

Proposed Amended Rule 1111

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

Working Group Meeting

September 21, 2017

**SCAQMD Headquarters
Diamond Bar, California**

Agenda

- Rule 1111 overview
- Implementation status update
- Recent meetings and discussions
- Why do we need to make changes to Rule 1111
- Analysis for mitigation fee increase and rebate program
- Summary of staff's recommendations for Proposed Amended Rule (PAR) 1111
- Future activities and schedules at rulemaking

Overview

- After 31 years, the Rule 1111 compliance limit was lowered (2009 Amendment)
- Technology assessment indicated that the new limit is achievable but more time was needed for commercialization (2014 Amendment); included provisions for a mitigation fee
- Late April 2016, several OEMs communicated to the SCAQMD that there are no compliant products ready to be commercialized before the final compliance deadlines

Overview cont.

- Within the last year, several of the OEMs demonstrated that their compliant products will be ready for commercialization within or soon after the current mitigation fee timeframe
- A rule amendment with modest extensions to the compliance deadline will enhance choices for customers and help cost competitiveness
- Revisit the amount and structure of the mitigation fee given past experience and new cost information – need to make compliant units cost-competitive during mitigation fee period.

Current Rule 1111

- 14 ng/J Compliance limit
- Compliance dates and mitigation fee schedules are as below

	Condensing (High Efficiency)	Non-condensing (Standard)	Weatherized	Mobile Home
Compliance Date	April 1, 2015	October 1, 2015	October 1, 2016	October 1, 2018
Compliance Date Extension with Mitigation Fee	April 1, 2018	October 1, 2018	October 1, 2019	October 1, 2021
Mitigation Fee (per unit)	\$200	\$150	\$150	\$150

Implementation Status Update

- At least three original equipment manufacturers (OEMs) have demonstrated compliance with Rule 1111 NO_x limits either for standard or high efficiency furnaces with field tests underway
- NO_x certifications have been issued to a high efficiency model family with three ratings (80, 60, and 40 kbtu/hr) and to a standard furnace model (70 kbtu/hr)
- Another application for NO_x certification of a standard furnace model is under staff review
- Compliant furnaces have not yet been introduced into the market to meet rule limit; however, commercialization schedules have been proposed by some OEMs

Recent Meetings and Discussions

- Individual meetings with stakeholders (8 OEMs, 2 burner manufactures, and others) in March, April, and May 2017
 - Product development and implementation status, mitigation fee, NOx limit, and stakeholders' rule recommendations
- Individual meetings with OEMs and installers in July and August 2017
 - Product development and implementation status, mitigation fee, and stakeholders' rule recommendations

Recent Meetings and Discussions

- continued

- Two Task Force meetings (April 27, 2017 and May 25, 2017)
 - Product development and implementation status, mitigation fee, NOx limit, and stakeholders' rule recommendations
- Stationary Source Committee (SSC) meeting (June 16, 2017)
 - Status update and staff's initial recommendations for Rule 1111 amendment
- Working Group meeting (July 2, 2017)
 - Staff's recommendations for Rule 1111 amendment

Mitigation Fee Option Extension

- Depending on furnace type, the mitigation fee option is currently scheduled to end and the NOx limit of 14 ng/J will phase in over the period from April 1, 2018 to October 1, 2021
- OEMs have been more focused on standard unit development, and then on high efficiency units, weatherized units, and mobile home units; To date, two OEMs have sought NOx certification for standard units and one OEM has sought certification for high efficiency units
- Although some OEMs have developed low NOx products, they are requesting more heating seasons for field testing to ensure safety and reliability

Current Mitigation Fee

- The current mitigation fee is \$200 for each condensing furnace and \$150 for each non-condensing, weatherized and mobile home furnace distributed or sold into the SCAQMD
- All OEMs have been paying the mitigation fee
- Since there are no compliant products available, fee did not act to even out costs nor motivate product commercialization

Why do we need a mitigation fee increase and a rebate program?

