ~~0.33~~ 0.32 tons per day in 2023, and 0.26 to ~~0.33~~ 0.32 tons per day in 2031.	No new NOx emission reductions foregone. Existing compliance deadlines to achieve 14ng/J would remain intact.	Expected to result in lesser quantities of NOx emission reductions foregone over a shorter time frame than the proposed project.	Expected to result in equivalent NOx emission reductions foregone as the proposed project except that the recovery of the NOx emission reductions foregone will occur over a longer time frame than the proposed project.	Expected to result in equivalent NOx emission reductions foregone as the proposed project.
Significance of Air Quality Operational Impacts	Significant: Exceeds the SCAQMD's regional air quality CEQA significance threshold for NOx due to the quantity of NOx emission reductions foregone.	Not significant: Does not exceed SCAQMD's regional air quality CEQA significance threshold for NOx. Compliance cannot be achieved by the original compliance schedule.	Significant: Exceeds the SCAQMD's regional air quality CEQA significance threshold for NOx but at an amount that is less significant than the proposed project.	Significant: Exceeds the SCAQMD's regional air quality CEQA significance threshold for NOx due to the quantity of NOx emission reductions foregone, but at an amount that is more significant than the proposed project and for a greater period of time than the proposed project.	Significant: Exceeds the SCAQMD's regional air quality CEQA significance threshold for NOx due to the quantity of NOx emission reductions foregone at an amount that is equivalent to the proposed project. However, the additional mitigation fee will provide the SCAQMD with additional funding for the rebate program and additional projects to achieve additional NOx emission reductions throughout the Basin.

CHAPTER 2

PROJECT DESCRIPTION

Project Location

Project Background

Project Objective

Project Description

Summary of Affected Equipment

PROJECT LOCATION

PAR 1111 applies to manufacturers (NAICS 333), distributors and wholesalers (NAICS 423), retailers and dealers (NAICS 444), and installers of ~~residential~~ furnaces and requires manufacturers to certify that each furnace model offered for sale in the SCAQMD's jurisdiction complies with the NOx emission limit using specific test methods approved by the SCAQMD and U.S. EPA. The SCAQMD has jurisdiction over an area of approximately 10,743 square miles, consisting of the four-county South Coast Air Basin (Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portions of the Salton Sea Air Basin (SSAB) and Mojave Desert Air Basin (MDAB). The Basin, which is a subarea of SCAQMD's jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. It 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 nonattainment 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).

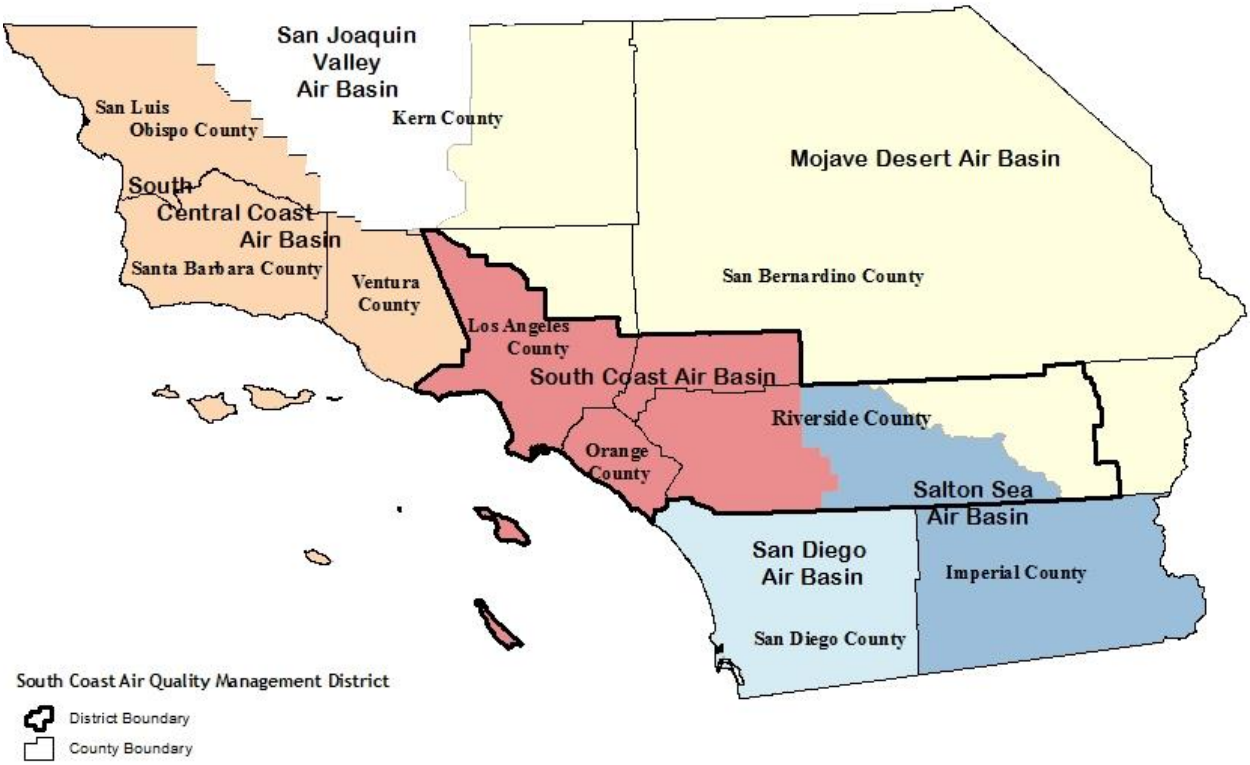

Figure 2-1
Southern California Air Basins

PROJECT BACKGROUND

Rule 1111 was adopted by the SCAQMD Governing Board on December 1978, to address space heating furnaces. The original rule required all residential and commercial space heating furnaces to meet a NOx emission limit of 40 nanograms per Joule (ng/J) of heat output (equivalent to 61 ppm at a reference level of 3 percent oxygen and 80 percent Annual Fuel Utilization Efficiency (AFUE)) beginning January 1, 1984. At the December 1978 rule adoption Hearing, a rule requirement that all space heating furnaces meet a 12 ng/J NOx emission limit by 1995 was considered by the Governing Board but not adopted.

Rule 1111 was first amended in July 1983 to limit applicability based on a unit's size and to exempt larger commercial space heaters. The rule amendment limited applicability to furnaces with a heat input 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. The July 1983 amendment also exempted units manufactured for use in mobile homes (manufactured housing), revised the definition of efficiency, and clarified testing procedures.

In November 2009, Rule 1111 was amended to be consistent with the objectives of the 2007 Air Quality Management Plan (AQMP) Control Measure CMB-03. The 2009 amendment established a new lower NOx emission limit of 14 ng/J (equivalent to 22 ppm at a reference level of 3% oxygen and 80 percent AFUE), and required the three major categories of residential furnace – condensing (high efficiency), non-condensing (standard), and weatherized – 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, had to meet a NOx limit of 40 ng/J in October 1, 2012, with a future limit of 14 ng/J in October 1, 2018. The new lower NOx emission limit of 14 ng/J reflects a 65 percent reduction from the then current limit of 40 ng/J. To facilitate the depletion of existing inventories and to ensure smooth transition to the new limits, Rule 1111 also provided a temporary 10-month exemption (a sell-through period) for units manufactured and delivered into the SCAQMD prior to the compliance date.

To encourage and accelerate technology development, the 2009 Rule 1111 amendment provided an incentive for early compliance with the 14 ng/Joule NOx emission limit, and a three million dollar fund was approved for this purpose. Manufacturers that delivered 14 ng/J furnaces into the SCAQMD prior to the applicable compliance date were given the opportunity to receive a payment of $75 for each standard efficiency furnace and $90 for each high-efficiency unit sold and delivered into the SCAQMD 90 days prior to the applicable compliance date. However, to date, no manufacturer has applied for this incentive.

The 2009 Rule 1111 amendment also required a technology assessment and status report to the Governing Board. This technology assessment evaluated both the feasibility of the new lower NOx emission limit and the rule implementation schedule. The SCAQMD Technology Advancement Office (TAO) initiated a Request for Proposals (RFP) to develop prototype residential furnaces that meet the new 14 ng/J NOx limit. The technology development projects were initiated in 2010 and completed in 2013. The total cost of the four projects was $1,447,737 with $447,737 provided by The Gas Company and $50,000 provided by the San Joaquin Valley Unified Air Pollution Control District. The prototype furnaces developed through these four projects demonstrated that the new lower Rule 1111 NOx limit is achievable in all of the types of forced air residential heating furnaces produced for the United States market. However, additional

time may be needed to commercialize 14 ng/J furnaces. This technology assessment was presented to the Governing Board meeting on January 10, 2014.

Rule 1111 was last amended in September 2014 to delay the compliance date for condensing furnaces and provide an alternative compliance option. The alternative compliance option allows manufacturers subject to Rule 1111 to pay a per-unit mitigation fee of $200 for each condensing furnace and $150 for each other type of furnace distributed or sold into the SCAQMD, in lieu of meeting the new lower NOx emission limit. The mitigation fee alternative compliance option can be used for up to 36 months past the applicable compliance date. Depending on furnace type, the mitigation fee option will end, and the NOx limit of 14 ng/J will phase in, over the period from April 1, 2018, to October 1, 2021. Industry endorsed the mitigation fee approach. The September 2014 amendment was approved into the State Implementation Plan (SIP) in March 2016 and the mitigation fee was set aside to be used to offset foregone NOx emissions reductions.

In April 2016, the Air Conditioning Heating and Refrigeration Institute (AHRI) and OEMs met with SCAQMD staff asserting that safety and reliability concerns had prevented the development of a compliant unit for commercialization. In response, staff conducted a survey with manufacturers from May to July 2016 and have been closely monitoring the technology development status. Furthermore, staff scheduled individual meetings with stakeholders (eight OEMs, two burner manufacturers, and other interested parties) in March, April, and May 2017. Task Force meetings were held on April 27, 2017, and May 25, 2017, in which implementation status and rule recommendations were discussed. These investigations found that compliant furnaces have not yet been introduced into the market; however, three OEMs have developed products complying with the Rule 1111 NOx 14 ng/J limit with field tests underway. Moreover, only one manufacturer has a compliant non-condensing product that is commercially available for the 2017 winter season. As a result, SCAQMD staff now proposes to amend Rule 1111 once again to further extend the compliance dates in the alternative compliance option for condensing furnaces, non-condensing furnaces, weatherized furnaces, and mobile home furnaces. In addition, PAR 1111 also proposes an increase to the mitigation fee and clarifies the applicability of the rule. A rebate program, separate from the rule amendment, is also proposed.

PROJECT OBJECTIVE

Because PAR 1111 was developed to address stakeholder feedback citing safety and reliability concerns that prevented the development of compliant units for widespread commercialization, the primary objective of PAR 1111 is to address the issues associated with the development and implementation of compliant technology while encouraging the development and sale of compliant products. Another objective of PAR 1111 is to ensure that OEMs have an incentive to proceed with capital investment necessary to commercialize compliant units.

PROJECT DESCRIPTION

SCAQMD staff is proposing to amend Rule 1111 to reflect recommendations made by stakeholders throughout the rule development process and to resolve technology development and implementation issues that have been raised by stakeholders. If adopted, PAR 1111 would further extend the dates ~~for~~ during which the mitigation fee may be paid in lieu of complying with the NOx limit established in Rule 1111 for the following equipment categories: 1) condensing furnaces from April 1, 2018, to October 1, 2019; 2) non-condensing Furnaces from October 1, 2018, to October 1, 2019; and 3) weatherized furnaces from October 1, 2019, to October 1, 2020~~; and 4) mobile home furnaces from October 1, 2021, to October 1, 2022~~. For mobile home units, there will be no increase in the mitigation fee or change in the mitigation fee option end date. If the ~~compliance~~ mitigation fee end dates are extended, PAR 1111 is expected to result in foregone NOx emissions reductions of 0.07 to 0.09 tons per day in 2018, 0.26 to ~~0.33~~ 0.32 tons per day in 2023, and 0.26 to ~~0.33~~ 0.32 tons per day in 2031, all of which exceed the SCAQMD's regional air quality CEQA significance threshold. As such, analysis of PAR 1111 in the Final SEA identified potentially significant adverse environmental impacts in the topic of air quality, specifically operational air quality, as an area that may be adversely affected by the proposed project. However, the emissions reductions foregone will eventually be achieved because existing furnaces will be eventually replaced and upgraded over time. In addition, the following changes are proposed in PAR 1111:

- Increase the mitigation fee to a two-phased mitigation fee increase that ranges between $300 and $450~~$400~~ based on the furnace type and heat input capacity for non-compliant condensing, non-condensing, and weatherized units [see paragraph (c)(5) and Table 2 – Alternative Compliance Plan with the Phase One and Phase Two Mitigation Fee Schedule]; and

- Provide an exemption of rule applicability for natural gas furnaces installed with propane conversion kits for propane firing only, with a defined labeling requirement~~Amend the definition of Fan-Type Central Furnace (paragraph (b)(4)) to prevent circumvention in regard to propane furnaces and to add applicability to any fan-type central furnace that is in natural gas-firing mode. Thus, a fan-type central furnace that has been configured to be liquid propane-fired, and is distributed or sold in the South Coast Basin with a natural gas conversion kit would be subject to PAR 1111 if conversion occurs.~~; and

- Extend the mitigation fee alternative compliance option by 1.5 years for condensing furnaces, and one year for non-condensing furnaces and weatherized furnaces; and

- Provide an exemption from the mitigation fee increase for units encumbered in a contractual agreement by OEMs and distributors for new construction, if contracts were signed prior to January 1, 2018; and

- Remove the 120 day lead time requirement for certification application submittal.

A copy of PAR 1111 can be found in Appendix A of this Final SEA. In addition, a rebate program is separately proposed to incentivize the purchase of the lower emitting compliant furnaces on a more cost-competitive level.

SUMMARY OF AFFECTED EQUIPMENT

SCAQMD staff believes that the industries that would be affected by and benefit from the delayed compliance requirements contained in PAR 1111 include manufacturers (NAICS 333), distributors and wholesalers (NAICS 423), and retailers and dealers (NAICS 444) of ~~residential~~ furnaces that are located within SCAQMD's jurisdiction. Construction and building contractors and installers (NAICS 238 and 811) will also be required to comply with PAR 1111, since compliant heating units are installed and utilized in residential and commercial settings for heating small buildings. The Air Conditioning Heating and Refrigeration Institute (AHRI), the major manufacturer's trade organization, indicates that there are no manufacturers of fan-type gas-fired residential furnaces within the SCAQMD's jurisdiction. However, these companies do maintain regional sales offices and distribution centers in the SCAQMD and there are manufacturers of other types of heating furnaces in the SCAQMD.

CHAPTER 3

EXISTING SETTING

Introduction

Existing Setting

Air Quality

INTRODUCTION

In order to determine the significance of the impacts associated with a proposed project, it is necessary to evaluate the project's impacts against the backdrop of the environment as it exists at the time the environmental analysis is commenced. The CEQA Guidelines define "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." (CEQA Guidelines Section 15360; *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 project, as it exists at the time the environmental analysis is commenced, from both a local and regional perspective. (CEQA Guidelines Section 15125.) Therefore, the "environment" or "existing setting" against which a project's impacts are compared consists of the immediate, contemporaneous physical conditions at and around the project site. (Remy, et al; 1996.)

The November 2009 amendments to Rule 1111 required new residential heating furnaces to meet lower NOx emission limits starting in 2012. The November 2009 Final EA, concluded that the project would not have a significant effect on the environment for all 17 of the environmental topic areas analyzed. The analysis in the November 2009 Final EA concluded that the operational air quality impacts were expected to permanently reduce NOx emissions (an environmental benefit) from the affected source category by less than 0.1 ton per day by 2014 and 3.1 tons per day by 2023. The November 2009 Final EA can be obtained by visiting the following website at: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2009/final-environmental-assessment-for-proposed-amended-rule-1111.pdf.

The September 2014 amendments to Rule 1111 provided manufacturers additional time to produce residential furnaces that meet the NOx emission limit of 14 ng/J. The September 2014 Final EA also concluded that the project would not have a significant effect on the environment for all 17 of the environmental topic areas analyzed. The September 2014 Final EA concluded that the operational air quality impacts would result in a delay in emission reductions of up to 46 pounds per day during the period from October 1, 2014, until April 1, 2015, which is below the SCAQMD Mass Daily Air Quality Significance Thresholds for operational NOx emissions (55 lbs/day). The September 2014 Final EA can be obtained by visiting the following website at: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2014/par_1111_fea_wapps.pdf.

The following section summarizes the existing setting for operational air quality which was the only environmental topic identified that may be adversely affected by the proposed project. The Final Program EIR for the 2016 AQMP also contains comprehensive information on existing and projected environmental settings for the topic of air quality. The Final Program EIR for the 2016 AQMP can be obtained by visiting the following website at: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2016/2016aqmpfpeir.pdf.

Hard copies of the above referenced documents are also available by visiting the SCAQMD's Public Information Center at SCAQMD Headquarters located at 21865 Copley Drive, Diamond Bar, CA 91765; by contacting Fabian Wesson, Public Advisor by calling (909) 396-2039 or by emailing at PICrequests@aqmd.gov.

EXISTING SETTING

Rule 1111 is applicable to the following equipment categories of residential and commercial fan-type central furnaces: 1) condensing furnaces; 2) non-condensing furnaces; 3) weatherized furnaces; and 4) mobile home furnaces. Specifically, Rule 1111 controls NOx emissions from residential and commercial fan-type central furnaces 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. Under Rule 1111, regulated equipment must meet a NOx emission limit of 14 ng/J by the compliance dates set forth in Table 1 of the rule.

Baseline Emission Inventory

Existing Rule 1111 applies to manufacturers (NAICS 333), distributors and wholesalers (NAICS 423), and retailers and dealers (NAICS 444) of ~~residential~~ furnaces that are located within SCAQMD's jurisdiction. The equipment subject to Rule 1111 is used in residential and commercial settings for heating small buildings. PAR 1111 will also apply to the same manufacturers, distributors and wholesalers, and retailers and dealers already subject to Rule 1111. The baseline emission inventory for equipment subject to Rule 1111, as summarized in Table 3-1, was estimated to be 9.51 tons per day of NOx (from 2012 actual natural gas consumption data – Table III-1-6 2012 Annual Average Emissions Associated with Natural Gas Combustion in TPD in the 2016 AQMP).

