

BOARD MEETING DATE: September 1, 2023

AGENDA NO. 35

PROPOSAL: Determine That Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces, Is Exempt From CEQA; and Amend Rule 1111

SYNOPSIS: Rule 1111 establishes a NO_x emission limit of 14 ng/J for residential and commercial gas furnaces. Proposed Amended Rule 1111 will extend the mitigation fee alternate compliance option end date from September 30, 2023 to September 30, 2025 for mobile home furnaces. All other types of furnaces subject to Rule 1111 have fully implemented the 14 ng/J NO_x limit; mobile home furnaces are the last type with the mitigation fee alternate option.

COMMITTEE: Stationary Source, August 18, 2023, Reviewed

RECOMMENDED ACTIONS:

Adopt the attached Resolution:

1. Determining that Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces, is exempt from the requirements of the California Environmental Quality Act; and
2. Amending Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces.

Wayne Natri
Executive Officer

SR:MK:HF:YZ:PC

Background

Rule 1111 - Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces (Rule 1111) reduces NO_x 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, with 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 on December 1, 1978, and was amended on November 6, 2009 to lower the NOx emission limit from 40 to 14 nanograms per Joule (ng/J) with staggered implementation schedules depending on the furnace type. The rule was later amended in 2014, and amended several times between 2018 and 2021, to provide and extend an alternate compliance option to allow manufacturers to pay a per-unit mitigation fee, in lieu of meeting the lower NOx emission limit, for up to five years past the applicable compliance date.

Mobile home furnaces, which constitute about four percent of the Rule 1111 furnace sales within the South Coast AQMD, will be required to comply with the 14 ng/J NOx emission limit after September 30, 2023, when the mitigation fee alternate compliance option ends. Mobile home furnaces are designed specifically and solely for installation on mobile homes that are also subject to regulations by U.S. Department of Housing and Urban Development (HUD) and DOE. Currently, none of the manufacturers have developed, or plan to develop, mobile home furnaces that comply with the 14 ng/J NOx limit due to: 1) the low volume of mobile home furnaces sold in the South Coast AQMD, 2) challenges of meeting additional regulations set forth by HUD and the DOE, and 3) future policy direction to analyze the feasibility of units achieving zero NOx emission standards. Manufacturers, distributors, and installers will not be able to comply with the 14 ng/J NOx emission limit by the September 30, 2023, compliance date for mobile home furnaces. All other furnace types subject to Rule 1111 already comply with the 14 ng/J NOx emission limit.

Public Process

Staff has conducted individual meetings with mobile home manufacturers and interested environmental groups to monitor the rule implementation status and discuss the proposed rule amendment. A Public Consultation was held on July 19, 2023.

Proposed Amendments

Proposed Amended Rule 1111 (PAR 1111) will extend the mitigation fee alternate compliance option end date from September 30, 2023, to September 30, 2025, for mobile home furnaces. This proposal does not change the requirements for the mitigation fee, recordkeeping, or reporting requirements.

The proposed amendment aligns with various local and state zero-emission policies by allowing manufacturers to dedicate resources toward zero-emission heating equipment, such as heat pumps. Rule development will be initiated to evaluate the feasibility of requiring zero-emission NOx technologies for residential and commercial buildings, including for mobile home heating units.

Emission Reductions

Total mobile home furnace annual sales are estimated at 6,000 units in the South Coast AQMD. A two-year delay in compliance would result in an estimated 0.016 tons per day of delayed emission reductions. The future rule development for zero-emissions could offset the delayed emission reductions.

Key Issues

Environmental groups have requested an increase to the mitigation fee for mobile home furnaces in order to incentivize manufacturers to develop compliant models and increase funding for incentives to deploy zero-emission technologies.

Manufacturers and their supply chains generally pass the Rule 1111 mitigation fee to consumers and often list the fee on the invoice as a separate line item. Most mobile homes are located in lower income communities, and increasing the mobile home furnace mitigation fee may impose a greater financial impact on those consumers. Staff is in the process of developing a new incentive program for all-electric heat pumps for space heating, with a focus on lower income communities, including mobile homes. Staff has identified funding for the new program and will continue to explore more funding sources to incentivize more units.

California Environmental Quality Act

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Sections 15002(k) and 15061, PAR 1111 is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3). A Notice of Exemption has been prepared pursuant to CEQA Guidelines Section 15062 and is included as Attachment H to this Board letter. If the proposed project is approved, the Notice of Exemption will be filed for posting with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties, and with the State Clearinghouse of the Governor's Office of Planning and Research.

Socioeconomic Impact Assessment

PAR 1111 does not impose any additional requirements and will have no adverse socioeconomic impacts.

AQMP and Legal Mandates

The proposed amendment delays implementation of a lower-NO_x emission limit originally established to comply with the 2007 AQMP control measure CMB-03 – Further NO_x Reductions from Space Heaters

Resource Impacts

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

Attachments

- A. Summary of Proposal
- B. Key Issues and Responses
- C. Rule Development Process
- D. Key Contacts List
- E. Resolution
- F. Proposed Amended Rule 1111
- G. Final Staff Report
- H. Notice of Exemption from CEQA
- I. Board Presentation

ATTACHMENT A

SUMMARY OF PROPOSAL

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

Summary of Proposed Amendments

- Extend the mitigation fee alternate compliance option end date from September 30, 2023, to September 30, 2025, for mobile home furnaces

ATTACHMENT B

KEY ISSUES AND RESPONSES

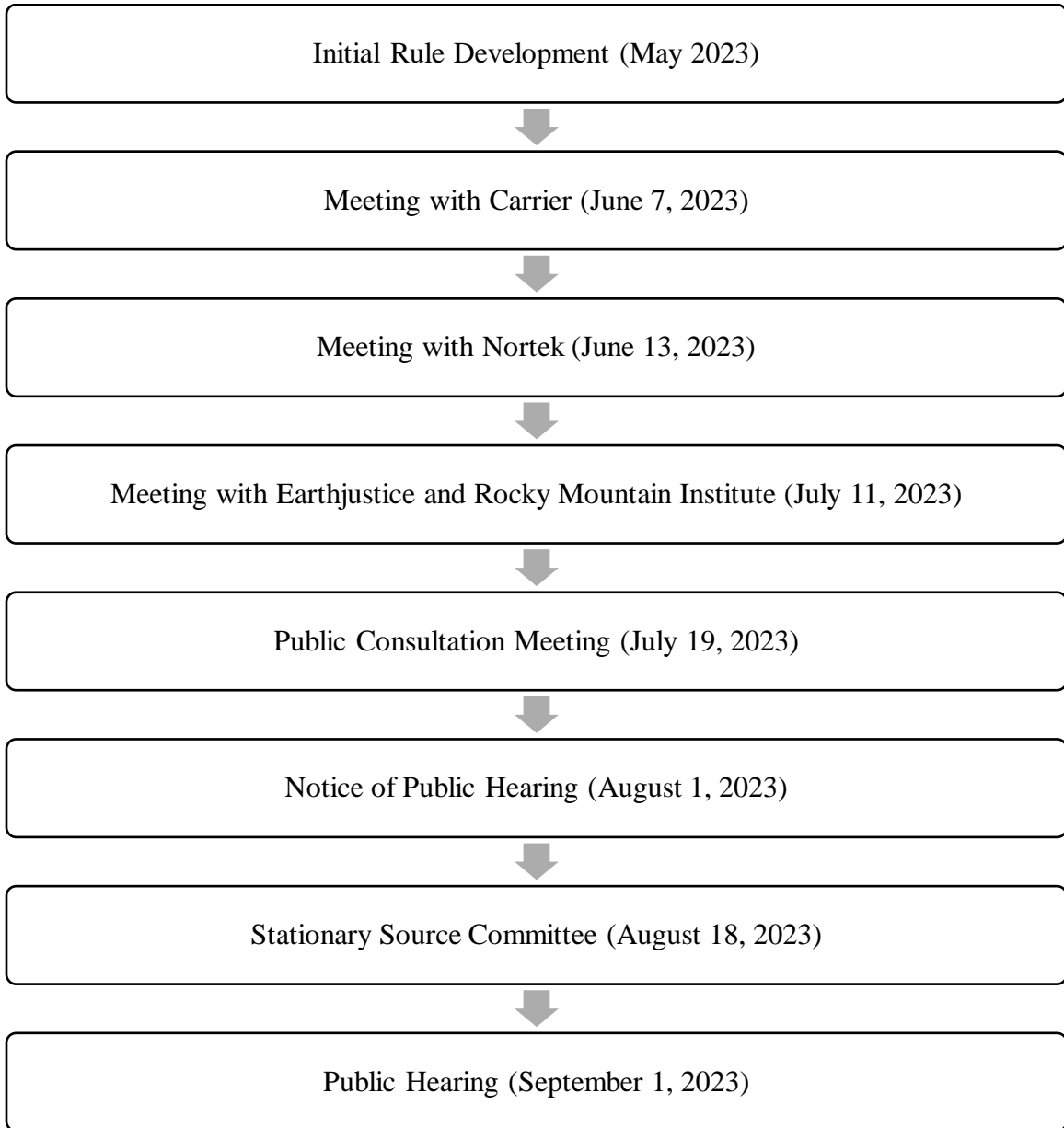
Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces

Environmental groups have requested an increase to the mitigation fee to further incentivize manufacturers to move away from 40 ng/J mobile home furnaces and to increase funding for zero-emission appliance rebate programs.

