



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

AGENDA: 4

Overview of Woodsmoke Regulatory Considerations

**Stationary Source Special Committee Meeting
February 19, 2025**

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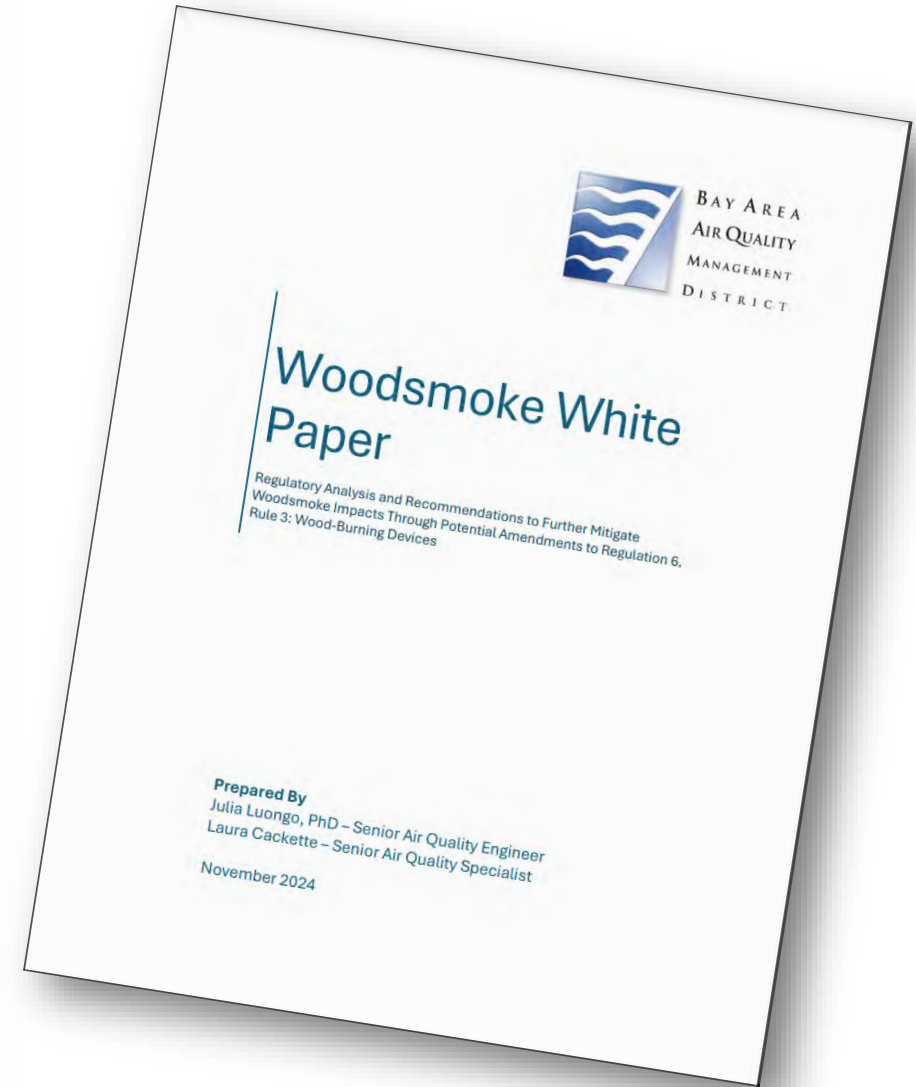
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Presentation Outline

- Background and Impetus
- Woodsmoke White Paper Highlights
- White Paper Recommendations
- Potential Impacts of Policies

Background: Woodsmoke

- Significant source of fine particulate matter (PM_{2.5})
 - Also contains gaseous air toxics
- May 2024: Stationary Source Committee presentation on range of policy mechanisms for mitigating impacts
- November 2024: Woodsmoke White Paper published



