
PROPOSED AMENDED RULE 1111 PUBLIC WORKSHOP

SOUTH COAST AQMD

JULY 15, 2020

Zoom Meeting: <https://scaqmd.zoom.us/j/97727225602>
Meeting ID: 977 2722 5602
Conference Call: 1 (669) 900-6833

RULE 111 BACKGROUND

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

Lowered limit to **14 ng/J NOx** with 2014 compliance date

Final compliance date for **14 ng/J NOx** condensing and non-condensing furnaces

Final compliance date for **14 ng/J NOx** weatherized furnaces and installations at high altitude ($\geq 4,200$ ft)

December
1978

November
2009

September
2014

October
2019

December
2019

October
2020

Rule first adopted established **40 ng/J NOx** emission limit

Delayed compliance date for **14 ng/J NOx** furnaces and added mitigation fee

Delayed compliance date for furnaces installations at high altitude ($\geq 4,200$ ft)

RULE 1111 COMPLIANCE DEADLINES

Condensing and Non-Condensing
Furnaces

October 1, 2019



Weatherized Furnaces

October 1, 2020

Upcoming
Deadlines

High Altitude Installations
($\geq 4,200$ feet)

October 1, 2020

Mobile Home Furnaces

October 1, 2021

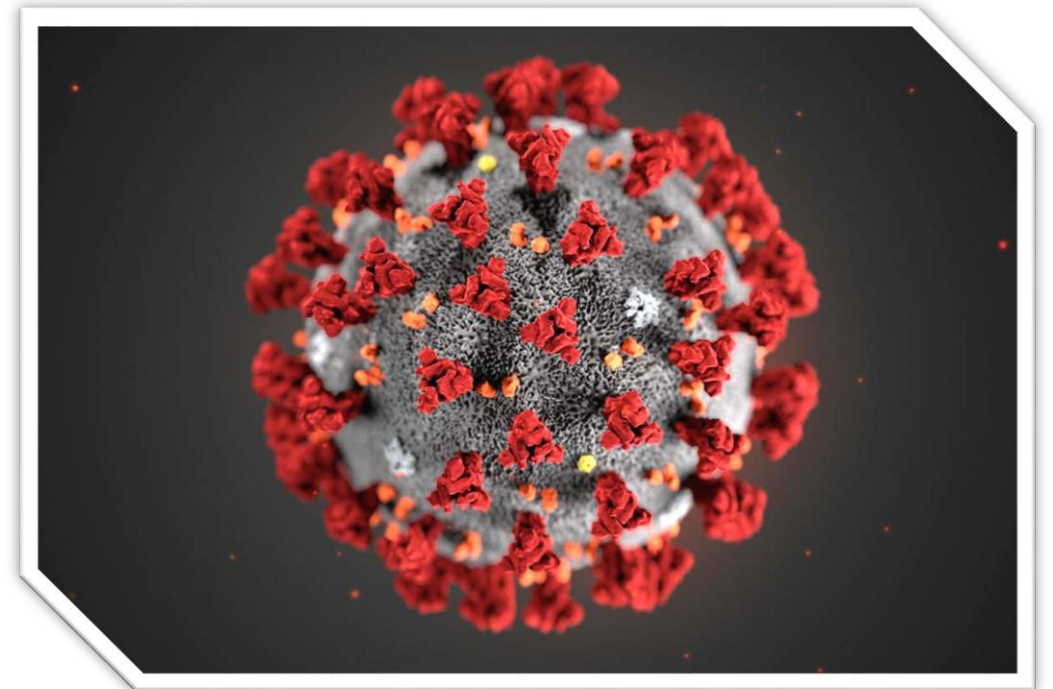
CURRENT RULEMAKING

Background

- ❑ As part of the December 6, 2019 amendment for Rule 1111, Staff committed to monitor the progress of weatherized and high altitude furnace development
 - Staff has been in frequent communication with all furnace manufacturers
 - Multiple manufacturers reported delays in production and development due to impacts of COVID-19
- ❑ During the June 19, 2020 Stationary Source Committee Meeting, Board Members requested staff to assess the potential of dual fuel heating systems equipped with non-compliant 40 ng/J NO_x furnaces
- ❑ Additional clarification needed to prevent 40 ng/J NO_x condensing and non-condensing units to be sold and installed as mobile home units