Staff recognizes that manufacturers and their supply chains generally pass the Rule 1111 mitigation fee to consumers and often list the fee on the invoice as a separate line item. Most mobile homes are located in lower income communities, and increasing the mobile home furnace mitigation fee may impose a greater financial impact to these consumers. Further, mobile home furnaces, estimated to be approximately four percent of all furnace sales in the South Coast AQMD, constitute a small market for manufacturers to invest in lower-NO_x emission technology, and thus they may not be profitable to develop. Furnace manufacturers are currently dedicating their resources towards the development of zero-emission heating technologies, such as heat pumps, to meet the various local and state agencies in California to adopt zero-emission policies.

ATTACHMENT C
RULE DEVELOPMENT PROCESS

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



Four (4) months spent in rule development

One (1) Public Consultation Meeting

Three (3) Stakeholder Meetings

ATTACHMENT D

KEY CONTACTS LIST

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

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

Carrier Corporation

Earthjustice

Johnson Controls

Nortek Global HVAC

Rocky Mountain Institute

Trane Technologies

ATTACHMENT E

RESOLUTION NO.23-_____

A Resolution of the Governing Board of the South Coast Air Quality Management District (South Coast AQMD) determining that Proposed Amended Rule 1111 – Reduction of NO_x 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 NO_x 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” as defined by CEQA; and

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

WHEREAS, the South Coast AQMD Governing Board 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 the proposed project is exempt from CEQA; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that since implementation of the proposed project would result in delayed NO_x emission reductions which are expected to be temporary and less than the South Coast AQMD air quality significance threshold, it can be seen with certainty that implementing the proposed project would not cause a significant adverse effect on the environment, 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 the proposed project 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, the Final Staff Report, and the Board Letter were presented to the South Coast AQMD Governing Board and the South Coast AQMD Governing Board has reviewed and considered this information, as well as has taken and considered staff testimony and public comment prior to approving the project; and

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

WHEREAS, the South Coast AQMD Governing Board finds and determines, taking into consideration the factors in Section (d)(4)(D) of the Governing Board Procedures (Section 30.5(4)(D)(i) of the Administrative Code), that no modifications have been made to the proposed project since Notice of Public Hearing was published that are so substantial as to significantly affect the meaning of Proposed Amended Rule 1111 within the meaning of Health and Safety Code Section 40726 because: (a) the changes do not significantly impact emission reductions, (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 consideration of the range of CEQA alternatives is not applicable because the proposed project is exempt from CEQA; and

WHEREAS, Proposed Amended Rule 1111 will be submitted for inclusion into the State Implementation Plan; and

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

WHEREAS, the South Coast AQMD Governing Board has determined that a need exists to amend Rule 1111 to extend the mitigation fee alternative compliance option end date for mobile home furnaces; and

WHEREAS, the South Coast AQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728, and 41508 as well as the federal Clean Air Act; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1111 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 statutes, court decisions, or federal or state 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 regulations, and the proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board 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 finds 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 South Coast AQMD staff conducted a Public Consultation Meeting regarding Proposed Amended Rule 1111 on July 19, 2023; and

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

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

WHEREAS, the South Coast AQMD Governing Board specifies the Planning and Rules Manager overseeing the rule development for 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

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 exercised their independent judgment and reviewed, considered, and approved the information therein prior to acting on the proposed project; 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, and incorporated herein by reference; 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, Proposed Amended Rule 1111, and supporting documentation 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.

DATE: _____

CLERK OF THE BOARDS

(Adopted December 1, 1978)(Amended July 8, 1983)(Amended November 6, 2009)
(Amended September 5, 2014)(Amended March 2, 2018)(Amended July 6, 2018)
(Amended December 6, 2019)(Amended September 4, 2020)(Amended October 1, 2021)
(Amended [*Date of Rule Adoption*])

**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 NO_x 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) DOWNFLOW FURNACE means a condensing or non-condensing furnace installed in a configuration in which the furnace takes in cool air from the top, warms it, then releases the warm air through the ductwork below.
- (5) DUAL FUEL SYSTEM is a heating, ventilation, and air conditioning system utilizing a HEAT PUMP as the primary source of heating and cooling with a FAN-TYPE CENTRAL FURNACE serving as auxiliary heating.
- (6) FAN-TYPE CENTRAL FURNACE is a self-contained space heater using natural gas, or any fan-type central furnace that is in natural gas-firing mode, providing for circulation of heated air at pressures other than atmospheric through ducts more than 10 inches in length that have:

- (A) a RATED HEAT INPUT CAPACITY of less than 175,000 BTU per hour; or
 - (B) for combination heating and cooling units, a cooling rate of less than 65,000 BTU per hour.
- (7) HEAT INPUT means the higher heating value of the fuel to the furnace measured as BTU per hour.
 - (8) HEAT PUMP means an all-electric device that utilizes condensation and evaporation of refrigerant to absorb and release heat for heating, ventilation, and air conditioning applications.
 - (9) MOBILE HOME means a prefabricated structure on a permanently attached chassis.
 - (10) MOBILE HOME FURNACE means a furnace designed specifically and solely for installation to heat a mobile home.
 - (11) NO_x EMISSIONS means the sum of nitrogen oxide and nitrogen dioxide (oxides of nitrogen) in the flue gas, collectively expressed as nitrogen dioxide.
 - (12) RATED HEAT INPUT CAPACITY means the gross HEAT INPUT of the combustion device.
 - (13) RESPONSIBLE OFFICIAL means:
 - (A) For a corporation: a president or vice-president of the corporation in charge of a principal business function or a duly authorized person who performs similar policy-making functions for the corporation, or
 - (B) For a partnership or sole proprietorship: general partner or proprietor, respectively.
 - (14) SINGLE FIRING RATE means the burners and control system are designed to operate at only one fuel input rate and the control system cycles burners between the maximum heat output and no heat output.
 - (15) USEFUL HEAT DELIVERED TO THE HEATED SPACE is the AFUE (expressed as a fraction) multiplied by the heat input.
 - (16) VARIABLE FIRING RATE means the burners and control system are designed to operate at more than one fuel input rate and the control system cycles burners between two or more heat output rates and no heat output.
 - (17) WEATHERIZED means designed for installation outside of a building, equipped with a protective jacket and integral venting, and labeled for outdoor installation.

Rule PAR 1111 (Cont.) (~~Amended October 1, 2021~~)(Amended [*Date of Rule Adoption*])

(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~~AQMD fan-type central furnaces, unless such furnaces meet the requirements of paragraph (c)(3).
- (2) A person shall not, after April 2, 1984, sell or offer for sale within the South Coast ~~Air Quality Management District~~AQMD fan-type central furnaces unless such furnaces meet the requirements of paragraph (c)(3).
- (3) Fan-type central furnaces shall:
 - (A) not emit more than 40 nanograms of oxides of nitrogen (calculated as NO₂) per joule of useful heat delivered to the heated space; and
 - (B) be certified in accordance with subdivision (d) of this rule.
- (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~~AQMD, 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 NO_x Limits and Compliance Schedule

Compliance Date	Equipment Category	NO _x 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 NO₂) 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 NO_x emission limit in Table 1 of paragraph (c)(4) of this rule, provided the manufacturer complies with the following requirements:
 - (A) Prior to the phase one mitigation fee start date specified in Table 2, pays a per unit mitigation fee of \$200 for each condensing furnace

and \$150 for each other type of furnace distributed or sold into the South Coast AQMD, disregarding the furnace size.

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

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

Furnace		Phase One Mitigation Fee		Phase Two Mitigation Fee		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	May 1, 2018	\$275	October 1, 2018	\$350	September 30, 2019
	Non-condensing	October 1, 2018	\$225	April 1, 2019	\$300	September 30, 2019
	Weatherized	October 1, 2018	\$225	April 1, 2019	\$300	September 30, 2021
	Mobile Home	October 1, 2018	\$150	April 1, 2019	\$150	September 30, 2023 2025
> 60,000 Btu/hr and ≤ 90,000 BTU/hr	Condensing	May 1, 2018	\$300	October 1, 2018	\$400	September 30, 2019
	Non-condensing	October 1, 2018	\$250	April 1, 2019	\$350	September 30, 2019
	Weatherized	October 1, 2018	\$250	April 1, 2019	\$350	September 30, 2021
	Mobile Home	October 1, 2018	\$150	April 1, 2019	\$150	September 30, 2023 2025
> 90,000 BTU/hr	Condensing	May 1, 2018	\$325	October 1, 2018	\$450	September 30, 2019
	Non-condensing	October 1, 2018	\$275	April 1, 2019	\$400	September 30, 2019
	Weatherized	October 1, 2018	\$275	April 1, 2019	\$400	September 30, 2021
	Mobile Home	October 1, 2018	\$150	April 1, 2019	\$150	September 30, 2023 2025

- (C) Submits an alternate compliance plan for each 12-month time period after the applicable Table 1 compliance date during which

the manufacturer elects to pay the mitigation fee in lieu of meeting the NOx emission limit.