Table 3-1
NOx Baseline Emission Inventory for Rule 1111 Equipment from September 2014 Rule Amendments

Rule 1111 NOx Emission Limit as of September 2014	NOx Baseline Emission Inventory (tons/day)
• 14 ng/J by October 1, 2018 for Mobile Home • 14 ng/J for Condensing, Non-Condensing, and Weatherized	9.51

AIR QUALITY

It is the responsibility of SCAQMD to ensure that state and federal ambient air quality 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, CO, NO2, PM10, PM2.5, SO2, and lead. 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 more stringent than the federal standards and in the case of PM10 and SO2, far more stringent. California has also established standards for sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride. The state and national ambient air quality standards for each of these pollutants and their effects on health are summarized in Table 3-2. SCAQMD monitors levels of various criteria pollutants at 38 monitoring stations. The 2016 air quality data (the latest data available) from SCAQMD's monitoring stations are presented in Table 3-3.

Table 3-2
State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standard[a]	Federal Primary Standard[b]	Most Relevant Effects
Ozone (O_3)	1-hour	0.09 ppm (180 µg/m3)	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/m3)	0.070 ppm (137 µg/m3)	
Suspended Particulate Matter (PM10)	24-hour	50 µg/m3	150 µg/m3	(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/m3	No Federal Standard	
Suspended Particulate Matter (PM2.5)	24-hour	No State Standard	35 µg/m3	(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/m3	12 µg/m3	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m3)	35 ppm (40 mg/m3)	(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/m3)	9 ppm (10 mg/m3)	

Table 3-2 (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/m3)	0.100 ppm (188 µg/m3)	(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/m3)	0.053 ppm (100 µg/m3)	
Sulfur Dioxide (SO2)	1-Hour	0.25 ppm (655 µg/m3)	75 ppb (196 µg/m3)–	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/m3)	No Federal Standard	
Sulfates	24-Hour	25 µg/m3	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/m3)	No Federal Standard	Odor annoyance.
Lead (Pb)	30-Day Average	1.5 µg/m3	No Federal Standard	(a) Increased body burden; and (b) Impairment of blood formation and nerve conduction.
	Calendar Quarter	No State Standard	1.5 µg/m3	
	Rolling 3-Month Average	No State Standard	0.15 µg/m3	
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/m3)	No Federal Standard	Highly toxic and a known carcinogen that causes a rare cancer of the liver.

ppb = parts per billion parts of air, by volume
ppm = parts per million parts of air, by volume
µg/m3 = micrograms per cubic meter
mg/m3 = milligrams per cubic meter

[a] The California ambient air quality standards for 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.

Table 3-3
2016 Air Quality Data – South Coast Air Quality Management District

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	361	1.9	1.4
2	Northwest Coastal Los Angeles County	366	2.2	1.1
3	Southwest Coastal Los Angeles County	362	1.6	1.3
4	South Coastal Los Angeles County 1	--	--	--
4	South Coastal Los Angeles County 2	--	--	--
4	South Coastal Los Angeles County 3	363	3.3	2.2
4	I-710 Near Road##	--	--	--
6	West San Fernando Valley	366	2.4	1.9
8	West San Gabriel Valley	366	1.5	1
9	East San Gabriel Valley 1	366	1.3	1.2
9	East San Gabriel Valley 2	364	1.1	1
10	Pomona/Walnut Valley	361	1.7	1.3
11	South San Gabriel Valley	366	2.8	1.7
12	South Central Los Angeles County	366	4.4	3.9
13	Santa Clarita Valley	366	1.3	1.1
ORANGE COUNTY				
16	North Orange County	366	3.1	1.5
17	Central Orange County	355	2.6	2.1
17	I-5 Near Road##	360	3.7	2.2
18	North Coastal Orange County	366	2.1	1.7
19	Saddleback Valley	353	1.3	0.7
RIVERSIDE COUNTY				
22	Corona/Norco Area	--	--	--
23	Metropolitan Riverside County 1	359	1.7	1.3
23	Metropolitan Riverside County 3	366	1.9	1.4
24	Perris Valley	--	--	--
25	Elsinore Valley	298*	1.2	0.6
26	Temecula Valley	--	--	--
29	San Gorgonio Pass	--	--	--
30	Coachella Valley 1**	361	3.1	1.5
30	Coachella Valley 2**	--	--	--
30	Coachella Valley 3**	--	--	--
SAN BERNARDINO COUNTY				
32	Northwest San Bernardino Valley	366	1.7	1.3
33	I-10 Near Road##	366	1.7	1.3
33	CA-60 Near Road##	--	--	--
34	Central San Bernardino Valley 1	359	1.7	1
34	Central San Bernardino Valley 2	358	2.2	1.7
35	East San Bernardino Valley	--	--	--
37	Central San Bernardino Mountains	--	--	--
38	East San Bernardino Mountains	--	--	--
DISTRICT MAXIMUM			**4.4**	**3.9**
SOUTH COAST AIR BASIN			**4.4**	**3.9**

ppm = parts per million
-- = Pollutant not monitored
= Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710.
**Salton Sea Air Basin
*Incomplete Data

[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.

Table 3-3 (Continued)
2016 Air Quality Data – South Coast Air Quality Management District

OZONE (O3)

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			State	
						Old > 0.124 ppm 1-hr	Current > 0.070 ppm 8-hr*	2008 > 0.075 ppm 8-hr	Current > 0.09 ppm 1-hr	Current > 0.070 ppm 8-hr
LOS ANGELES COUNTY										
1	Central LA	364	0.103	0.078	0.071	0	4	1	2	4
2	Northwest Coastal LA County	365	0.085	0.073	0.066	0	2	0	0	2
3	Southwest Coastal LA County	361	0.087	0.08	0.067	0	2	1	0	3
4	South Coastal LA County 1	--	--	--	--	--	--	--	--	--
4	South Coastal LA County 2	--	--	--	--	--	--	--	--	--
4	South Coastal LA County 3	365	0.079	0.059	0.055	0	0	0	0	0
4	I-710 Near Road##	--	--	--	--	--	--	--	--	--
6	West San Fernando Valley	364	0.122	0.098	0.086	0	23	14	9	23
8	West San Gabriel Valley	358	0.126	0.09	0.082	1	18	15	12	19
9	East San Gabriel Valley 1	366	0.146	0.106	0.095	4	39	25	30	40
9	East San Gabriel Valley 2	362	0.148	0.114	0.098	6	52	31	38	55
10	Pomona/Walnut Valley	360	0.127	0.092	0.087	1	26	14	20	29
11	South San Gabriel Valley	359	0.111	0.081	0.074	0	6	2	9	6
12	South Central LA County	365	0.098	0.071	0.064	0	1	0	1	1
13	Santa Clarita Valley	366	0.13	0.115	0.1	2	57	35	29	59
ORANGE COUNTY										
16	North Orange County	365	0.103	0.078	0.075	0	6	3	3	7
17	Central Orange County	354	0.103	0.074	0.071	0	4	0	2	4
17	I-5 Near Road##	--	--	--	--	--	--	--	--	--
18	North Coastal Orange County	366	0.09	0.069	0.065	0	0	0	0	0
19	Saddleback Valley	365	0.122	0.093	0.079	0	13	6	5	13
RIVERSIDE COUNTY										
22	Corona/Norco Area	--	--	--	--	--	--	--	--	--
23	Metropolitan Riverside County 1	357	0.142	0.104	0.097	1	69	47	33	71
23	Metropolitan Riverside County 3	365	0.14	0.106	0.095	1	65	43	34	70
24	Perris Valley	366	0.131	0.098	0.092	1	55	30	23	56
25	Elsinore Valley	360	0.124	0.093	0.087	0	44	25	15	45
26	Temecula Valley	355	0.092	0.081	0.077	0	19	6	0	20
29	San Gorgonio Pass	358	0.128	0.106	0.094	1	52	39	26	54
30	Coachella Valley 1**	363	0.103	0.092	0.087	0	46	20	6	48
30	Coachella Valley 2**	331	0.099	0.089	0.081	0	27	12	3	29
30	Coachella Valley 3**	--	--	--	--	--	--	--	--	--
SAN BERNARDINO COUNTY										
32	Northwest San Bernardino Valley	366	0.156	0.116	0.11	10	88	65	53	89
33	I-10 Near Road##	--	--	--	--	--	--	--	--	--
33	CA-60 Near Road##	--	--	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	362	0.139	0.105	0.098	3	49	39	34	52
34	Central San Bernardino Valley 2	366	0.158	0.118	0.114	10	106	76	70	108
35	East San Bernardino Valley	364	0.145	0.119	0.103	3	97	71	55	100
37	Central San Bernardino Mountains	365	0.163	0.121	0.116	9	101	80	64	103
38	East San Bernardino Mountains	--	--	--	--	--	--	--	--	--
DISTRICT MAXIMUM			**0.163**	**0.121**	**0.116**	**10**	**106**	**80**	**70**	**108**
SOUTH COAST AIR BASIN			**0.163**	**0.121**	**0.116**	**17**	**132**	**103**	**83**	**132**

ppm = parts per million
-- = Pollutant not monitored
= Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710.
**Salton Sea Air Basin
*Incomplete data

Table 3-3 (Continued)
2016 Air Quality Data – South Coast Air Quality Management District

NITROGEN DIOXIDE (NO2)[b]					
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	1-hour Max. Conc. ppb, 1,	1-hour 98th Percentile Conc. ppb,	Annual Average AAM Conc. ppb
LOS ANGELES COUNTY					
1	Central LA	366	64.7	61	20.8
2	Northwest Coastal LA County	366	54.5	49.3	11.6
3	Southwest Coastal LA County	348	81.5	54.7	10.1
4	South Coastal LA County 1	--	--	--	--
4	South Coastal LA County 2	--	--	--	--
4	South Coastal LA County 3	366	75.6	66.3	18.5
4	I-710 Near Road##	366	95.3	76.6	23.9
6	West San Fernando Valley	355	55.5	45.9	12.9
8	West San Gabriel Valley	366	71.9	58.4	15.4
9	East San Gabriel Valley 1	366	74.2	58.3	16.6
9	East San Gabriel Valley 2	365	65.4	45.7	11.6
10	Pomona/Walnut Valley	360	69.3	62.5	20.1
11	South San Gabriel Valley	361	63.2	60.1	20
12	South Central LA County	366	63.7	58.4	15.6
13	Santa Clarita Valley	361	46.4	39.4	10.2
ORANGE COUNTY					
16	North Orange County	359	60.4	51.5	14.7
17	Central Orange County	354	64.3	56.7	14.8
17	I-5 Near Road##	357	75.2	60.1	23.4
18	North Coastal Orange County	349	59.8	51.2	10.1
19	Saddleback Valley	--	--	--	--
RIVERSIDE COUNTY					
22	Corona/Norco Area	--	--	--	--
23	Metropolitan Riverside County 1	366	73.1	52.2	14.9
23	Metropolitan Riverside County 3	366	64.9	48.3	13.6
24	Perris Valley	--	--	--	--
25	Elsinore Valley	345*	51.3	35.6	8.1
26	Temecula Valley	--	--	--	--
29	San Gorgonio Pass	348	46.9	42.6	7.9
30	Coachella Valley 1**	363	42.6	34.4	6
30	Coachella Valley 2**	--	--	--	--
30	Coachella Valley 3**	--	--	--	--
SAN BERNARDINO COUNTY					
32	Northwest San Bernardino Valley	366	70.1	55.1	16.5
33	I-10 Near Road##	362	93.4	74.3	29.3
33	CA-60 Near Road##	361	89.8	71.3	31
34	Central San Bernardino Valley 1	357	71.7	56.4	18.2
34	Central San Bernardino Valley 2	355	60.1	51.4	16.6
35	East San Bernardino Valley	--	--	--	--
37	Central San Bernardino Mountains	--	--	--	--
38	East San Bernardino Mountains	--	--	--	--
DISTRICT MAXIMUM			**95.3**	**76.6**	**31**
SOUTH COAST AIR BASIN			**95.3**	**76.6**	**31**

ppb = parts per billion
AAM = Annual Arithmetic Mean
-- = Pollutant not monitored
**Salton Sea Air Basin
= Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710.

[b] The NO2 federal 1-hour standard is 100 ppb and the annual standard is annual arithmetic mean NO2 > 0.0534 ppm (53.4 ppb). The state 1-hour and annual standards are 0.18 ppm (180 ppb) and 0.030 ppm (30 ppb).

Table 3-3 (Continued)
2016 Air Quality Data – South Coast Air Quality Management District

SULFUR DIOXIDE (SO2)[c]				
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Maximum Conc. ppb, 1-hour	99th Percentile Conc. ppb, 1-hour
LOS ANGELES COUNTY				
1	Central LA	366	13.4	2.5
2	Northwest Coastal LA County	--	--	--
3	Southwest Coastal LA County	363	9.7	5.7
4	South Coastal LA County 1	--	--	--
4	South Coastal LA County 2	--	--	--
4	South Coastal LA County 3	366	17.8	12
4	I-710 Near Road##	--	--	--
6	West San Fernando Valley	--	--	--
8	West San Gabriel Valley	--	--	--
9	East San Gabriel Valley 1	--	--	--
9	East San Gabriel Valley 2	--	--	--
10	Pomona/Walnut Valley	--	--	--
11	South San Gabriel Valley	--	--	--
12	South Central LA County	--	--	--
13	Santa Clarita Valley	--	--	--
ORANGE COUNTY				
16	North Orange County	--	--	--
17	Central Orange County	--	--	--
17	I-5 Near Road##	--	--	--
18	North Coastal Orange County	366	3.3	2.1
19	Saddleback Valley	--	--	--
RIVERSIDE COUNTY				
22	Corona/Norco Area	--	--	--
23	Metropolitan Riverside County 1	366	5.6	2
23	Metropolitan Riverside County 3	--	--	--
24	Perris Valley	--	--	--
25	Elsinore Valley	--	--	--
26	Temecula Valley	--	--	--
29	San Gorgonio Pass	--	--	--
30	Coachella Valley 1**	--	--	--
30	Coachella Valley 2**	--	--	--
30	Coachella Valley 3**	--	--	--
SAN BERNARDINO COUNTY				
32	Northwest San Bernardino Valley	--	--	--
33	I-10 Near Road##	--	--	--
33	CA-60 Near Road##	--	--	--
34	Central San Bernardino Valley 1	363	6.3	2
34	Central San Bernardino Valley 2	--	--	--
35	East San Bernardino Valley	--	--	--
37	Central San Bernardino Mountains	--	--	--
38	East San Bernardino Mountains	--	--	--
DISTRICT MAXIMUM			**17.8**	**12**
SOUTH COAST AIR BASIN			**17.8**	**12**

ppb = parts per billion ** Salton Sea Air Basin
-- = Pollutant not monitored
= Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710.

[c] The federal SO2 1-hour standard is 75 ppb (0.075 ppm). The state standards are 1-hour average SO2 > 0.25 ppm (250 ppb) and 24-hour average SO2 > 0.04 ppm (40 ppb).

Table 3-3 (Continued)
2016 Air Quality Data – South Coast Air Quality Management District

SUSPENDED PARTICULATE MATTER PM10[d]						
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.[e] µg/m^3
				Federal > 150 µg/m^3, 24-hour	State > 50 µg/m^3, 24-hour	
LOS ANGELES COUNTY						
1	Central LA	277*	67	0	18(6%)	32.4
2	Northwest Coastal LA County	--	--	--	--	--
3	Southwest Coastal LA County	60	43	0	0(0%)	21.6
4	South Coastal LA County 1	--	--	--	--	--
4	South Coastal LA County 2	60	56	0	3(5%)	27.8
4	South Coastal LA County 3	59	75	0	8(14%)	31.9
4	I-710 Near Road[##]	--	--	--	--	--
6	West San Fernando Valley	--	--	--	--	--
8	West San Gabriel Valley	--	--	--	--	--
9	East San Gabriel Valley 1	60	74	0	12(20%)	33.7
9	East San Gabriel Valley 2	362	74	0	21(6%)	29.8
10	Pomona/Walnut Valley	--	--	--	--	--
11	South San Gabriel Valley	--	--	--	--	--
12	South Central LA County	--	--	--	--	--
13	Santa Clarita Valley	60	96	0	1(2%)	23.4
ORANGE COUNTY						
16	North Orange County	--	--	--	--	--
17	Central Orange County	353	74	0	3(1%)	24.4
17	I-5 Near Road[##]	--	--	--	--	--
18	North Coastal Orange County	--	--	--	--	--
19	Saddleback Valley	59	59	0	1(2%)	21
RIVERSIDE COUNTY						
22	Corona/Norco Area	51*	62	0	7(14%)	31.7
23	Metropolitan Riverside County 1	302*	82	0	58(19%)	36.9
23	Metropolitan Riverside County 3	356[+]	116	0	175(49%)	49
24	Perris Valley	57	76	0	5(9%)	32.2
25	Elsinore Valley	366	99	0	4(1%)	21.4
26	Temecula Valley	--	--	--	--	--
29	San Gorgonio Pass	57	65	0	3(5%)	24
30	Coachella Valley 1**	355[+]	113	0	6(2%)	20.8
30	Coachella Valley 2**	313*[+]	137	0	56(18%)	36.9
30	Coachella Valley 3**	272*[+]	150	0	76(28%)	43
SAN BERNARDINO COUNTY						
32	Northwest San Bernardino Valley	363	72	0	5(1%)	25
33	I-10 Near Road[##]	--	--	--	--	--
33	CA-60 Near Road[##]	--	--	--	--	--
34	Central San Bernardino Valley 1	61	94	0	15(25%)	38.1
34	Central San Bernardino Valley 2	333*	91	0	33(10%)	33.1
35	East San Bernardino Valley	56	72	0	4(7%)	27.8
37	Central San Bernardino Mountains	61	46	0	0(0%)	17.1
38	East San Bernardino Mountains	--	--	--	--	--
DISTRICT MAXIMUM			**150[+]**	**0[+]**	**175[+]**	**49.0[+]**
SOUTH COAST AIR BASIN			**116[+]**	**0[+]**	**181[+]**	**49.0[+]**

µg/m^3 = micrograms per cubic meter of air
AAM = Annual Arithmetic Mean
-- = Pollutant not monitored
**Salton Sea Air Basin
*Incomplete Data

[##] = Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710.
+ = 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.