IMPACTS OF COVID-19

- ❑ Multiple furnace manufacturers have reported manufacturing delays or interruptions in the supply chain as a result of COVID-19
- ❑ Other COVID-19 effects
 - Plant closures to incorporate social distancing in operations – generally 2 weeks
 - Lower production rates with social distancing
 - High rate of absenteeism
 - Need for plant-wide downtime when COVID-case for deep cleaning and quarantines
 - Company travel restrictions for worker safety
 - Changes in business decisions for commercializing compliant furnaces



CURRENT RULEMAKING

Purpose

- ❑ To provide clarification on applicability of mobile home units by addition of definitions on MOBILE HOME and MOBILE HOME FURNACE
- ❑ To develop proposed amendments to Rule 1111 - Reduction of NO_x Emissions from Natural Gas-Fired Fan-Type Central Furnaces in order to:
 - Allow additional time for furnace manufacturers to develop:
 - Weatherized furnaces that comply with 14 ng/J NO_x
 - High altitude kits and guidance for compliant 14 ng/J NO_x units
 - Provide an alternative compliance option for communities in high altitude areas



STATUS OF COMPLIANT UNIT DEVELOPMENT



WEATHERIZED FURNACES SEPARATION OF EQUIPMENT CATEGORY

- ❑ Mitigation fee period for weatherized furnaces ends September 30, 2020
- ❑ For most manufacturers, development of commercial and residential weatherized furnaces are separate from one another
 - Rule 1111 does not differentiate between residential and commercial weatherized furnaces
- ❑ Staff has reached out to all furnace manufacturers and discussed potential options to bifurcate the weatherized furnace category
- ❑ Staff discussed two categories based on single and three phase weatherized furnaces
 - Some manufacturers supported this split based on single and three phase
 - Other manufacturers felt it was not representative of their manufacturing and distribution for residential versus commercial
- ❑ **Staff is recommending to not separate implementation of weatherized furnaces**

COMMERCIALIZATION STATUS OF WEATHERIZED FURNACES AND RECOMMENDATIONS

❑ Commercialization of weatherized furnaces as of June 2020:

Weatherized Furnaces	3 out of 7 Manufacturers	2 out of 7 Manufacturers	2 out of 7 Manufacturers
	Expected to have market coverage by October deadline	Expected to have market coverage <u>after</u> October deadline	Development Suspended or Pending Update

Recommendation:

- ❑ Extend mitigation fee period for weatherized furnaces to September 30, 2021
 - Staff extended the mitigation fee from April to September 30, 2021 to allow manufactures to sell existing product for an additional six months – serves as a sell through provision
- ❑ Add consumer rebate of \$500 per unit for 14 ng/J NO_x weatherized units that will expire on September 30, 2021 to incentivize commercialization of 14 ng/J furnaces
 - Staff is seeking input on rebate amount

PROPOSED AMENDMENTS FOR WEATHERIZED FURNACES

Furnace Category		Phase 2 Mitigation Fee			PAR I I I I
Size Range (BTU/hr)	Furnace Category	Start Date	Fee Amount (\$/Unit)	Existing End Date	Amended End Date
≤60,000	Weatherized	April 1, 2019	\$300	September 30, 2020	September 30, 2021
>60,000 and ≤90,000	Weatherized	April 1, 2019	\$350	September 30, 2020	September 30, 2021
>90,000	Weatherized	April 1, 2019	\$400	September 30, 2020	September 30, 2021

- ❑ Extend Phase 2 Mitigation Fee end date one year
- ❑ No change to the mitigation fee amount

HIGH ALTITUDE FURNACES DEVELOPMENT STATUS AND RECOMMENDATION

❑ High altitude condensing and non-condensing furnaces

- Two manufacturers currently have units certified for installation above 7,000 feet
- One manufacturer is on track to certifying units for installation of at least 7,000 feet by October 1, 2020

❑ High altitude weatherized furnaces

- One manufacturer expected to have weatherized furnaces for installations above 7,000 feet by October 1, 2020

Recommendations:

- ❑ Extend end date of high altitude exemption from October 1, 2020 to until September 30, 2021 for condensing and non-condensing furnaces
- ❑ Compliance date for weatherized furnaces is being extended to September 30, 2021
- ❑ Add consumer rebate of \$500 per unit for any compliant 14 ng/J NO_x units installed in high altitude areas (above 4,200 feet) that will expire on September 30, 2021

PROPOSED AMENDMENTS FOR EXEMPTIONS FOR FURNACES INSTALLED ABOVE 4,200 FEET

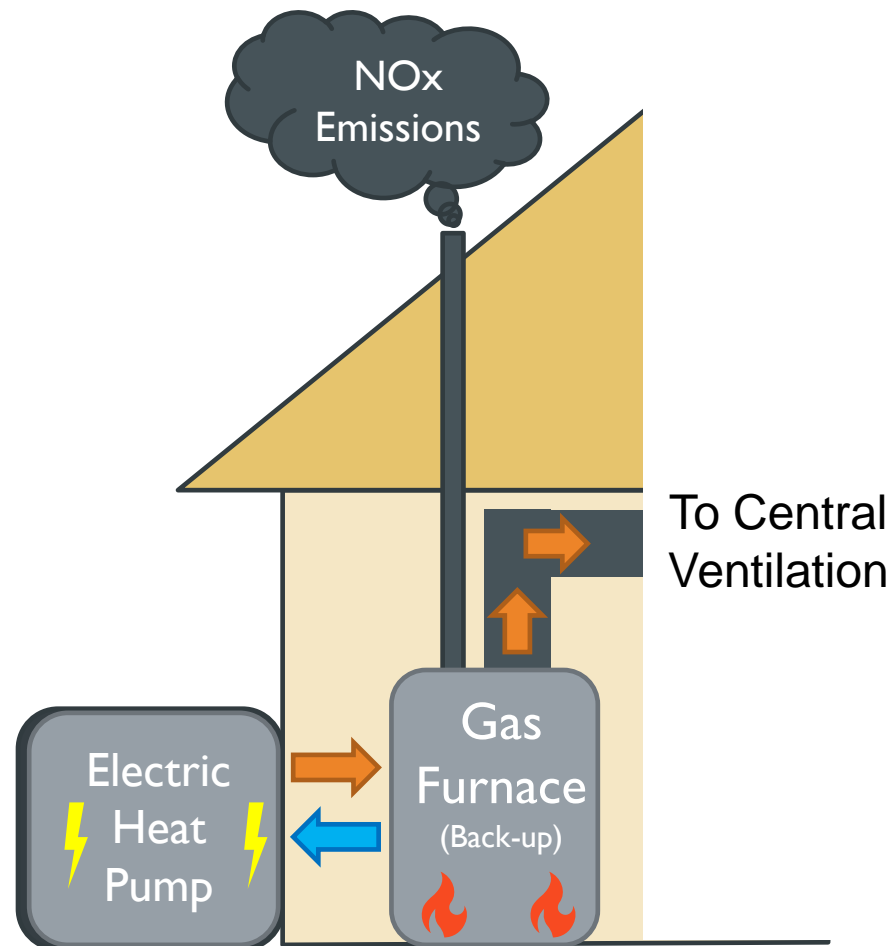
*(g)(5) Condensing and non-condensing natural gas furnaces installed at elevations greater than or equal to 4,200 feet above sea level are exempt from paragraph (c)(4) until **September 30, 2021**.*

- ❑ Extend exemption for high altitude installations of condensing and non-condensing furnaces from October 1, 2020 to September 30, 2021
- ❑ Weatherized furnaces are included in mitigation fee end date extension

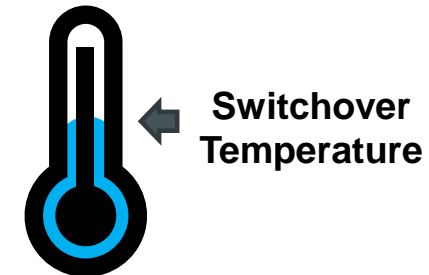
DUAL FUEL HEATING SYSTEMS OVERVIEW

- Dual fuel heating system is a natural gas furnace paired with an electric heat pump
- Electric heat pump replaces air conditioning unit