- (D) Submits to the South Coast AQMD an alternate compliance plan no later than 60 days prior to the applicable compliance date, or no later than March 16, 2018 for the condensing furnace compliance plan starting on April 1, 2018, which includes the following:
 - (i) a letter with the name of the manufacturer requesting the mitigation fee compliance option signed by a responsible official identifying the category of fan-type central furnaces and the 12 month alternate compliance period that the mitigation fees cover;
 - (ii) an estimate of the quantity of applicable Rule 1111 fan-type central furnaces to be distributed or sold into the South Coast AQMD during the alternate compliance period, which estimate shall be based on total distribution and sales records or invoices of weatherized or mobile home fan-type central furnaces that were distributed or sold into the South Coast AQMD during the 12 month period of July 1 to June 30 prior to the applicable compliance date, along with supporting documentation;
 - (iii) a completed South Coast AQMD Form 400A with company name, identification that application is for an alternate compliance plan (section 7 of form), identification that the request is for the Rule 1111 mitigation fee compliance option (section 9 of form), and signature of the responsible official;
 - (iv) a check for payment of the alternate compliance plan filing fee (Rule 306, subdivision (c)).
- (E) Submits to the Executive Officer a report signed by the responsible official for the manufacturer identifying by model number the quantity of Rule 1111 fan-type central furnaces actually distributed or sold into South Coast AQMD and a check for payment of mitigation fees for the applicable 12 month alternate compliance period for the quantity of applicable Rule 1111 fan-type central furnaces distributed or sold into the South Coast AQMD during the alternate compliance period. The report and the payment of

mitigation fees must be submitted to the South Coast AQMD no later than thirty (30) days after the end of each 12-month mitigation fee alternate compliance period.

- (F) Notwithstanding the requirements set forth in subparagraph (c)(5)(E), during the phase one period specified in Table 2, submits a report signed by the responsible official for the manufacturer identifying by model number the quantity of Rule 1111 fan-type central furnaces actually distributed or sold into South Coast AQMD and a check for payment of mitigation fees for the phase one period no later than thirty (30) days after the end of the phase one period. The 12-month compliance plan payment as specified in subparagraph (c)(5)(E) that includes this phase one period shall be reconciled so as not to include the phase one payment.
 - (G) For the last and remaining 6-month period of the condensing furnace final alternate compliance plan ending on September 30, 2019, specified in Table 2, submits a report signed by the responsible official for the manufacturer identifying by model number the quantity of Rule 1111 fan-type central furnaces - condensing furnaces actually distributed or sold into South Coast AQMD and a check for payment of mitigation fees to the South Coast AQMD no later than October 30, 2019.
- (d) 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 South Coast AQMD 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:

Rule PAR 1111 (Cont.) (~~Amended October 1, 2021~~)(Amended [*Date of Rule Adoption*])

$$N = \frac{4.566 \times 10^4 \times P \times U}{H \times C \times E}$$

$$N = \frac{3.655 \times 10^{10} \times P}{(20.9 - Y) \times Z \times E}$$

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 CO₂ in water-free flue gas for stoichiometric combustion.

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

C = measured volume percent of CO₂ in water-free flue gas, assuming complete combustion and no CO present.

E = AFUE, percent

Y = volume percent of O₂ in flue gas.

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

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

(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 NO_x emission limit in Table 1; and

Rule PAR 1111 (Cont.) (~~Amended October 1, 2021~~)(Amended [*Date of Rule Adoption*])

- (D) Date of manufacture or date code.
- (2) Any non-certified furnace shipped to a location in the South Coast Air Quality Management District AQMD for distribution or sale outside of the ~~District~~ South Coast AQMD shall have a label on the shipping container identifying the furnace as not certified for use in the ~~District~~ South Coast AQMD.
- (3) Consumer Notification Requirement
 - (A) For the purposes of subparagraph (e)(3)(B), “Informative Materials” shall mean the following:
 - (i) The consumer brochure for the furnace;
 - (ii) The technical specification sheet for the furnace; and
 - (iii) The manufacturer’s website that promotes, discusses, or lists the furnace.
 - (B) Effective October 1, 2018, for any furnace that is for distribution or sale inside of the South Coast that is using an alternate compliance plan in lieu of meeting the 14 ng/J certification limit, a manufacturer shall only distribute or publish Informative Materials that clearly display the following language: “If installed in South Coast AQMD only: This furnace does not meet the South Coast AQMD Rule 1111 NOx emission limit (14 ng/J), and thus is subject to a mitigation fee of up to \$450. This furnace is not eligible for the Clean Air Furnace Rebate Program: www.CleanAirFurnaceRebate.com.”
 - (C) A manufacturer may use alternative language in lieu of subparagraph (e)(3)(B), provided the alternative language is:
 - (i) Similar to the language in subparagraph (e)(3)(B);
 - (ii) Submitted to the Executive Officer by August 1, 2018; and
 - (iii) Approved by the Executive Officer no later than August 31, 2018.The manufacturer shall use the language in subparagraph (e)(3)(B) if the alternative language is not approved.
- (f) Enforcement

The Executive Officer may periodically conduct such tests as are deemed necessary to ensure compliance with subdivisions (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 AQMD prior to the applicable compliance date in Table 1, any person may, until 300 days after the applicable compliance date, sell, offer for sale, or install such a furnace in the ~~District~~ South Coast AQMD, so long as the furnace meets the requirements of paragraph (c)(3) and subdivisions (d) and (e).
- (3) For furnaces that have been encumbered in a contractual agreement, signed prior to January 1, 2018, by a furnace manufacturer or distributor for future or planned construction, the manufacturer shall be allowed to sell the units within the South Coast AQMD at the mitigation fee specified in subparagraph (c)(5)(A), provided:
 - (A) An application for exemption is submitted to the Executive Officer prior to April 2, 2018;
 - (B) The total quantity of furnaces in application(s) by any one manufacturer does not exceed 15% percent of furnaces distributed and sold in the previous compliance plan period;
 - (C) Those furnaces are sold no later than their mitigation fee option end dates specified in Table 2; and
 - (D) The following documents and information are provided to the Executive Officer, including but not limited to:
 - (i) contractual agreement for the units sold or to be sold in the ~~District~~ South Coast AQMD;
 - (ii) quantity, model number, and serial number of the subject units;
 - (iii) contract execution date; and
 - (iv) name(s) of the contractor (s).
 - (E) Failure to comply with the requirements specified in subparagraphs (g)(3)(A) through (g)(3)(D) shall result in the requirement to paying or retroactively paying the corresponding mitigation fee specified in paragraph (c)(5) within 30 days upon notification from the Executive Officer.
- (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 South Coast AQMD, 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 South Coast AQMD Rule 1111."
 - (B) The following documents and information shall be provided to the Executive Officer, accompanying the compliance plan report specified in subparagraphs (c)(5)(E), (c)(5)(F), and (c)(5)(G), including but not limited to:
 - (i) The quantity of propane conversion kits for furnaces actually distributed or sold into South Coast AQMD for the applicable compliance plan period;
 - (ii) The quantity of propane conversion kits for furnaces distributed or sold into the South Coast AQMD during the 12 month period of July 1 to June 30 prior to the applicable compliance date; and
 - (iii) Photographic evidence of the required language set forth in subparagraph (g)(4)(A) as it appears on the carton or unit, including all versions utilized by the manufacturer, for approval by the Executive Officer. The photographs must be sufficient to verify the wording is correct and that it is "clearly visible," taking into account the font type, size, color, and location on the carton or unit.
 - (C) The manufacturer of this type of unit which has been installed in the South Coast AQMD without meeting above requirements shall be in violation of South Coast AQMD Rule 1111.
- (5) Condensing or non-condensing furnaces that are certified to meet the 40 ng/J NO_x limit and are installed at or above 4,200 feet above sea level are exempt from paragraph (c)(4), if that unit is installed on or before March 31, 2022.
 - (6) Effective April 1, 2022, downflow furnaces rated less than 175,000 BTU per hour in heat input capacity and condensing or non-condensing furnaces with rated heat input at or greater than 100,000 BTU per hour, either of which are installed at elevations at or above 4,200 feet above sea level as a

replacement for an existing furnace are exempt from paragraph (c)(4), provided that:

- (A) The downflow furnace is certified to meet the 40 ng/J NO_x limit, is replacing an existing furnace, and the shipping carton or name plate of the furnace clearly displays: "This furnace must be installed only as a replacement in a downflow configuration at or above 4,200 feet above sea level in the South Coast AQMD. Installation of this furnace for new construction, in any other configuration, or at a lower elevation will be a violation of South Coast AQMD Rule 1111."; or
 - (B) The condensing or non-condensing furnace rated at or greater than 100,000 BTU per hour in heat input capacity is certified to meet 40 ng/J NO_x limit, is replacing an existing furnace, and the shipping carton or name plate of the furnace clearly displays: "This furnace must be installed only as a replacement at or above 4,200 feet above sea level in the South Coast AQMD. Installation of this furnace for new construction or at a lower elevation will be a violation of South Coast AQMD Rule 1111."
- (7) Effective April 1, 2022 and until September 30, 2022, a manufacturer, distributor, or installer that manufactures, supplies, sells, offers for sale, or installs a natural gas furnace certified to meet 40 ng/J of NO_x that is installed and operated as part of a dual fuel system at or above 4,200 feet above sea level in the South Coast AQMD, shall only install such a unit that:
- (A) Is designed by the manufacturer with a system switchover point between heat pump and furnace at the external temperature of 32°F with a nonadjustable system that would prevent any person from changing the external ambient switchover temperature of 32°F;
 - (B) Includes installation of an external temperature sensor which acts as the sole method to determine switchover point;
 - (C) For systems equipped with condensing, noncondensing, or mobile home furnaces, includes communicating technology between the heat pump and furnace installed at the point of manufacture to prevent system operation without a heat pump and requires operations of only the heat pump at and above the switchover temperature outlined in (g)(7)(A); and

- (D) The shipping carton or the name plate of the furnace clearly displays: "This furnace must be installed only in a dual fuel configuration with an electric heat pump. Installation of this furnace without a heat pump in a dual fuel configuration will be a violation of South Coast AQMD Rule 1111."
- (8) The manufacturer of any furnace that elects to use the exemption in paragraph (g)(4), (g)(5), (g)(6), or (g)(7) shall record the following information and shall make this information available upon request to the Executive Officer:
 - (A) Sales date to distributor;
 - (B) Distributor's name and full contact information (address and phone number);
 - (C) Model number of the furnace and heat pump (if applicable); and
 - (D) Serial number of the furnace and heat pump (if applicable).
- (9) The distributor that elects to use the exemption in paragraph (g)(4), (g)(5), (g)(6), or (g)(7) shall record the following information and shall make this information available upon request to the Executive Officer:
 - (A) Sales date to installer;
 - (B) Installer's name and full contact information (address and phone number);
 - (C) Model number of the furnace and heat pump (if applicable); and
 - (D) Serial number of the furnace and heat pump (if applicable).
- (10) The installer that elects to use the exemption in paragraph (g)(4), (g)(5), (g)(6), or (g)(7) shall record the following information and shall make this information available upon request to the Executive Officer:
 - (A) Installation date;
 - (B) Address of furnace installation;
 - (C) Model number of the furnace and heat pump (if applicable); and
 - (D) Serial number of the furnace and heat pump (if applicable).

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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

September 2023

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EXECUTIVE SUMMARY

Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces (Rule 1111) reduces emissions of nitrogen oxides (NO_x) 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, with a cooling rate of less than 65,000 Btu per hour.

Rule 1111 was adopted by the South Coast Air Quality Management District (South Coast AQMD) Governing Board in December 1978. The rule was amended in 2009 to lower the NO_x emissions limit from 40 to 14 nanograms per Joule (ng/J). The rule was later amended in 2014 to provide an alternate compliance option that allows the manufacturer to pay a per-unit mitigation fee, in lieu of meeting the lower NO_x emission limit, for up to 36 months past the applicable compliance date. Since then, the rule was amended several times to postpone the compliance dates to meet the 14 ng/J NO_x limit and extend the eligibility date for the mitigation fee alternate compliance option.

Mobile home (also known as manufactured home) furnaces, which constitute about four percent of the Rule 1111 furnace sales within the South Coast AQMD, will be required to comply with the 14 ng/J NO_x emission limit after September 30, 2023, when their mitigation fee alternate compliance option ends. Currently none of the manufacturers have made any progress on the development of compliant mobile home furnaces. Manufacturers stated that no development of models compliant with the 14 ng/J NO_x emission limit were planned due to the low volume of mobile home furnaces sold in the South Coast AQMD, challenges of meeting additional regulations, and future policy direction to analyze the feasibility of zero-emission NO_x limits. Manufacturers, distributors, and installers have stated that they will not be able to meet the September 30, 2023, compliance date for mobile home furnaces. All other furnace types meet the 14 ng/J limit.

Staff is proposing to extend the mitigation fee alternate compliance option for mobile home furnaces by two years. Manufacturers would continue to be allowed to comply by paying the mitigation fee for 40 ng/J NO_x units with recordkeeping and reporting requirements until September 30, 2025.

Following this proposed rule amendment, staff intends to commence another rule development to evaluate the feasibility of requiring zero-emission NO_x technologies for residential and commercial buildings, including for mobile home heating units, and propose appropriate compliance dates to meet potentially lower emission standards. The development of zero-emission standards will implement Control Measure R-CMB-02 for zero-emission residential space heating, which was included in the 2022 Air Quality Management Plan (AQMP) and adopted by the South Coast AQMD Governing Board in December 2022. Control Measure R-CMB-02 sets the policy direction for Rule 1111 to align with California's zero-emission pathway for residential and commercial buildings.

CHAPTER 1: BACKGROUND

INTRODUCTION

REGULATORY HISTORY

EQUIPMENT AND PROCESS

REQUIREMENT AND TESTS FOR NEW TECHNOLOGY

AFFECTED INDUSTRIES

NEED FOR PROPOSED AMENDMENTS

PUBLIC PROCESS

INTRODUCTION

The purpose of Rule 1111 is to reduce NO_x 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, with a cooling rate of less than 65,000 Btu per hour. The rule applies to manufacturers, distributors, and installers of such furnaces and requires manufacturers to certify that each furnace model offered for sale in the South Coast AQMD complies with the emission limit using the test methods approved by the South Coast AQMD and U.S. EPA. In lieu of meeting the lower emission limit, Rule 1111 includes an alternate compliance option that allows manufacturers to pay a per-unit mitigation fee for up to four to five years past the applicable compliance date, depending on the furnace type, which includes non-condensing, condensing, weatherized, and mobile home furnaces. Most single-family homes, many multi-unit residences, and some light commercial building in the South Coast AQMD use this type of space heating equipment.

REGULATORY HISTORY

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

New Lower NO_x Emission Limit of 14 ng/J Established

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

Mitigation Fee to Delay Compliance of 14 ng/J Furnaces

Rule 1111 was amended in September 2014 to delay the compliance date for condensing furnaces and to provide an alternate compliance option. The alternate compliance option allowed original equipment manufacturers (OEM) to pay a per-unit mitigation fee of \$200 for each condensing furnace and \$150 for each other type of furnace distributed or sold in South Coast AQMD, in lieu of meeting the 14 ng/J NO_x emission limit. The mitigation fee end date was based on the furnace type, which phased in the NO_x limit of 14 ng/J over the period from April 1, 2018, to October 1, 2021.

Extension and Increase of the Mitigation Fee

Rule 1111 was again amended in March 2018 because of the lack of commercially available 14 ng/J furnaces in early 2018. The amendment increased the mitigation fee in two phases to a range of \$300 to \$450, depending on the furnace type and heat input capacity, and extended the

mitigation fee compliance option by one and a half years for condensing furnaces, and one year for non-condensing and weatherized furnaces. Rule 1111 was also amended to 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 included provisions to address propane conversion kits for propane-fired only furnaces.

Clean Air Furnace Rebate Program

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

High-Altitude Furnaces Temporary Exemption and Extension

Rule 1111 was amended in December 2019 to include a temporary exemption from the 14 ng/J NOx emission limit for condensing and non-condensing natural gas furnaces installed at elevations greater than or equal to 4,200 feet above sea level until September 30, 2020. During this interim exemption period, condensing and non-condensing furnaces installed in high-altitude areas were still required to meet the 40 ng/J NOx emission limit. Rule 1111 was again amended in September 2020 to extend this exemption for one year, until September 30, 2021.

Further Extension of the Mitigation Fee Option for Weatherized Furnaces

The September 2020 Rule 1111 amendment also extended the mitigation fee compliance option by one year for weatherized furnaces, until September 30, 2021. As for high-altitude furnaces, the extension was to address the adverse impact of the COVID-19 pandemic on their development and commercialization.

Further Extension of High Altitude and Mobile Home Furnaces

The most recent Rule 1111 amendment in October 2021 further extended the mobile home furnace mitigation fee compliance option by two years, until September 30, 2023. High-altitude furnaces were allowed to be installed until March 31, 2022, with an exemption for downflow furnaces rated less than 175,000 Btu per hour and condensing and non-condensing furnaces greater than 100,000 Btu per hour replacing existing furnaces until September 30, 2022.

2022 AQMP Control Measure

In the 2022 AQMP, the Governing Board adopted control measure R-CMB-02: Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Space

Heating. This control measure proposed the development of zero-emission NO_x limits for residential space heating when feasible. The 2022 AQMP Policy Brief for Residential and Commercial Building Appliances¹ cited heat pumps as an energy-efficient zero-emission alternative to natural gas furnaces.

EQUIPMENT AND PROCESS

Fan-type gas-fired furnaces heat a building by circulating air from inside the building (office, home, apartment, etc.) 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 air from the building that is 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.

