



# **PAR 445**

## **Wood-Burning Devices**

## **WORKING GROUP MEETING #1**

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**Date: December 17, 2024**







**Time: 10:30 am – 12:30 pm**

**Dial In: +1 669 900 6833**

**Meeting ID: 957 6907 2739**

**Zoom Link: <https://scaqmd.zoom.us/j/95769072739>**

# Agenda

-  Introduction
-  PM<sub>2.5</sub> Background
-  2012 Annual PM<sub>2.5</sub> Standard
-  Rule 445 Background
-  Need for Proposed Amendments
-  Next Steps






**PAR 445**  
**Wood-Burning Devices**

# Introduction

# Meeting Information



- Working group meetings will be held remotely via videoconference and teleconference (through Zoom)
- Although it is a different format, staff will take the time to listen to all stakeholder comments
  - Please use the “raise hand” feature to speak:
    -  Click on the  button
    -  Dial \*9
- When it is your turn to speak, your name will be announced
  - If you are a panelist, use the “unmute” feature to speak:
    -  Click on the  button
    -  Dial \*6
  - If you are not a panelist, the meeting host will unmute you
- In addition to working group meetings, staff is available for individual meetings

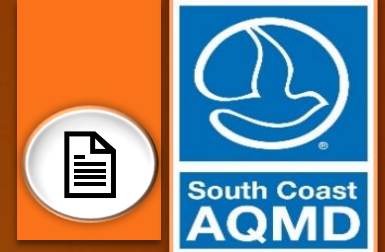
# South Coast AQMD



- Local air pollution control agency
  - 10,743 square miles
  - 17 million residents
  - Largest of the 35 local air agencies in CA and in the U.S.
- Roles and Responsibilities
  - Administer over \$200 million of incentive and grant funding annually
  - Develop and implement plans to meet national air quality standards
  - Permit and inspect about 28,400 affected businesses and communities
  - Regulate emissions from stationary sources



# Key South Coast AQMD Activities



Develops the Air Quality Management Plan (AQMP) – blueprint for achieving compliance with federal and state clean air standards

(Adopted March 7, 2009/Amended May 3, 2013/Amended June 5, 2020)

#### PROPOSED AMENDED RULE 445. WOOD-BURNING DEVICES

- (a) Purpose  
The purpose of this rule is to reduce the emission of particulate matter from wood-burning devices.
- (b) Applicability  
The provisions of this rule shall apply to specified persons or businesses within the South Coast Air Basin portion of the South Coast Air Quality Management District:
- (1) Any person that manufactures, sells, offers for sale, or installs a wood-burning device;
  - (2) Any commercial firewood seller that sells, offers for sale, or supplies wood or other wood-based fuels intended for burning in a wood-burning device or portable outdoor wood-burning device; and
  - (3) Any property owner or tenant that operates a wood-burning device or portable outdoor wood-burning device.
- (c) Definitions:
- (1) **COMMERCIAL WOOD-BASED FUEL SELLER** means any operation that has a business license that sells, or offers for sale, or supplies packaged, banded or bulk firewood, manufactured firelogs, or wood pellets.
  - (2) **COOKSTOVE** means any wood or wood-based fuel-fired device that is designed and used for cooking food and has the following characteristics as defined in Title 40 of the Code of Federal Regulations Section 60.531, February 28, 1988, or any subsequent revision:
    - (A) An oven, with a volume of 0.028 cubic meters (1 cubic foot) or greater, and an oven rack;
    - (B) A device for measuring oven temperature;
    - (C) A flame path that is recirculated around the oven;
    - (D) A shaker grate;
    - (E) An ash pan;
    - (F) An ash clean-out door below the oven; and



Issues permits for equipment that limits the amount of air emissions to ensure compliance with air quality rules