- Technology development is maturing, and some OEMs are now able to project commercialization timeline and estimated pricing for their compliant product
- Consequently, the mitigation fee may be more effective, especially when the fee is increased for non-compliant products concurrent with compliant product availability
- A rebate program for compliant products could further offset costs for consumer

Analysis for Mitigation Fee Increase and Rebate - Outline

■ Information Utilized:

- Cost information provided by OEMs

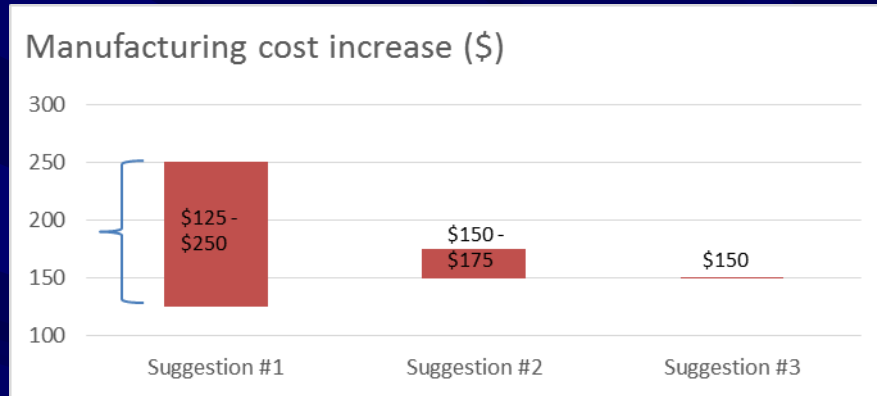
■ Analysis Method:

- An economic model (Partial Equilibrium Model)

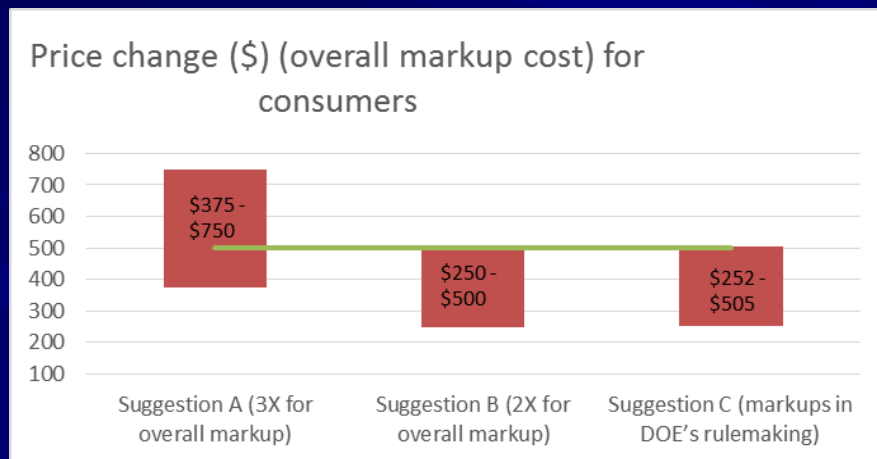
■ Goal:

- To determine the balanced values for mitigation fee increase and rebate which will work in tandem to help motivate commercialization of compliant units

Cost information Provided by OEMs



For price change analysis:
manufacturing cost increase of
\$125 – \$250



For subsequent modeling
analysis: \$500 price change
for customers

Economic Modeling

- To help inform the setting of the mitigation fee and rebate amounts, staff developed a basic economic model called a Partial Equilibrium model
- This type of model can consider a market with producers, consumers, and policy requirements and estimate an overall market price and sales quantity based on empirical data and economic theory*
 - In this case consumers would be any end users, and producers would be the manufacturers
 - The model is used to find an optimal, revenue-neutral, fee and rebate combination, to induce a given market share of compliant units**
- The model was developed based on the South Coast region for an annual market of 150,000 furnaces with an average price of \$1,250 per non-compliant unit and \$1,750 per compliant unit

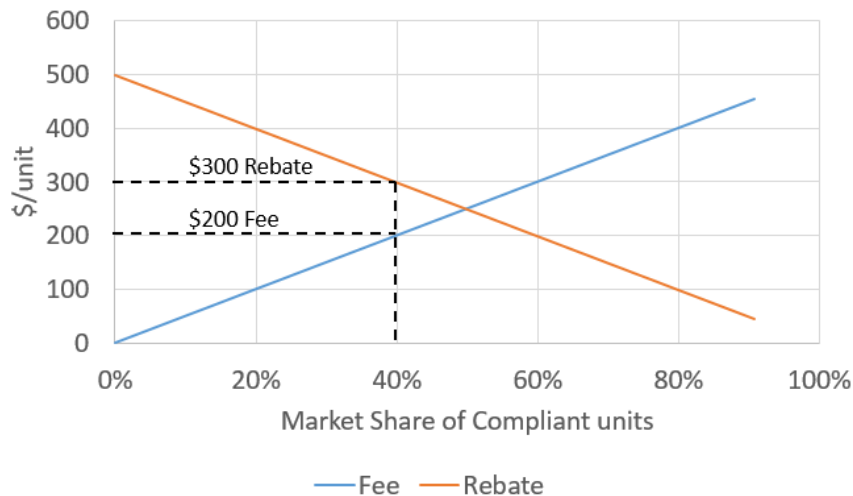
*Technical model details will be provided in the Staff Report.