Rule 1111 categorizes furnaces into four types: non-condensing, condensing, weatherized, and mobile home furnaces. Condensing furnaces, also called high-efficiency furnaces, utilize a second heat exchanger to recover the latent heat in the flue gas, achieving 90 to 98 percent fuel efficiency. Non-condensing furnaces only use one heat exchanger, with a typical fuel efficiency of about 80 percent. Weatherized furnaces are designed for installation outside of a building, equipped with a protective jacket and integral venting, and labeled for outdoor installation. A weatherized furnace, often referred to as a package unit, is packaged with an air conditioning condensing unit. A mobile home furnace (also known as manufactured homes) means a furnace designed specifically and solely for installation to heat a mobile home. Most mobile homes are designed to accommodate a smaller furnace, usually in a downflow configuration.² A downflow furnace draws the air from the top of the unit down through the combustion unit, usually to ducting below. The U.S. Department of Housing and Urban Development (HUD) regulates manufactured homes, which they defined as a factory-built home built after June 15, 1976. They define a factory-built home built prior to June 15, 1976, as a mobile home. New manufactured home gas furnaces must be approved by HUD and must include propane kits for compliant split systems to meet HUD requirement for propane compatibility³. These requirements generally mean non-mobile home furnaces cannot be used in a mobile home without retrofits.

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 South Coast AQMD's jurisdiction, they must also be certified by the South Coast AQMD for Rule 1111 NO_x emission limit compliance by specific test methods approved by the South Coast AQMD and U.S. EPA. OEMs could also be subject to other regulations, such as ANSI/ASHRAE/IES 90.1-2013, Energy Standard for Buildings Except Low-Rise Residential building required by the U.S. Department of Energy (DOE), and Air-Conditioning, Heating, and Refrigeration Institute (AHRI) certification

¹ http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/buildings_final.pdf

² <https://mobilehomeliving.org/mobile-home-furnaces/>

³ CFR Title 24 Part 3280, incorporating ANSI Z21.47-1990, <https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280>

program for verification test of output heating capacity and annual fuel utilization efficiency. For furnace installation, manufacturers provide extensive training programs and instruction material for the contractors and installers.

AFFECTED INDUSTRIES

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

NEED FOR PROPOSED AMENDMENTS

As part of the implementation status monitoring, staff has been regularly reaching out to manufacturers for their progress on developing and commercializing compliant mobile home furnaces.

In the South Coast AQMD residential space heating market, about four percent are mobile home furnaces, which are currently supplied by three manufacturers. Mobile home furnaces are specifically and solely for installation to heat mobile homes. A mobile home furnace may be a split system, in which the furnace and air conditioner are separated as indoor and outdoor units, respectively. It can also be a weatherized system, in which the furnace and air conditioner are packaged and installed as one outdoor system.

The mitigation fee period for mobile home furnaces ends on September 30, 2023, after which the 14 ng/J NO_x limit will be applicable. Currently none of the three mobile home manufacturers have made progress on the development of mobile home furnaces so no natural gas units are available to meet the upcoming 14 ng/J NO_x emission limit as required by the rule. In addition, the manufacturers are considering the business feasibility of investing in the lower NO_x emission technology for mobile home furnaces at this time; instead, they may consider putting resources toward electric heating such as heat pumps. While some zero-emission technologies are currently available, the market adoption for mobile homes is very limited. In addition, more time is needed to develop, test, and implement the zero-emission technology for broader mobile home applications. Feasibility of zero-emission technology may vary between new mobile homes whose design has not yet been formulated and existing homes whose footprint has already been established. Regardless, time is needed to develop, test, and implement; therefore, staff is proposing this rule amendment.

PUBLIC PROCESS

Staff has been holding ongoing individual meetings with manufacturers and environmental groups to monitor the rule implementation status. The discussions at these meetings included rule implementation status for compliant 14 ng/J mobile home furnaces, as well as future proposed zero-emission standards. A Public Consultation meeting was held on July 19, 2023.

CHAPTER 2: SUMMARY OF PROPOSALS

INTRODUCTION

PROPOSED AMENDED RULE 1111

INTRODUCTION

Staff has been closely monitoring the progress of development and commercialization of future compliant mobile home furnaces; however, based on the implementation status, staff is proposing to extend the compliance date for mobile home furnaces by two years.

PROPOSED AMENDED RULE 1111**Rule 1111 Requirements**

Extending the mitigation fee alternate compliance option for mobile home furnaces until September 30, 2025

PAR 1111 proposes to extend the mitigation fee period for mobile home furnaces from September 30, 2023 to September 30, 2025, which is included in Table 2 in PAR 1111 and presented show below as Table 1. This proposal does not change the requirements for the mitigation fee or the recordkeeping and reporting requirements.

Table 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	May 1, 2018	\$275	October 1, 2018	\$350	September 30, 2019
	Non-condensing	October 1, 2018	\$225	April 1, 2019	\$300	September 30, 2019
	Weatherized	October 1, 2018	\$225	April 1, 2019	\$300	September 30, 2021
	Mobile Home	October 1, 2018	\$150	April 1, 2019	\$150	September 30, 2023 <u>2025</u>
> 60,000 Btu/hr and ≤ 90,000 Btu/hr	Condensing	May 1, 2018	\$300	October 1, 2018	\$400	September 30, 2019
	Non-condensing	October 1, 2018	\$250	April 1, 2019	\$350	September 30, 2019
	Weatherized	October 1, 2018	\$250	April 1, 2019	\$350	September 30, 2021
	Mobile Home	October 1, 2018	\$150	April 1, 2019	\$150	September 30, 2023 <u>2025</u>

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)	
> 90,000 Btu/hr	Condensing	May 1, 2018	\$325	October 1, 2018	\$450	September 30, 2019
	Non-condensing	October 1, 2018	\$275	April 1, 2019	\$400	September 30, 2019
	Weatherized	October 1, 2018	\$275	April 1, 2019	\$400	September 30, 2021
	Mobile Home	October 1, 2018	\$150	April 1, 2019	\$150	September 30, 2023 <u>2025</u>

CHAPTER 3: IMPACT ASSESSMENT

INTRODUCTION

EMISSION IMPACTS

COST EFFECTIVENESS

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

SOCIOECONOMIC IMPACT ASSESSMENT

DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE SECTION 40727

INCREMENTAL COST-EFFECTIVENESS

COMPARATIVE ANALYSIS

INTRODUCTION

Rule 1111 reduces emissions of NO_x from residential and commercial gas-fired fan-type space heating furnaces, and is applicable to manufacturers, distributors, and installers of those type of furnaces. The proposed rule-amendments does not seek further emission reductions; ~~the proposed amendment proposes~~ PAR 1111 seeks to extend the mitigation fee period for mobile home furnaces which will delay some emission reductions.

EMISSION IMPACTS

Based on the 2022 AQMP emission inventory for fuel consumption, the annual average NO_x emissions from residential heating using natural gas were 11.67 tons per day (tpd) in 2018. Staff estimates that there are about four million residential type heating furnaces in the South Coast AQMD. Based on a furnace life of 25 years, a typical furnace emits approximately one and a half to two pounds of NO_x per year. The emission rate reduction from 40 ng/J to 14 ng/J results in more than one pound per year of NO_x emission reductions for each furnace.

Total mobile home furnace annual sales are estimated at 6,000 units in the South Coast AQMD. A two-year delay in compliance would result in an estimated 0.016 tpd of delayed emission reductions [calculated as: $(2 \times 6,000 \times 1.0)/(2,000 \times 365)$]. The future rule development for zero-emissions could potentially reduce the overall amount of delayed emission reductions.

COST-EFFECTIVENESS

A cost-effectiveness analysis is not required for PAR 1111 as the proposed amendments does not impose additional requirements on manufacturers, distributors, wholesalers, retailers, and dealers of residential furnaces.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Sections 15002(k) and 15061, the proposed project (PAR 1111) is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3). A Notice of Exemption ~~will be~~ has been prepared pursuant to CEQA Guidelines Section 15062, and if the proposed project is approved, the Notice of Exemption will be filed for posting with the State Clearinghouse of the Governor's Office of Planning and Research, and with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino Counties.

SOCIOECONOMIC IMPACT ASSESSMENT

PAR 1111 is not expected to result in emission reductions and will not significantly affect air quality or emission limits. Therefore, a socioeconomic impact assessment is not required under Health and Safety Code Sections 40440.8 and 40728.5.

DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE SECTION 40727

Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report. In order to determine compliance with Health and Safety Code Section 40727, Health and Safety Code Section 40727.2 requires a written analysis comparing the proposed amended rule with existing regulations, if the rule meets certain requirements.

The following provides the draft findings.

Necessity: A need exists to amend Rule 1111 to extend the mitigation fee alternate compliance option for mobile home furnaces.

Authority: The South Coast AQMD obtains its authority to adopt, amend, or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728, 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 South Coast AQMD.

Reference: In amending this rule, the South Coast AQMD hereby implements, interprets, or makes specific reference to the following statutes: 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, carbon monoxide, sulfur oxides, NO_x, and their precursors. The proposed amendment does not include new BARCT requirements; therefore, this provision does not apply to the proposed amendment.

COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2(g) which requires a comparative analysis is applicable when a proposed amended rule or regulations imposes, or has the potential to impose, a new emissions limit or standard, or increased monitoring, recordkeeping, or reporting requirements. In this case for PAR 1111, a comparative analysis is not required because the amendments do not impose such requirements.