Conducts periodic inspections to ensure compliance with air quality requirements



Responds to air quality complaints from the public

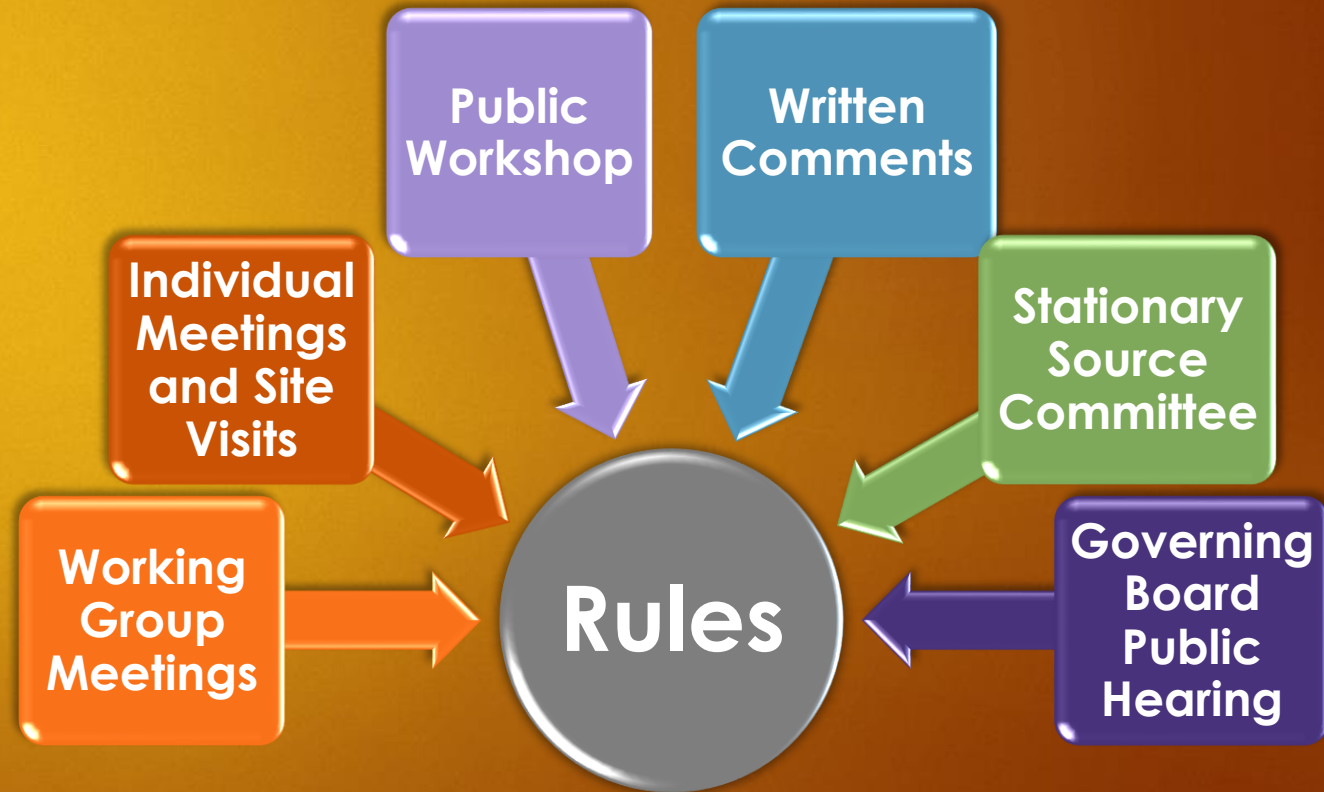


Conducts ambient air quality monitoring and special studies and disseminates monitoring data to protect public health

# Working Group Meetings



- Working group meetings are held throughout the rule development process and are open to the public
  - Shared knowledge benefits development of the rule
- Early input from stakeholders is strongly encouraged to help develop proposed rule amendments and address potential issues
- Gathered information is used to:
  - Provide more context
  - Accurately characterize information used for the rulemaking and its potential impacts such as cost