[d] Federal Reference Method (FRM) PM10 samples were collected every 6 days at all sites except for Stations 4144 and 4157, where samples were collected every 3 days. PM10 statistics listed above are for the FRM data only. Federal Equivalent Method (FEM) PM10 continuous monitoring instruments were operated at some of the above locations. Max 24-hour average PM10 at sites with FEM monitoring was 152 µg/m3, at Indio.

[e] State standard is annual average (AAM) > 20 µg/m3. Federal annual PM10 standard (AAM > 50 µg/m3) was revoked in 2006.

Table 3-3 (Continued)
2016 Air Quality Data – South Coast Air Quality Management District

SUSPENDED PARTICULATE MATTER PM2.5 [f]						
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. µg/m^3, 24-hour	98th Percentile Conc. in µg/m^3 24-hr	No. (%) Samples Exceeding Federal Std > 35 µg/m^3, 24-hour	Annual Average AAM Conc.[g] µg/m^3
LOS ANGELES COUNTY						
1	Central LA	357	44.39	27.3	2(0.6%)	11.83
2	Northwest Coastal LA County	--	--	--	--	--
3	Southwest Coastal LA County	--	--	--	--	--
4	South Coastal LA County 1	356	29.37	23.56	0	10.36
4	South Coastal LA County 2	350	28.93	22.05	0	9.62
4	South Coastal LA County 3	--	--	--	--	--
4	I-710 Near Road[##]	352	33.31	26.09	0	12.03
6	West San Fernando Valley	113	30.05	24.59	0	9.23
8	West San Gabriel Valley	119	29.21	25.38	0	9.59
9	East San Gabriel Valley 1	122	32.17	29.01	0	10.15
9	East San Gabriel Valley 2	--	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--	--
11	South San Gabriel Valley	120	46.59	25.13	2(1.7%)	11.75
12	South Central LA County	115	36.35	26.35	1(0.9%)	11.13
13	Santa Clarita Valley	--	--	--	--	--
ORANGE COUNTY						
16	North Orange County	--	--	--	--	--
17	Central Orange County	349	44.45	24.02	1(0.3%)	9.47
17	I-5 Near Road[##]	--	--	--	--	--
18	North Coastal Orange County	--	--	--	--	--
19	Saddleback Valley	117	24.79	13.41	0	7.36
RIVERSIDE COUNTY						
22	Corona/Norco Area	--	--	--	--	--
23	Metropolitan Riverside County 1	357$^+$	39.12	31.65	4(1.1%)	12.54
23	Metropolitan Riverside County 3	352$^+$	45.64	35.14	6(1.7%)	14.02
24	Perris Valley	--	--	--	--	--
25	Elsinore Valley	--	--	--	--	--
26	Temecula Valley	--	--	--	--	--
29	San Gorgonio Pass	--	--	--	--	--
30	Coachella Valley 1**	112	14.71	12.43	0	5.53
30	Coachella Valley 2**	115	25.84	15.04	0	7.74
30	Coachella Valley 3**	--	--	--	--	--
SAN BERNARDINO COUNTY						
32	Northwest San Bernardino Valley	--	--	--	--	--
33	I-10 Near Road[##]	--	--	--	--	--
33	CA-60 Near Road[##]	347*$^+$	44.14	33.02	6(1.7%)	14.73
34	Central San Bernardino Valley 1	111$^+$	30.45	26.25	0	12.04
34	Central San Bernardino Valley 2	113$^+$	32.54	27.12	0	10.84
35	East San Bernardino Valley	--	--	--	--	--
37	Central San Bernardino Mountains	--	--	--	--	--
38	East San Bernardino Mountains	55	28.42	22.14	0	6.83
DISTRICT MAXIMUM			**46.6$^+$**	**35.1$^+$**	**6$^+$**	**14.73$^+$**
SOUTH COAST AIR BASIN			**46.6$^+$**	**35.1$^+$**	**9$^+$**	**14.73$^+$**

µg/m^3 = micrograms per cubic meter of air
AAM = Annual Arithmetic Mean
-- = Pollutant not monitored
**Salton Sea Air Basin
*Incomplete Data

[##] = Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710
+ = 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.

[f] PM2.5 samples were collected every 3 days at all sites except for station numbers 072, 077, 087, 3176, 4144 and 4165, where samples were taken daily, and station number 5818 where samples were taken every 6 days. PM2.5 statistics listed above are for the FRM data only. FEM PM2.5 continuous monitoring instruments were operated at some of the above locations for special purposes studies.

[g] Both federal and state standards are annual average (AAM) > 12.0 µg/m^3.

Table 3-3 (Concluded)
2016 Air Quality Data – South Coast Air Quality Management District

		LEAD[h]		SULFATES (SOx)[i]	
Source Receptor Area No.	Location of Air Monitoring Station	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	0.016	0.01	58	5.8
2	Northwest Coastal LA County	--	--	--	--
3	Southwest Coastal LA County	0.006	0.01	58	6.2
4	South Coastal LA County 1	--	--	--	--
4	South Coastal LA County 2	0.008	0.01	59	6.3
4	South Coastal LA County 3	--	--	57	7.4
4	I-710 Near Road[##]	--	--	--	--
6	West San Fernando Valley	--	--	--	--
8	West San Gabriel Valley	--	--	--	--
9	East San Gabriel Valley 1	--	--	58	9.5[#]
9	East San Gabriel Valley 2	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--
11	South San Gabriel Valley	0.011	0.01	--	--
12	South Central LA County	0.016	0.01	--	--
13	Santa Clarita Valley	--	--	59	4.1
ORANGE COUNTY					
16	North Orange County	--	--	--	--
17	Central Orange County	--	--	59	5.3[#]
17	I-5 Near Road[##]	--	--	--	--
18	North Coastal Orange County	--	--	--	--
19	Saddleback Valley	--	--	58	3.7
RIVERSIDE COUNTY					
22	Corona/Norco Area	--	--	50	8.2[#]
23	Metropolitan Riverside County 1	0.007	0.01	114	15.2[#]
23	Metropolitan Riverside County 3	--	--	118	13.6[#]
24	Perris Valley	--	--	55	6.0[#]
25	Elsinore Valley	--	--	--	--
26	Temecula Valley	--	--	--	--
29	San Gorgonio Pass	--	--	56	4.0[#]
30	Coachella Valley 1**	--	--	51	3.9
30	Coachella Valley 2**	--	--	113	4.1
30	Coachella Valley 3**	--	--	--	--
SAN BERNARDINO COUNTY					
32	Northwest San Bernardino Valley	0.007	0.01	--	--
33	I-10 Near Road[##]	--	--	--	--
33	CA-60 Near Road[##]	--	--	--	--
34	Central San Bernardino Valley 1	--	--	59	17.1[#]
34	Central San Bernardino Valley 2	0.01	0.01	55	16.0[#]
35	East San Bernardino Valley	--	--	56	12.1[#]
37	Central San Bernardino Mountains	--	--	59	3.9[#]
38	East San Bernardino Mountains	--	--	--	--
DISTRICT MAXIMUM		**0.016[++]**	**0.01[++]**		**17.1[#]**
SOUTH COAST AIR BASIN		**0.016[++]**	**0.01[++]**		**17.1[#]**

µg/m^3 = micrograms per cubic meter of air
-- =Pollutant not monitored
**Salton Sea Air Basin
*Incomplete Data
= Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710.

\+ = 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.
++ = 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 0.88 µ/m^3 and 0.06 µ/m^3.

[h] 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.

[i] Sulfate data is not available at this time. State sulfate standard is 24-hour ≥ 25 µg/m3. There is no federal standard for sulfate.

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.

CO concentrations were measured at 25 locations in the Basin and neighboring Salton Sea Air Basin areas in 2016. CO concentrations did not exceed the standards in 2016. The highest 1-hour average CO concentration recorded (4.4 ppm in the South Central Los Angeles County area) was 13 percent of the federal 1-hour CO standard of 35 ppm and 22 percent of the state 1-hour standard of 20 ppm. The highest 8-hour average CO concentration recorded (3.9 ppm in the South Central Los Angeles County area) was 43 percent of the federal and state 8-hour CO standard of 9.0 ppm.

In 2004, SCAQMD formally requested the U.S. EPA to re-designate the Basin from nonattainment to attainment with the CO NAAQS. On February 24, 2007, U.S. EPA published in the Federal Register its proposed decision to re-designate the Basin from nonattainment to attainment for CO. The comment period on the re-designation proposal closed on March 16, 2007 with no comments received by the U.S. EPA. On May 11, 2007, U.S. EPA published in the Federal Register its final decision to approve SCAQMD's request for re-designation from non-attainment to attainment for CO, effective June 11, 2007.

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.

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).

The propensity of ozone for reacting with organic materials causes it to be damaging 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 above 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.

In 2016, SCAQMD regularly monitored ozone concentrations at 29 locations in the Basin and the Coachella Valley portion of the Salton Sea Air Basin. Maximum ozone concentrations (fourth highest concentration ppm 8-hour) for all areas monitored were below the stage 1 episode level (0.20 ppm) and below the health advisory level (0.15 ppm) (see Table 3-3). All counties in the Basin, as well as the Coachella Valley, exceeded the level of the new 2015 (0.070 ppm), the former 2008 (0.075 ppm), and/or the 1997 (0.08 ppm) 8-hour ozone NAAQS in 2016. While not all stations had days exceeding the previous 8-hour standards, all monitoring stations except two (South Coastal LA County 3 and North Coastal Orange County) had at least one day over the 2015 federal ozone standard (70 ppb).

In 2016, the maximum ozone concentrations in the Basin continued to exceed federal standards by wide margins. Maximum 1-hour and 8-hour average ozone concentrations were 0.163 ppm and 0.121 ppm, respectively (the maximum 1-hour and 8-hour average was recorded in the Central San Bernardino Mountain area). The maximum 8-hour concentration of 0.121 ppm was 173 percent of the new federal standard (0.070 ppm). The maximum 1-hour concentration was 181 percent of the 1-hour state ozone standard of 0.09 ppm. The 8-hour average concentration was 173 percent of the 8-hour state ozone standard of 0.070 ppm.

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 NOx. In the presence of sunlight, NO2 reacts to form nitric oxide and an oxygen atom. The oxygen atom can react further to form ozone, 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 PM2.5 and PM10.

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposures to 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 results 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.

In 2016, nitrogen dioxide concentrations were monitored at 27 locations. No area of the Basin or Salton Sea Air Basin exceeded the federal or state standards for NO2. The Basin has not exceeded the federal standard for NO2 (0.0534 ppm) since 1991, when the Los Angeles County portion of the Basin recorded the last exceedance of the standard in any county within the United States. The current 1-hour average NO2 NAAQS (100 ppb) was last exceeded on two days in 2014 in the South Coastal Los Angeles County area at the Long Beach-Hudson air monitoring station. However, the 98th percentile form of the standard was not exceeded, and the 2013-2015 design value is not in violation of the NAAQS. The higher relative concentrations in the Los Angeles area are indicative of the concentrated emission sources, especially heavy-duty vehicles. NOx emission reductions continue to be necessary because it is a precursor to both ozone and PM (PM2.5 and PM10) concentrations.

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) 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.

The longest operating near-road station in the Basin, adjacent to I-5 in Orange County, has not exceeded the level of the 1-hour NO2 NAAQS (100 ppb) since the measurements began on January 1, 2014. The peak 1-hour NO2 concentration at that site in 2014 was 78.8 ppb and the peak concentration for 2015 was 70.2 ppb. This can be compared to the annual peak values measured at the nearest ambient monitoring station in Central Orange County (Anaheim station), where the 2014 and 2015 peaks were 75.8 and 59.1, respectively.

Sulfur Dioxide

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

Exposure of a few minutes to low levels of SO2 can result in airway constriction in some asthmatics. All asthmatics are sensitive to the effects of SO2. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, is observed after acute higher exposure to SO2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO2.

Animal studies suggest that despite SO2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.

Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO2 levels. In these studies, efforts to separate the effects of SO2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.

No exceedances of federal or state standards for sulfur dioxide occurred in 2016 at any of the six locations monitored the Basin. The maximum 1-hour SO2 concentration was 17.8 ppb, as recorded in the South Coastal Los Angeles County area. The 99th percentile of 1-hour SO2 concentration was 12 ppb, as recorded in South Coastal Los Angeles County area. Though SO2 concentrations remain well below the standards, SO2 is a precursor to sulfate, which is a component of fine particulate matter, PM10, and PM2.5. Historical measurements showed concentrations to be well below standards and monitoring has been discontinued.

Particulate Matter (PM10 and PM2.5)

Of great concern to public health are the particles small enough to be inhaled into the deepest parts of the lung. Respirable particles (particulate matter less than about 10 micrometers in diameter (PM10)) can accumulate in the respiratory system and aggravate health problems such as asthma, bronchitis, and other lung diseases. Children, the elderly, exercising adults, and those suffering from asthma are especially vulnerable to adverse health effects of PM10 and PM2.5.

A consistent correlation between elevated ambient fine particulate matter (PM2.5) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks, and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. Studies have reported an association between long-term exposure to air pollution dominated by PM2.5 and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

Daily fluctuations in fine particulate matter concentration levels have also been related to hospital admissions for acute respiratory conditions, to school and kindergarten absences, to a decrease in respiratory function in normal children, and to increased medication use in children and adults with asthma. Studies have also shown lung function growth in children is reduced with long-term exposure to particulate matter. In addition to children, the elderly and people with preexisting respiratory and/or cardiovascular disease appear to be more susceptible to the effects of PM10 and PM2.5.

SCAQMD monitored PM10 concentrations at 23 locations in 2016. The federal 24-hour PM10 standard (150 µg/m3) was not exceeded in 2016. The Basin has remained in attainment of the PM10 NAAQS since 2006. The maximum three-year average 24-hour PM10 concentration of 150 µg/m3 was recorded in the Coachella Valley area and was 100 percent of the federal standard and 300 percent of the much more stringent state 24-hour PM10 standard (50 µg/m3). The state 24-hour PM10 standard was exceeded at several of the monitoring stations. The maximum annual average PM10 concentration of 49 µg/m3 was recorded in Metropolitan Riverside County. The federal annual PM10 standard has been revoked. The much more stringent state annual PM10 standard (20 µg/m3) was exceeded in most stations in each county in the Basin and in the Coachella Valley.

In 2016, PM2.5 concentrations were monitored at 19 locations throughout the Basin. U.S. EPA revised the federal 24-hour PM2.5 standard from 65 µg/m3 to 35 µg/m3, effective December 17, 2006. In 2016, the maximum PM2.5 concentrations in the Basin exceeded the new federal 24-hour PM2.5 standard in seven out of 19 locations. The maximum 24-hour PM2.5 concentration of 46.6 µg/m3 was recorded in the South San Gabriel Valley area. The 98th percentile 24-hour PM2.5 concentration of 35.1 µg/m3 was recorded in the Metropolitan Riverside County, which barely exceeds the federal standard of 35 µg/m3. The maximum annual average concentration of 14.73 µg/m3 was recorded in San Bernardino County, which represents 98 percent of the 2006 federal standard of 15 µg/m3.

On December 14, 2012, U.S. EPA strengthened the annual NAAQS for PM2.5 to 12 µg/m3 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 as a result of direct emissions from cars and heavy-duty diesel trucks and buses. SCAQMD has installed the two required PM2.5 monitors by January 1, 2015, at locations selected based upon the existing near-roadway NO2 sites that were ranked higher for heavy-duty diesel traffic. The locations are: (1) I-710, located at Long Beach Blvd. in Los Angeles County near Compton and Long Beach; and (2) SR-60, located west of Vineyard Avenue near the San Bernardino/Riverside County border near Ontario, Mira Loma, and Upland. These near-road sites measure PM2.5 daily with FRM filter-based measurements.

Lead

Lead in the atmosphere is present as a mixture of a number of 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.

Fetuses, infants, and children are more sensitive than others to the adverse effects of lead exposure. Exposure to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Lead poisoning can cause anemia, lethargy, seizures, and death. It appears that there are no direct effects of lead on the respiratory system. Lead can be stored in the bone from early-age environmental exposure, and elevated blood lead levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland), and osteoporosis (breakdown of bone tissue). Fetuses and breast-fed babies can be exposed to higher levels of lead because of previous environmental lead exposure of their mothers.

The state standards for lead were not exceeded in any area of the SCAQMD in 2016. There have been no violations of these standards at SCAQMD's regular air monitoring stations since 1982, as a result of removal of lead from gasoline. However, monitoring at two stations immediately adjacent to stationary sources of lead recorded exceedances of the standard in Los Angeles County over the 2007-2009 time period. These data were used for designations under the revised standard that also included new requirements for near-source monitoring. As a result, a nonattainment designation was finalized for much of the Los Angeles County portion of the Basin when the current standard was implemented.

The current lead concentrations in Los Angeles County are now below the NAAQS. The maximum quarterly average lead concentration (0.01 µg/m3 at several monitoring) was seven percent of the federal quarterly average lead standard (0.15 µg/m3). The maximum monthly average lead concentration (0.016 µg/m3 in South Central Los Angeles County) was one percent of the state monthly average lead standard. As a result of the 2012-2014 design value below the

NAAQS, SCAQMD will be requesting that U.S. EPA re-designate the nonattainment area as attaining the federal lead standard. Stringent SCAQMD rules governing lead-producing sources will help to ensure that there are no future violations of the federal standard. Furthermore, one business that had been responsible for the highest measured lead concentrations in Los Angeles County has closed and is in the process of demolition and site clean-up.

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 PM2.5.

Most of the health effects associated with fine particles and SO2 at ambient levels are also associated with sulfates. Thus, both mortality and morbidity effects have been observed with an increase in ambient sulfate concentrations. However, efforts to separate the effects of sulfates from the effects of other pollutants have generally not been successful.

Clinical studies of asthmatics exposed to sulfuric acid suggest that adolescent asthmatics are possibly a subgroup susceptible to acid aerosol exposure. Animal studies suggest that acidic particles such as sulfuric acid aerosol and ammonium bisulfate are more toxic than nonacidic particles like ammonium sulfate. Whether the effects are attributable to acidity or to particles remains unresolved.

The most current preliminary data available for sulfates is for 2016. In 2016, the state 24-hour sulfate standard (25 µg/m3) was not exceeded in any of the 19 monitoring locations in the Basin. The maximum 24-hour sulfate concentration was 17.1 ppb, as recorded in the Central San Bernardino Valley. There are no federal sulfate standards.