Impetus for This Policy Initiative

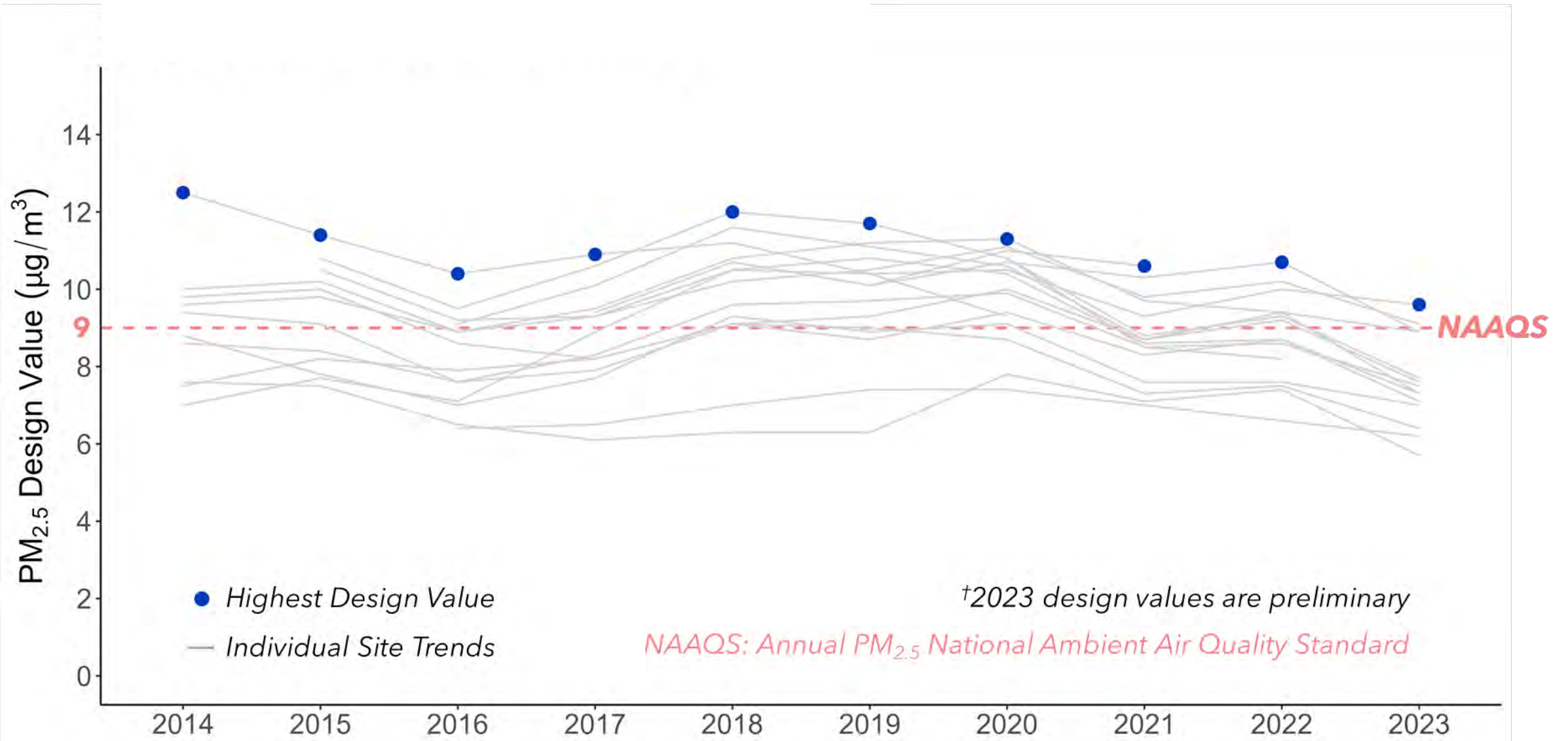
Assembly Bill 617 Community Emissions Reduction Plan Measures



A Strengthened National Ambient Air Quality Standards (NAAQS) for Particulate Matter

- Annual PM_{2.5} standard set at 9.0 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)
- Additional reductions may be required to meet and maintain this new standard
- United States Environmental Protection Agency (US EPA) will finalize initial area designations in 2026

Design Value Trends: Fine Particulate Matter



Woodsmoke White Paper

Knowledge Assessment

- Wood-burning device and emissions inventory
- Air quality modeling and health impacts assessment
- Air monitoring data
- Woodsmoke complaint and enforcement data

Regulatory Landscape

- Review of regulatory and non-regulatory woodsmoke programs

Decision-making Context

- Spectrum of potential policy measures
- Equity, socioeconomic, and data considerations should we engage in rule amendments