APPENDIX A: COMMENTS AND RESPONSES

RESPONSE TO THE PUBLIC COMMENTS

RESPONSE TO PUBLIC COMMENTS

South Coast AQMD staff held a Public Consultation Meeting on July 19, 2023, via Zoom video conference. The following public comments were received during the meeting, and no comment letters were received during the comment period.

The following responses summarize the key comments received during the Public Consultation Meeting:

Comment #PC-1: Jed Holtzman on behalf of the Rocky Mountain Institute and Fernando Gayton from Earthjustice both commented that staff should increase the mitigation fee for 40 ng/J mobile home furnaces alongside the schedule extension. An increased mitigation fee would discourage manufacturers from selling more 40 ng/J mobile home furnaces, while at the same time increasing funding for zero-emission appliance rebate programs.

Response #PC-1: Staff appreciates the commenter's suggestion; however, increasing the mitigation fee may not be leverage for manufacturers to develop lower emission technologies. Staff recognizes that manufacturers and their supply chains generally pass the Rule 1111 mitigation fee along to consumers and often list the fee on the invoice as a separate line item. Most of the mobile homes are located in ~~disadvantaged~~ lower income communities, and increasing the mobile home furnace mitigation fee may impose a greater financial impact to these consumers.

Further, as various local and state agencies in California adopt zero-emission policies, manufacturers have been dedicating resources toward zero-emission heating equipment such as heat pumps. Mobile home furnaces, estimated to be four percent of all furnace sales in the South Coast AQMD, constitute a very small market for manufacturers to invest in any lower-NOx emission technology, other than their general plan for zero-emission technologies, and thus may not be profitable to develop.

Staff does not recommend a mitigation fee increase but will analyze the feasibility of requiring zero-emission technologies and provide incentives to encourage early adoption of those technologies in future rulemaking. Staff is in the process of developing a new incentive program for all-electric heat pumps for space or water heating, with a focus on ~~disadvantaged~~ lower income communities, including mobile homes. Staff has identified funding for the new program and will continue to explore more funding sources to incentivize more units.

Comment #PC-2: David Stephens on behalf of Johnson Controls asked if mobile home furnaces would be exempted from the zero-emission amendment similar to the Bay Area AQMD's zero-emission rule.

Response #PC-2: The South Coast AQMD is in extreme non-attainment for ozone; therefore, all feasible reductions must be pursued. Mobile home furnaces are currently regulated by Rule 1111 so allowing an exemption would result in backsliding of emissions, which the region cannot afford. Staff will include mobile home furnaces when conducting the technology assessment for the feasibility of a zero-emission standard during the upcoming rule amendment.

Comment #PC-3: David Stephens on behalf of Johnson Controls also asked if the upcoming zero-emission amendment would have a technology assessment.

Response #PC-3: Staff will conduct a technology assessment on the feasibility of a zero-emission limit following the passage of the current amendment, which will include a public process. During the public process, staff and stakeholders will discuss the technical feasibility of zero-emission technologies. If there are concerns about the technical feasibility of future zero-emission limits, staff may consider including a potential future technology assessment.

COMMENT LETTERS***Comment Letter #1***

August 2, 2023

Ms. Yanrong Zhu
 Planning, Rule Development and Implementation
 South Coast Air Quality Management District
 21865 Copley Dr.
 Diamond Bar, CA 91765

Electronic submittal: Yanrong Zhu (yzhu1@aqmd.gov)

Re: Johnson Controls Comments to South Coast Air Quality District Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces

Ms. Zhu:

Johnson Controls appreciates the opportunity to provide comments on South Coast Air Quality District (SCAQMD) Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces.

Johnson Controls is a leading global provider of heating, ventilating and air conditioning equipment, building controls, security and fire/life safety solutions which includes brands such as York, Metasys, Simplex, Grinnell, Zettler and Tyco. The company has nearly 100,000 employees and over 1,000 locations globally and has long been a leader in sustainable and energy efficient technology. Johnson Controls first set sustainability goals in 2002, and the company has reduced its Scope 1 and 2 greenhouse gas absolute emissions by 42% in 2022 compared to a 2017 baseline year. Further, we are AAA rated by MSCI and are recognized as among the Top 100 Most Sustainable Companies by Corporate Knights, and number one in our industry segment.

JCI recognizes the value of SCAQMD's air quality management plan and the pursuit of NOx emissions reduction, including the goal of a 70 percent reduction for residential and commercial sources by 2037 as highlighted in SCAQMD's 2022 AQMP. The inclusion of manufactured housing (MH) as part of that goal is understandable but, as noted by South Coast staff in the July 19, 2023 public meeting, MH is a small portion (i.e., less than 4%) of the NOx emissions problem. Understandably, SCAQMD faces a true dilemma regarding balancing the positive benefits of emissions reduction with the negative economic impact to MH residents. When considering the income segment of the population most commonly residing in MH, those below the 100% poverty level, the impact of requiring conversion to ultralow NOx is disproportional to other populations.

1-1

JCI strongly encourages SCAQMD to adopt a path forward similar to that incorporated in Bay Area AQMD (BA) Rule 9-4 and exempt MH from the SCAQMD Rule 1111 ultralow NOx mandate. To do otherwise would have a negative impact on the 28% of California's population the Public Policy Institute of California identifies as poor, i.e., with a mean household income of only \$36,900¹ in a state with a mean household income of \$84,097².

Exemption of MH from Rule 1111 would seem to especially make sense when considering the parallel efforts by CARB, SCAQMD and BAAQMD to move to zero emissions technology requirements. While there are legal questions to be resolved, California will move forward in significantly reducing the use of natural gas fueled heating appliances. JCI supports these efforts³ but would encourage harmonization of these efforts by recognizing the

¹ Public Policy Institute of California Fact Sheet, <https://www.ppic.org/publication/poverty-in-california/>

² California State Water Board Drinking Water and Wastewater Programs, American Community Survey 5-Year Estimates to determine MHI. Data Effective April 1, 2023, https://www.waterboards.ca.gov/drinking_water/services/funding/documents/srf/mhi.pdf

³ JCI Public Comments, 2022 Scoping Plan Update – CARB Building Decarbonization Workshop

1-1

value in creating regulatory consistency of ultralow NOx rules across California and deferring district level negative impacts to those who most need the assistance.

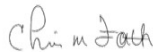
1-2

To be clear, JCI is not making a policy recommendation relative to the extension of natural gas use and the delaying of associated NOx emissions but emphasizing the need for a balance of reducing NOx emissions with consideration of the impact to a segment of the population least able to afford the ultralow NOx technology. We support SCAQMD's and the state of California's continuing efforts to address these issues in future revisions to Rule 1111 and other state and district rules. Rather, our recommendation is that for existing buildings, when the effective operational life of the gas infrastructure has been reached, electrification can occur. However, prior to that time, continued use of the natural gas infrastructure serving MH should be allowed to the extent that it can facilitate more impactful building emissions measures and minimize the negative impact to the lower cost heating option MH is intended to serve.

JCI is committed to the achievement of sustainable and healthful environment in SCAMQD, California and across the globe. We are eager to collaborate with SCAQMD and other stakeholders in California to pursue policies that maximize the benefits of space heating electrification and yield optimal, cost-effective, and equitable building outcomes.

Thank you again for the opportunity to comment on the SCAQMD Proposed Amended Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces. Please feel free to contact undersigned with any questions; JCI looks forward to our continued partnership with SCAQMD.

Respectfully,



Chris M Forth

Vice President
Regulatory, Codes & Environmental Affairs
Johnson Controls
chris.m.forth@jci.com
(405) 826-5802



David Stephens, Ph.D., P.E., PEM

Director
Global Product Safety Compliance
Johnson Controls
David.stephens@jci.com
(479) 252-8561

cc: Heather Farr, Planning and Rules Manager
Peter Campbell, Air Quality Specialist

Staff Response to Comment Letter #1

Response to Comment 1-1

Staff's response is provided in Response to PC-2.

Response to Comment 1-2

Staff acknowledges JCI's recommendation for existing buildings to not require zero-emission technologies until the end of the useful life of the natural gas infrastructure; however, Rule 1111 regulates NOx emissions of natural gas central furnaces. Staff's analysis will focus on the technical feasibility and cost-effectiveness of zero-emission furnaces. Regulation of natural gas infrastructure is outside the scope of the rule. Furthermore, any future proposed zero-emission requirement would be fuel neutral, and staff is open to any current or emerging natural gas-fueled zero-emission technologies. Staff will conduct further analyses on a potential zero-emission

amendment during a future rule development process, which will publicly commence following this rule amendment, and will continue to communicate with stakeholders during the public process.