Vinyl Chloride

Vinyl chloride is a colorless, flammable gas at ambient temperature and pressure. It is also highly toxic and is classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as A1 (confirmed carcinogen in humans) and by the International Agency for Research on Cancer (IARC) as 1 (known to be a human carcinogen). (Air Gas, 2010.) 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.

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 a localized impacts rather than regional impacts. Because landfills in the SCAQMD are subject to Rule 1150.1 – Control of Gaseous Emissions from Municipal Solid Waste Landfills, which contains stringent requirements for landfill gas collection and control, potential vinyl chloride emissions are expected to be below the level of detection. Therefore, SCAQMD does not monitor for vinyl chloride at its monitoring stations.

Volatile Organic Compounds

It should be noted that there are no state or national ambient air quality standards for VOCs because they are not classified as criteria pollutants. VOCs are regulated, however, because limiting VOC emissions reduces the rate of photochemical reactions that contribute to the formation of ozone. 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 SCAQMD's primary mandate is attaining the state and NAAQS for criteria pollutants within the Basin, SCAQMD 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 SCAQMD to implement airborne toxic control measures (ATCM) adopted by CARB and to implement the Air Toxics "Hot Spots" Act. As a result, SCAQMD has regulated pollutants other than criteria pollutants such as TACs, greenhouse gases, and stratospheric ozone depleting compounds. SCAQMD has developed a number of rules to control non-criteria pollutants from both new and existing sources. These rules originated through state directives, CAA requirements, or the SCAQMD rulemaking process.

In addition to promulgating non-criteria pollutant rules, SCAQMD has been evaluating AQMP control measures as well as existing rules to determine whether or not they would affect, either positively or negatively, emissions of non-criteria pollutants. For example, rules in which VOC components of coating materials are replaced by 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.

The following subsections summarize the existing setting for the two major categories of non-criteria pollutants: compounds that contribute to TACs, global climate change, and stratospheric ozone depletion.

Air Quality – Toxic Air Contaminants

Federal

Under Section 112 of the CAA, U.S. EPA is required to regulate sources that emit one or more of the 187 federally listed hazardous air pollutants (HAPs). HAPs are toxic air pollutants identified in the CAA, which are known or suspected of causing cancer or other serious health effects. The federal HAPs are listed on the U.S. EPA website at http://www.epa.gov/ttn/atw/orig189.html. In order to implement the CAA, approximately 100 National Emission Standards for Hazardous Air Pollutants (NESHAPs) have been promulgated by U.S. EPA for major sources (sources emitting greater than 10 tpy of a single HAP or greater than 25 tpy of multiple HAPs). SCAQMD can either directly implement NESHAPs or adopt rules that contain requirements at least as stringent as the NESHAP requirements. However, since NESHAPs often apply to sources in the Basin that are controlled, many of the sources that would have been subject to federal requirements already comply or are exempt.

In addition to the major source NESHAPs, U.S. EPA has also controlled HAPs from urban areas by developing Area Source NESHAPs under their Urban Air Toxics Strategy. U.S. EPA defines an area source as a source that emits less than 10 tons annually of any single hazardous air pollutant or less than 25 tons annually of a combination of hazardous air pollutants. The CAA requires the U.S. EPA to identify a list of at least 30 air toxics that pose the greatest potential health threat in urban areas. U.S. EPA is further required to identify and establish a list of area source categories that represent 90 percent of the emissions of the 30 urban air toxics associated with area sources, for which Area Source NESHAPs are to be developed under the CAA. U.S. EPA has identified a total of 70 area source categories with regulations promulgated for more than 30 categories so far.

The federal toxics program recognizes diesel engine exhaust (diesel particulate matter or DPM) as a health hazard; however, DPM itself is not one of their listed toxic air contaminants. Rather, each toxic compound in the speciated list of compounds in exhaust is considered separately. Although there are no specific NESHAP regulations for DPM, DPM reductions are realized through federal regulations including diesel fuel standards and emission standards for stationary, marine, and locomotive engines; and idling controls for locomotives.

State

The California air toxics program was based on the CAA and the original federal list of hazardous air pollutants. The state program was established in 1983 under the Toxic Air Contaminant Identification and Control Act, Assembly Bill (AB) 1807, Tanner. Under the state program, toxic air contaminants are identified through a two-step process of risk identification and risk management. This two-step process was designed to protect residents from the health effects of toxic substances in the air.

Control of TACs under the TAC Identification and Control Program: California's TAC identification and control program, adopted in 1983 as AB 1807, is a two-step program in which substances are identified as TACs and ATCMs are adopted to control emissions from specific

sources. CARB has adopted a regulation designating all 188 federal hazardous air pollutants (HAPs) as TACs.
ATCMs are developed by CARB and implemented by SCAQMD and other air districts through the adoption of regulations of equal or greater stringency. Generally, the ATCMs reduce emissions to achieve exposure levels below a determined health threshold. If no such threshold levels are determined, emissions are reduced to the lowest level achievable through the best available control technology unless it is determined that an alternative level of emission reduction is adequate to protect public health.

Under California law, a federal NESHAP automatically becomes a state ATCM, unless CARB has already adopted an ATCM for the source category. Once a NESHAP becomes an ATCM, CARB and each air pollution control or air quality management district have certain responsibilities related to adoption or implementation and enforcement of the NESHAP/ATCM.

Control of TACs under the Air Toxics "Hot Spots" Act: The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588) establishes a statewide program to inventory and assess the risks from facilities that emit TACs and to notify the public about significant health risks associated with the emissions. Facilities are phased into the AB 2588 program based on their emissions of criteria pollutants or their occurrence on lists of toxic emitters compiled by SCAQMD. Phase I consists of facilities that emit over 25 tons per year of any criteria pollutant and facilities present on SCAQMD's toxics list. Phase I facilities entered the program by reporting their TAC emissions for calendar year 1989. Phase II consists of facilities that emit between 10 and 25 tpy of any criteria pollutant and submitted air toxic inventory reports for calendar year 1990 emissions. Phase III consists of certain designated types of facilities which emit less than 10 tons per year of any criteria pollutant and submitted inventory reports for calendar year 1991 emissions. Inventory reports are required to be updated every four years under the state law.

Air Toxics Control Measures: As part of its risk management efforts, CARB has passed state ATCMs to address air toxics from mobile and stationary sources. Some key ATCMs for stationary sources include reductions of benzene emissions from service stations, hexavalent chromium emissions from chrome plating, perchloroethylene emissions from dry cleaning, ethylene oxide emissions from sterilizers, and multiple air toxics from the automotive painting and repair industries.

Many of CARB's recent ATCMs are part of the CARB Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (Diesel Risk Reduction Plan), which was adopted in September 2000 (http://www.arb.ca.gov/diesel/documents/rrpapp.htm) with the goal of reducing DPM emissions from compression ignition engines and associated health risk by 75 percent by 2010 and 85 percent by 2020. The Diesel Risk Reduction Plan includes strategies to reduce emissions from new and existing engines through the use of ultra-low sulfur diesel fuel, add-on controls, and engine replacement. In addition to stationary source engines, the plan addresses DPM emissions from mobile sources such as trucks, buses, construction equipment, locomotives, and ships.

OEHHA Health Risk Assessment Guidelines: In 2003, OEHHA developed and approved its Health Risk Assessment Guidance document (2003 OEHHA Guidelines) and prepared a series of Technical Support Documents, reviewed and approved by the Scientific Review Panel (SRP), that provided new scientific information showing that early-life exposures to air toxics contribute to an increased estimated lifetime risk of developing cancer and other adverse health effects, compared to exposures that occur in adulthood. As a result, OEHHA developed the Revised OEHHA Guidelines in March 2015, which incorporated this new scientific information. The new method utilizes higher estimates of cancer potency during early life exposures. There are also differences in the assumptions on breathing rates and length of residential exposures.

SCAQMD

SCAQMD has regulated criteria air pollutants using either a technology-based or an emissions limit approach. The technology-based approach defines specific control technologies that may be installed to reduce pollutant emissions. The emissions limit approach establishes an emission limit, and allows industry to use any emission control equipment, as long as the emission requirements are met. The regulation of TACs often uses a health risk-based approach, but may also require a regulatory approach similar to criteria pollutants, as explained in the following subsections.

Rules and Regulations: Under SCAQMD's toxic regulatory program there are 26 source-specific rules that target toxic emission reductions that regulate over 10,000 sources such as metal finishing, spraying operations, dry cleaners, film cleaning, gasoline dispensing, and diesel-fueled stationary engines to name a few. In addition, other source-specific rules targeting criteria pollutant reductions also reduce toxic emissions, such as Rule 461 – Gasoline Transfer and Dispensing, which reduces benzene emissions from gasoline dispensing, and Rule 1124 – Aerospace Assembly and Component Manufacturing Operations, which reduces perchloroethylene, trichloroethylene, and methylene chloride emissions from aerospace operations.

New and modified sources of toxic air contaminants in the SCAQMD are subject to Rule 1401 - New Source Review of Toxic Air Contaminants and Rule 212 - Standards for Approving Permits. Rule 212 requires notification of SCAQMD's intent to grant a permit to construct a significant project, defined as a new or modified permit unit located within 1000 feet of a school (a state law requirement under AB 3205), a new or modified permit unit posing a maximum individual cancer risk of one in one million (1×10^6) or greater, or a new or modified facility with criteria pollutant emissions exceeding specified daily maximums. Distribution of notice is required to all addresses within a quarter mile radius, or other area deemed appropriate by SCAQMD. Rule 1401 currently controls emissions of carcinogenic and non-carcinogenic (health effects other than cancer) air contaminants from new, modified and relocated sources by specifying limits on cancer risk and hazard index (explained further in the following discussion), respectively. The rule lists nearly 300 TACs that are evaluated during SCAQMD's permitting process for new, modified, or relocated sources. During the past decade, more than ten compounds have been added or had risk values amended. The addition of DPM from diesel-fueled internal combustion engines as a TAC in March 2008 was the most significant of recent amendments to the rule. Rule 1401.1 –

Requirements for New and Relocated Facilities Near Schools sets risk thresholds for new and relocated facilities near schools. The requirements are more stringent than those for other air toxics rules in order to provide additional protection to school children.

Air Toxics Control Plan: On March 17, 2000, the SCAQMD Governing Board approved the Air Toxics Control Plan (2000 ATCP), which was the first comprehensive plan in the nation to guide future toxic rulemaking and programs. The ATCP was developed to lay out SCAQMD's air toxics control program which built upon existing federal, state, and local toxic control programs as well as co-benefits from implementation of SIP measures. The concept for the plan was an outgrowth of the Environmental Justice principles and the Environmental Justice Initiatives adopted by SCAQMD Governing Board on October 10, 1997. Monitoring studies and air toxics regulations that were created from these initiatives emphasized the need for a more systematic approach to reducing toxic air contaminants. The intent of the plan was to reduce exposure to air toxics in an equitable and cost-effective manner that promotes clean, healthful air in the SCAQMD. The plan proposed control strategies to reduce TACs in the SCAQMD implemented between years 2000 and 2010 through cooperative efforts of SCAQMD, local governments, CARB, and U.S. EPA.

Cumulative Impact Reduction Strategies (CIRS): The CIRS was presented to the SCAQMD Governing Board on September 5, 2003, as part of the White Paper on Regulatory Options for Addressing Cumulative Impacts from Air Pollution Emissions. The resulting 25 cumulative impacts strategies were a key element of the Addendum to March 2000 Final Draft Air Toxics Control Plan for Next Ten Years (2004 Addendum). The strategies included rules, policies, funding, education, and cooperation with other agencies. Some of the key SCAQMD accomplishments related to the cumulative impacts reduction strategies were:

- Rule 1401.1, which set more stringent health risk requirements for new and relocated facilities near schools
- Rule 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines, which established DPM emission limits and other requirements for diesel-fueled engines
- Rule 1469.1 – Spraying Operations Using Coatings Containing Chromium, which regulated chrome spraying operations
- Rule 410 – Odor from Transfer Stations and Material Recovery Facilities which addresses odors from transfer stations and material recovery facilities
- Intergovernmental Review comment letters for CEQA documents
- SCAQMD's land use guidance document
- Additional protection in toxics rules for sensitive receptors, such as more stringent requirements for chrome plating operations and diesel engines located near schools

2004 Addendum: The 2004 Addendum was adopted by the SCAQMD Governing Board on April 2, 2004, and served as a status report regarding implementation of the various mobile and stationary source strategies in the 2000 ATCP and introduced new measures to further address air toxics. The main elements of the 2004 Addendum were to address the progress made in the

implementation of the 2000 ATCP control strategies; provide a historical perspective of air toxic emissions and current air toxic levels; incorporate the CIRS approved in 2003 and additional measures identified in the 2003 AQMP; project future air toxic levels to the extent feasible; and summarize future efforts to develop the next ATCP. Significant progress had been made in implementing most of SCAQMD strategies from the 2000 ATCP and the 2004 Addendum. CARB has also made notable progress in mobile source measures via its Diesel Risk Reduction Plan, especially for goods movement related sources, while the U.S. EPA continued to implement their air toxic programs applicable to stationary sources.

Clean Communities Plan: On November 5, 2010, the SCAQMD Governing Board approved the 2010 Clean Communities Plan (CCP). The CCP was an update to the 2000 ATCP and the 2004 Addendum. The objective of the 2010 CCP was to reduce exposure to air toxics and air-related nuisances throughout the SCAQMD, with emphasis on cumulative impacts. The elements of the 2010 CCP are community exposure reduction, community participation, communication and outreach, agency coordination, monitoring and compliance, source-specific programs, and nuisance. The centerpiece of the 2010 CCP is a pilot study through which SCAQMD staff works with community stakeholders to identify and develop solutions community-specific to air quality issues in two communities: (1) the City of San Bernardino; and (2) Boyle Heights and surrounding areas.

Control of TACs under the Air Toxics "Hot Spots" Act: On October 2, 1992, the SCAQMD Governing Board adopted public notification procedures for Phase I and II facilities. These procedures specify that AB 2588 facilities must provide public notice when exceeding the following risk levels:

- Maximum Individual Cancer Risk: greater than 10 in one million (10×10^6)
- Total Hazard Index: greater than 1.0 for TACs except lead, or > 0.5 for lead

Public notice is to be provided by letters mailed to all addresses and all parents of children attending school in the impacted area. In addition, facilities must hold a public meeting and provide copies of the facility risk assessment in all school libraries and a public library in the impacted area.

The AB 2588 Toxics “Hot Spots” Program is implemented through Rule 1402 - Control of Toxic Air Contaminants from Existing Sources. SCAQMD continues to review health risk assessments submitted. Notification is required from facilities with a significant risk under the AB 2588 program based on their initial approved health risk assessments and will continue on an ongoing basis as additional and subsequent health risk assessments are reviewed and approved.

There are currently about 361 facilities in SCAQMD’s AB 2588 program. Since 1992 when the state Health and Safety Code incorporated a risk reduction requirement in the program, SCAQMD has reviewed and approved over 335 HRAs; 50 facilities were required to do a public notice and 24 facilities were subject to risk reduction. Currently, over 96 percent of the facilities in the

program have cancer risks below ten in a million and over 97 percent have acute and chronic hazard indices of less than one. (SCAQMD, 2015a.)

CEQA Intergovernmental Review Program: SCAQMD staff, through its Intergovernmental Review (IGR), provides comments to lead agencies on air quality analyses and mitigation measures in CEQA documents. The following are some key programs and tools that have been developed more recently to strengthen air quality analyses, specifically as they relate to exposure of mobile source air toxics:

- SCAQMD's Mobile Source Committee approved the "Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions" (August 2002). This document provides guidance for analyzing cancer risks from DPM from truck idling and movement (e.g., truck stops, warehouse and distribution centers, or transit centers), ship hoteling at ports, and train idling.
- CalEPA and CARB's "Air Quality and Land Use Handbook: A Community Health Perspective" (April 2005), provides recommended siting distances for incompatible land uses.
- Western Riverside Council of Governments' Regional Air Quality Task Force developed a policy document titled "Good Neighbor Guidelines for Siting New and/or Modified Warehouse/Distribution Facilities" (September 2005). This document provides guidance to local government on preventive measures to reduce neighborhood exposure to toxic air contaminants from warehousing facilities.

Environmental Justice (EJ): Environmental justice has long been a focus of SCAQMD. In 1990, SCAQMD formed an Ethnic Community Advisory Group that was restructured as the Environmental Justice Advisory Group (EJAG) in 2008. EJAG's mission is to advise and assist SCAQMD in protecting and improving public health in SCAQMD's most impacted communities through the reduction and prevention of air pollution.

In 1997, the SCAQMD Governing Board adopted four guiding principles and ten initiatives (http://www.aqmd.gov/ej/history.htm) to ensure environmental equity. Also in 1997, the SCAQMD Governing Board expanded the initiatives to include the "Children's Air Quality Agenda" focusing on the disproportionate impacts of poor air quality on children. Some key initiatives that have been implemented were the Multiple Air Toxics Exposure Studies (MATES, MATES II, MATES III, and MATES IV); the Clean Fleet Rules; CIRS; funding for lower emitting technologies under the Carl Moyer Program; the Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning; a guidance document on Air Quality Issues in School Site Selection; and the 2000 ATCP and its 2004 Addendum. Key initiatives focusing on communities and residents include the Clean Air Congress; the Clean School Bus Program; Asthma and Air Quality Consortium; Brain and Lung Tumor and Air Pollution Foundation; air quality presentations to schools and community and civic groups; and Town Hall meetings. Technological and scientific projects and programs have been a large part of SCAQMD's EJ program since its inception. Over time, the EJ program's focus on public education, outreach, and opportunities for public participation have greatly increased. Public education materials and other resources for the public are available on SCAQMD's website (www.aqmd.gov).

AB 2766 Subvention Funds: AB 2766 subvention funds, money collected by the state as part of vehicle registration and passed through to SCAQMD, is used to fund projects in local cities that reduce motor vehicle air pollutants. The Clean Fuels Program, funded by a surcharge on motor vehicle registrations in SCAQMD, reduces TAC emissions through co-funding projects that develop and demonstrate low-emission clean fuels and advanced technologies, and to promote commercialization and deployment of promising or proven technologies in Southern California.