Primary heating is provided by the electric heat pump



- Gas-fired furnace is used as auxiliary heating when temperatures are very low
- Furnace operation is determined by an adjustable switchover temperature



Higher the switchover set temperature, more often furnace operates and more emissions

SUMMARY OF DISCUSSION ON DUAL FUEL SYSTEMS

- ❑ Staff recognizes that dual fuel systems have potential to generate lower NO_x than a standalone 14 ng/J NO_x furnace, if designed properly
 - Staff continues to work with stakeholders to explore potential options to eliminate enforcement concerns
 - Manufacturers have worked over the past decade to commercialize 14 ng/J NO_x furnaces
 - Staff acknowledges that weatherized furnaces may not have the same enforcement challenges as split systems
- ❑ Staff has reached out to furnace OEMs for equipment costs relating to dual fuel split systems, standalone furnaces, and heat pump heating systems that are utilizing a compliant 14 ng/J NO_x furnace and noncompliant 40 ng/J NO_x furnace

Recommendations:

- ❑ To allow dual fuel systems with noncompliant 40 ng/J NO_x furnaces for installation at elevations above 4,200 feet when sold in District approved configuration with recordkeeping from manufacturers, distributors and installers until September 30, 2022
- ❑ Add consumer rebate of \$500 per system for any dual fuel systems with compliant 14 ng/J NO_x units
 - Staff is seeking input on rebate amount

PROPOSED AMENDMENTS FOR DUAL FUEL FURNACES INSTALLED ABOVE 4,200 FEET

- ❑ Installations of dual fuel systems equipped with 40 ng/J NO_x furnaces located at elevations above 4,200 feet provided that system is installed with:
 - Communicating technology preventing operation without heat pump installed
 - Nonadjustable switchover temperature with external temperature sensor
 - Switchover temperature setting to be locked at the point of manufacture without the need for initial setup during installation
- ❑ Manufacturers, distributors, and installers maintain records of units sold
- ❑ Systems intended for sale under provision must follow applicable labeling requirements:
 - **"This furnace must be installed only in dual fuel configuration with an electric heat pump. Installation of this furnace without a heat pump in dual fuel configuration is a violation of South Coast AQMD Rule 1111."**
- ❑ Staff is seeking input on any further conditions for dual fuel systems with noncompliant 40 ng/J NO_x furnaces

SUMMARY OF RECOMMENDATIONS

Equipment Category	Implementation Date	Dual Fuel with 40 ng/J NOx Furnace	Consumer Rebate
Condensing and Non-condensing Furnaces	October 1, 2019	<ul style="list-style-type: none"> No 	Rebate for dual fuel with condensing or non-condensing 14 ng/J furnace Amount: \$500/unit*
Weatherized Furnaces	Extend mitigation fee period from September 30, 2020 to September 30, 2021	<ul style="list-style-type: none"> Yes, up to September 30, 2021 Staff will reassess use after September 30, 2021 	Rebate for weatherized 14 ng/J furnaces until September 30, 2021 Amount: \$500/unit*
High Altitude Furnaces	Extend compliance date from October 1, 2020 to September 30, 2021	<ul style="list-style-type: none"> Yes**, up to September 30, 2022 	Rebate for installation of 14 ng/J furnaces above 4,200 feet until September 30, 2021 Amount: \$500/unit

* Staff is considering a higher rebate

** Provided that furnace manufacturers implement measures to ensure proper operation.

OTHER PROPOSED AMENDMENTS

- ❑ Added definitions for MOBILE HOME and MOBILE HOME FURNACE to provide clarity on applicability of existing rule limit and mitigation fee schedule
- ❑ Emission limit and mitigation fee schedule for MOBILE HOME FURNACE applies to furnaces specifically designed for MOBILE HOME applications

- ***MOBILE HOME*** means a prefabricated structure on a permanently attached chassis.
- ***MOBILE HOME FURNACE*** means a furnace designed specifically and solely for installation to heat a mobile home.

NEXT STEPS

- ❑ End of Public Comment Period July 24, 2020
- ❑ Stationary Source Committee Meeting August 21, 2020
- ❑ Public Hearing September 4, 2020

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