BOARD MEETING DATE: December 6, 2019 AGENDA NO. 26

PROPOSAL: Determine That Proposed Amendments to Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces, Are Exempt from CEQA; and Amend Rule 1111

SYNOPSIS: Rule 1111 was amended in 2009 to require Ultra-Low NOx furnaces (14 ng/J) by 2014, and was subsequently amended to extend the compliance date to October 1, 2019 with a mitigation fee. The proposed amended rule would provide an exemption to manufacture, distribute, sell, and install Low-NOx furnaces (40 ng/J) in higher altitudes until October 1, 2020.

COMMITTEE: Stationary Source, November 15, 2019; Reviewed

RECOMMENDED ACTIONS:
Adopt the attached Resolution:

1. Determining that the proposed amendments to Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces, are exempt from the requirements of the California Environmental Quality Act; and
2. Amending Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces

Wayne Nastri
Executive Officer

PMF:SN:BB:MK:GQ:YZ:SW

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 the rule 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 Ultra Low-NOx emission limit of 14 ng/J. The mitigation fee option for condensing and non-condensing furnaces ended on September 30, 2019.

Six of the seven furnace manufacturers have commercially available Ultra Low-NOx furnaces for elevations up to 4,500 feet above sea level (two manufacturers have furnaces available for elevations up to 5,000 feet). As a result, there are currently no Ultra-Low NOx furnaces available for elevations above 4,500 and 5,000 feet. Four manufacturers have been granted interim product variances that allow Low-NOx furnaces (40 ng/J) to be sold, distributed, or installed above 4,500 feet. Contractors and installers in the mountain communities have commented that certain provisions of the product variance are difficult to implement such as a strict limit at 4,500 feet in communities where the elevation fluctuates between 4,200 and 4,500 feet, the application of the mitigation fee, and other provisions. In addition, some contractors have experienced delays in obtaining Low-NOx furnaces (40 ng/J) from distributors that were apprehensive to distribute Low-NOx furnaces under the variance. This Board letter serves as the staff report for this rule amendment.

Public Process

This issue was discussed at two Board meetings with public testimony and ultimately direction from the Board to assist in resolving the concerns. A Public Workshop was conducted on November 14, 2019. A public consultation meeting was held in Lake Arrowhead on November 21, 2019.

Proposed Amended Rule 1111

Proposed Amended Rule (PAR) 1111 would include a limited exemption from the Ultra Low-NOx (14 ng/J) emission limit that applies to manufacturers, distributors, sellers, and installers of condensing and non-condensing natural gas furnaces. This exemption would apply to furnaces installed at elevations greater than or equal to 4,200 feet above sea level until October 1, 2020. During this interim exemption, furnaces would be required to meet the Low-NOx (40 ng/J) emission limit. PAR 1111 includes recordkeeping requirements for the manufacturer, distributor, and installer to track the distribution, sales, and installations of these furnaces. Verification of the elevation will be based on U.S. Geological Survey data, which is also used by other location sources such as Google Maps, Wikipedia, etc.

Staff is recommending a sunset date of October 1, 2020 to allow manufacturers to conduct high altitude testing, develop kits, and guidance for the installation of furnaces in higher elevations. During the hearings for the product variances, manufacturers stated that it is expected that furnaces for the high elevation areas would be available between May and September 2020. Staff is committed to monitoring the development of furnaces for high elevation areas and will report back to the Stationary Source Committee in May 2020. This report to the Stationary Source Committee will also include an update on the status of commercialization of Ultra Low-NOx weatherized units which have a compliance date of October 1, 2020.

Key Issues
Staff is not aware of any key remaining issues.

Comparative Analysis
Under Health and Safety Code Section 40727.2, the South Coast AQMD 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 South Coast AQMD rules, and air pollution control requirements and guidelines that are applicable to industrial, institutional, and commercial combustion equipment.

The South Coast AQMD 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 South Coast AQMD 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 South Coast AQMD, state, or federal requirement.

California Environmental Quality Act
Pursuant to the California Environmental Quality Act (CEQA) and South Coast AQMD Rule 110, the South Coast AQMD, as lead agency for the proposed project, has reviewed PAR 1111 pursuant to: 1) CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA; and 2) CEQA Guidelines Section 15061 - Review for Exemption, procedures for determining if a project is exempt from CEQA. South Coast AQMD staff has determined that allowing the installation and operation of 40 ng/J furnaces in the high altitude areas for a limited period of time would result in minimal and temporary NOx emission reductions foregone; thus, it can be seen with certainty that there is no possibility that the proposed project may have a significant adverse effect on the environment. The amendments will result in a one-year delay of 1.35 pounds per day of NOx emission reductions. Therefore, the proposed project is considered to be exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption. Further, because PAR 1111 will not have statewide, regional or areawide significance, no CEQA scoping meeting is required to be held pursuant to Public Resources Code Section 21083.9(a)(2). A Notice of Exemption has been prepared pursuant to CEQA Guidelines Section 15062, and is included as Attachment C of this Board Letter. If the project is approved, the Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside and San Bernardino counties.