Carl Moyer Program: Another program that targets diesel emission reductions is the Carl Moyer Program, which provides grants for projects that achieve early or extra emission reductions beyond what is required by regulations. Examples of eligible projects include cleaner on-road, off-road, marine, locomotive, and stationary agricultural pump engines. Other endeavors of SCAQMD's Technology Advancement Office help to reduce DPM emissions through co-funding research and demonstration projects of clean technologies, such as low-emitting locomotives.

Control of TACs with Risk Reduction Audits and Plans: Senate Bill (SB) 1731, enacted in 1992 and codified in Health and Safety Code Section 44390 et seq., amended AB 2588 to include a requirement for facilities with significant risks to prepare and implement a risk reduction plan that will reduce the risk below a defined significant risk level within specified time limits. SCAQMD Rule 1402 was adopted on April 8, 1994, to implement the requirements of SB 1731. In addition to the TAC rules adopted by SCAQMD under authority of AB 1807 and SB 1731, SCAQMD has adopted source-specific TAC rules, based on the specific level of TAC emitted and the needs of the area. These rules are similar to the state's ATCMs because they are source-specific and only address emissions and risk from specific compounds and operations.

Multiple Air Toxics Exposure Studies

Multiple Air Toxics Exposure Study (MATES): In 1986, SCAQMD conducted the first MATES report to determine the Basin-wide risks associated with major airborne carcinogens. At the time, the state of technology was such that only 20 known air toxic compounds could be analyzed and diesel exhaust particulate did not have an agency accepted carcinogenic health risk value. TACs are determined by U.S. EPA, and by CalEPA, including OEHHA and CARB. For purposes of MATES, the California carcinogenic health risk factors were used. The maximum combined individual health risk for simultaneous exposure to pollutants under the study was estimated to be 600 to 5,000 in one million.

Multiple Air Toxics Exposure Study II (MATES II): At its October 10, 1997 meeting, the SCAQMD Governing Board directed staff to conduct a follow up to the MATES report to quantify the magnitude of population exposure risk from existing sources of selected air toxic contaminants at that time. MATES II included a monitoring program of 40 known air toxic compounds, an updated emissions inventory of toxic air contaminants (including microinventories around each of the 14 microscale sites), and a modeling effort to characterize health risks from hazardous air pollutants. The estimated Basin-wide carcinogenic health risk from ambient measurements was 1,400 per million people. About 70 percent of the Basin-wide health risk was attributed to DPM emissions; about 20 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde); about 10 percent of Basin-wide health risk was attributed to

stationary sources (which include industrial sources and other certain specifically identified commercial businesses such as dry cleaners and print shops.)

Multiple Air Toxics Exposure Study III (MATES III): MATES III was part of the SCAQMD Governing Board's 2003-04 Environmental Justice Workplan approved on September 5, 2003. The MATES III report consisted of several elements including a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize carcinogenic health risk across the Basin. Besides toxics, additional measurements included organic carbon, elemental carbon, and total carbon, as well as, Particulate Matter (PM), including PM2.5. It did not estimate mortality or other health effects from particulate exposures. MATES III revealed a general downward trend in air toxic pollutant concentrations with an estimated Basin-wide lifetime carcinogenic health risk of 1,200 in one million. Mobile sources accounted for 94 percent of the basin-wide lifetime carcinogenic health risk with diesel exhaust particulate contributing to 84 percent of the mobile source Basin-wide lifetime carcinogenic health risk. Non-diesel carcinogenic health risk declined by 50 percent from the MATES II values.

Multiple Air Toxics Exposure Study IV (MATES IV): MATES IV, the current version, includes a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize risk across the Basin. The study focuses on the carcinogenic risk from exposure to air toxics but does not estimate mortality or other health effects from particulate exposures. An additional focus of MATES IV is the inclusion of measurements of ultrafine particle concentrations. MATES IV incorporates the updated health risk assessment methodology from OEHHA. Compared to previous studies of air toxics in the Basin, this study found decreasing air toxics exposure, with the estimated Basin-wide population-weighted risk down by about 57 percent from the analysis done for the MATES III time period. The ambient air toxics data from the ten fixed monitoring locations also demonstrated a similar reduction in air toxic levels and risks. On average, diesel particulate contributes about 68 percent of the total air toxics risk. This is a lower portion of the overall risk compared to the MATES III estimates of about 84 percent.

Health Effects

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 particular public health concern because it is currently believed by many scientists that there is no "safe" level of exposure to carcinogens. Any exposure to a carcinogen poses some risk of causing cancer. It is currently estimated that about one in four deaths in the United States is attributable to cancer. The proportion of cancer deaths attributable to air pollution has not been estimated using epidemiological methods.

Non-Cancer Health Risks from TACs: Unlike carcinogens, for most non-carcinogens it is believed that there is a threshold level of exposure to the compound below which it will not pose a health risk. CalEPA's OEHHA develops Reference Exposure Levels (RELs) for TACs which 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).

CHAPTER 4

ENVIRONMENTAL IMPACTS

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 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 17 environmental categories in which potential adverse impacts from a project are evaluated.

The CEQA Guidelines also indicate that the degree of specificity required in a CEQA document depends on the type of project being proposed. (CEQA Guidelines Section 15146.) The detail of the environmental analysis for certain types of projects cannot be as great as for others. As explained in Chapter 1, the analysis of PAR 1111 indicated that the type of CEQA document appropriate for the proposed project is a SEA.

POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This document is a SEA to the September 2014 Final EA. The previous environmental analysis in the September 2014 Final EA contained an environmental checklist and concluded that none of the 17 environmental topic areas would have potentially significant adverse impacts at the time the September 2014 amendments to Rule 1111 were adopted. PAR 1111, similar to Rule 1111, would also extend the ~~compliance~~ mitigation fee alternative compliance option end dates for residential and commercial fan-type central furnaces. In addition, PAR 1111 proposes to increase the mitigation fee and clarify exemptions to prevent circumvention of the rule. A rebate program, separate from the rule amendment, is also proposed. ~~Initial a~~Analysis of PAR 1111 is expected to result in NOx emission reductions foregone of up to 0.07 to 0.09 tons per day in 2018, 0.26 to ~~0.33~~ 0.32 tons per day in 2023, and 0.26 to ~~0.33~~ 0.32 tons per day in 2031. The amount of NOx emission reductions foregone is expected to exceed the SCAQMD's significant operation air quality threshold for NOx (e.g., 55 pounds per day); thus, implementation of PAR 1111 would be expected to have significant adverse operational air quality impacts. The proposed changes contained in PAR 1111 are considered to contain new information of substantial importance, which was not known and could not have been known at the time the previous CEQA document for Rule 1111 (e.g., the September 2014 Final EA) was certified. Specifically, because the quantity of NOx emission reductions foregone would exceed the SCAQMD's significance operational air quality threshold for NOx (e.g., 55 pounds per day) and that these effects were not discussed in the

previously certified CEQA documents, PAR 1111 will create new significant effects to operational air quality that need to be further evaluated in this SEA per CEQA Guidelines Section 15162(a)(3)(A). Thus, only the topic of operational air quality has been analyzed in this SEA.

The environmental impact analysis for this environmental topic area 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 operational air quality impacts associated with the implementation of the PAR 1111.

AIR QUALITY

Significance Criteria

To determine whether air quality impacts from adopting and implementing PAR 1111 are significant, impacts will be evaluated and compared to the following criteria. If impacts exceed any of the significance thresholds in Table 4-1, they will be considered significant. All feasible mitigation measures will be identified and implemented to reduce significant impacts to the maximum extent feasible. PAR 1111 would be considered to have significant adverse air quality impacts if any one of the thresholds in Table 4-1 are equaled or exceeded.

In general, the SCAQMD makes significance determinations for construction impacts based on the maximum or peak daily emissions during the construction period, which provides a "worst-case" analysis of the construction emissions. However, since PAR 1111 would require manufacturers to adjust their current furnaces to achieve the NOx emission limit of 14 ng/J, no construction activities are associated with implementing PAR 1111. In addition, PAR 1111 is not expected to require construction or earth-moving activities because compliance with PAR 1111 would be achieved by OEMs manufacturing compliant units and making them available for purchase. Thus, the construction air quality significance thresholds do not apply to this project. Similarly, significance determinations for operational emissions are based on the maximum or peak daily allowable emissions during the operational phase.

Table 4-1
SCAQMD 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 SCAQMD Rule 402	
GHG	10,000 MT/yr CO_2eq for industrial facilities	
Ambient Air Quality Standards for Criteria Pollutants [d]		
NO_2 1-hour average annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM_{10} 24-hour average annual average	10.4 μg/m^3 (construction)[e] & 2.5 μg/m^3 (operation) 1.0 μg/m^3	
$PM_{2.5}$ 24-hour average	10.4 μg/m^3 (construction)[e] & 2.5 μg/m^3 (operation)	
SO_2 1-hour average 24-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 μg/m^3 (state)	
CO 1-hour average 8-hour average	SCAQMD 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: SCAQMD CEQA Handbook (SCAQMD, 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 SCAQMD Rule 1303, Table A-2 unless otherwise stated.
[e] Ambient air quality threshold based on SCAQMD Rule 403.

KEY: lbs/day = pounds per day ppm = parts per million μg/m^3 = microgram per cubic meter ≥ = greater than or equal to
MT/yr CO_2eq = metric tons per year of CO_2 equivalents > = greater than

Revision: March 2015

Project-Specific Air Quality Impacts During Operation

PAR 1111 will provide relief to manufacturers by extending the ~~compliance~~ mitigation fee alternative compliance option end dates for residential and commercial fan-type central furnaces. ~~Compliance~~ The alternative compliance option end dates ~~for complying with the NOx limit~~ established in Rule 1111 would be further extended in PAR 1111 for the following equipment categories: 1) condensing furnaces from April 1, 2018, to October 1, 2019; 2) non-condensing furnaces from October 1, 2018, to October 1, 2019; and 3) weatherized furnaces from October 1, 2019, to October 1, 2020.~~; and 4) mobile home furnaces from October 1, 2021, to October 1, 2022.~~ For mobile home units, there will be no increase in the mitigation fee or change in the mitigation fee option end date. Table 4-2 summarizes the change in the mitigation fee option end ~~compliance~~ dates from the existing Rule 1111 to PAR 1111. In addition, it is important to note the PAR 1111 does not propose to change the 14 ng/J NOx emission limit which is currently established in Rule 1111. Since the September 2014 amendments to Rule 1111 had already established the 14 ng/J NOx emission limit, manufacturers were expected at that time to change their current manufacturing operations in order to develop and begin manufacturing compliant units. Since the requirement to develop compliant units is now part of the existing setting, PAR 1111 is not expected to alter how equipment manufacturers will proceed in order develop and manufacture compliant units in order to comply with PAR 1111 by the end of the alternative compliance option for each equipment category.

Table 4-2

Rule 1111 and PAR 1111 Alternative Compliance Option End Dates

Equipment Category	Rule 1111 Alternative Compliance Option End Date	PAR 1111 Extended Alternative Compliance Option Dates
Condensing Furnace	March 31, 2018	April 1, 2018 – October 1, 2019
Non-Condensing Furnace	September 30, 2018	October 1, 2018 – October 1, 2019
Weatherized Furnace	September 30, 2019	October 1, 2019 – October 1, 2020
Mobile Home Furnace	September 30, 2021	~~October 1, 2021 – October 1, 2022~~ No Change

The estimates of NOx emission reductions foregone from residential and commercial fan-type central furnaces are based on the SCAQMD's 2016 Air Quality Management Plan (AQMP) emission inventory for actual natural gas consumption data from 2012. The reported annual average NOx emissions from residential heating that uses natural gas was 9.51 tons per day in 2012. Based on heating trends, most NOx emissions occur between October and May, and thus daily emissions during these months are higher than for the rest of the year. A typical residential or commercial fan-type central furnace emits 1.5 to 2.0 pounds of NOx per year and has a lifetime of approximately 20 to 25 years. The September 2014 amendments to Rule 1111 estimated that the annual average NOx emissions would be reduced by about 0.80 to 1.00 ton per day in 2018

and 2.03 to 2.54 tons per day in 2023. Replacement of existing furnaces with 14 ng/J furnaces was estimated to occur by ~~2047~~2046, approximately 25 years after the end of the last compliance date. Once all the existing furnaces are replaced, PAR 1111 is estimated to reduce NOx emissions from 9.51 tons per day to 6.18 tons per day. The NOx emission reduction was estimated based on the change in the NOx emission limit from furnaces with a NOx emission limit of 40 ng/J (baseline) to 14 ng/J (PAR 1111), a 65 percent reduction.

Based on this information, PAR 1111 would result in a delay in emissions reductions for residential and commercial fan-type central furnaces of up to 0.07 to 0.09 tons per day in 2018, 0.26 to ~~0.33~~ 0.32 tons per day in 2023, and 0.26 to ~~0.33~~ 0.32 tons per day in 2031. However, the emission reductions foregone will be eventually achieved because existing furnaces will be eventually replaced and upgraded over time. Condensing, Non-Condensing, Weatherized, and Mobile Home furnaces are already subject to the existing emissions limits previously established in Rule 1111. Table 4-3 presents a summary of the emissions reductions foregone, where most will be eventually ~~recovered~~ achieved over time. NOx is the only pollutant that is affected by PAR 1111 because the focus of the rule is to reduce NOx emissions from the affected categories of furnaces. As shown in Table 4-3, the quantity of peak daily operational NOx emission reductions foregone exceeds the SCAQMD's CEQA significance threshold for operation. Thus, PAR 1111 will result in significant adverse operational air quality impacts for NOx.

Table 4-3
Estimated NOx Emissions Reduction Foregone

Year	Total Estimated NOx Emission Reductions Foregone	
	Tons per Day	Pounds per Day
2018	0.07 – 0.09	140 – 180
2023	0.26 – ~~0.33~~0.32	520 – ~~660~~640
2031	0.26 – ~~0.33~~0.32	520 – ~~660~~640
NOx SIGNIFICANCE THRESHOLD	0.0275*	55
SIGNIFICANT?	YES	YES

* The NOx significance threshold for operation is 55 pounds per day which is equivalent to 0.0275 tons per day.

If significant adverse environmental impacts are identified in a CEQA document, the CEQA document shall describe feasible measures that could minimize the impacts of the proposed project. Adjustments to the alternative compliance option end dates for certain types of equipment are proposed in PAR 1111 because most OEMs do not yet have commercially available Rule 1111-compliant equipment ~~are not currently available for most OEMs. For this reason, the NOx emission limits in the current version of Rule 1111 are unachievable and c~~Consequently, the previously estimated NOx emission reductions have also not occurred. If compliant equipment were widely available on the market, PAR 1111 would not be necessary. By allowing manufacturers more time to develop compliant units as proposed in PAR 1111, the originally

projected NOx emission reductions will be delayed. PAR 1111 includes an extension of the mitigation fee compliance option, portions of which will be used to offset forgone emissions reductions. An RFP has been issued to solicit bids to utilize these funds for emissions reductions projects. As proposals have not yet been received and evaluated, the details and extent to which the projects will offset the forgone emissions are unknown at this time. As such, there are no feasible mitigation measures that would eliminate or reduce the significant adverse operational air quality impacts for NOx emissions to less than significant levels if PAR 1111 is implemented.

It is important to note that ~~because~~ PAR 1111 focuses on reducing NOx emissions, and emissions of other criteria pollutants (e.g., CO, VOC, SOx, PM10, and PM2.5) and toxic air contaminants are not expected to change as a result of PAR 1111 compared with the current requirements for the affected sources under Rule 1111. Thus, PAR 1111 will not result in significant adverse operational air quality impacts for CO, VOC, SOx, PM10, PM2.5 and toxic air contaminants.

CUMULATIVE ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

CEQA Guidelines Section 15130 (a) requires a discussion of cumulative impacts if a project may have an effect that is potentially cumulatively considerable, as defined in CEQA Guidelines Section 15065(a)(3). The preceding analysis concluded that air quality impacts during operation would be significant from implementing the proposed project because the SCAQMD's significance threshold for operation will be exceeded for NOx (see Table 4-3). The ~~cumulative secondary~~ foregone NOx emissions reductions ~~impacts~~ associated with the extended compliance dates and equipment replacement schedules ~~and changes in emission limits of NOx~~ as contained in PAR 1111 are also considered to be cumulatively considerable pursuant to CEQA Guidelines Section 15064 (h)(1).~~will have the potential for creating significant adverse operational air quality impacts for NOx that is evaluated in the previous subchapters and presented in Table 4-3 in this Final SEA.~~ It should be noted, however, that the air quality analysis is a conservative, "worst-case" analysis so the actual operational impacts may not be as great as estimated if OEMs are able to manufacture compliant equipment that meet the compliance schedule earlier than required under PAR 1111. In addition, the operational impacts of NOx emission reductions foregone are temporary, and the permanent projected emission reductions of NOx will eventually be achieved as a result of the proposed project. In other words, despite the extension of the compliance dates, the same amount of overall NOx emission reductions, as estimated in the current rule, will be achieved by PAR 1111 (e.g., 6.1 tons per day of NOx emission reductions by 2046).

Further, the temporary delay in NOx emission reductions will still meet the air quality progress and attainment demonstration projected in the 2016 AQMP. Based on regional modeling analyses performed for the 2016 AQMP, implementing control measures contained in the 2016 AQMP, in addition to the air quality benefits of the existing rules, is anticipated to bring the District into attainment with all national and most state ambient air quality standards. In particular, the federal annual PM2.5 standards are predicted to be achieved in 2023 with implementation of the proposed ozone strategy and the California annual PM2.5 standard will be achieved in 2025. The 2016 AQMP is also expected to achieve the ozone 8-hour standard by 2023.

Per CEQA Guidelines Section 15130(e), previously approved land use documents, including, but not limited to, general plans, specific plans, regional transportation plans, plans for the reduction of greenhouse gas emissions, and local coastal plans may be used in a cumulative impact analysis. A pertinent discussion of cumulative impacts contained in one or more previously certified EIRs

may be incorporated by reference pursuant to the provisions for tiering and program EIRs. No further cumulative impacts analysis is required when a project is consistent with a general, specific, master, or comparable programmatic plan where the lead agency determines that the regional or areawide cumulative impacts of the proposed project have already been adequately addressed, as defined in CEQA Guidelines Section 15152(f), in a certified EIR for that plan. Further, if a cumulative impact was adequately addressed in a prior EIR for a community plan, zoning action, or general plan, and the project is consistent with that plan or action, then an EIR for ~~a~~ such a project should not further analyze that cumulative impact, as provided in CEQA Guidelines Section 15183(j).