Comment Letter #2

August 2, 2023

VIA EMAIL

Peter Campbell
Air Quality Specialist
Email: pcampbell@aqmd.gov

Emily Yen
Assistant Air Quality Specialist
Email: eyen@aqmd.gov

South Coast Air Quality Management District

Re: Comments on Proposed Amended Rule 1111- Reduction of NO_x Emissions from Natural Gas-fired, Fan-type Central Furnaces

Dear Mr. Campbell & Ms. Yen:

We respectfully submit these comments in response to the July 19, 2023 Public Consultation Meeting concerning Proposed Amended Rule 1111- Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces. We appreciate this opportunity to provide comment on the proposed amendment to this rule, and we also take this opportunity to strongly urge staff to prioritize adoption of strong zero- NO_x appliance standards and put the 2022 Air Quality Management Plan (AQMP) into action.

Recognizing the region’s extreme emissions reduction gap, the 2022 AQMP stated in no uncertain terms that the “only way to achieve the required NO_x reductions is through extensive use of zero-NO_x emission technologies across all stationary and mobile sources.” For appliances in residential and commercial buildings, which account for 22.1 tons of NO_x emissions per day in the Air District,¹ reducing emissions through zero-NO_x-emission standards will be critical to the District’s efforts to attain national ozone standards.

More than six months have passed since the Governing Board’s adoption of the 2022 AQMP, and we are still a long way from adopting zero- NO_x standards for building appliances. A rule that moves a portion of the region’s commercial ovens to zero-emissions technology by 2036 will be adopted this week, and only one other zero-emission measure – Rule 1146.2 – has begun a full public process.

Clean air advocates have been waiting expectantly for the Residential and Commercial Building Appliances Working Group to be rescheduled from its February 2023 date, and it is

¹ South Coast Air Quality Management District, Residential and Commercial Building Appliances Policy Brief, 2022 Air Quality Management Plan, p.2.

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South Coast Air Quality Management District
August 2, 2023
Page 2 of 2

unfortunate that this amendment to Rule 1111 simply serves to extend fossil fuel combustion in homes rather than moving to eliminate it. Prolonging the non-compliance fee for dirty fossil fuel furnaces in mobile homes, as the District is proposing in its amendment to Rule 1111, is a missed opportunity to start equitable zero-NO_x standards today. It also sends a strange signal where companies can wait until the absolute last moment of compliance, not develop a product, and then ask AQMD staff to scramble to get a rule amendment. This abuse of the process is a waste of time and distracts from other work that needs to be completed. It is also telling that manufacturers themselves are preparing for the inevitable transition to zero-NO_x equipment rather than expending resources to produce a limited low- NO_x distribution.²

2-2

We urge the District to commit to starting the zero- NO_x rulemaking process for appliances this year— with a first working group meeting this fall as has been promised. We need that commitment by the District to be official and mirrored in the rulemaking forecast. As of now, the Rule and Control Measure Forecast for the August 2023 Governing Board meeting continues to list Rules 1111, 1111.1, 1121, and 1121.1 as “TBD,” which connotes a lack of urgency and no plan to get these critical rules passed to protect air quality and health.

By pivoting to rulemaking for Zero- NO_x standards for all residences sooner, the District can still build in time to tackle the unique challenges of the affordable housing market, including mobile homes, address equity concerns, and motivate stronger market adoption of cleaner technology like heat pumps. Having a well-thought-out plan for addressing mobile homes and equity concerns is possible—but only if the District starts that rulemaking process today.

We stand ready to work with staff to ensure that rules are rigorous and reflect the needs of the residents of the air basin.

Sincerely,



Fernando Gaytan
Senior Attorney

Cc: Michael Krause, Email: MKrause@aqmd.gov; Heather Farr, Email: hfarr@aqmd.gov;
Yanrong Zhu, Email: yzhu1@aqmd.gov

² SCAQMD, [Public Consultation Meeting for Proposed Amended Rule 1111](#), July 19, 2023, slide 7.

Staff Response to Comment Letter #2**Staff Response to Comment 2-1**

Staff thanks the commenter for their letter and agrees that there is great urgency to adopt and implement feasible zero-emission standards for building appliances. Since the adoption of the 2022 AQMP, staff has been preparing for the rulemaking process to amend several rules for residential and commercial building appliances. The initial work plan was to hold a general umbrella Working Group Meeting in February 2023 to introduce the holistic vision of upcoming rulemakings to stakeholders, before conducting separate Working Group Meetings for each individual building appliance rule. Due to other considerations, staff adjusted the work plan and placed the focus on the Rule 1146.2 rule development. To date, staff has made progress on Proposed Amended Rule 1146.2 through the public process and is preparing to conduct the third Working Group Meeting this month. In addition, staff continued to gather information in preparation for initiating the rulemaking process to evaluate zero-emission standards for building appliances regulated by other rules, such as Rules 1111 and 1121. Staff has also been developing a rebate program to incentivize the early adoption of zero-emission building appliances.

The mobile home furnace 14 ng/J NO_x emission limit compliance date will start on October 1, 2023. None of the three manufacturers of mobile home furnaces have made progress on the development of compliant mobile home furnaces. Instead, manufacturers communicated that they are focusing on zero-emission technology development and expanding zero-emission options for residential and commercial building appliances according to the policy direction in California. Postponing the mobile home mitigation fee period end date will help ensure that mobile homeowners will have products for their homes, while staff continues to conduct analyses for the feasibility of zero-emission standards for residential and commercial building appliances, including mobile home space heating.

Staff Response to Comment 2-2

Staff has started the rule development process for zero-emission building appliances and is currently in the information gathering phase for Proposed Amended Rules 1111 and 1121 which includes: 1) gathering information on zero emission technologies, 2) attending ACEEE Hot Air and Water Forum, 3) attending training sessions hosted by Southern California Edison on zero-emission building appliances, 4) meetings with stakeholders representing the regulated industry, environmental groups, and other regulatory agencies, 5) determining the universe of units and estimated baseline emissions, 6) evaluating the incremental costs for zero-emission units versus combustion units, and 7) evaluating fuel switching costs for residential and commercial customers. Staff is committed to commencing the *public* rulemaking process for zero-emission standards for appliances regulated by Rules 1111 and 1121 within a month of the Governing Board considering this amendment for adoption. Stakeholders are encouraged to participate in the public process to help identify and address all related challenges, including those for mobile homes.

Staff recognizes mobile homes are located mostly in low income communities, which poses an equity issue. Staff is currently developing a potential new rebate program which would incentivize all-electric heat pumps for residential space and water heating. This new rebate program will

allocate a major portion of the funding for low income communities. Staff will continue to work with stakeholders to identify more ways to address equity concerns for mobile homes.

Comment Letter #3

2311 Wilson Boulevard Suite 400 Arlington VA 22201 USA
 Phone 703 524 8800 | Fax 703 562 1942
 www.ahrinet.org

August 2, 2023

Mr. Peter Campbell
 Ms. Emily Yen
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

(submitted electronically to pcampbell@aqmd.gov and eyen@aqmd.gov)

Re: AHRI Comments – Proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural Gas-Fired, Fan-Type Central Furnaces – July 19, 2023 Public Consultation Meeting

Dear Mr. Campbell and Ms. Yen:

The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) respectfully submits this letter in response to information presented at the July 19, 2023 Public Consultation Meeting by the South Coast Air Quality Management District (SCAQMD) regarding Proposed Amended Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces (PAR 1111).

AHRI is the trade association representing manufacturers of heating, cooling, water heating, commercial refrigeration equipment, and refrigerant producers. More than 300 members strong, AHRI is an internationally recognized advocate for the industry, and develops standards for and certifies the performance of many of the products manufactured by our members. In North America, the annual economic activity resulting from the HVACR industry is approximately \$256 billion. In the United States alone, our member companies, along with distributors, contractors, and technicians employ more than 1.3 million people. AHRI represents almost all North American manufacturers of residential furnaces.

During the July 19, 2023 public meeting, SCAQMD staff presented two topics: (1) the proposed extension of mitigation fees for mobile home furnaces from September 30, 2023, to September 30, 2025; and (2) next steps for the zero-emission amendment to Rule 1111.

SCAQMD’s Proposed Extension of the Mobile Home Mitigation Fee is Appropriate

Regarding the mobile home furnace proposal, AHRI fully supports SCAQMD staff’s analysis and the proposal to extend the mitigation fee option for mobile home furnaces from September 30, 2023, to September 30, 2025, in Rule 1111. Requiring mobile home furnaces to meet the 14 ng/J NOx emission limit by October 1, 2023, would be impossible as there are no

3-1

1

AHRI Comments – SCAQMD PAR 1111 July 19, 2023 Public Consultation Meeting
August 2, 2023

3-1

compliant products. As acknowledged by staff in the July 2023 PAR 1111 Preliminary Draft Staff Report, the mobile home market is quite small.

Considerations for the Zero-Emission Amendment Proposal

As outlined in the July 2023 PAR 1111 Preliminary Draft Staff Report, staff plans “to evaluate the feasibility of requiring zero-emission NOx technologies for residential and commercial buildings, including for mobile home heating units, and propose appropriate compliance dates to meet potentially lower emission standards.”¹ Herein, AHRI has early feedback to share regarding resources for identifying accurate product costs and concerns regarding emergency replacements. Lastly, the scope of the plan as outlined in the staff report may conflict with charging control measures adopted in the 2022 Air Quality Management Plan (AQMP).