Socioeconomic Impact Assessment
PAR 1111 does not impose any additional requirements and will have no socioeconomic impacts.

AQMP and Legal Mandates
Pursuant to Health & Safety Code Section 40460 (a), the South Coast AQMD is required to adopt an AQMP demonstrating compliance with all federal regulations and standards. The South Coast AQMD is required to adopt rules and regulations that carry out the objectives of the AQMP. Rule 1111 implements control measure CMB-03 in the 2007 AQMP and PAR 1111 will result in a one-year delay of 1.35 pounds per day of NOx emissions.

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

Attachments
A. Resolution
B. Proposed Amended Rule 1111
C. Notice of Exemption
D. Comment Letters Received and Responses to Comments
E. Board Meeting Presentation

ATTACHMENT A

RESOLUTION NO.19_____

A Resolution of the South Coast Air Quality Management District (South Coast AQMD) Governing Board determining that Proposed Amended Rule 1111 - Reduction of NOx Emissions From Natural-Gas-Fired, Fan-Type Central Furnaces is exempt from the requirements of the California Environmental Quality Act (CEQA).

A Resolution of the South Coast AQMD Governing Board amending Rule 1111 - Reduction of NOx Emissions From Natural-Gas-Fired, Fan-Type Central Furnaces.

WHEREAS, the South Coast AQMD Governing Board finds and determines that Proposed Amended Rule 1111 is considered a "project" pursuant to CEQA per CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA; and

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

WHEREAS, the South Coast Governing Board finds and determines after conducting a review of the proposed project in accordance with CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA, and CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA, that Proposed Amended Rule 1111 is exempt from CEQA; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that it can be seen with certainty that there is no possibility that Proposed Amended Rule 1111 may have any significant adverse effects on the environment because allowing an exemption to manufacture, distribute, sell and install condensing or non-condensing natural gas furnaces that can achieve the oxides of nitrogen (NOx) emission limit of 40 nanograms per Joule (ng/J) in lieu of the NOx emission limit of 14 ng/J in areas with altitudes at or higher than 4,200 feet above sea level until October 1, 2020 would result in minimal and temporary NOx emission reductions foregone, and is therefore, exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption; and

WHEREAS, the South Coast AQMD staff has prepared a Notice of Exemption for Proposed Amended Rule 1111, that is completed in compliance with CEQA Guidelines Section 15062 – Notice of Exemption; and

WHEREAS, Proposed Amended Rule 1111 and supporting documentation, including but not limited to, the Notice of Exemption and the Board Letter (which serves as the Staff Report), were presented to the South Coast AQMD Governing Board and the South Coast AQMD Governing Board has reviewed and considered this information, and has taken and considered staff testimony and public comment prior to approving the project; and

WHEREAS, the South Coast AQMD Governing Board has determined that no socioeconomic assessment is required under Health and Safety Code Section 40440.8(a) because there are no adverse socio-economic impacts; and further that the proposed amended rule does not "significantly affect air quality or emissions limitations."

WHEREAS, the South Coast AQMD Governing Board finds and determines, taking into consideration the factors in Section (d)(4)(D) of the Governing Board Procedures (Section 30.5(4)(D)(i) of the Administrative Code), that the modification in paragraph (g)(5) to change the elevation from 4,500 to 4,200 feet above sea level made to Proposed Amended Rule 1111 since the notice of public hearing was published is 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 change does not impact the delay in emission reductions because estimated emissions covered the same geographical area, (b) the changes do not affect the number or type of sources regulated by the rule because estimated sources were located in the same geographical area, (c) the changes are consistent with, and accomplish the purpose of, the information but lessened requirements contained in the notice of public hearing, and (d) the consideration of the range of CEQA alternatives is not applicable because Proposed Amended Rule 1111 is exempt from CEQA; and

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

WHEREAS, the South Coast AQMD Governing Board has determined that a need exists to amend Rule 1111 to allow an exemption to manufacture, distribute, sell, and install condensing or non-condensing natural gas furnaces that can achieve a NOx emission limit of 40 ng/J in lieu of 14 ng/J in areas with altitudes at or greater than

4,200 feet above sea level until October 1, 2020 to allow ample time for manufacturers to test units than achieve a NOx emission limit of 14 ng/J at high altitudes and develop the necessary guidance; and

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

WHEREAS, the South Coast AQMD Governing Board has determined that there is a problem that needs to be addressed and a need exists to adopt Proposed Amended Rule 1111, because of the unavailability of compliant furnaces for use at high altitudes, is written or displayed so that its meaning can be easily understood by the persons directly affected by it; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 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 South Coast AQMD 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 South Coast AQMD Governing Board has determined that Proposed Amended Rule 1111 references the following statutes which the South Coast AQMD 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 South Coast AQMD 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, a public hearing has been properly noticed in accordance with the provisions of Health and Safety Code Section 40725; and