Despite the delay in implementation of some of the compliance dates, most of the overall NOx emission reductions as estimated in the current rule will be achieved by PAR 1111. Further, even though the projected NOx emission reductions foregone are estimated to be 0.07 to 0.09 tons per day in 2018, 0.26 to 0.32 tons per day in 2023, and 0.26 to 0.32 tons per day in 2031, the 2012 AQMP allocated one ton per day of NOx emissions in the SIP set aside account for every year starting in year 2013 to year 2030 in the event that NOx emission reductions were not achieved via rule adoptions or amendments. This NOx set aside account was re-evaluated and revised in the Final 2016 AQMP based on expected growth and the number of projects expected to take place in near future years to 2.0 tons per day for every year starting in year 2017 to year 2025 and 1.0 ton per day for every year starting in year 2026 to year 2031. As a result, even if PAR 1111 would delay NOx emission reductions, implementation of other control measures in the 2016 AQMP will provide human health benefits by reducing population exposures to existing NOx emissions.

Therefore, cumulative air quality impacts from the proposed project, previous amendments, and all other AQMP control measures considered together~~,~~ are not expected to be significant because implementation of all 2016 AQMP control measures is expected to result in net emission reductions and overall air quality improvement. This determination is consistent with the conclusion in the 2016 AQMP Final Program EIR that cumulative air quality impacts from all AQMP control measures are not expected to be significant[5]. Therefore, there will be no significant cumulative adverse operational air quality impacts from implementing the proposed project.

Cumulative Mitigation Measures During Operation: The analysis indicates that the proposed project will result in a delay of NOx emission reductions during operation of the proposed project, but the delay will not result in cumulatively considerable significant adverse air quality impacts during operation because the amount of emission reductions to be achieved by the proposed project for NOx will, at the very least, meet the emission reduction projections and commitments made in the 2016 AQMP. Thus, no cumulative mitigation measures for operation are required.

POTENTIAL ENVIRONMENTAL IMPACTS FOUND NOT TO BE SIGNIFICANT

Because this SEA is subsequent to the September 2014 Final EA, this SEA relies on the conclusions reached in that document as evidence for impacts found not to be significant. The September 2014 Final EA included an environmental checklist comprised of approximately 17 environmental topic areas that analyzed whether the September 2014 amendments to Rule 1111 would create potentially significant adverse impacts. The analysis in the September 2014 Final

[5] SCAQMD, Final Program Environmental Impact Report for the 2016 Air Quality Management Plan, March 2017; see Attachment D, Chapter 5, pp. 5-7 to 5-9. http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2017/2017-mar3-035.pdf.

EA concluded that the following environmental areas would not be significantly adversely affected:

- aesthetics
- air quality and greenhouse gas emissions (GHGs) during construction and operation
- agriculture and forestry resources
- biological resources
- cultural resources
- energy
- geology and soils
- hazards and hazardous materials
- hydrology and water quality
- land use and planning
- mineral resources
- noise
- population and housing
- public services
- recreation
- solid and hazardous waste
- transportation and traffic

The detailed evaluation of the above environmental topic areas is contained in Chapter 2 of the September 2014 Final EA and is not repeated here.

The September 2014 Final EA concluded that Rule 1111 would have no significant or less than significant direct or indirect adverse effects for all 17 environmental topics areas, and these conclusions are consistent with the conclusions reached in this SEA for all environmental topic areas except for the topic of operational air quality, which has been shown to result in significant adverse impacts if PAR 1111 is implemented.

As such, the analysis in this SEA concluded that the following environmental areas would not be significantly adversely affected:

- aesthetics
- air quality during construction and GHGs during construction and operation
- agriculture and forestry resources
- biological resources
- cultural resources
- energy
- geology and soils

- hazards and hazardous materials
- hydrology and water quality
- land use and planning
- mineral resources
- noise
- population and housing
- public services
- recreation
- solid and hazardous waste
- transportation and traffic

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 Final SEA identified the topic of air quality during operation as the environmental topic area having potentially significant adverse environmental effects if PAR 1111 is implemented. As explained previously, without commercially available compliant units available on the market, the significant adverse air quality impacts during operation cannot be fully feasibly mitigated concurrently and thus, the amount of NOx emission reductions foregone would result in a significant and unavoidable impact if PAR 1111 is implemented.

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 Final SEA identified the topic of air quality during operation as the only environmental area with potentially significant adverse impacts if PAR 1111 is implemented. While replacement of residential and commercial fan-type central furnaces according to the extended compliance schedule in PAR 1111 is likely to ensure replacement of all existing furnaces by ~~2047~~ 2046 and eventually achieve the project NOx emission reductions over the long-term, the proposed changes to PAR 1111 would delay emissions reductions on the short-term for residential and commercial fan-type central furnaces of up to 0.07 to 0.09 tons per day in 2018, 0.26 to ~~0.33~~ 0.32 tons per day in 2023, and 0.26 to ~~0.33~~ 0.32 tons per day in 2031. These NOx emission reductions foregone occurring during the short-term will not increase existing emissions, but prevent new NOx emission reductions from occurring in the specified years. However, a portion of the NOx emission reductions foregone will be eventually achieved starting in compliance year 2018. Thus, despite the delay in implementation of some of the compliance dates as proposed in PAR 1111, the overall NOx emission reductions as originally estimated in the September 2014 version of Rule 1111 will be eventually achieved if PAR 1111 is implemented. Further, even though the projected NOx emission reductions foregone are estimated to be up to 0.07 to 0.09 tons per day in 2018, 0.26 to ~~0.33~~ 0.32 tons per day in 2023, and 0.26 to ~~0.33~~ 0.32 tons per day in 2031,

the 2012 AQMP allocated one ton per day of NOx emissions in the SIP set aside account for every year starting in year 2013 to year 2030 in the event that NOx emission reductions were not achieved via rule adoptions or amendments. This NOx set aside account was re-evaluated and revised in the Final 2016 AQMP based on expected growth and the number of projects expected to take place in near future years to 2.0 tons per day for every year starting in year 2017 to year 2025 and 1.0 ton per day for every year starting in year 2026 to year 2031. As a result, even though PAR 1111 would delay the achievement of the originally projected NOx emission reductions, implementation of other control measures in the 2016 AQMP will provide human health benefits by reducing population exposures to existing NOx emissions. For these aforementioned reasons, the proposed project would not result in irreversible environmental changes or irretrievable commitment of resources.

POTENTIAL GROWTH-INDUCING IMPACTS

CEQA Guidelines Section 15126(d) requires an environmental analysis to consider the "growth-inducing impact of the proposed action." Implementing the proposed project will not, by itself, have any direct or indirect growth-inducing impacts on businesses in the SCAQMD's jurisdiction because it is not expected to foster economic or population growth or the construction of additional housing and primarily affects existing facilities.

RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

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 purpose of the proposed project is to provide compliance relief for a limited group of emission sources. The September 2014 amendments to Rule 1111 did not achieve all of the NOx emission reductions originally contemplated at that time and PAR 1111 will continue to delay these projected NOx emission reductions starting in 2018, PAR 1111 will gradually begin to achieve some NOx emission reductions but the NOx emission reductions foregone will not be fully eliminated until ~~2047~~2046. NOx, is a precursor to the formation of ozone and PM2.5, so even if PAR 1111 is implemented and there will be some NOx emission reductions foregone occurring primarily between compliance years 2018 and 2031, there will also be some NOx emissions reductions occurring in 2018 and these will continue to 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 operational air quality are considered potentially significant.

CHAPTER 5

ALTERNATIVES

Introduction

Alternatives Rejected as Infeasible

Description of Alternatives

Comparison of Alternatives

Conclusion

INTRODUCTION

This Final SEA provides a discussion of alternatives to the proposed project as required by CEQA. Alternatives include measures for attaining 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 meaningful public participation. A CEQA document need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. SCAQMD Rule 110 (the rule which implements the SCAQMD's certified regulatory program) does not impose any greater requirements for a discussion of project alternatives in a SEA than is required for an EIR under CEQA.

Four alternatives to the proposed project are summarized in Table 5-1: Alternative A (No Project), Alternative B (More Stringent NOx Limit), Alternative C (Less Stringent Timing), and Alternative D (More Mitigation). 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 potential operational air quality impacts from each of the project alternatives for the individual rule components that comprise the proposed project is provided in Table 5-2. Aside from this environmental topic area, no other significant adverse impacts were identified for the proposed project or any of the project alternatives. The proposed project is considered to provide the best balance between emission reductions and the adverse environmental impacts due to operation activities while meeting the objectives of the project. Therefore, the proposed project is preferred over the project alternatives.

The Governing Board may choose to adopt any portion or all of any alternative presented in the Final SEA with appropriate findings as required by CEQA. The Governing Board is able to adopt any portion or all of any of the alternatives presented because the impacts of each alternative will be fully disclosed to the public and the public will have the opportunity to comment on the alternatives and impacts generated by each alternative. Written suggestions on potential project alternatives received during the comment period for the Draft SEA ~~will be~~were considered when preparing ~~the~~ this Final SEA and are included ~~as an~~ in ~~a~~Appendix D ~~in~~ of the~~i~~s Final SEA.

Table 5-1
Summary of the Proposed Project and Alternatives

KEY RULE COMPONENTS	PROPOSED PROJECT	ALTERNATIVE A No Project	ALTERNATIVE B More Stringent NOx Limit	ALTERNATIVE C Less Stringent Timing	ALTERNATIVE D More Mitigation
NOx Limit	• 14 ng/J for all equipment types currently in effect • 14 ng/J for mobile home furnaces by October 1, 2018	• 14 ng/J for all equipment types currently in effect • 14 ng/J for mobile home furnaces by October 1, 2018	• **10 ng/J for all equipment types** • **10 ng/J for mobile home furnaces** by October 1, 2018	• 14 ng/J for all equipment types currently in effect • 14 ng/J for mobile home furnaces by October 1, 2018	• 14 ng/J for all equipment types currently in effect • 14 ng/J for mobile home furnaces by October 1, 2018
Alternate Compliance Option to Meeting NOx Limit	Allowed to pay a mitigation fee in lieu of meeting NOx limit but with **extended compliance dates and increased mitigation fees <u>for all units, except mobile home units</u>** Mitigation Fee Schedule: • **Condensing Unit** $<u>350 - $450</u> ~~400~~ per unit ~~*Date of Adoption*~~*<u>April 1, 2018</u>* – *September 30, 2019* • **Non-condensing Unit** $<u>300 - $</u>400 per unit ~~*Date of Adoption*~~*<u>October 1, 2018</u>* – *September 30, 2019* • **Weatherized Unit** $<u>300 - $</u>400 per unit ~~*Date of Adoption*~~*<u>October 1, 2018</u>* – *September 30, 2020* • **Mobile Home Unit** $<u>150</u> ~~400~~ per unit *October 1, 2018 – September 30, <u>2021</u>* ~~*2022*~~	Allowed to pay a mitigation fee in lieu of meeting NOx limit with **existing rule compliance dates** Mitigation Fee Schedule: • **Condensing Unit** $200 per unit *April 1, 2015 – March 31, 2018* • **Non-condensing Unit** $150 per unit *October 1, 2015 – September 30, 2018* • **Weatherized Unit** $150 per unit *October 1, 2016 – September 30, 2019* • **Mobile Home Unit** $150 per unit • *October 1, 2018 – September 30, 2021*	Allowed to pay a mitigation fee in lieu of meeting NOx limit but with extended compliance dates and increased mitigation fees Mitigation Fee Schedule: • **Condensing Unit** $<u>350 - $</u>400 per unit ~~*Date of Adoption*~~*<u>April 1, 2018</u>* – *September 30, 2019* • **Non-condensing Unit** $<u>300 - $</u>400 per unit ~~*Date of Adoption*~~*<u>October 1, 2018</u>* – *September 30, 2019* • **Weatherized Unit** $<u>300 - $</u>400 per unit ~~*Date of Adoption*~~*<u>October 1, 2018</u>* – *September 30, 2020* • **Mobile Home Unit** $<u>150</u> ~~400~~ per unit *October 1, 2018 – September 30, <u>2021</u>* ~~*2022*~~	Allowed to pay the mitigation fee in lieu of meeting NOx limit but with an increased mitigation fee and a **three year extension of the compliance dates** Mitigation Fee Schedule: • **Condensing Unit** $<u>350 - $450</u> ~~400~~ per unit ~~*Date of Adoption*~~*<u>April 1, 2018</u>* – *March 31, 2021* • **Non-condensing Unit** $<u>300 - $</u>400 per unit ~~*Date of Adoption*~~*<u>October 1, 2018</u>* – *September 30, 2021* • **Weatherized Unit** $<u>300 - $</u>400 per unit ~~*Date of Adoption*~~*<u>October 1, 2018</u>* – *September 30, 2022* • **Mobile Home Unit** $<u>150</u> ~~400~~ per unit *October 1, 2018 – September 30, 2024*	Allowed to pay a mitigation fee in lieu of meeting NOx limit but with **extended compliance dates and increased mitigation fees** Mitigation Fee Schedule: • **Condensing Unit $500 per unit** ~~*Date of Adoption*~~*<u>April, 1, 2018</u>* – *September 30, 2019* • **Non-condensing Unit $500 per unit** ~~*Date of Adoption*~~*<u>October 1, 2018</u>* – *September 30, 2019* • **Weatherized Unit $500 per unit** ~~*Date of Adoption*~~*<u>October 1, 2018</u>* – *September 30, 2020* • **Mobile Home Unit $500 per unit** *October 1, 2018 – September 30, <u>2021</u>* ~~*2022*~~

[1] <u>The mitigation fee schedule and fee increase is based on the unit size and equipment type and will be implemented in two phases. The fee increase range contained in Table 1-2 is the Phase 2 fee schedule. The complete fee schedule is located in Table 2 in PAR 1111.</u>

Table 5-2
Comparison of Adverse Environmental Impacts of the Proposed Project and Alternatives

CATEGORY	PROPOSED PROJECT	ALTERNATIVE A No Project	ALTERNATIVE B More Stringent NOx Limit	ALTERNATIVE C Less Stringent Timing	ALTERNATIVE D More Mitigation
Air Quality (During Operation)	Expected to result in NOx emission reductions foregone of 0.07 to 0.09 tons per day in 2018, 0.26 to ~~0.33~~ 0.32 tons per day in 2023, and 0.26 to ~~0.33~~ 0.32 tons per day in 2031.	No new NOx emission reductions foregone. Existing compliance deadlines to achieve 14ng/J would remain intact.	Expected to result in lesser quantities of NOx emission reductions foregone over a shorter time frame than the proposed project.	Expected to result in equivalent NOx emission reductions foregone as the proposed project except that the recovery of the NOx emission reductions foregone will occur over a longer time frame than the proposed project.	Expected to result in equivalent NOx emission reductions foregone as the proposed project.
Significance of Air Quality Operational Impacts	Significant: Exceeds the SCAQMD's regional air quality CEQA significance threshold for NOx due to the quantity of NOx emission reductions foregone.	Not significant: Does not exceed SCAQMD's regional air quality CEQA significance threshold for NOx. Compliance cannot be achieved by the original compliance schedule.	Significant: Exceeds the SCAQMD's regional air quality CEQA significance threshold for NOx but at an amount that is less significant than the proposed project.	Significant: Exceeds the SCAQMD's regional air quality CEQA significance threshold for NOx due to the quantity of NOx emission reductions foregone, but at an amount that is more significant than the proposed project and for a greater period of time than the proposed project.	Significant: Exceeds the SCAQMD's regional air quality CEQA significance threshold for NOx due to the quantity of NOx emission reductions foregone at an amount that is equivalent to the proposed project. However, the additional mitigation fee will provide the SCAQMD with additional funding for the rebate program and additional projects to achieve additional NOx emission reductions throughout the Basin.

ALTERNATIVES REJECTED AS INFEASIBLE

A CEQA document should identify any alternatives that were considered by the lead agency, but were rejected as infeasible during the scoping process and explain the reasons underlying the lead agency's determination [CEQA Guidelines Section 15126.6(c)]. No alternative was specifically rejected as being infeasible.

DESCRIPTION OF ALTERNATIVES

The following proposed alternatives were developed by modifying specific components of the proposed project. The rationale for selecting and modifying specific components of the proposed project to generate feasible alternatives for the analysis is based on CEQA's requirement to present "realistic" alternatives; that is, alternatives that can actually be implemented.

The initial analysis of the proposed project determined that, of the amendments proposed, only the components that pertain to the delayed compliance schedule to meet certain NOx emission limits could have potential adverse significant impacts during operation. As such, the following four alternatives were developed by identifying and modifying major components of the proposed project. The alternatives, summarized in Table 5-1 and described in the following subsections, include the following: Alternative A (No Project), Alternative B (More Stringent NOx Limit), Alternative C (Less Stringent Timing), and Alternative D (More Mitigation). Unless otherwise specifically noted, all other components of the project alternatives are identical to the components of the proposed project. The following subsections provide a brief description of each alternative.

Proposed Project (Alternative Compliance Option, Increased Mitigation Fee):

PAR 1111 intends to resolve the compliance issues by extending the compliance dates for residential and commercial fan-type central furnaces to comply with the NOx emission limits established in the September 2014 amendments to Rule 1111. Condensing, Non-condensing, Weatherized, and Mobile Home units are expected to comply with the applicable NOx emission limits and mitigation fee schedule set forth in PAR 1111. Recovery of the NOx emission reductions foregone are expected to occur starting in 2018 as older equipment gets replaced or retrofitted over time. Most NOx emission reductions foregone are expected to be recovered each year from compliance year 2018 to ~~2047~~2046.

Alternative A: No Project (Current Rule)

Alternative A, the no project alternative, means that the current version of Rule 1111 that was amended in September 2014 would remain in effect. Under the current version of Rule 1111, Condensing, Non-condensing, Weatherized, and Mobile Home units would have to comply with the applicable NOx emission limits from 2018 to 2022. Compliance with these NOx limits would result in NOx emission reductions occurring from 2018 through 2022. Under this alternative, however, suppliers cannot provide equipment that meets the applicable NOx emission limits, creating potential compliance issues for the manufacturers, distributors and installers. The originally projected NOx emission reductions will not be achieved if the September 2014 amendments to Rule 1111 remain in effect.