# Working Group Materials

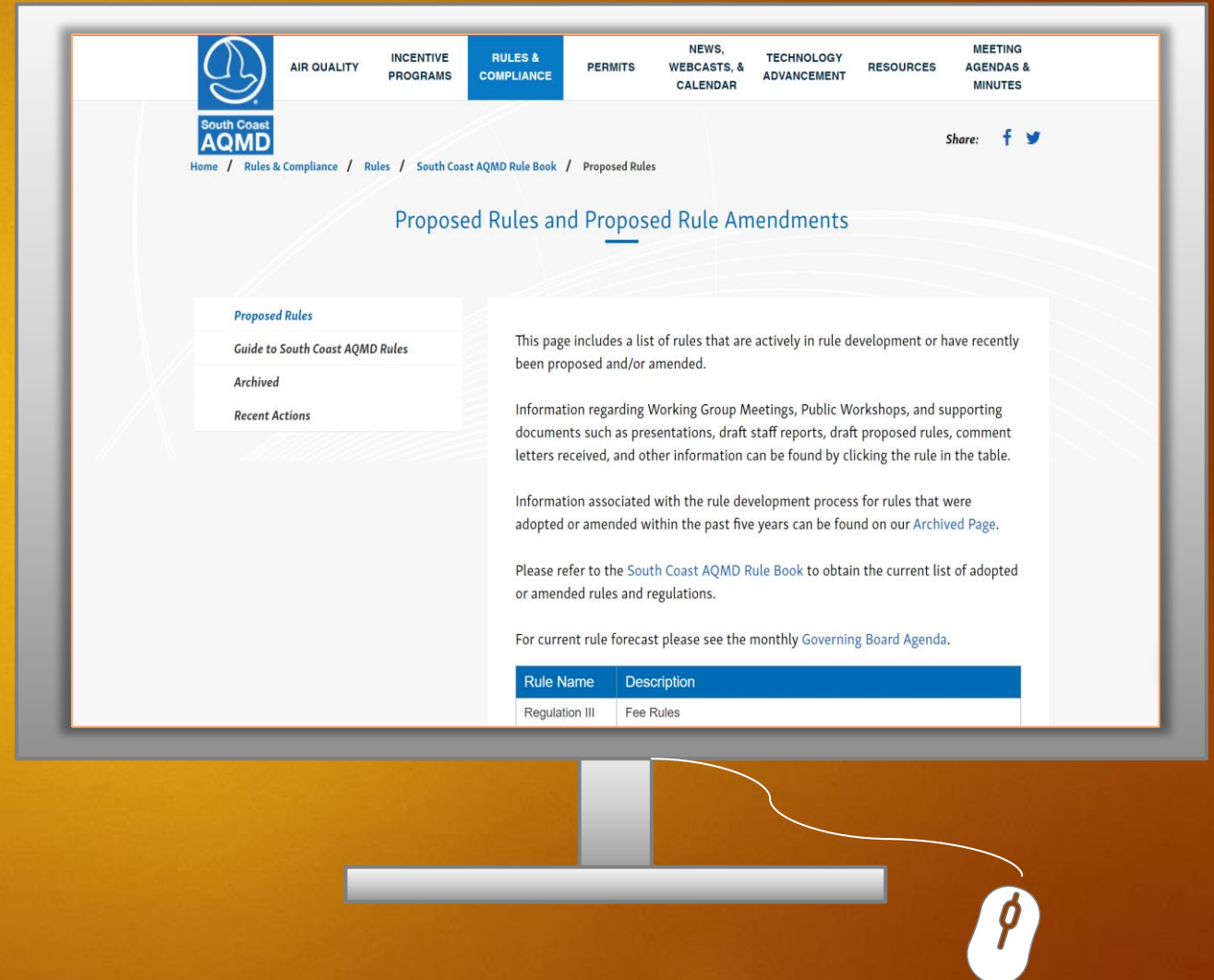


Working group materials for each working group meeting will be made available on the Proposed Rules and Proposed Rule Amendments Website:

<https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules>



Point your smartphone camera here to be directed to the website:







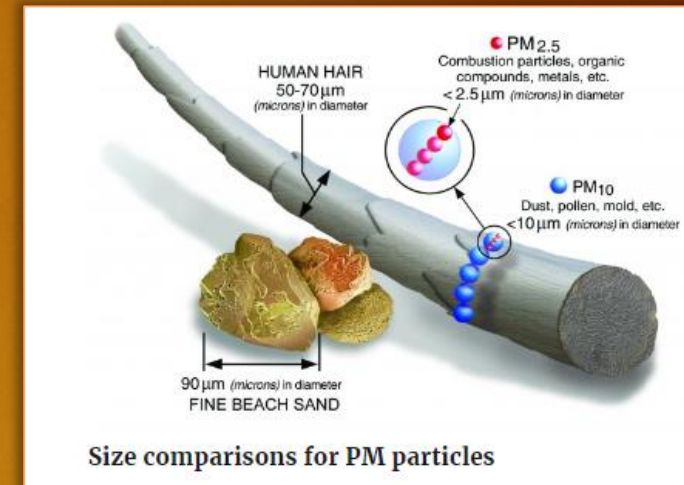
**PAR 445**  
**Wood-Burning Devices**

# PM<sub>2.5</sub> Background

# What is PM<sub>2.5</sub>?



- Particulate matter (PM) are small, inhalable particles found in the air and is the main cause of reduced visibility
  - PM<sub>2.5</sub> is particulate matter  $\leq 2.5 \mu\text{m}$  in diameter
- Sources of PM<sub>2.5</sub> include:
  - Vehicle emissions
  - Construction sites (including paved and unpaved roads)
  - Industry (including power plants and smokestacks)
  - Fires (including wildfires, agricultural, and residential burning)



# Health Impacts of PM<sub>2.5</sub>



- Aggravated asthma
- Decreased lung function
- Increased respiratory symptoms
  - Irritation of the airways, coughing, or difficulty breathing
- Irregular heartbeats
- Premature mortality in people with heart or lung disease





**PAR 445**  
**Wood-Burning Devices**

# 2012 Annual PM<sub>2.5</sub> Standard

# National Ambient Air Quality Standards



- Establishes National Ambient Air Quality Standards for various air pollutants, including  $PM_{2.5}$

U.S. EPA

- Prepares and submits State Implementation Plan to describe existing air quality conditions and measures that will be taken to attain National Ambient Air Quality Standards