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

WHEREAS, the South Coast AQMD 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 South Coast AQMD Governing Board has determined that there is a problem that needs to be addressed and a need exists to adopt Proposed Amended Rule 1111, because of the unavailability of compliant furnaces for use at high altitudes as described in the Board Letter (which serves as the Staff Report); and

NOW, THEREFORE, BE IT RESOLVED, that the South Coast AQMD Governing Board does hereby determine, pursuant to the authority granted by law, that Proposed Amended Rule 1111 is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption. This information was presented to the South Coast AQMD Governing Board, whose members reviewed, considered and approved the information therein prior to acting on Proposed Amended Rule 1111; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board directs staff to provide an update as to development of high altitude furnaces and weatherized furnaces to Stationary Source Committee no later than May 15, 2020; and

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

DATE:_____ _____

CLERK OF THE BOARDS

ATTACHMENT B

(Adopted December 1, 1978)(Amended July 8, 1983)(Amended November 6, 2009)
(Amended September 5, 2014)(Amended March 2, 2018) (Amended July 6, 2018)
(Amended December 6, 2019)

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 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 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 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 fan-type central furnaces unless such furnaces meet the requirements of paragraph (c)(3).

(3) Fan-type central furnaces shall:

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

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

(4) 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, 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 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.

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

Furnace		Phase One Mitigation Fee		Phase Two Mitigation Fee		
Size Range	**Furnace Category**	**Phase One Mitigation Fee Start Date**	**Phase One Mitigation Fee ($/Unit)**	**Phase Two Mitigation Fee Start Date**	**Phase Two Mitigation Fee ($/Unit)**	**Phase Two Mitigation Fee Option End Date**
≤ 60,000 BTU/hr	Condensing	May 1, 2018	$275	October 1, 2018	$350	September 30, 2019
	Non-condensing	October 1, 2018	$225	April 1, 2019	$300	September 30, 2019
	Weatherized	October 1, 2018	$225	April 1, 2019	$300	September 30, 2020
	Mobile Home	October 1, 2018	$150	April 1, 2019	$150	September 30, 2021
> 60,000 Btu/hr and ≤ 90,000 BTU/hr	Condensing	May 1, 2018	$300	October 1, 2018	$400	September 30, 2019
	Non-condensing	October 1, 2018	$250	April 1, 2019	$350	September 30, 2019
	Weatherized	October 1, 2018	$250	April 1, 2019	$350	September 30, 2020
	Mobile Home	October 1, 2018	$150	April 1, 2019	$150	September 30, 2021
> 90,000 BTU/hr	Condensing	May 1, 2018	$325	October 1, 2018	$450	September 30, 2019
	Non-condensing	October 1, 2018	$275	April 1, 2019	$400	September 30, 2019
	Weatherized	October 1, 2018	$275	April 1, 2019	$400	September 30, 2020
	Mobile Home	October 1, 2018	$150	April 1, 2019	$150	September 30, 2021

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

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

(i) a letter with the name of the manufacturer requesting the mitigation fee compliance option signed by a responsible official identifying the category of fan-type central furnaces

and the 12 month alternate compliance period that the mitigation fees cover;

(ii) an estimate of the quantity of applicable Rule 1111 fan-type central furnaces to be distributed or sold into the 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) 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 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^{o}F, 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^{o}C, 1 ATM).

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

(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.

(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.

(3) Consumer Notification Requirement

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

(i) The consumer brochure for the furnace;

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

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

(B) Effective October 1, 2018, for any furnace that is for distribution or sale inside of the South Coast Air Quality Management District that is using an alternate compliance plan in lieu of meeting the 14 ng/J certification limit, a manufacturer shall only distribute or publish Informative Materials that clearly display the following language: "If installed in SCAQMD only: This furnace does not meet the SCAQMD Rule 1111 NOx emission limit (14 ng/J), and thus is subject to a mitigation fee of up to $450. This furnace is not eligible for the Clean Air Furnace Rebate Program: www.CleanAirFurnaceRebate.com."

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

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

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

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

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

(f) Enforcement

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

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

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

(A) Effective June 1, 2018, the shipping carton or the name plate of the furnace clearly displays: "This furnace is to be installed for propane firing only. Operating in natural gas mode is in violation of the SCAQMD Rule 1111."

(B) The following documents and information shall be provided to the Executive Officer, accompanying the compliance plan report

specified in subparagraphs (c)(5)(E), (c)(5)(F), and (c)(5)(G), including but not limited to:

(i) The quantity of propane conversion kits for furnaces actually distributed or sold into 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.

(5) Condensing and non-condensing natural gas furnaces installed at elevations greater than or equal to ~~4,500~~ 4,200 feet above sea level are exempt from paragraph (c)(4) until October 1, 2020.

(6) The manufacturer of any furnace that elects to use the exemption in paragraph (g)(5) shall record the following information and shall make this information available upon request to the Executive Officer:

(A) Sales date to distributor;

(B) Distributor's name and full contact information (address and phone number);

(C) Model number; and

(D) Serial number.