Alternative B: More Stringent NOx Limit Alternative (10 ng/J NOx Limit):

Under Alternative B, the NOx limit of 10 ng/J is more stringent than the 14 ng/J in the proposed project, PAR 1111. Condensing, Non-Condensing, Weatherized, and Mobile Home units would have to comply with emission limit starting in 2018. The compliance dates for the more stringent NOx limit would be equivalent to the compliance dates in the proposed project. Recovery of the NOx emission reductions foregone are expected to occur starting in 2018 as older equipment gets replaced or retrofitted over time. The NOx emission reductions foregone are expected to be recovered more quickly each year from compliance year 2018 to 2022.

Alternative C: Less Stringent Timing Alternative (Three Year Extension for Compliance Dates):

Under Alternative C, the NOx emission limit would remain the same as the proposed project. However, the compliance dates for all equipment types would be extended by three years from the existing Rule 1111, which is less stringent than the proposed compliance date extension in PAR 1111. Condensing, Non-Condensing, Weatherized, and Mobile Home units are expected to comply with applicable NOx emission limits over the applicable extended compliance period of three years starting in 2018. Recovery of the NOx emission reductions foregone are expected to occur starting in 2018 as older equipment gets replaced or retrofitted over time. The NOx emission reductions foregone are expected to be recovered each year from compliance year 2018 to 2024.

Alternative D: More Mitigation Alternative (Increased Mitigation Fees):

Under Alternative D, the NOx emission limit would remain the same as the proposed project. However, the mitigation fee for all equipment types would be increased to $500 per unit, which is more stringent than the proposed two-phase ~~$400~~ mitigation fee schedule in PAR 1111. Condensing, Non-Condensing, Weatherized, and Mobile Home units would still have to comply with the applicable NOx emission limits set forth in PAR 1111. Under Alternative D, the amount of NOx emission reductions foregone are expected to be equivalent to the proposed project and will occur starting in 2018 as older equipment gets replaced or retrofitted over time. The NOx emission reductions foregone are expected to be recovered each year from compliance year 2018 to 2024.

COMPARISON OF ALTERNATIVES

The following sections describe the potentially significant adverse operational air quality impacts that may occur for each project alternative. Potentially significant adverse operational air quality impacts are quantified where sufficient data are available. A comparison of the environmental impacts for each project alternative is provided in Table 5-2. No other environmental topics other than operational air quality were determined to be significantly adversely affected by implementing any project alternative.

CONCLUSION

By not adopting PAR 1111, Alternative A would not delay any of the requirements in the current version of Rule 1111 to comply with the applicable NOx emission limits. Further, implementation of Alternative A will require the same amount of NOx emission reductions to occur as is currently required by Rule 1111. However, Alternative A would not achieve the project objectives for the

proposed project because there is limited availability of compliant equipment on the market that is able to comply with the current NOx emission limits by the applicable compliance dates. This problem is further exacerbated because the non-compliant equipment would no longer be able to be sold or installed in the SCAQMD. Implementing Alternative A means that there will be no delay in requiring manufacturers to make compliant units available and in turn, obtaining NOx emission reductions and the corresponding health benefits that result from the NOx emission reductions. However, because there is ~~no~~ limited availability of equipment currently available on the market that is able to comply with the current NOx emission limits by the applicable compliance dates, these environmental benefits will not actually occur if Alternative A is selected. Instead, the baseline of NOx emissions currently generated by the affected furnaces will remain unchanged and no NOx emission reductions will occur. In addition, because non-compliant equipment may no longer be sold or installed, the owner may elect to repair a furnace instead of replacing it with low NOx emitting equipment, thus continuing to emit NOx at baseline levels.

If Alternative B were implemented, more stringent NOx emission limits than those in the proposed project would apply to the applicable equipment. The compliance dates for achieving the more stringent NOx emission limits would be equivalent to the compliance dates in the proposed project. If Alternative B is implemented, the environmental impacts (e.g., NOx emission reductions foregone) will be less significant than the proposed project, however Alternative B is expected to result in lesser quantities of NOx emission reductions foregone over a shorter time frame than the proposed project. In addition, Alternative B presents a challenge for OEMs to achieve a lower NOx emission limit and make furnaces commercially available and achievable in widespread applications. For this reason, Alternative B is concluded to be the environmentally superior alternative. Similarly, because the NOx emission reductions foregone would occur over a shorter period of time, Alternative B is also determined to be the least toxic alternative.

If Alternative C is implemented, NOx emission reductions would be achieved from reducing NOx emissions over a longer period of time between compliance years 2018 and 2024. Alternative C extends the delay in NOx emission reductions as compared to the proposed project. For this reason, when compared to the proposed project, Alternative C provides fewer benefits to air quality and public health. Of the significant adverse operational air quality impacts that would be generated under Alternative C, the impacts would be more than the proposed project and more significant over a longer period of time.

If Alternative D were implemented, more NOx emission reductions and health benefits compared to the proposed project would be achieved from implementation of the emission reduction projects funded by the mitigation fee that would reduce NOx emissions overall beginning in compliance year 2018 and any year thereafter. However, NOx emission reductions would not be occurring concurrently with the foregone emission reductions as it takes time to select projects and implement. Under Alternative D, the NOx emission reductions foregone are expected to be as significant as the proposed project. Thus, under these conditions, the impacts from the Alternative D would be equivalent to the proposed project.

Thus, when comparing the environmental effects of the project alternatives with the proposed project and evaluating the effectiveness of achieving the project objectives of the proposed project versus the project alternatives, the proposed project provides the best balance in achieving the project objectives while minimizing the significant adverse environmental impacts to operational air quality, while not imposing an overwhelming financial burden on the OEMs.

APPENDIX A

PROPOSED AMENDED RULE 1111

In order to save space and avoid repetition, please refer to the latest version of Proposed Amended Rule 1111 located elsewhere in the Governing Board Package (meeting date March 2, 2018). The version of Proposed Amended Rule 1111 that was circulated with the Draft SEA and released on December 26, 2017 for a 45-day public review and comment period ending on February 9, 2017 was identified as "PAR 1111 Preliminary Draft Rule October 2017." Original hard copies of the Draft SEA, which include the draft version of the proposed amended rule listed above, can be obtained by visiting the Public Information Center at SCAQMD Headquarters located at 21865 Copley Drive, Diamond Bar, CA 91765, by contacting Fabian Wesson, Public Advisor by phone at (909) 396-2039 or by email at PICrequests@aqmd.gov.

APPENDIX B

CEQA IMPACT EVALUATION

Appendix B

CEQA IMPACT EVALUATIONS - PAR 1111

(1/23/2018)

Rule 1111 - 2014 Compliance After Mitigation

2014 Rule 1111 Emission Reduction Calculations (Tons per day [T/d])

		2012 Baseline (T/d))	Baseline Used (T/d))	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
		9.51	**9.51**																					
% Mobile		4	%	0.004	0.008	0.013	0.017	0.021	0.025	0.030	0.034	0.038	0.042	0.046	0.051	0.055	0.059	0.063	0.068	0.072	0.076	0.080	0.085	0.089
													0.007	0.014	0.020	0.027	0.034	0.041	0.047	0.054	0.061	0.068	0.074	0.081
% Condensing		15	%							0.031	0.072	0.113	0.155	0.196	0.237	0.278	0.319	0.361	0.402	0.443	0.484	0.525	0.567	0.608
% Non-Condensing		71	%							0.049	0.244	0.439	0.634	0.829	1.024	1.219	1.414	1.609	1.804	1.999	2.194	2.389	2.585	2.780
% Weatherized		10	%								0.007	0.034	0.062	0.089	0.117	0.144	0.172	0.199	0.227	0.254	0.282	0.309	0.337	0.364
Total Reduction (T/d)		**100**	**%**	**0.004**	**0.008**	**0.013**	**0.017**	**0.021**	**0.025**	**0.109**	**0.357**	**0.625**	**0.899**	**1.174**	**1.449**	**1.724**	**1.998**	**2.273**	**2.548**	**2.822**	**3.097**	**3.372**	**3.647**	**3.921**

Notes:

1. Source of data is from 2012 AQMP Source Category Emissions, August 2014 Rule 1111 Amendment, SoCal Gas Inventory Data, 2010 Census Data, and Ernest Orlando Lawrence Berkeley National Laboratory

PAR 1111 - Emissions Delay from 2014 to 2017

2017 PAR 1111 Emission Reduction Calculations (Tons per day [T/d])

		2012 Baseline (T/d))	Baseline Used (T/d))	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
		9.51	**9.51**																					
% Mobile		4	%	0.004	0.008	0.013	0.017	0.021	0.025	0.030	0.034	0.038	0.042	0.046	0.051	0.055	0.059	0.063	0.068	0.072	0.076	0.080	0.085	0.089
													0.007	~~0.007~~0.014	~~0.014~~0.020	~~0.020~~0.027	~~0.027~~0.034	~~0.034~~0.041	~~0.041~~0.047	~~0.047~~0.054	~~0.054~~0.061	~~0.061~~0.068	~~0.068~~0.074	~~0.074~~0.081
% Condensing		15	%								0.010	0.052	0.093	0.134	0.175	0.216	0.258	0.299	0.340	0.381	0.422	0.464	0.505	0.546
% Non-Condensing		71	%								0.049	0.244	0.439	0.634	0.829	1.024	1.219	1.414	1.609	1.804	1.999	2.194	2.389	2.585
% Weatherized		10	%									0.007	0.034	0.062	0.089	0.117	0.144	0.172	0.199	0.227	0.254	0.282	0.309	0.337
Total reduction		**100**	**%**	**0.004**	**0.008**	**0.013**	**0.017**	**0.021**	**0.025**	**0.030**	**0.093**	**0.340**	~~**0.608**~~**0.615**	~~**0.883**~~**0.89**	~~**1.158**~~**1.164**	~~**1.432**~~**1.439**	~~**1.707**~~**1.714**	~~**1.982**~~**1.989**	~~**2.257**~~**2.263**	~~**2.531**~~**2.538**	~~**2.806**~~**2.813**	~~**3.081**~~**3.088**	~~**3.356**~~**3.362**	~~**3.630**~~**3.637**

Emission Delay (2014 Rule 1111 - 2017 PAR 1111) (T/d))			**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.080**	**0.264**	**0.284**	~~**0.291**~~**0.284**	~~**0.291**~~**0.284**	~~**0.291**~~**0.284**	~~**0.291**~~**0.284**	~~**0.291**~~**0.284**	~~**0.291**~~**0.284**	~~**0.291**~~**0.284**	~~**0.291**~~**0.284**	~~**0.291**~~**0.284**	~~**0.291**~~**0.284**	~~**0.291**~~**0.284**	~~**0.291**~~**0.284**	~~**0.291**~~**0.284**

Notes:

1. Source of data is from 2012 AQMP Source Category Emissions, August 2014 Rule 1111 Amendment, OEMs, SoCal Gas Inventory Data, 2010 Census Data, and Ernest Orlando Lawrence Berkeley national Laboratory

2. PAR 1111 proposes to extend the compliance option by 1.5 years for condensing units and 1 year for non-condensing, weatherized, and mobile home units

3. An equipment lifetime of 20 to 25 years was assumed

PAR 1111 - Emissions Reductions Foregone

2016 AQMP Attainment Goal Years (8-Hour Ozone)	**2014 Emissions**	**2017 Emissions**	**Emission Delay**	**Foregone Emissions (T/d) - 20 Years**	**Foregone Emissions (T/d) - 25 Years**
2018	0.11	0.03	0.08	0.09	0.07
2023	1.45	1.16	0.28	~~0.33~~0.32	0.26
2031	3.65	3.36	0.28	~~0.33~~0.32	0.26

Note:

1. The equipment lifetime was averaged between 20 and 25 years for a average equipment lifetime of 22.5 years

APPENDIX C

REFERENCES

REFERENCES

REFERENCES

California Environmental Quality Act (CEQA) Guidelines, codified at Title 14 California Code of Regulations, Section15000 et seq.

California Health and Safety Code Sections 40440(a), 40460(a), 40462, 40910, 40913, 40914, 40920.5, 41700, and 44390 et seq.

Lewis-Presley Air Quality Management Act, The, 1976 Cal. Stats., ch 324 (codified at Health and Safety Code, Sections 40400-40540).

Public Resources Code, Section 21000 et seq.

SCAQMD, 2016. Final 2016 Air Quality Management Plan. March 2017. http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp.

APPENDIX D

COMMENT LETTERS RECEIVED ON THE DRAFT SEA AND RESPONSES TO COMMENTS

Comment Letter #1: **Ray Teran/ Viejas Tribal Government**

Comment Letter #2: **Richard Vuong/ Orange County Department of Public Works**

Comment Letter #3: **Kaitlyn D. Shannon/ Beveridge and Diamond on Behalf of Johnson Controls Inc.**

Comment Letter #1

VIEJAS
TRIBAL GOVERNMENT

P.O Box 908
Alpine, CA 91903
#1 Viejas Grade Road
Alpine, CA 91901

Phone: 6194453810
Fax: 6194455337
viejas.com

January 8, 2018

Ryan Bañuelos
South Coast AQMD
21865 Copley Drive
Diamond Bar, CA 91765

RE: Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces Project

Dear Mr. Bañuelos,

In reviewing the above referenced project the Viejas Band of Kumeyaay Indians ("Viejas") would like to comment at this time.

The project area may contain many sacred sites to the Kumeyaay people. We request that these sacred sites be avoided with adequate buffer zones.

Additionally, Viejas is requesting, as appropriate, the following:

- All NEPA/CEQA/NAGPRA laws be followed
- Immediately contact Viejas on any changes or inadvertent discoveries.

1-1

Thank you for your collaboration and support in preserving our Tribal cultural resources. I look forward to hearing from you. Please call me at 619-659-2312 or Ernest Pingleton at 619-659-2314, or email, rteran@viejas-nsn.gov or epingleton@viejas-nsn.gov, for scheduling. Thank you.

Sincerely,

Ray Teran, Resource Management
VIEJAS BAND OF KUMEYAAY INDIANS

Response to Comment Letter #1

Response 1-1

Rule 1111 regulates NOx emissions from residential and commercial gas-fired fan-type residential space heating furnaces 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. The rule applies to manufacturers, distributors, sellers, and installers of such furnaces.

If adopted, PAR 1111 would: 1) increase the mitigation fee to a two-phased mitigation fee increase that ranges between $300 and $450 based on the furnace type and heat input capacity for non-compliant condensing, non-condensing, and weatherized units and further extend the dates for during which the mitigation fee may be paid in lieu of complying with the NOx limit established in Rule 1111; 2) extend the mitigation fee alternative compliance option by 1.5 years for condensing furnaces, and one year for non-condensing and weatherized furnaces; 3) provide an exemption from the mitigation fee increase for units encumbered in a contractual agreement by original equipment manufacturers (OEMs) and distributors for new construction, if contracts were signed prior to January 1, 2018; and; and 4) provide an exemption of rule applicability for natural gas furnaces installed with propane conversion kits for propane firing only, with a defined labeling requirement. For mobile home units, there will be no increase in the mitigation fee or change in the mitigation fee end date. As explained in Chapter 4 of this SEA (see page 4-2), the proposed project is not expected to require construction or earth-moving activities because compliance with PAR 1111 would be achieved by the OEMs manufacturing compliant units and making them available for purchase.

After receiving Comment Letter #1, SCAQMD staff contacted Mr. Teran via telephone on Thursday, January 26, 2018, to explain that PAR 1111 would not be expected to involve construction or earth-moving activities. Mr. Teran informed staff that Comment Letter #1 was sent as an acknowledgement of receipt of the Draft SEA and that if the proposed project were to have construction, then the letter would apply. Thus, since no construction or earth moving activities would be expected, implementation of PAR 1111 would not be expected to have any impacts on tribal cultural resources and any sacred sites associated with the Viejas Band of Kumeyaay Indians.

Comment Letter #2

OC Public Works
Integrity, Accountability, Service, Trust
Shane L. Silsby, Director

February 2, 2018 NCL-2018-002

Ryan Bañuelos
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Subject: Proposed Amended Rule (PAR) 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces

Dear Mr. Bañuelos:

The County of Orange has reviewed the Subsequent Environmental Assessment to the September 2014 Final Environmental Assessment for Rule 1111 and has no comments at this time. We would like to be advised of any further developments on the project. Please continue to keep us on the distribution list for future notifications related to the project. 2-1

If you have any questions, please contact Ashley Brodkin in Development Services at (714) 667-8854.

Sincerely,

Richard Vuong, Manager, Planning Division
OC Public Works Service Area/OC Development Services
300 North Flower Street
Santa Ana, California 92702-4048
Richard.Vuong@ocpw.ocgov.com

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Response to Comment Letter #2

Response 2-1

Thank you for your comment. No further response is required under CEQA.

Comment Letter #3

BEVERIDGE & DIAMOND PC

Kaitlyn D. Shannon
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February 9, 2018

VIA E-MAIL

Ryan Bañuelos
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178
rbanuelos@aqmd.gov

Re: Comments on Draft Subsequent Environmental Assessment for Proposed Amended Rule 1111

Dear Mr. Bañuelos:

We write on behalf of Johnson Controls, Inc. ("JCI") to comment on the Draft Subsequent Environmental Assessment ("SEA") the South Coast Air Quality Management District ("District") prepared to analyze the environmental impacts for the October 2017 Proposed Amended Rule 1111 ("PAR 1111"). JCI is an original equipment manufacturer and a part of the regulated community that will be impacted by actions the District takes regarding NOx emissions from furnaces. Recently, the District released its Draft Staff Report and a January 2018 Proposed Amended Rule 1111 ("2018 PAR 1111"). These comments address both the SEA and the inconsistencies between the SEA and the Staff Report and the text of 2018 PAR 1111.