**Administrative costs are not evaluated here, but can be incorporated in the model as more details become known.

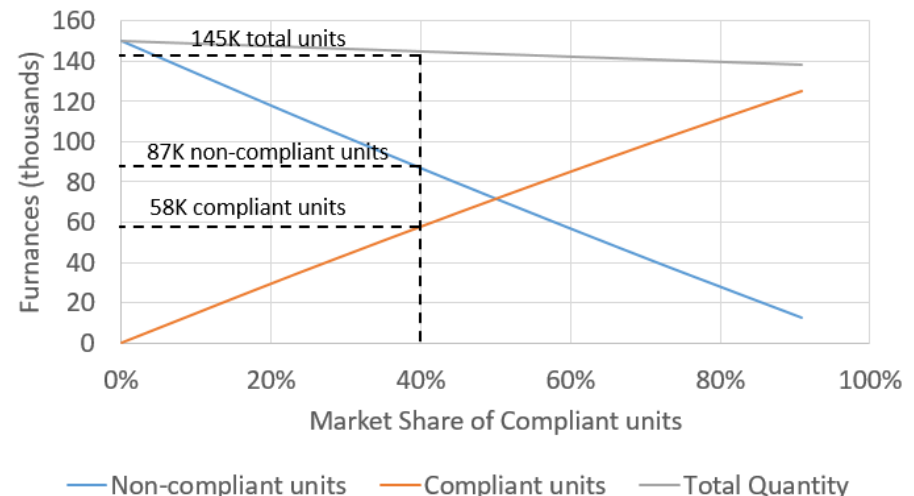
Model Results

- A proposed fee increase of \$200 - \$300/unit and rebate of \$300/unit would achieve a 40% market share of compliant units, with total sales of 145,000 units. This would correspond to a rebate program size of about \$12 million.

Revenue Neutral Fee and Rebate



Market Sales by Unit Type



Proposed Changes to Compliance Dates

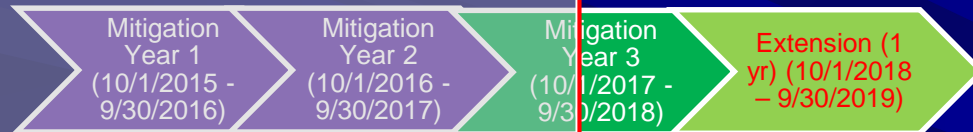
Date of
Amendment -
February 2018

Mitigation Fee Increase

■ Condensing furnace



■ Standard furnace



■ Weatherized furnace



■ Mobile house furnace



Mitigation Fee and Rebate Program

- A raised mitigation fee from \$400 to \$500 to offset the cost difference for compliant and non-compliant units
- A rebate amount of \$300 to end users for purchasing and installing a compliant furnace prior to the applicable rebate end date below

<u>Equipment Category</u>	<u>Rebate End Date</u>
<u>Condensing Furnace</u>	<u>January 1, 2020</u>
<u>Non-condensing Furnace</u>	<u>July 1, 2019</u>
<u>Weatherized Furnace</u>	<u>July 1, 2021</u>
<u>Mobile Home Furnace</u>	<u>July 1, 2022</u>