(7) The distributor that elects to use the exemption in paragraph (g)(5) shall record the following information and shall make this information available upon request to the Executive Officer:

(A) Sales date to installer;

(B) Installer's name and full contact information (address and phone number);

(C) Model number; and

(D) Serial number.

(8) The installer that elects to use the exemption in paragraph (g)(5) shall record the following information and shall make this information available upon request to the Executive Officer:

(A) Installation date;

(B) Address of furnace installation;

(C) Model number; and

(D) Serial number.

ATTACHMENT C

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

SUBJECT: **NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT**

PROJECT TITLE: **PROPOSED AMENDED RULE 1111 – REDUCTION OF NOX EMISSIONS FROM NATURAL-GAS-FIRED, FAN-TYPE CENTRAL FURNACES**

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, the South Coast Air Quality Management District (South Coast AQMD), as Lead Agency, has prepared a Notice of Exemption pursuant to CEQA Guidelines Section 15062 – Notice of Exemption for the project identified above.

South Coast AQMD staff is proposing to amend Rule 1111 to allow an exemption to manufacture, distribute, sell, and install condensing or non-condensing natural gas furnaces that emit no more than 40 nanograms of oxides of nitrogen (NOx) per Joule (ng/J) in lieu of the NOx emission limit of 14 ng/J in areas with altitudes at or higher than 4,200 feet above sea level until October 1, 2020.

The proposed project has been reviewed pursuant to: 1) CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA; and 2) CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA. Since Proposed Amended Rule 1111 would result in minimal and temporary foregone NOx emission reductions, it can be seen with certainty that there is no possibility that the proposed project may have a significant adverse effect on the environment. Therefore, the project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption. If the project is approved, this Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties.

Any questions regarding this Notice of Exemption should be directed to Ryan Bañuelos (c/o Planning, Rule Development and Area Sources) at the above address. Mr. Bañuelos can also be reached at (909) 396-3479. Mr. Shawn Wang is also available at (909) 396-3319 to answer any questions regarding Proposed Amended Rule 1111.

Date: November 14, 2019

Signature: Barbara Radlein

Barbara Radlein
Program Supervisor, CEQA
Planning, Rules, and Area Sources

Reference: California Code of Regulations, Title 14, Division 6, Chapter 3

NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

To:	County Clerks Counties of Los Angeles, Orange, Riverside and San Bernardino	**From:**	South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765

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

Project Location: The project is located within the South Coast Air Quality Management District (South Coast AQMD) jurisdiction which includes the four-county South Coast Air Basin (all of Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portions of the Salton Sea Air Basin (SSAB) and Mojave Desert Air Basin (MDAB).

Description of Nature, Purpose, and Beneficiaries of Project: South Coast AQMD staff is proposing to amend Rule 1111 to allow an exemption to manufacture, distribute, sell, and install condensing or non-condensing natural gas furnaces that emit no more than 40 nanograms of oxides of nitrogen (NOx) per Joule (ng/J) in lieu of the NOx emission limit of 14 ng/J in areas with altitudes at or higher than 4,200 feet above sea level until October 1, 2020.

Public Agency Approving Project:	**Agency Carrying Out Project:**
South Coast Air Quality Management District	South Coast Air Quality Management District

Exempt Status:
CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption

Reasons why project is exempt: Pursuant to the California Environmental Quality Act (CEQA), South Coast AQMD staff, as Lead Agency, has reviewed Proposed Amended Rule 1111 pursuant to: 1) CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA; and 2) CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA. Since Proposed Amended Rule 1111 would result in minimal and temporary foregone NOx emission reductions of 1.35 pounds per day of NOx, it can be seen with certainty that there is no possibility that the proposed project may have a significant adverse effect on the environment. Therefore, the project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption. If the project is approved, this Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties.

Date When Project Will Be Considered for Approval (subject to change):
South Coast AQMD Governing Board Hearing: December 6, 2019; South Coast AQMD Headquarters

CEQA Contact Person:	**Phone Number:**	**Email:**	**Fax:**
Mr. Ryan Bañuelos	(909) 396-3479	rbanuelos@aqmd.gov	(909) 396-3982
Regulation Contact Person:	**Phone Number:**	**Email:**	**Fax:**
Mr. Shawn Wang	(909) 396-3319	swang@aqmd.gov	(909) 396-3324

Date Received for Filing: _____ **Signature:** *(Signed Upon Board Approval)*

Barbara Radlein
Program Supervisor, CEQA
Planning, Rule Development, and Area Sources

Attachment D

Comment Letter #1

Residential HVAC
6200 Troup Highway
Tyler, TX 75707
(903)730-4561
mark.woodruff@irco.com

November 14, 2019

Michael Krause
Planning and Rules Manager
Planning, Rule Development and Area Sources
South Coast AQMD
21865 Copley Drive
Diamond Bar, CA 91765

Re: Proposed Amended Rule 1111

Dear Mr. Krause:

On behalf of Trane U.S. Inc. (Trane) which is a wholly owned subsidiary of Ingersoll Rand (NYSE:IR) we hereby submit our comments on the proposed amendments to Rule 1111. As you may know, Trane was one of three manufacturers which filed a Petition for Interim Product Variance for high altitude furnaces at the request of its dealers and the South Coast Air Quality Management District (District). While Trane's sales of furnaces for high altitude application in the District constitutes a small fraction of its total sales in California, Trane nevertheless has been extremely concerned about this because the lack of furnaces available for our customers in high altitude areas presents health and safety issues. As such, Trane took on the significant time and expense to pursue the Interim Product Variance which it successfully received after a grueling three-day hearing.