Device Population and Emissions Inventory

One Million
Indoor wood-burning devices installed



378,000
of these devices are in *active* use



76%

are fireplaces

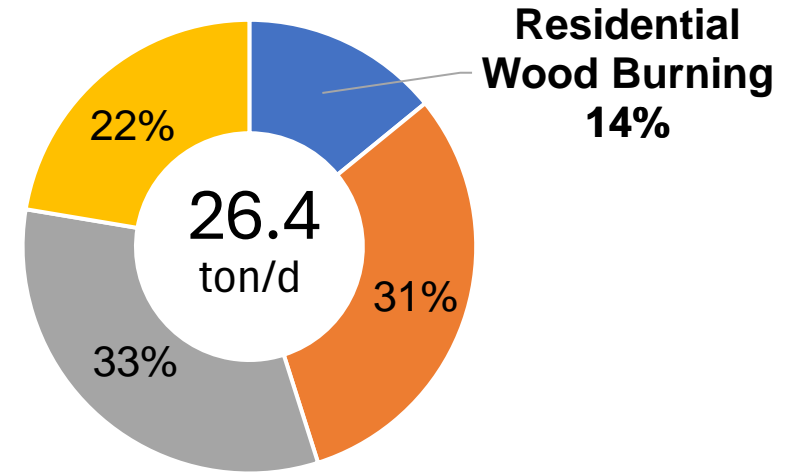


24%

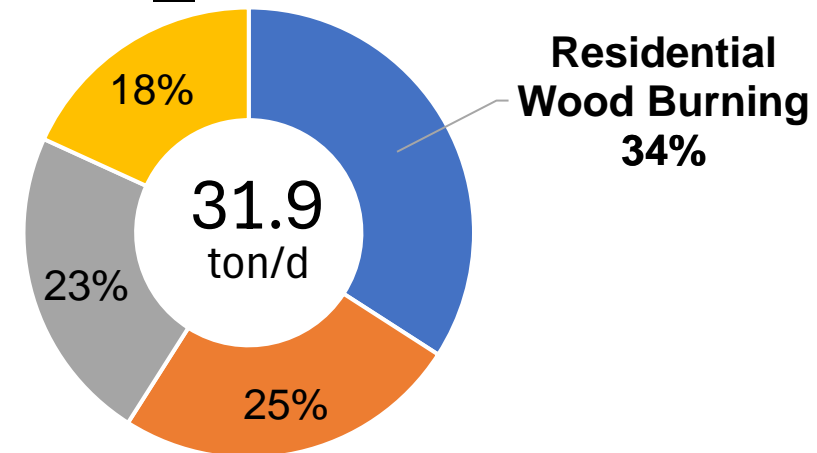
are wood and pellet stoves

Annual Average PM_{2.5} Emissions

- Residential Wood Burning
- Other Area Sources
- Mobile Sources (Incl. Road Dust)
- Point Sources