1. Authority for Imposing a Mitigation Fee

As an initial comment, JCI notes that the SEA does not explain how the District has authority to impose a mitigation fee and why this fee is not, in fact, an illegal tax. JCI requests the District clarify its authority for regulating NOx emissions in a manner that uses a mitigation fee paid by original equipment manufacturers. 3-1

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2. The SEA Does Not Analyze the Impacts of the Mitigation Fee Schedule Now Proposed by the District in the Staff Report for 2018 PAR 1111

The SEA analyzed the adverse environmental impacts of a proposed rule containing a mitigation fee schedule that is different than the fee schedule the District now discusses in the Staff Report for 2018 PAR 1111. PAR 1111 includes a mitigation fee and compliance plan period for four equipment categories: condensing, non-condensing, weatherized, and mobile home furnaces. SEA at 1111-4. However, 2018 PAR 1111 creates a different compliance plan, with a mitigation fee schedule broken into two phases with different fee amounts and varying the mitigation fee based on the size range of the four categories of furnaces. Staff Report at 1111-4. The text of 2018 PAR 1111 was not released until January 30, 2018—more than a month after the SEA was released to the public for comment. The District's analysis in the SEA is thus for an outdated version of PAR 1111 that is significantly different than the version the District now recommends adopting. 3-2

3. The District's Analysis of the Amounts of the Mitigation Fees Is Conclusory and Insufficient

In the SEA, there is no explanation or support for how the amount of the mitigation fee was chosen and why that amount will, or will not, achieve the District's goals. The District simply states that "the proposed project provides the best balance in achieving the project objectives while minimizing the significant adverse environmental impacts to operational air quality, while not imposing an overwhelming financial burden on the [original equipment manufacturers]" without providing any analysis on this point. SEA at 5-4. Elsewhere, the District explains it proposed a "fee increase to incentivize early conversion in light of the delayed compliance date[,]" but there is no analysis as to how or why the fee amounts best achieve that stated goal. SEA at 1-8. The District has also not explained how the fee will fund a rebate program, even though the District states that at least some portion of the fee will be used for that purpose. While the Staff Report provides some additional details on the funding of rebate program, this document was released after the SEA and cannot be used to bolster the analysis in the SEA, especially here, where the Staff Report relates to a different mitigation fee schedule. 3-3

4. The District Has Improperly Defined and Segmented the "Project" To Exclude the Rebate Program that is Currently Being Developed by the District

The District acknowledges that PAR 1111 is a project, and that the District must comply with the California Environmental Quality Act ("CEQA"). SEA at 1-4. However, the District curtailed its definition of the project to exclude the forthcoming rebate program despite the fact that the District discusses the mitigation fee and the rebate in tandem and, as currently envisioned by the District, the two programs are linked as the rebate is funded, at least in part, by the mitigation fee. 3-4

The SEA acknowledges that the rebate program will be funded by the mitigation fee: "SCAQMD staff proposed a fee increase to incentivize early conversion in light of the delayed compliance date and pay for a rebate program, which is a separate action from the rule amendment." SEA at 1-8. The fact that the rebate program is funded by the mitigation fee illustrates that the mitigation fee and the rebate program are related. Both the fee and the rebate are directed towards incentivizing early market activity in a similar manner by impacting the cost of selling (or purchasing) a non-compliant furnace, which shows that these two programs work in tandem to achieve the same objective. Additionally, previous text of PAR 1111 included a section titled "Rebate Incentives for Early Compliance," but that section is now crossed-out. That text can be found in the SEA at 1111-7.

In parts of the SEA the District says the rebate program is "separate from the rule amendment." SEA at 1-8; SEA at 4-1. Yet the District continues to discuss the mitigation fee and the rebate program together, and the District does not explain this inconsistency. For example, the documentation prepared by the District for its January 9, 2018 Working Group includes a discussion of the rebate program.[1]

Finally, the recently released Draft Staff Report makes clear that as proposed, the mitigation fee and the rebate program are related. The Staff Report states: "As a companion of the rule amendment, staff has also proposed to establish a rebate program for consumers who purchase and install compliant furnaces in the SCAQMD to benefit the consumers and incentivize the purchase of lower emitting complaint furnaces." Staff Report at ES-1. Elsewhere in the Staff Report, the District explains that the mitigation fee and rebate work to addresses the difference in cost between purchasing compliant or non-compliant products by imposing a fee on manufacturers and then taking a portion of those funds and directing them to a rebate program. Similar to PAR 1111, 2018 PAR 1111 has the rebate program section stricken from the rule text.

3-4 cont.

The fact that the District recognizes that the rebate is a "companion" of the mitigation fee and that the rebate will be funded by the mitigation fee underscores that the rebate is the next step the District intends to take to achieve its objective of encouraging the purchase of lower NOx emitting furnaces. In fact, the District has already taken action on developing the rebate program by issuing an RFP and receiving responses. As envisioned by the District, the mitigation fee and the rebate are related and directed towards achieving the same objective, but the District has claimed they are separate for its CEQA analysis.

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[1] Presentation available at http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111/par1111-wg-1-9-18-final.pdf?sfvrsn=6.

5. The District's Changing Project Definition Undermines Informed Public Participation

As explained above, the District is treating the mitigation fee and rebate separately, when they appear to comprise a single project. This inhibits the public's ability to comment. Also, the Staff Report contains a new proposed amendment, so the "project" is now different, but the Staff Report does not have a public comment period. The District should prepare an environmental analysis for the version of the amended rule the District proposes adopting and then provide a public comment period to allow for informed public participation. 3-5

6. The District Did Not Develop a Range of Reasonable Alternatives

The District is required to develop and analyze a reasonable range of alternatives. In the SEA, the District acknowledges that Rule 1111-compliant equipment are not currently available for most original equipment manufacturers, and the District states that "there are no feasible mitigation measures that would eliminate or reduce the significant adverse operational air quality impacts for NOx emissions to less than significant levels if PAR 1111 is implemented." SEA at 4-5. Based on that statement, the District admitted that it did not consider any alternatives that could have potentially mitigated the excess NOx from non-compliant furnaces because it claims that no feasible mitigation measures exist. However, there may be alternatives that could mitigate excess NOx emissions.

One potential alternative that the District did not evaluate is purchasing offsets. PAR 1111 imposes a mitigation fee that will be used to fund a rebate program, but the District could charge an offset mitigation fee on the sale of each non-conforming furnace that is sufficient to purchase NOx offsets equal to the "excess" NOx emissions over the estimated lifespan of the furnace. The amount of time for which an offset mitigation fee would be charged could be tied to original equipment manufacturers achieving market viability of ultra-low NOx furnaces. Market viability could be defined as two or more manufacturers offering for sale compliant furnaces in all the current ranges (*i.e.,* condensing, non-condensing, weatherized, and mobile home furnaces in the various size ranges identified by the District). Upon achieving an adequate market viability (*i.e.,* product offering) of ultra-low NOx furnaces in a specific category, sales of non-conforming furnaces manufactured prior to a specific cut off period would be allowed to continue so as not to strand inventory in the channel. Any furnaces manufactured after the designated cut-off date that did not meet the nw Ng/J requirements would be prohibited. Until such time as full market availability is achieved and the designated cut-off period is established, non-conforming furnaces would pay the one-time, offset mitigation fee and conforming ultra-low NOx furnaces would not pay the offset mitigation fee. The District would collect the offset mitigation fee and purchase verifiable offsets that would mitigate the projected adverse environmental impacts of PAR 1111. Creating an offset program is just one example of a reasonable alternative that the District did not evaluate, and an offset program, as well as other alternatives, would benefit from the District's review. 3-6

Finally, as explained above, JCI notes that the District now proposes adopting 2018 PAR 1111, which contains a mitigation fee schedule that was not analyzed as an alternative in the SEA. 3-6 cont.

7. We Did Not Obtain Public Records Requested in Advance of the CEQA Comment Deadline

Beveridge & Diamond PC submitted a California Public Records Act request to the District to obtain documents relating to the development of PAR 1111. The request was made on January 8, 2018, but no documents have yet been received. We contacted the District's Public Records Coordinator to obtain more information about the status of the request in advance of the comment deadline and request that documents be produced before this CEQA comment deadline. However, the documents have not yet been received. JCI reserves the right to submit additional CEQA comments after obtaining documents from the District. 3-7

Conclusion

As discussed above, there are shortcomings in the District's SEA, discrepancies between the SEA and the Staff Report, and 2018 PAR 1111 is substantially different than any alternative analyzed in the SEA. JCI urges the District not to adopt PAR 1111 or 2018 PAR 1111 at the March 2, 2018 meeting. We look forward to reviewing the District's response to these comments. 3-8

Best regards,

Kaitlyn D. Shannon

Response to Comment Letter #3

Response 3-1

The mitigation fee is a voluntary component of PAR 1111 that is meant as an alternative compliance option for OEMs that do not have compliant equipment available. Because it is voluntary, it is not a tax. Moreover, it is important to note that the mitigation fee is not a new component of PAR 1111, as it was added to Rule 1111 as part of the September 2014 amendments and the SCAQMD demonstrated its authority at that time to impose the mitigation fee. PAR 1111 merely alters the mitigation fee that was previously established.

CEQA Guidelines 15131 states that economic or social information may be included in a CEQA document or may be presented in whatever form the agency desires. SCAQMD practice is to address the economic effects of proposed projects in the staff report and Socioeconomic Impact Assessment, and not in the CEQA document, because economic effects typically do not cause environmental impacts. Further, 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 15131(a).]

Thus, in the case of PAR 1111, the lack of compliant equipment meeting the NOx emission limit of 14 ng/J according to the compliance schedule, not the mitigation fee itself, is the cause of the significant environmental impacts and the NOx emission reductions foregone are the effects. As such, the mitigation fee is addressed in Chapter 2 of the Final Staff Report for PAR 1111 [see pages 2-1 through 2-5]. In addition, the Socioeconomic Impact Assessment will also analyze the economic effects of the mitigation fee. Additional information on the mitigation fee is included in the Final Staff Report, Response to Comments [see pages i through xii].

Response 3-2

It is not uncommon during the rule development process to have multiple iterations of draft rule language and staff reports. As the public and interested parties provide comments throughout the rule development process during working group meetings, public consultation meetings, and at the Public Workshop, the draft rule language and corresponding staff report are adjusted accordingly and eventually evolve into a final product that is brought before the SCAQMD Governing Board for consideration and approval. While the analysis in the Draft SEA was based on the version of PAR 1111 that was circulated with the Draft SEA identified as "PAR 1111 Preliminary Draft Rule October 2017," the Final SEA has been updated to reflect the final version of PAR 1111; however, the analysis of the impacts have not significantly changed. In fact, the final version of PAR 1111 would result in slightly less NOx emission reductions foregone than what was analyzed in the Draft SEA. The Governing Board will consider the final version of PAR 1111 for adoption in conjunction with certification of the Final SEA on March 2, 2018.

Response 3-3

Response 3-1 explains why the background discussion of the mitigation fee is not analyzed in the SEA. Similarly, the funding of the rebate program is also not analyzed in the SEA because the rebate program is not a component in PAR 1111 that would cause an environmental effect. Instead, a discussion on the mitigation fee and the rebate program is included in the Final Staff Report for PAR 1111 [see Chapter 2, pages 2-1 through 2-5]. Additional information on cost and fee analysis as well as the fee increase to fund the rebate program is included in the Final Staff Report, Response to Comments [see pages iv through vi, Comments 12 and 13].

Response 3-4

This comment elaborates on the sentiments previously expressed on Comments 3-1 and 3-3 relative to the mitigation fee and rebate program without identifying any new environmental impacts that were not analyzed in the Draft SEA. Responses 3-1 and 3-3 explain why the mitigation fee and rebate program are not analyzed in the SEA.

A discussion on the rebate program is included in the Final Staff Report in Chapter 2 for PAR 1111, pages 2-1 through 2-5. It is important to note that while the Draft SEA contains references to the mitigation fee and rebate program for narrative purposes, the discussion neither concludes that the rebate program is part of PAR 1111 nor states that the rebate program is dependent on PAR 1111. In actuality, the rebate program is an independent action and exercises independent utility from PAR 1111; indeed, the rebate program may be implemented even if PAR 1111 is not adopted by the Board. Funding for the rebate program would come from two sources: 1) Fund 27 Rule 1121 mitigation fee program; and 2) if adopted, the incremental increased mitigation fee included in PAR 1111.

Response 3-5

The public has had multiple opportunities throughout the rule development process to provide comments on the mitigation fee and rebate program components of PAR 1111. Attachment C in the Board Package for PAR 1111 details the rule development process where the public had opportunities to provide comments related to the draft rule. The rule development process included a public workshop held on October 19, 2017; two task force meetings held on April 27, 2017 and March 25, 2017; four working group meetings held on July 27, 2017, September 21, 2017, November 15, 2017, and January 9, 2018; and over 40 individual meetings with stakeholders. In addition, the draft rule was released for public comment from October 19, 2017, to November 2, 2017; note, however, that the comment period was extended to November 9, 2017. In addition, comments on the draft rule were accepted after the close of the comment period. Comments received and responses to comments are included in the Final Staff Report. Describing the background of the mitigation fee and rebate program components in the Staff Report and Socioeconomic Impact Assessment, in lieu of in the SEA, has not interfered with the public's ability to comment since multiple versions of PAR 1111 and staff report have been provided to the public for review and comment. Responses 3-1 and 3-3 explain why the background discussion of the mitigation fee and rebate program is not analyzed in the SEA. Response 3-2 explains how the different versions of PAR 1111, staff report, and the SEA are reconciled. Response 3-4 explains the parallel paths of the mitigation fee and rebate program.

Response 3-6

The Draft SEA provides a discussion of alternatives to the proposed project as required by CEQA Guidelines Section 15126(f). However, per CEQA Guidelines Section 15126.6(a), "[a]n EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible." In addition, the Draft SEA considered a range of alternatives sufficient to permit a reasoned choice. 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 Draft SEA provides a comparison of alternatives and a discussion on the specific reasons for selecting the proposed project as the best balance in achieving the project objectives while minimizing the significant adverse environmental impacts to operational air quality, while not imposing an overwhelming financial burden on the OEMs [see pages 5-2 through 5-6 of the SEA].

The commentator's suggested alternative incorrectly assumes that there are NOx offsets available and that these offsets can actually be applied to address the NOx emission reductions foregone that may result from implementing PAR 1111. While it is correct that the SCAQMD has a New Source Review (NSR) program, it is not meant for providing offsets to other rule projects. The NSR program is implemented under SCAQMD Regulation XIII for non-RECLAIM sources and Regulation XX for RECLAIM sources, and emission offsets are required for emission increases from new or modified equipment or processes. Offsets may be provided by emission reduction credits (ERCs) under Regulation XIII or RECLAIM trading credits (RTCs) under Regulation XX. There are very few NOx ERCs in existence and not all of them are available for purchase as they are privately held. Similarly, the SCAQMD has initiated a process to end the RECLAIM program and migrate RECLAIM facilities back into a command-and-control structure that would be subject to NSR requirements under Regulation XIII. Ending the RECLAIM program will end the use of RTCs. For these reasons, ERCs and RTCs are not available for the purpose of offsetting the NOx emission reductions foregone that may result from implementing PAR 1111. As such, an alternative to consider the use of offsets is not feasible, and is not required to be analyzed under CEQA.

Response 3-7

No response is required under CEQA. Please refer to the letter issued on January 18, 2018, for a schedule on the disbursement of documents relating to the development of PAR 1111.

Response 3-8

The issues raised in this comment are addressed in Comments 3-1, 3-3, and 3-6. Please see Responses 3-1, 3-3, and 3-6.

Proposed Amended Rule (PAR) 1111

NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces

Governing Board Meeting

March 2, 2018

Rule 1111 Background

- Applies to residential and commercial natural gas-fired fan-type central furnaces
- Regulates manufacturers, distributors, sellers, and installers
- 2009 amendment lowered the NO_x limit from 40 to 14 ng/J
- 2014 amendment:
  - Delayed compliance date for 14 ng/J NOx limit; and
  - Added a 3-year mitigation fee option for manufacturers to continue selling 40 ng/J units
- Depending on the unit type, mitigation fee option ends between March 30, 2018 and September 30, 2018

Commercialization Status of Compliant Units

- Three manufacturers have developed and certified 14 ng/J compliant furnaces (condensing and non-condensing)
- Additional certifications expected in near future for:
  - Other manufacturers
  - Additional product lines for manufacturers that have certified products
- On December 4, 2017, Lennox commercialized compliant non-condensing units (60,000, 80,000, and 100,000 btu/hr)
- Other manufacturers expected to commercialize compliant non-condensing products in October – December 2018

PAR 1111 Proposal

- Maintain the 14 ng/J NOx limit
- Revise the mitigation fee for 40 ng/J units
  - Extend mitigation fee
    - Additional 1.5 years for condensing (high efficiency) units
    - Additional 1 year for non-condensing (standard) and weatherized units
    - No change for mobile home units
  - Increase mitigation fee for non-compliant products based on unit size and implement fee increase in two phases
    - Phase one: Fee ranges between $225 to $325*
    - Phase two: Fee ranges between $300 to $450*

* Increase based on unit type and size

Mitigation Fee and Consumer Rebate

Mitigation Fee
($225- $450)*

- Provides an Alternative Compliance Option for manufacturers that are developing compliant units
- Ensures a range of furnaces will be available to consumers

Consumer Rebate
($200- $500)**

- Provides incentive to consumers to purchase compliant units
- Encourages manufacturers to commercialize compliant units

* Depending on unit type and size, and includes both phases of mitigation fee, excludes mobile homes

** $500 for first 6,000 units and $200 to $300 for non-condensing and condensing units, thereafter

Exemptions

- No mitigation fee increase if:
  - Units identified in contractual agreement by manufacturers or distributors for future or planned construction projects
  - Agreement signed prior to January 1, 2018
- Natural gas furnaces exempt if:
  - Unit is to be installed for propane firing only with a propane conversion kit
  - Unit or box has defined labeling
  - Quantity of conversion kits is reported

Key Remaining Issues

- Some stakeholders have commented that the mitigation fee approach is too complex
  - Phased approach encourages manufacturers to develop compliant units before the second phase of the mitigation fee is implemented
  - Tiered portion of the mitigation fee reflects requests to lower fees for smaller units and mobile home units (lower income consumers) and increase fees for condensing units
- Combination of mitigation fee and rebate should provide an incentive to commercialize and encourage purchase of compliant units
  - Staff will closely monitor compliant unit sales and recommend adjustments to help increase sales, including increasing the amount of money for the rebate program, if needed
- Some stakeholders requested a sell-through period beyond the end of the extended mitigation fee period
  - Resolution includes a commitment to report back to the Stationary Source Committee in 12 months for status and, if needed, staff can propose a 90-day sell-through provision in Rule 1111

Staff Recommendations

- Adopt Resolution
  - Certifying the Final Subsequent Environmental Assessment
  - Amending Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces
  - Recognizing upon receipt the incremental amount of mitigation fee as funding for the Rule 1111 rebate program