However, during and after the hearing on the Interim Product Variance, given the mandate that the variance be terminated for specific types and sizes of furnaces as they become commercially available (from any Original Equipment Manufacturer (OEM)), it became clear that (1) it would be difficult if not impossible for dealers/installers to track which compliant furnaces would be commercially available; (2) dealers/installers cannot reasonably be expected to piece together a product lineup using the limited available products over various OEMs; and (3) there will always be product gaps because it would be technically and economically infeasible for any OEM to develop a complete line of furnace products (of all types and sizes) for high altitude application in the District. 1-1

As such, we strongly support amending Rule 1111 to include an exemption for furnaces to be installed at elevations greater than or equal to 4,200 feet above sea level.

However, given the inevitable product gaps, Trane would suggest another potential path that would meet the District's objective to lower NOx emissions. In June-August 2019, Trane previously presented to the District staff the concept of using dual fuel technology also known as hybrid heating, i.e., pairing a 40 ng/J furnace with a heat pump which would significantly lower the emissions from the furnace. The heat pump would be the primary heating source at milder temperatures, and this would reduce the 1-2

amount of time the furnace would operate. Hybrid heating systems are readily available and have been in use for many years by all manufacturers, in all climates, and at all elevations. Indeed, using heat pumps would support California's policies in support of decarbonization and SB 100 (The 100 Percent Clean Energy Act of 2018) which sets the following goals: achieve 50% renewable energy resources by December 31, 2026, 60% by December 31, 2030, and 100% of total retail sales of electricity from eligible renewable energy and zero-carbon resources by December 31, 2045.

Trane has prepared a white paper summarizing its findings with respect to the NOx emissions reductions which would result from the use of hybrid heating technology. See Attachment A. For even the coldest climate area of the district (Climate Zone 16), use of a hybrid heating system would result in an 83% annual NOx reduction compared to a 65% annual NOx reduction for a ULN furnace:

Climate Zone 16

	NOx (ng/J)	Hrs of Operation	Firing Rate (kBtu/hr)	Output Capacity (kBtu/hr)	Annual Nox (lb)	Annual NOx Reduction %
Low Nox	40	517	60	47.0	2.26	-
Ultra Low NOx	14	517	60	47.0	0.79	65
Dual Fuel	40	87	60	47.0	0.38	83

1-2 (Con't)

As such, use of a hybrid heating technology would result in significantly more NOx reductions compared to a ULN furnace. Trane submits that the hybrid heating technology should be considered as an alternate path of compliance (or an additional exemption) for high altitude application.[1] This would be a practical and beneficial permanent solution given the inevitable gaps in product availability.[2]

With respect to the proposed amendments to Rule 1111, Trane has the following concern about Section (g)(6) of the Rule which states:

> (6) The manufacturer of any furnace that elects to use the exemption in paragraph (g)(5) shall record the following information and shall make this information available upon request to the Executive Officer:
>
> (A) Sales date to distributor;
> (B) Distributor's name and full contact information (address and phone number);
> (C) Model number; and
> (D) Serial number.

1-3

This is information that must be collected by Trane's distributors. Trane sells 40 ng/J low NOx furnaces in the District for propane use, and it has no way of knowing or differentiating furnaces for that purpose vs. furnaces for high altitude. Since this information would already be provided under Section (g)(7), Trane respectfully requests that Section (g)(6) be deleted.

In closing, Trane is supportive of all methods of reducing NOx (and other pollutants) in the District and believes that both ULN products as well as hybrid systems would meet the goals of Rule 1111. In high

[1] Note that the NOx emission reduction from dual fuel technology is even higher in warmer climates in the District. An average furnace in the District would operate only 17 hours/year in a dual fuel system which would result in a 90% reduction in NOx emissions compared to a 40 ng/J low NOx furnace on its own.

[2] If the District is interested in this potential alternative path/exemption, Trane can work with the District to develop protocol and proposed language to ensure that dual fuel systems are properly installed and monitored.

altitude applications, there will never be a full line of ULN furnaces to meet all needs and as such, Trane is proposing a solution that would result in even less NOx emissions than the ULN furnaces. Indeed, Ingersoll Rand is committed to finding sustainable solutions that advance the quality of life by creating energy efficient, safe and comfortable environments. To this end, Ingersoll Rand announced in 2014 a roadmap to increase energy efficiency and reduce environmental impact from our operations and product portfolio to result in 20.85 million metric tons of CO2e avoidance globally by 2020. Most recently, Ingersoll Rand was an original signatory to the "We Are Still In" declaration confirming our commitment to stand by plans that align with the targets set by the Paris Agreement regarding reducing carbon emissions to avert the worst effects of climate change.