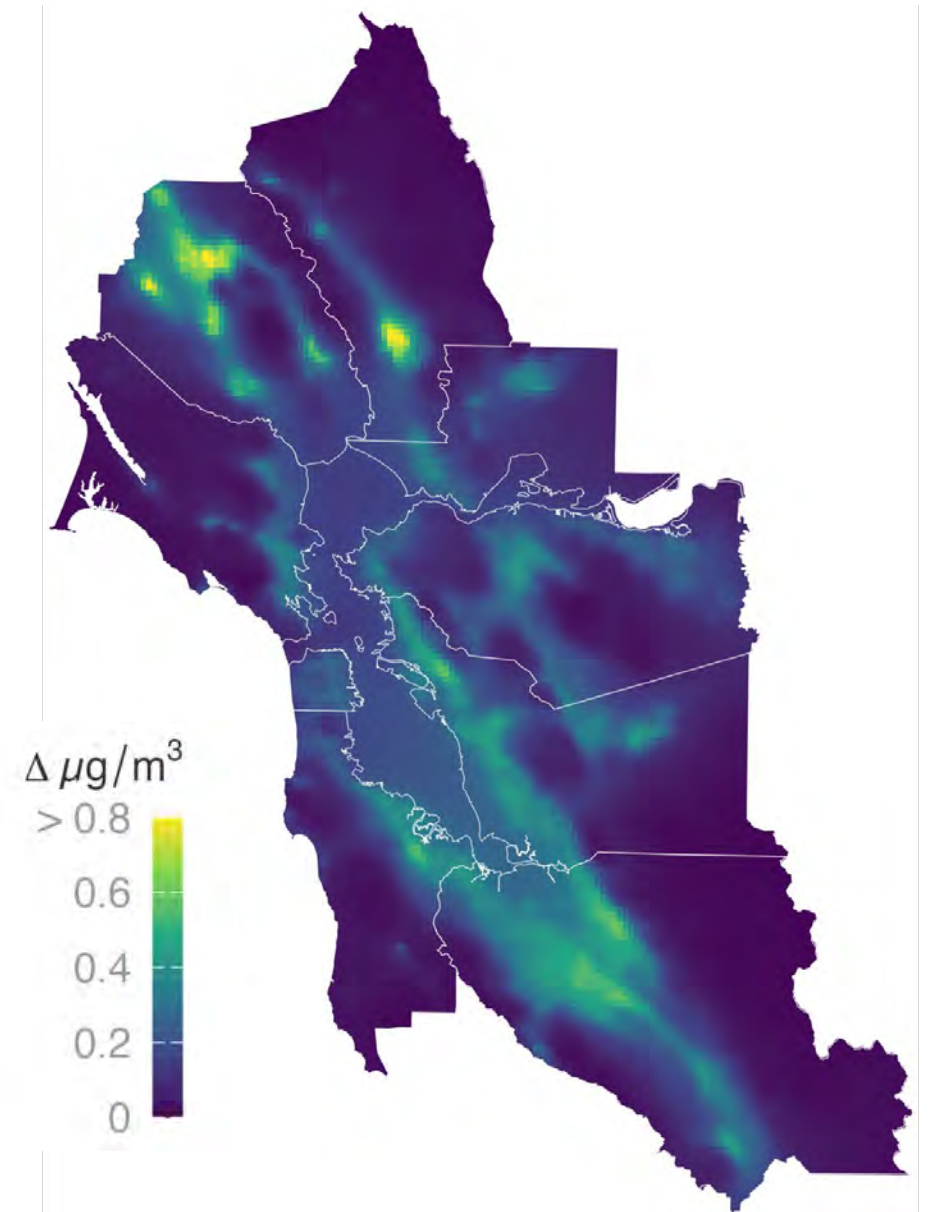
Peak Winter Average (Dec–Jan) PM_{2.5} Emissions



Modeled Geographic Variation

- Annual average PM_{2.5} contributions from wood burning vary up to about 0.8 µg/m³ at 1 km scale
- Highest levels = northern cities/towns
- Substantial impacts in other locations too