3-2

Regarding the cost data for space and water heating heat pumps, the TECH Clean California webpage is an excellent resource which includes real cost data for over 10,000 installations.² The average project cost in California to replace bath space and water heating with heat pumps to be \$17,400 based on a total of 10,342 projects.³ The data set can be filtered to find minimum and maximum project cost for space and water heating heat pump installations within the boundary of the SCAQMD. AHRI encourages SCAQMD to use accurate cost data in developing the zero-emissions staff report.

SCAQMD should also consider providing a pathway for emergency replacements. In most cases, space and water heating equipment is replaced upon failure of the appliance. If this occurs and the house needs a panel upgrade or other alterations to accommodate a zero-NOx solution, that house could be without space- or water heating for several days if not weeks while the retrofits occur. If such an event were to happen during a cold snap, there could be significant concern for the health and safety of the occupant(s). SCAQMD needs to consider solutions to the emergency replacement issue, including proactive replacement programs, such that the impact of any zero-emission proposed rule does not compromise safe and reliable access to services.

Lastly, SCAQMD staff cites implementation of Control Measure R-CMB-02 for “the policy direction for Rule 1111 to align with California’s zero-emission pathway for residential and commercial buildings.” However, SCAQMD also states that the control measure R-CMB-02, “proposed the development of zero-emission NOx limits for residential space heating when *feasible*.”⁴ [*emphasis added*] AHRI urges SCAQMD staff to clarify the directive to develop of zero-emission NOx limits for commercial space heating and for both residential and commercial water heating. AHRI also notes that feasibility of proposed limitations should be clearly addressed in the draft staff report expected to accompany the proposed zero-emission amendment. Feasibility should explicitly address first cost of zero-emission equipment installations (i.e. costs associated with fuel switching such as electric panels, rewiring, ductwork, etc..) and the complexities created by emergency replacements.

¹ July 2023 PAR 1111 Preliminary Draft Staff Report (Page Exe-1)

² <https://techcleanca.com/public-data/maps-and-graphs/>

³ *Id.*

⁴ July 2023 PAR 1111 Preliminary Draft Staff Report (Page Exe-1)

AHRI Comments – SCAQMD PAR 1111 July 19, 2023 Public Consultation Meeting
August 2, 2023

3-2

AHRI appreciates the opportunity to provide these comments. If you have any questions regarding this submission, please do not hesitate to contact me.

Sincerely,



Laura Petrillo-Groh, PE
Senior Director, Regulatory Affairs
Direct: (703) 600-0335
Email: LPetrillo-Groh@ahrinet.org

Staff Response to Comment Letter # 3

Staff Response to Comment 3-1

Staff appreciates AHRI's participation in this rulemaking process and comments.

Staff Response to Comment 3-2

Staff appreciates the comment and is aware of the TECH Clean California database on heat pump installations as a resource for cost information. Staff intends to continue referencing data from TECH Clean California and other sources for the development of the potential future Rule 1111 zero-emission amendment, especially for the feasibility analysis.

Regarding emergency replacement, staff is aware that most furnace replacements occur due to the failure of the original unit. Proactive replacement of older units may be necessary in many cases for the safety and comfort of the occupants. Future implementation dates for zero-emission requirements would enable the supply chain to be prepared for future market demand. In addition, some manufacturers are developing 120-volt units and other replacement options to address emergency replacement in the future. Staff is in the process of developing a new rebate program designed to incentivize zero-emission appliances, which will help mitigate this issue. As the rule development process progresses, staff welcomes other suggestions regarding emergency replacements.

Regarding the feasibility of zero-emission requirements, staff will conduct an in-depth analysis of feasibility including a thorough study of cost, product availability, building stock, appliance profile, etc. Staff is committed to making the effort to develop the rule amendments through a rigorous public process before bringing any proposed zero-emission rule for the Governing Board's consideration.

ATTACHMENT H



**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 NO_x 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.

If the proposed project is approved, the Notice of Exemption will be filed for posting with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino Counties. The Notice of Exemption will also be electronically filed with the State Clearinghouse of the Governor’s Office of Planning and Research for posting on their CEQAnet Web Portal which may be accessed via the following weblink: <https://ceqanet.opr.ca.gov/search/recent>. In addition, the Notice of Exemption will be electronically posted on the South Coast AQMD’s webpage which can be accessed via the following weblink: <http://www.aqmd.gov/nav/about/public-notices/ceqa-notices/notices-of-exemption/noe---year-2023>.

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

To: County Clerks for the Counties of Los Angeles, Orange, Riverside, and San Bernardino; and Governor's Office of Planning and Research – State Clearinghouse	From: South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765
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Project Title: Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces

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

Description of Nature, Purpose, and Beneficiaries of Project: Rule 1111 is designed to reduce emissions of nitrogen oxides (NO_x) from residential and commercial gas-fired fan-type space heating furnaces and includes an alternate compliance option that allows the manufacturer to pay a per-unit mitigation fee, in lieu of meeting the lower NO_x emission limit, for up to 36 months after the applicable compliance date. Proposed Amended Rule 1111 (PAR 1111) extends the end date of the mitigation fee alternate compliance option for mobile home furnaces from September 30, 2023 to September 30, 2025, and allows manufacturers of mobile home furnaces to comply by paying the mitigation fee for 40 nanogram per Joule (ng/J) NO_x units with recordkeeping and reporting requirements for two more years. The proposed project does not change the requirements for the mitigation fee or the recordkeeping and reporting requirements. The extension will benefit mobile home manufacturers by providing more time to develop cleaner technologies for mobile home space heating purposes so that mobile homeowners will have mobile home furnaces which are commercially available and compliant for future installations. A delay in achieving approximately 0.016 ton per day (equivalent to 32 pounds per day) of NO_x emission reductions will be expected to occur as a result of the extended compliance date for mobile home furnaces. The South Coast AQMD will continue to evaluate the feasibility of zero-emission technologies for future rule amendments to Rule 1111 which may be able to achieve additional NO_x emission reductions over the long-term.

Public Agency Approving Project: South Coast Air Quality Management District	Agency Carrying Out Project: South Coast Air Quality Management District
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Exempt Status: CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption


Reasons why project is exempt: South Coast AQMD, as Lead Agency, has reviewed the proposed project (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. Since the quantity of delayed NO_x emission reductions are expected to be temporary and less than the South Coast AQMD air quality significance threshold for NO_x, it can be seen with certainty that implementing the proposed project would not cause a significant adverse effect on the environment. Therefore, the proposed project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption.

Date When Project Will Be Considered for Approval (subject to change):
South Coast AQMD Governing Board Public Hearing: September 1, 2023

CEQA Contact Person: Sina Taghvaei, Ph.D.	Phone Number: (909) 396-2192	Email: staghvaei@aqmd.gov	Fax: (909) 396-3982
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PAR 1111 Contact Person: Peter Campbell	Phone Number: (909) 396-3185	Email: pcampbell@aqmd.gov	Fax: (909) 396-3982
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Date Received for Filing: _____ **Signature:** _____ *(Signed and Dated Upon Board Approval)*
Kevin Ni
Acting Program Supervisor, CEQA
Planning, Rule Development, and Implementation



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

BOARD MEETING

SEPTEMBER 1, 2023

ATTACHMENT I

RULE 1111 BACKGROUND

- ❑ Adopted in December 1978 and established a NOx limit of 40 ng/J
- ❑ Applies to manufacturers, distributors, sellers, and installers of residential and commercial natural gas furnaces
- ❑ NOx limit lowered to 14 ng/J in November 2009 with future compliance dates
 - Mitigation fee alternative compliance option allowed for a limited period
- ❑ Mobile home furnace mitigation fee alternate compliance option ends on September 30, 2023
 - ❑ Subject to 14 ng/J NOx limit thereafter

Category	Final Compliance Date (14 ng/J NOx)
Condensing/ Non- Condensing*	September 30, 2019 ✓
Weatherized	September 30, 2021 ✓
Mobile Home	September 30, 2023

* Compliance date for high altitude installations extended to March 31, 2022

CURRENT STATUS

- ❑ No manufacturers have developed, or plan to develop, 14 ng/J furnaces for mobile homes
 - Manufacturers cite design challenges, payback for development, and other regulatory requirements
 - Cannot replace without significant retrofits or cost increases

STAFF PROPOSAL – RULE LANGUAGE

Staff proposes to extend mitigation fee end date for mobile homes by two years for all size ranges

- Manufacturers will continue to pay mitigation fees per unit sold
- Mitigation fee option extended to September 30, 2025

Staff is developing a zero-emission requirement for space heating

- 2022 AQMP targeted a 2029 effective date for zero-emission space heating
- Separate rule amendment effort for Rule 1111 has already been initiated

KEY ISSUES

Environmental groups requested the mitigation fee be increased to incentivize manufacturers to develop compliant models

- Manufacturers and supply chain generally pass mitigation fee on to consumers
- Most mobile homes are in low income communities, so increased mitigation fees will impose a greater financial impact to these consumers
- Staff is developing a new rebate program which will incentivize all electric heat pumps for residential space heating

STAFF RECOMMENDATIONS

Adopt Resolution:

- Determining that PAR 1111 is exempt from the requirements of the California Environmental Quality Act; and
- Amending Rule 1111