1-3 (Con't)

Should you have any questions or would like to discuss hybrid heating technology further, please feel free to contact us.

Sincerely,

Mark Woodruff

Mark Woodruff
Furnace Product Manager

Attachment A

Executive Summary - SCAQMD Rule 1111 and Hybrid Heating Systems

South Coast Air Quality Management District's (SCAQMD) Rule 1111, NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces, was developed to drive reductions in NOx emissions in the residential heating sector. The rule requires that furnaces installed in the district meet an Ultra-Low NOx (ULN) emissions limit of 14 ng/J or less, a 65% reduction from the previous low NOx requirement. Ingersoll Rand urges the district to consider additional technology solutions that meet NOx emissions reduction needs.

Hybrid Heating - Dual Fuel Systems

Hybrid heating systems operate in a very similar way as a hybrid car. A hybrid car reduces emissions by operating on electrical power as often as possible and only running the gasoline engine when it absolutely must. A hybrid heating system operates in exactly the same way - by operating on electrical power (as a heat pump) as often as possible and only running the gas furnace when it absolutely must. By Ingersoll Rand's analysis, due to reduced furnace runtimes hybrid systems that combine a 40 ng/J furnace with a heat pump will yield, on average a ***90% reduction in NOx emissions*** across all of South Coast, and provide ***83% NOx reductions even in the coldest areas of South Coast***, vs a standalone 40 ng/J furnace. The incremental cost for a homeowner to replace a residential HVAC system with either a hybrid system or a ULN furnace/air conditioner are similar, and the hybrid system yields additional benefits. As such, Ingersoll Rand urges South Coast to consider hybrid heating systems as an alternative compliance option within Rule 1111.

Understanding Hybrid Heating Solutions

A hybrid system is similar to a conventional gas furnace/air conditioner system, except that a heat pump is used in place of the air conditioner. In a hybrid configuration, the heat pump will operate as the primary heating source at milder temperatures with low heating demand. When the heat pump is operating, the furnace is shut off, ***resulting in zero NOx emissions***. As temperatures get colder and the heat pump does not have the capacity to keep the home warm, the furnace takes over as the auxiliary heating source, in what is called the "switchover temperature". When outdoor temperatures get warmer and the heat pump can again operate effectively, it resumes operation and the furnace is shut off.

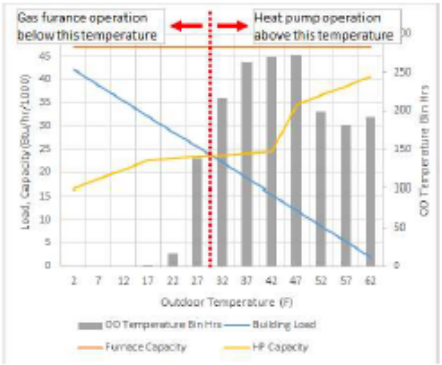


Figure 1: Hybrid Heat Pump modeled operation in SCAQMD territory. Furnace operating hours are shown at left of the red line, and heat pump operating hours are shown at right of the red line.

As modeled in the figure at right, even in the coldest climate in SCAQMD, the furnace will only operate 87 hours/year in a hybrid system, and the heat pump will operate 430 hours/year.

Additional Benefits of Hybrid Systems

Hybrid heating systems represent a highly cost-effective and environmentally friendly heating solution in many applications by leveraging the optimal heating fuel for a given condition. Due to Southern California's predominantly mild winter temperatures, the heat pump will operate the vast majority of the time in a hybrid system. Additionally, the State of California is actively pursuing pathways to building decarbonization, many relying on heat pump deployment, and shifting the market toward hybrid systems will keep customers in SCAQMD at the forefront of this transition. As the state works toward a 100% renewable portfolio standard and economy-wide decarbonization, the benefits of heat pumps will only increase.

Ingersoll Rand's Recommendation

Hybrid systems are often a better solution than ULN furnaces for achieving SCAQMD's NOx reduction goals. We encourage SCAQMD to allow the sale of 40 ng/J furnaces – only when paired with a new or existing heat pump as part of a hybrid system – through an alternative compliance pathway to Rule 1111, a variance, or another solution. Ingersoll Rand is eager to work with the district to provide effective solutions that benefit its customers in pursuit of SCAQMD's NOx reduction goals.

Response to Comment 1-1

Thank you for your comments.

Staff appreciates the commenter's quick response to address issues with furnace availability for high altitude areas by applying for a product variance and for their support for proposed amended Rule 1111 (PAR 1111).