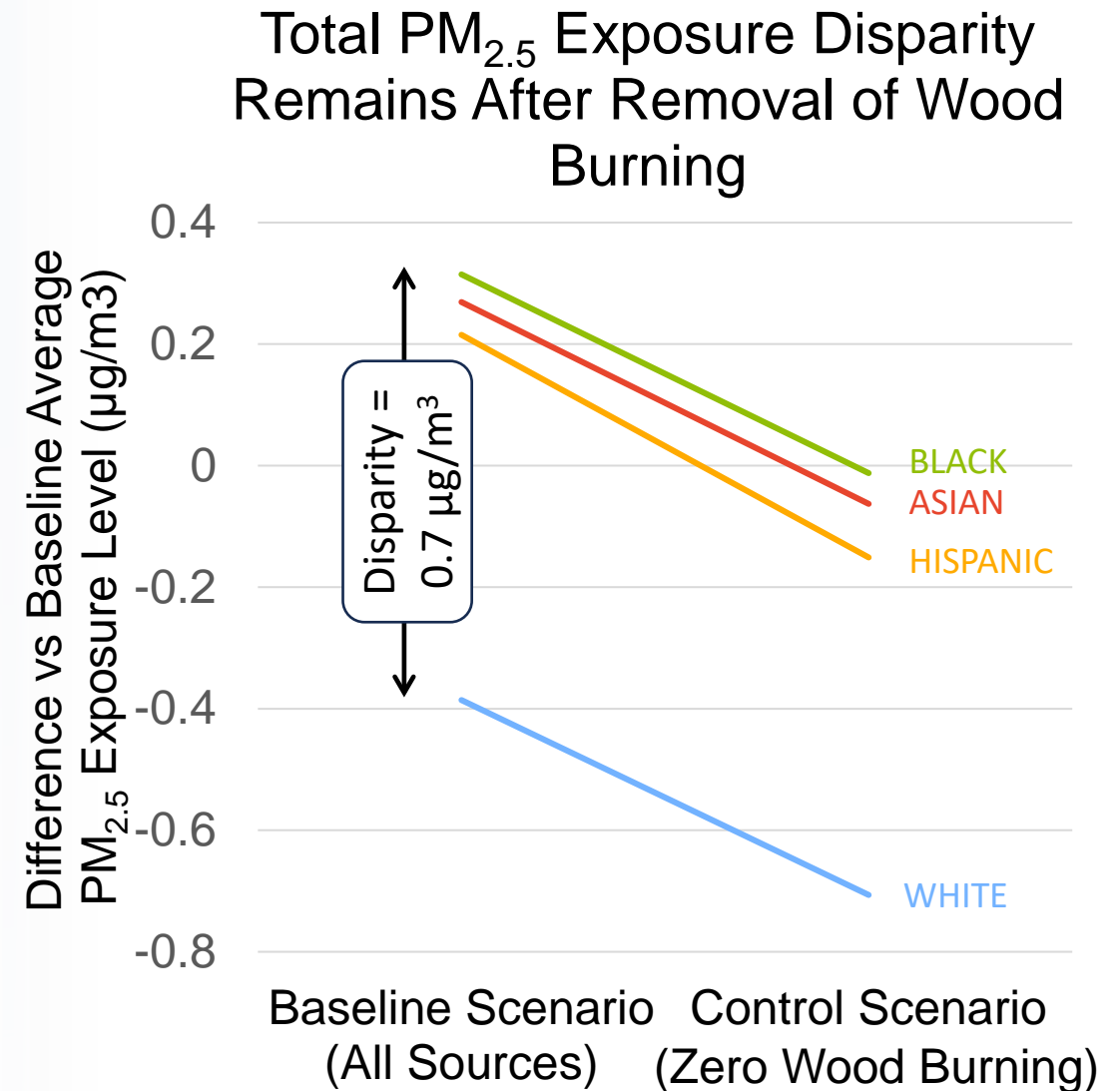
Examples	<u>Population-Weighted Average</u>	
	As Concentration	As Percentile
Napa (city)	0.60 µg/m ³	98%
Santa Rosa	0.59 µg/m ³	98%
San Jose	0.46 µg/m ³	86%
Assembly Bill (AB) 617: East Oakland	0.43 µg/m ³	79%
Bay Area (regional average)	0.34 µg/m ³	50%
AB 617: West Oakland	0.29 µg/m ³	40%
AB 617: Path to Clean Air	0.27 µg/m ³	36%
AB 617: BVHP-SESF	0.25 µg/m ³	29%
San Francisco	0.23 µg/m ³	21%