California

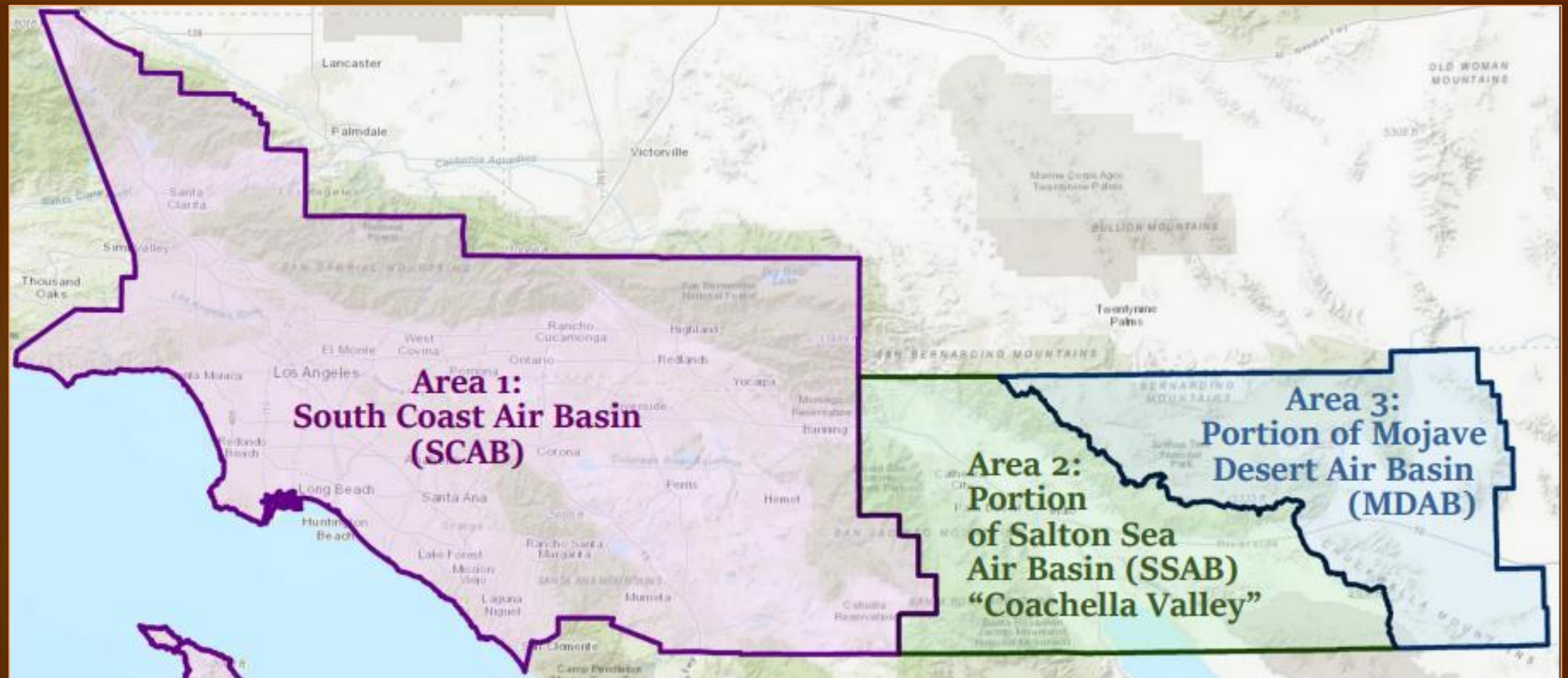
Other States

- Regulates stationary sources primarily
- Develops strategies and plans to attain National Ambient Air Quality Standards
- Air Quality Management Plan (AQMP) provides the overall strategy and technical analysis for how the region will meet various federal standards and continue progress to achieve state standards
- $PM_{2.5}$  Attainment Plan provides the strategy and technical analysis to meet  $PM_{2.5}$  National Ambient Air Quality Standards

South Coast AQMD

Other Air Districts in California

# South Coast AQMD National Ambient Air Quality Standard Attainment Regions



# PM<sub>2.5</sub> National Ambient Air Quality Standards



- The U.S. EPA has promulgated four National Ambient Air Quality Standards for PM<sub>2.5</sub>
- Areas not meeting the PM<sub>2.5</sub> standards (based on ambient air quality data) are designated as nonattainment areas based on exceedance level:

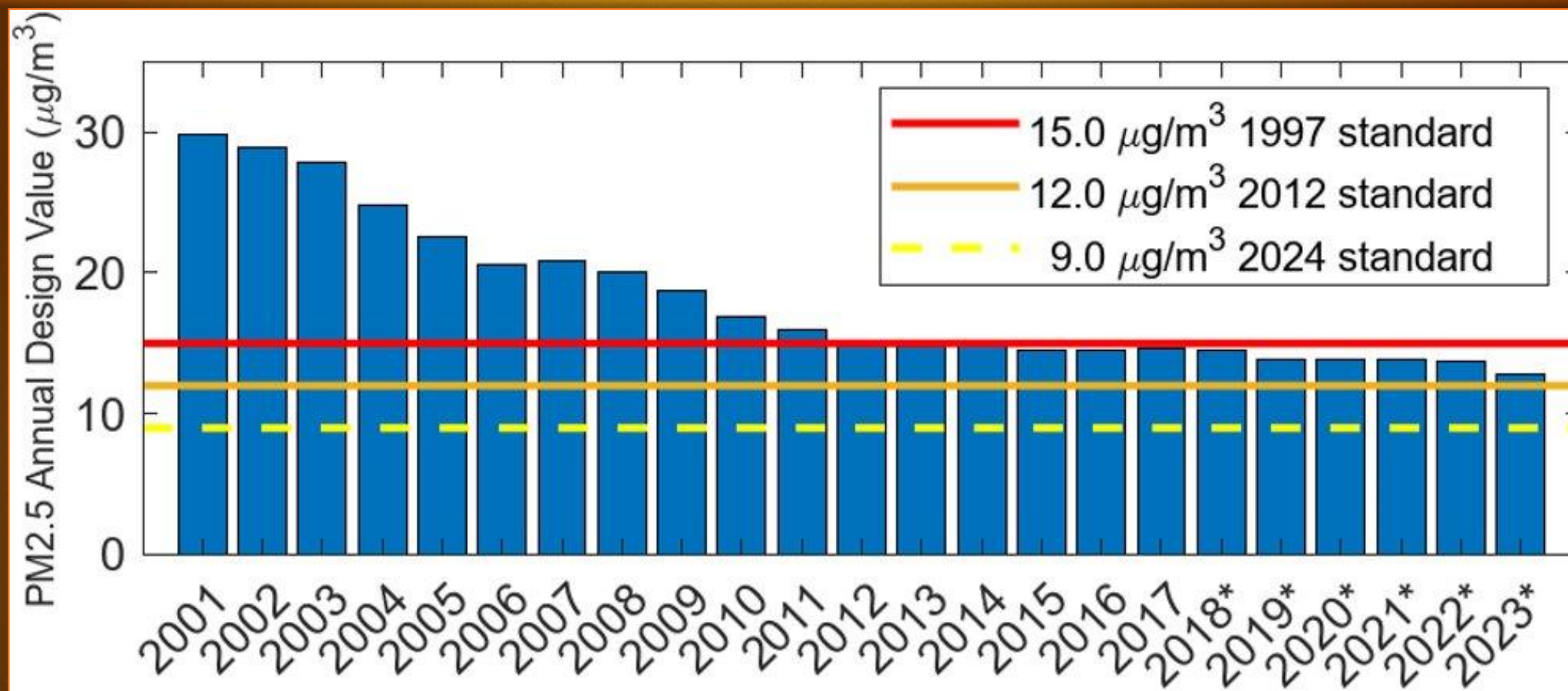


- Attainment deadlines are established based on classification, with more time provided for areas with worse air quality

NAAQS Year	NAAQS Level	Averaging Time	South Coast Air Basin Classification
1997	65 µg/m <sup>3</sup>	24-Hour	Attainment
	15 µg/m <sup>3</sup>	Annual	Attainment
2006	35 µg/m <sup>3</sup>	24-Hour	<b>Serious Nonattainment*</b>
2012	12 µg/m <sup>3</sup>	Annual	<b>Serious Nonattainment</b>
2024	9 µg/m <sup>3</sup>	Annual	Designations Expected in 2026

\* Attainment expected based on preliminary data for 2023

# Annual PM<sub>2.5</sub> Trend in the SCAB



\* Data likely to be approved as exceptional events by U.S. EPA were removed



# Overview of State Implementation Plan Actions for the 2012 Annual PM<sub>2.5</sub> Standard

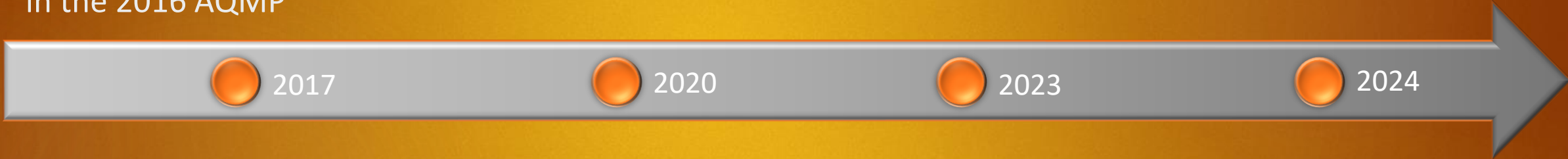


2017

Attainment plan with an attainment date of December 31, 2025 included in the 2016 AQMP

2023

The submitted plan was withdrawn to avoid potential disapproval



2020

Near roadway data became valid for regulatory use; U.S. EPA requested supplemental attainment demonstration

2024

A revised attainment plan with an attainment date of December 31, 2030 has been submitted

# SCAB Attainment Plan for the 2012 Annual PM<sub>2.5</sub> Standard



- Provides the strategy and technical analysis to meet the 2012 Annual PM<sub>2.5</sub> National Ambient Air Quality Standard by 2030
- Demonstration of Best Available Control Measures\* and Most Stringent Measures\*
- Identified four source categories, including residential wood-burning (Rule 445), where rule amendments are needed to meet Most Stringent Measure requirements
  - *BCM-18: Further Emission Reductions from Wood-Burning Fireplaces and Wood Stoves* seeks additional emission reductions from residential wood burning

*Most Stringent Measure is defined as: "is any permanent and enforceable control measure that achieves the most stringent emissions reductions in direct PM<sub>2.5</sub> emissions and/or emissions of PM<sub>2.5</sub> plan precursors from among those control measures which are either included in the SIP for any other NAAQS, or have been achieved in practice in any state, and that can feasibly be implemented in the relevant PM<sub>2.5</sub> NAAQS nonattainment area."\**

*\* 81 FR 58151; 40 CFR Section 51.1000.*



**PAR 445**  
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# Rule 445

# Background

# Wood Smoke



- Wood smoke contains harmful air pollutants, including PM<sub>2.5</sub>, that can cause a variety of adverse health effects
  - Even short-term exposure for a few hours can have severe health consequences
  - Vulnerable groups, including pregnant women, infants, and the elderly, are at higher risk
- South Coast Air Basin includes densely populated areas where residential chimneys could be near neighboring properties
  - Close proximity increases the likelihood that individuals may inhale harmful smoke from nearby wood burning



# Rule 445 Overview



- Adopted in March 2008
- Aims to reduce ambient PM<sub>2.5</sub> levels from residential wood-burning
- Applies to manufacturers, vendors, commercial firewood sellers, and persons owning or operating indoor and outdoor wood-burning devices
- Applicable to wood-burning devices, wood-burning heaters and wood-fired cooking devices (e.g. fireplaces)



# Rule 445 Requirements – No Burn Days



- Refers to prohibition of burning wood:
  - During wood-burning season from beginning of November – end of February
  - When daily PM<sub>2.5</sub> air quality is forecasted to reach unhealthy levels due to air emissions and stagnant weather conditions
- Average of nine No Burn Days in the last two wood-burning seasons (about 8%)
- Current curtailment threshold is 29 µg/m<sup>3</sup> of PM<sub>2.5</sub> (based on 24-hour air quality forecast)
- Contingency measures included for PM<sub>2.5</sub> and ozone for SCAB
  - May be triggered upon U.S. EPA's finding of failure to attain or comply with certain requirements