Response to Comment 1-2

Staff recognizes the opportunities associated with the technology of hybrid gas and electric systems. In order to properly evaluate the potential benefits and impacts associated with this technology, staff will need to conduct further analysis, considering the information provided in Comment Letter 1, Attachment A, and collect input through a public process. Thus, changes to the rule regarding this technology cannot be proposed at this time with this current amendment. Staff also notes that such hybrid systems, if used in the high altitude applications defined in the proposed amendments, will be covered by the high altitude exemption proposed in PAR 1111.

Response to Comment 1-3

Staff recognizes the challenges associated with differentiating the reason for the sale of non-compliant (40 ng/J NOx) furnaces, but emphasizes the importance of proper recordkeeping. Traceability of each non-compliant unit sold within the South Coast AQMD jurisdiction is essential in order to assist staff and ensure proper implementation and compliance.

Comment Letter #2

November 22, 2019

Yanrong Zhu
Air Quality Specialist
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765-4178

Re: Draft Proposed Amended Rule 1111 Comments

Ms. Zhu:

Johnson Controls, Inc. (JCI) is providing comments on the PAR 1111 revisions as described in the meeting notices attached to SCAQMD's Planning and Rules Manager Mr. (Michael) Krause's email of November 6, 2019,

With these comments, JCI wishes to express general support for SCAQMD staff and their efforts to respond to the heating needs of the district's high altitude consumers. Despite whatever confusion that may have occurred during the rapid response, the district staff should be recognized for achieving a generally workable solution to the high altitude heating need. However, JCI would like to offer additional points for consideration.

1. JCI supports the proposed Rule 1111 changes as summarized by the PAR 1111 informational material presented to the 11/15/19 SCAQMD Stationary Source Committee and as presented at the 11/14/19 Public Workshop and the 11/21/19 Public Consultation Notice meetings. JCI would encourage revising the PAR 1111 currently posted on the SCAQMD website to reflect the rule changes included in the presented informational material. Specific changes suggested include allowing the sale of non-compliant condensing and non-condensing (40 ng/J) furnaces at elevations above 4,200 feet and the elimination of mitigation fees for these same furnaces until October 1, 2020. However, we would encourage the district to limit the mitigation fee waiver to apply only to those OEMs which offer compliant units below 4,200 feet. This would serve a double purpose by rewarding those OEMs which have expended signification resources to achieve the requirement and provide encouragement to achieve compliance to those OEMs not currently compliant. 2-1

2. Further, due to market and technology conditions, JCI believes the end date for compliance with PAR 1111 (should it be adopted) for 14 Ng/J furnaces at elevation above 4,200 feet should be eliminated. A more thorough analysis by SCAQMD will show the benefit to be gained by emissions reductions above 4,200 feet to be de minimus. This combined with the technological challenges and the uncertain ability of certification testing facilities to accurately assess oxides of nitrogen emissions and the availability of services to provide operational testing of Rule 1111 14 Ng/J compliant furnaces above 4,200 feet elevation calls into question the reasonableness of the requirement. 2-2

SCAQMD has recently experienced the negative effects of uncertainty on supply chains and in light of the uncertainty that will result from questionable availability and capability of furnace testing and certification resources and the de minimus reduction of furnace emissions to be realized by high altitude Rule 1111 enforcement of 14 Ng/J compliant furnaces, JCI would recommend that South Coast permit the previous Low NOx, 40 Ng/J compliant models be utilized in applications above 4,200 feet which will increase product availability, improve furnace reliability and lower consumer pricing.

JCI appreciates your consideration of these comments. If you have any questions or require additional information, please contact the undersigned.

Respectfully submitted,

David Stephens, Ph.D., P.E., PEM
Director - Global Product Codes & Standards Compliance HVAC
Johnson Controls

cc: Michael Krause, Planning and Rules Manager, SCAQMD
Gary Quinn, Program Supervisor, SCAQMD

Response to Comment 2-1

Thank you for your comments.

Staff appreciates the commenter's support for proposed amended Rule 1111 (PAR 1111). Currently there are no manufacturers with compliant (14 ng/J NOx) furnaces available for altitudes greater than 5,000 feet. The intent of the mitigation fee was to encourage manufacturers to commercialize compliant furnaces, however, the mitigation fee was passed through to the customer. Discussions with contractors and installers in the high altitude areas have requested that the mitigation fee not be applied as they have no control on the availability of the compliant furnaces, and it is their customers that are being impacted. Therefore all furnace manufacturers will not be subject to a mitigation fee.

Response to Comment 1-2

Staff plans to closely monitor and conduct further assessment on the development of high altitude furnaces. The adoption Resolution commits staff to return to the Stationary Source Committee in May 2020 to provide an update to the development and commercialization of compliant furnaces for high altitude areas. Based on the results, staff will make recommendations to either maintain the end date of October 1, 2020 or possibly extend the compliance date for furnaces for high altitude areas. It should be noted that information provided from the four manufacturers who petitioned for interim product variances for high altitude installations have estimated guidance for high altitude installations of compliant (14 ng/J NOx) furnaces to be completed between February to September 2020.