Example of Potential Rebate Program Administration

■ Rebate Form and Reimbursement

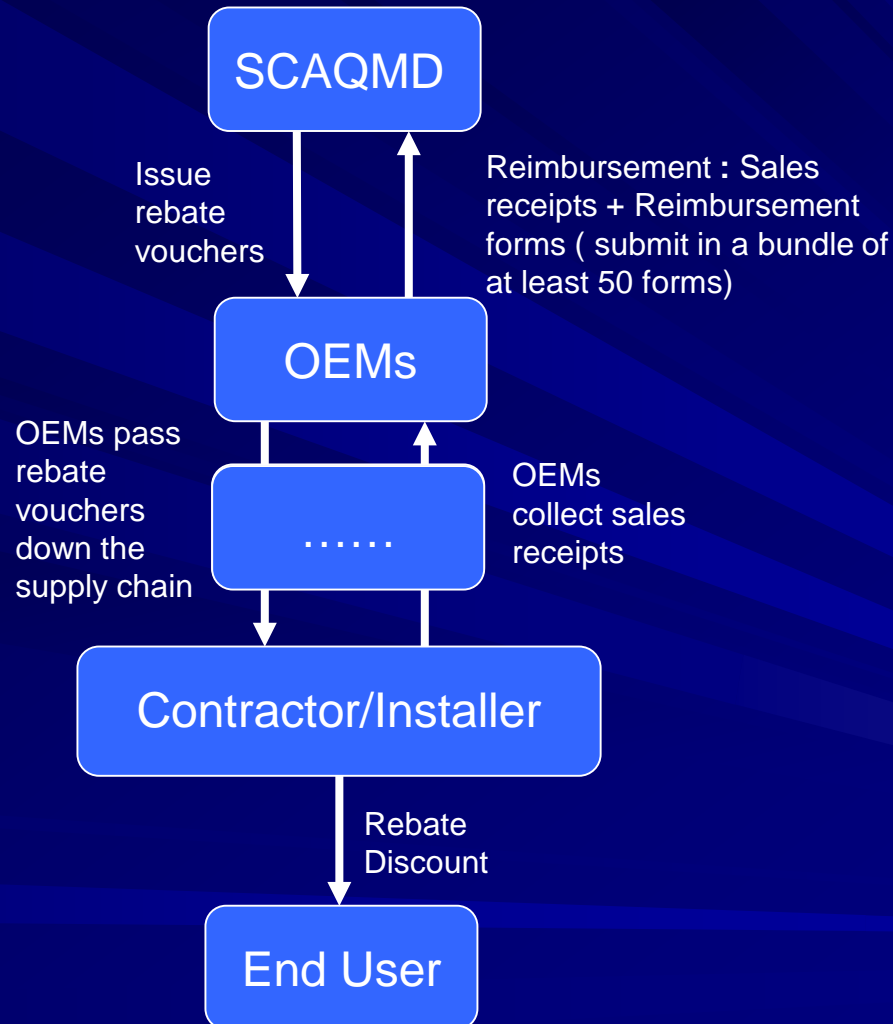
- OEMs apply and receive on a first-come first-served basis from the SCAQMD a rebate voucher of \$300 for each of their compliant furnaces, provided funds are available
- Customers receive rebate discount at time of purchase/installation for any compliant furnace with associated rebate voucher
- OEMs obtain reimbursement from the SCAQMD
- Total rebate payments to all manufacturers would not exceed the sum of total increased portion of mitigation fee received and the \$3,000,000 basic fund

■ Reimbursement Procedure

- For reimbursement, OEMs attach a sales receipt to the SCAQMD-approved reimbursement form showing the retailer's purchase/installation price and that a \$300 SCAQMD discount was provided to the customer
- OEMs collect and bundle the reimbursement forms in groups of at least 50 for submittal to the SCAQMD

Example of Potential Rebate Program Administration - Flowchart Demo

Administration - Flowchart Demo



- Will continue discussion with OEMs for Rebate program administration

Summary of Staff's Recommendations for PAR 1111

- Maintain the 14 ng/J NO_x limit but with the following mitigation fee extension:
 - Condensing (High Efficiency): 2 years (April 2020)
 - Non-condensing (Standard): 1 year (October 2019)
 - Weatherized: 2 years (October 2021)
 - Mobile Home: 1 year (October 2022)

Summary of Staff's Recommendations for PAR 1111 - continued

- Increase the mitigation fee by \$200 - \$300 per unit for all types of furnaces effective from the date of amendment
- Implement a rebate program
 - Issue \$300 rebate to customers of purchased and installed compliant furnace by rebate end dates (three calendar months prior to the mitigation end date)
 - Establish an efficient rebate administration procedure
- Other compliance
 - Prevent rule circumvention by propane furnaces

Future Activities and Schedules

- Continue individual stakeholder meetings
- Working Group meetings – November, 2017; January, 2018
- Public workshop and CEQA scoping meeting – October 19, 2017
- Stationary Source Committee meeting – November 17, 2017
- Public Hearing – February 2, 2018

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