# Rule 445 – Other Key Requirements



1. No permanent installation of a wood-burning device into any *new* development after March 9, 2009
2. Restrictions set on products used as fuel in a wood-burning device
  - Only wood-based fuels are allowed (e.g. no garbage, plastic, etc)
3. Commercial firewood sellers can only sell seasoned wood from July 1 – end of April the following year
4. Labeling for wood and wood-based products by commercial firewood sellers

# Rule 445 – Exemptions



1. Sole source of heat
  - The only permanent source of heat that can meet the space heating needs of a household
2. Low-income household
  - Household that receives financial assistance through reduced electric or gas bills from an electric or natural gas utility based on household income levels
3. No natural gas service within 150 feet
4. Geographical location  $\geq$  3,000 feet above mean sea level
5. Ceremonial Fires exempted under Rule 444 – Open Burning



# What is the Contribution of Biomass Burning to PM<sub>2.5</sub>?



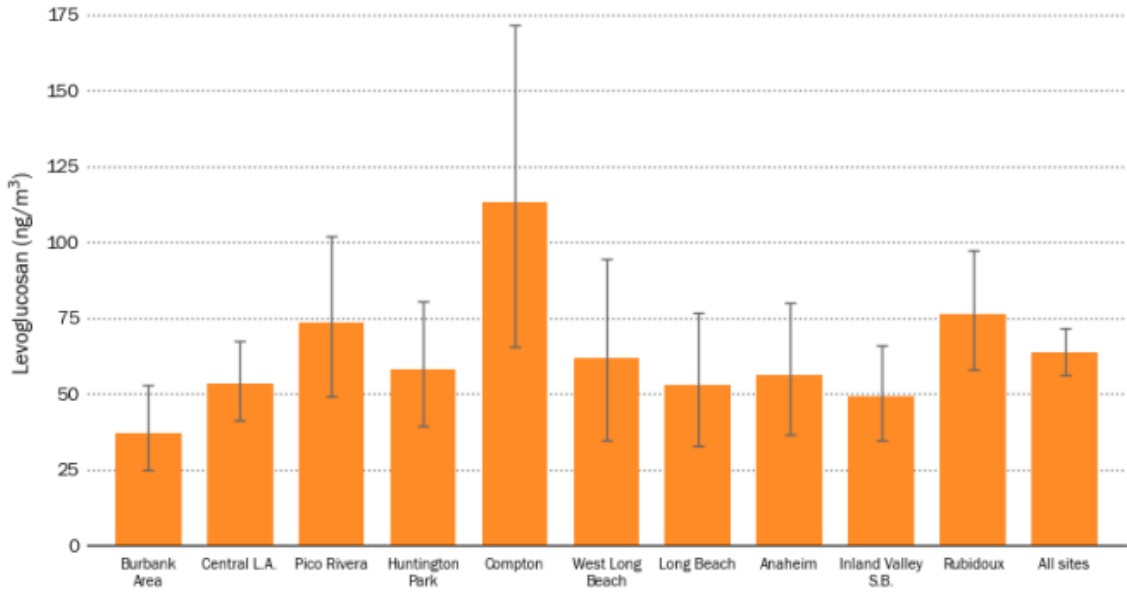
- Multiple Air Toxics Exposure Study (MATES) is a study that focuses on the measurement and modeling of ambient air toxics for the primary purpose of evaluating health risks due to air pollution
- Levoglucosan, a component of PM<sub>2.5</sub> that is produced during biomass burning and a key tracer of wood smoke, alongside other particulate species were measured in MATES V
  - Measured at ten fixed monitoring sites from January 2018 – April 2019 during MATES sampling

**MATES V**  
Multiple Air Toxics Exposure Study  
in the South Coast AQMD

FINAL REPORT  
AUGUST 2021

**SOUTH COAST AIR QUALITY  
MANAGEMENT DISTRICT**  
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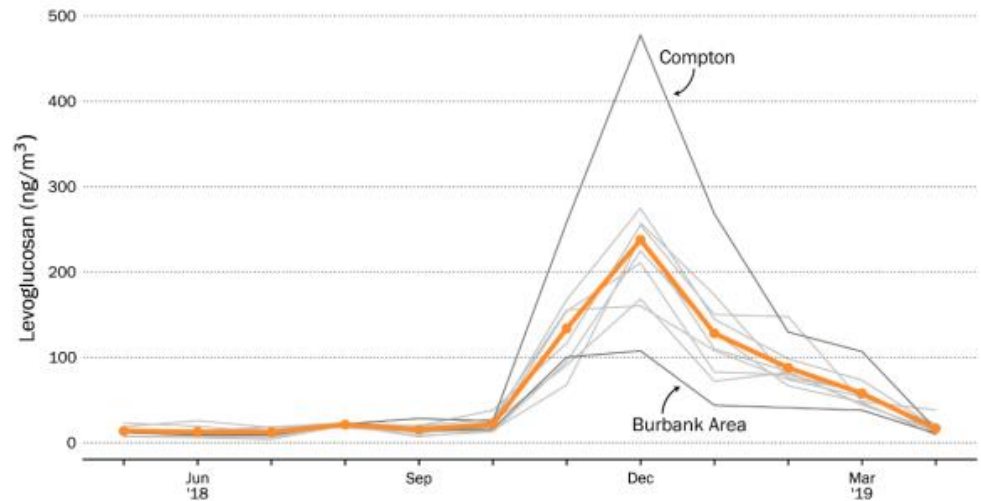
# MATES – Biomass Burning Contributions



**Figure XII-1.** Kaplan-Meier mean levoglucosan concentrations measured at MATES V sites from May 2018 to April 2019. Error bars represent 95% confidence intervals of averages. The station name Inland Valley San Bernardino is abbreviated as Inland Valley S.B.