ATTACHMENT E

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

GOVERNING BOARD MEETING

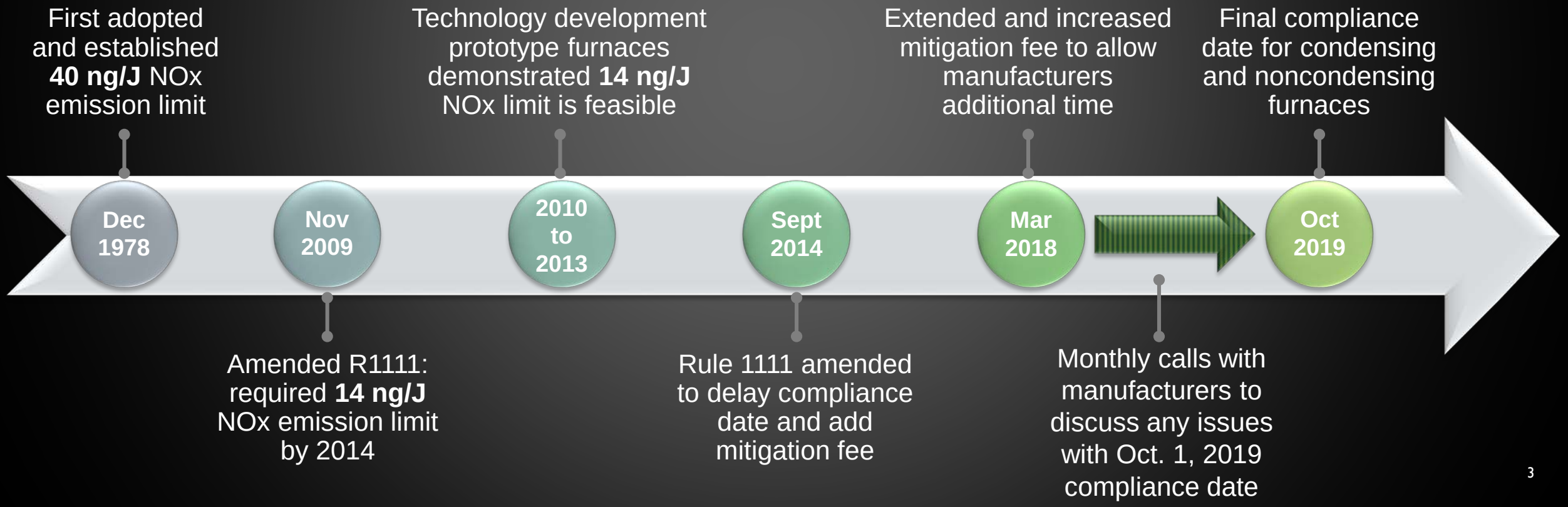
DECEMBER 6, 2019

Background

- During November Board meeting, concerns regarding:
  - Availability of compliant (14 ng/J NOx) furnaces for high altitude applications
  - Potential public health and safety issues resulting from the lack of available furnaces
- Purpose of Proposed Amendments
  - Allow additional time for furnace manufacturers to develop high altitude kits and guidance for compliant 14 ng/J units
- Proposed amendments would result in a one year delay of NOx emission reductions of 1.35 lbs/day

Rule 1111 Background

Rule applies to manufacturers, distributors, sellers, and installers of residential and commercial natural gas-fired fan-type central furnaces



High Altitude Installations

September 2019

Manufacturer Confirmation

- Manufacturers confirmed no Ultra-Low NOx furnaces (14 ng/J) available for high elevations (>4,500*)

October 1, 2019

Interim Process

- Interim process to allow installation of Low-NOx furnaces (40 ng/J) in elevations >4,500 feet*

October 28, 2019

Product Variances In Place

- Product variances allow for the sale, distribution, and installation of Low-NOx (40 ng/J) furnaces in elevations >4,500 feet*
- To date four product variances have been granted

* Elevation limits vary by manufacturer, ranges from up to 4,500 feet to up to 5,000 feet above sea level.

Progress on Development of High Altitude Kits and Guidance for Compliant Furnaces (14 ng/J)

- Process for high altitude furnaces
  - Test 14 ng/J furnaces at high altitudes (same units available at lower elevations)
  - Develop guidance for high altitude operation
  - Develop high altitude kits (e.g., gas valves for fuel/air ratio), if needed
- Four manufacturers testified during variance hearings that anticipate guidance/kits to be available between February to September 2020

Proposed Amendments

- Allow all manufacturers to sell low-NOx (40 ng/J NOx) furnaces in elevations ≥ 4,200 feet above sea level until October 1, 2020
- Require manufacturers, distributors, and installers to track and report the sales and installations of 40 ng/J furnaces
- No mitigation fee

Resolution:

- Provide update on development of high altitude and weatherized furnaces to Stationary Source Committee by May 2020

Staff Recommendations

Adopt Resolution

- Determine Proposed Amended Rule 1111 is exempt from CEQA
- Amend Rule 1111