- Highest levels of tracer of wood smoke observed in Compton\*

- Highest levels of tracer of wood smoke from November – February\*



**Figure XII-2.** Monthly average levoglucosan concentrations during MATES V monitoring period. Gray lines show monthly averages at individual sites, and bold orange line shows Basin (ten site) average.

\* Impact from November 10, 2018 wildfire was removed from data analysis

# MATES – Estimated Biomass Burning



**Table XII-2.** Average winter (December 2018-February 2019) PM<sub>2.5</sub> and levoglucosan concentrations and estimated biomass burning contributions to total PM<sub>2.5</sub> at MATES V sites. Low and high estimates were calculated with levoglucosan-PM<sub>2.5</sub> conversion factors of 8.33 and 16.4, respectively.

Station	PM <sub>2.5</sub> mass (µg/m <sup>3</sup> )	Levoglucosan (ng/m <sup>3</sup> )	Levoglucosan/PM <sub>2.5</sub> (%)	Estimated biomass burning PM <sub>2.5</sub> (µg/m <sup>3</sup> )		Estimated biomass burning contribution to total PM <sub>2.5</sub> (%)	
				Low	High	Low	High
Burbank Area	7.76	64	0.83	0.53	1.1	6.9	14
Central L.A.	10.71	127	1.18	1.1	2.1	9.8	19
Pico Rivera	13.53	178	1.31	1.5	2.9	11	22
Huntington Park	12.55	124	0.99	1.0	2.0	8.3	16
Compton	15.10	292	1.93	2.4	4.8	16	32
West Long Beach	13.82	168	1.22	1.4	2.8	10	20
Long Beach	11.94	140	1.17	1.2	2.3	9.8	19
Anaheim	12.48	145	1.16	1.2	2.4	9.6	19
Inland Valley S.B.	10.82	108	0.99	0.90	1.8	8.3	16
Rubidoux	12.66	188	1.48	1.6	3.1	12	24
Basin Average	12.14	153	1.26	1.3	2.5	11	21

\* Impact from November 10, 2018 wildfire was removed from data analysis

Biomass burning contributed to significant fraction of PM<sub>2.5</sub> during wintertime

# Wood Stove & Fireplace Change Out Incentive Program



- Incentive program (previously known as Healthy Hearths) first established in 2008
- Current program limited to residents in five areas:
  - Boyle Heights area, Norco/Corona area, Chino/Ontario/Corona area, City of San Bernardino area, City of Riverside area
- Vouchers granted to change out eligible wood-burning devices for natural gas or electric inserts
- Funding per voucher varies depending on criteria and equipment type
  - Natural gas or electric inserts are not subject to Rule 445
  - Eligibility for program is independent of Rule 445
- Funding per voucher varies depending on criteria and equipment type
  - Up to \$800 per voucher (low-income households receive double the amount of funding)
  - Vouchers can be redeemed through participating retailers
  - Approximately 750 vouchers redeemed out of 1,100 applications from 2013-2022 (most redeemed prior to 2020)

**Funds Available**  
**WOOD STOVE & FIREPLACE CHANGE OUT INCENTIVE PROGRAM**

If you're a resident, or a landlord of a rental property in the general area referred to as the Jurupa Valley and includes the communities in and around the cities of Riverside and San Bernardino, or the community of Boyle Heights, contact the South Coast Air Quality Management District to see if you qualify for a voucher to help fund the replacement of your polluting wood stove or traditional fireplace with less polluting devices.

**Health Effects**  
 This area does not meet federal health standards for fine particulate matter. Wood smoke can be a significant source of fine particulate matter pollution, plus it contains toxic air contaminants. Health studies link wood smoke to serious health problems including decreased lung function, aggravated asthma, irregular heartbeat, and premature death in people with existing heart and lung disease, particularly the young and the elderly.

Current Condition	Device System	General Incentive	Amount for Low Income
Gas service available	Gas logs	\$200	\$400
	Gas or Electric Stove/Insert	\$600	\$1,000
No gas service available OR Wood Used as Primary Source of Heat	Permanently Installed Alcohol Fuelled Device	\$300	\$600
	Gas logs	\$300	\$600
	Gas or Electric Stove/Insert	\$800	\$1,400
No gas service available OR Wood Used as Primary Source of Heat	Cast-Iron/Steel Insert (existing uncerified insert in hearth)	\$750	\$1,200
	Permanently Installed Alcohol Fuelled Device	\$300	\$600
No gas service available OR Wood Used as Primary Source of Heat	EPA Qualified Fireplace Revolve	\$300	\$300
	EPA Qualified Fireplace Revolve	\$300	\$300

\* Add 125% to incentive amount for destruction of uncerified wood stove device

**South Coast Air Quality Management District**  
 21865 Copley Drive  
 Diamond Bar, CA 91765  
[www.scaqmd.gov](http://www.scaqmd.gov)  
 "Cleaning the air that we breathe..."

**How to Apply for a Voucher**

1. Make sure you are located in one of the eligible zip codes:  
 Boyle Heights area - 90022, 90023, 90033, and 90063  
 Chino/Ontario/Corona area - 91708, 91709, 91710, 91761, 91762, 91764  
 City of San Bernardino area - 92313, 92316, 92324, 92335, 92336, 92337, 92345, 92346, 92354, 92376, 92401 through 92415, 92418, 92423, 92424, 92427  
 City of Riverside area - 91752, 92501, 92503, 92504, 92505, 92506, 92507, 92508, 92509, 92518, 92521  
 Norco/Corona area - 92860, 92879, 92880, 92881, 92882
2. Get the Voucher Application Form from the SCAQMD.  
 Web Site: XXX  
 Call: (909) 396-3833  
 Fax: (909) 396-3811  
 E-mail: [fireplacevoucher@sqamd.gov](mailto:fireplacevoucher@sqamd.gov)
3. Submit application and forms to the SCAQMD. The SCAQMD must verify the residence address and supporting documents for income if requesting low income incentives.
4. Select a new, less polluting device from a participating retailer and purchase it. The retailer will reduce the purchase price by the amount of the voucher and will notify the SCAQMD of the purchase. Please visit one of the participating retailers at least one week prior to the voucher's expiration date.
5. The retailer notifies the SCAQMD and submits appropriate documentation within 30 days of installation.



**PAR 445**  
**Wood-Burning Devices**

# Need for Proposed Amendments

# Need for PAR 445



- Address the deficiencies identified to demonstrate “Most Stringent Measures” requirements for  $PM_{2.5}$  set by the Clean Air Act and U.S. EPA
- Help reduce  $PM_{2.5}$  emission from wood-burning devices to meet attainment of  $PM_{2.5}$  National Ambient Air Quality Standard
- Other updates (e.g. clarifications) as needed



# U.S. EPA Identified Deficiencies



## 1. Curtailment Threshold

- U.S. EPA determined that the current residential wood-burning PM<sub>2.5</sub> curtailment threshold is less stringent compared to similar programs in other districts
- Existing contingency measures thresholds to also be lowered

## 2. Low-Income Exemption

- U.S. EPA determined that the low-income exemption is less stringent compared to similar programs in other districts

### Current Rule 445

Low-income household

Sole source of heat

No natural gas service within 150 ft

Geographical location ≥ 3,000 ft above mean sea level

Ceremonial fires exempt under Rule 444

To be further discussed in the next Working Group Meeting



**PAR 445**  
**Wood-Burning Devices**

# Next Steps



# Seek Input



- Gather more information to assess impacts of removing the low-income exemption in PAR 445
  - Are there any low-income communities where wood burning is the sole source of heat (e.g. no natural gas supply)?
  - Would low-income communities (outside of the five targeted areas\*) be interested in incentive funding to switch to cleaner alternatives?



*\* Boyle Heights area,  
Norco/Corona area,  
Chino/Ontario/Corona area,  
City of San Bernardino area,  
City of Riverside area*

# Next Steps



*Working group and stakeholder meetings continue throughout process*

**Information  
Gathering and  
Analysis**

**Preliminary  
Draft Rule and  
Staff Report**

**Public  
Workshop**

**Draft Rule  
and Staff  
Report**

**Public  
Hearing**

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Rule 445

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# Check Before You Burn



<https://www.aqmd.gov/cbyb>

## Check Before You Burn



Información en español

November marks the start of South Coast AQMD's annual Check Before You Burn season. From **November through the end of February**, residents are asked to check before burning wood in their fireplaces to limit emissions of fine particulate matter (PM2.5).

A No-Burn day is a 24-hour ban on wood-burning in residential fireplaces, stoves or outdoor fire pits in the South Coast Air Basin. South Coast AQMD forecasters call for residential No-Burn Days when PM2.5 is expected to reach Unhealthy levels due to air emissions and stagnant weather conditions.

South Coast AQMD's No-Burn Day alerts do not apply to mountain communities above 3,000 feet in elevation, the Coachella Valley or High Desert, homes that rely on wood as a sole source of heat, low income households and those without natural gas service. Gas fireplaces are also exempt.

South Coast AQMD is providing several resources to the public to make following No-Burn Days as convenient as possible:

- **E-Mail Notification Program**  
Sign up to receive [Air Alerts](#) on air quality and to be notified when a mandatory No-Burn alert has been issued for your neighborhood.
- **Check Before You Burn Map**  
Visit the [Check Before You Burn map](#) on our website for daily forecast information.
- **Toll-Free Phone Number**  
Call 866-966-3293 for daily Check Before You Burn information.
- **Mobile App**  
Download the [South Coast AQMD app](#) to check local air quality and receive notifications when No-Burn Days are called.
- **Social Media**  
Follow South Coast AQMD's social media accounts on [Facebook](#), [Twitter](#) and [Instagram](#).

The South Coast AQMD also encourages you to take the [pledge](#) to Check Before You Burn.


# PAR 445 Staff Contacts



Please contact staff with any questions or comments

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