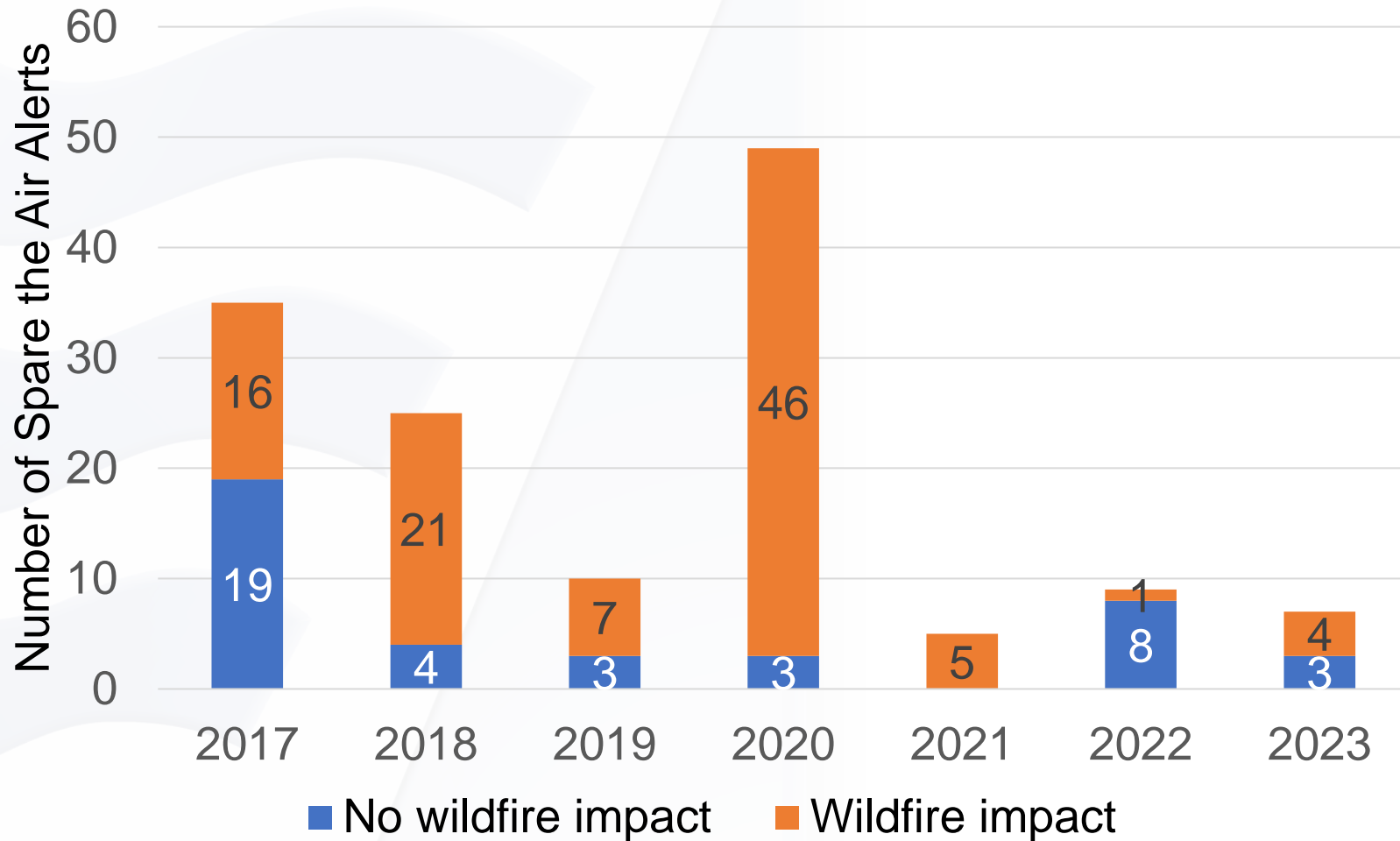
Modeled contributions from residential wood burning to annual average PM_{2.5} concentrations

Modeled Disparities in Context

- Residential wood burning is one contributor to *total* PM_{2.5} exposure
- Bay Area, all sources combined:
 - People of color have higher average exposure to total PM_{2.5}
 - Average disparity = 0.7 µg/m³
- After removing wood burning:
 - These four group averages decrease by about 0.3 µg/m³
 - Total PM_{2.5} exposure disparity remains essentially unchanged



Particulate Matter Spare the Air Alerts By Year



**This includes days where a Spare the Air Alert was called but did not result in concentrations above 35 $\mu\text{g}/\text{m}^3$*

Policies to Mitigate Woodsmoke Impacts

Burn Curtailment

- Lower the burn ban $PM_{2.5}$ threshold
- Tiered threshold based on geography and device type
- Ban all burning with some exemptions

Devices

- Expand device types subject to rule
- Cleaner requirements
- Incentives
- Decommission or replacement at point of property sale

Outreach

- Model ordinance
- Education and public awareness
- Targeted outreach

White Paper Recommendations

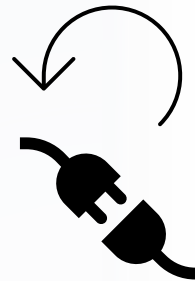
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Evaluating a lower, more health protective PM_{2.5} concentration threshold for wood burning bans

Maintain current rule exemptions for sole source of heat, loss of utility service, and temporary non-functional heater

2



Developing policies to accelerate the phase-out of older, higher-polluting wood-burning devices

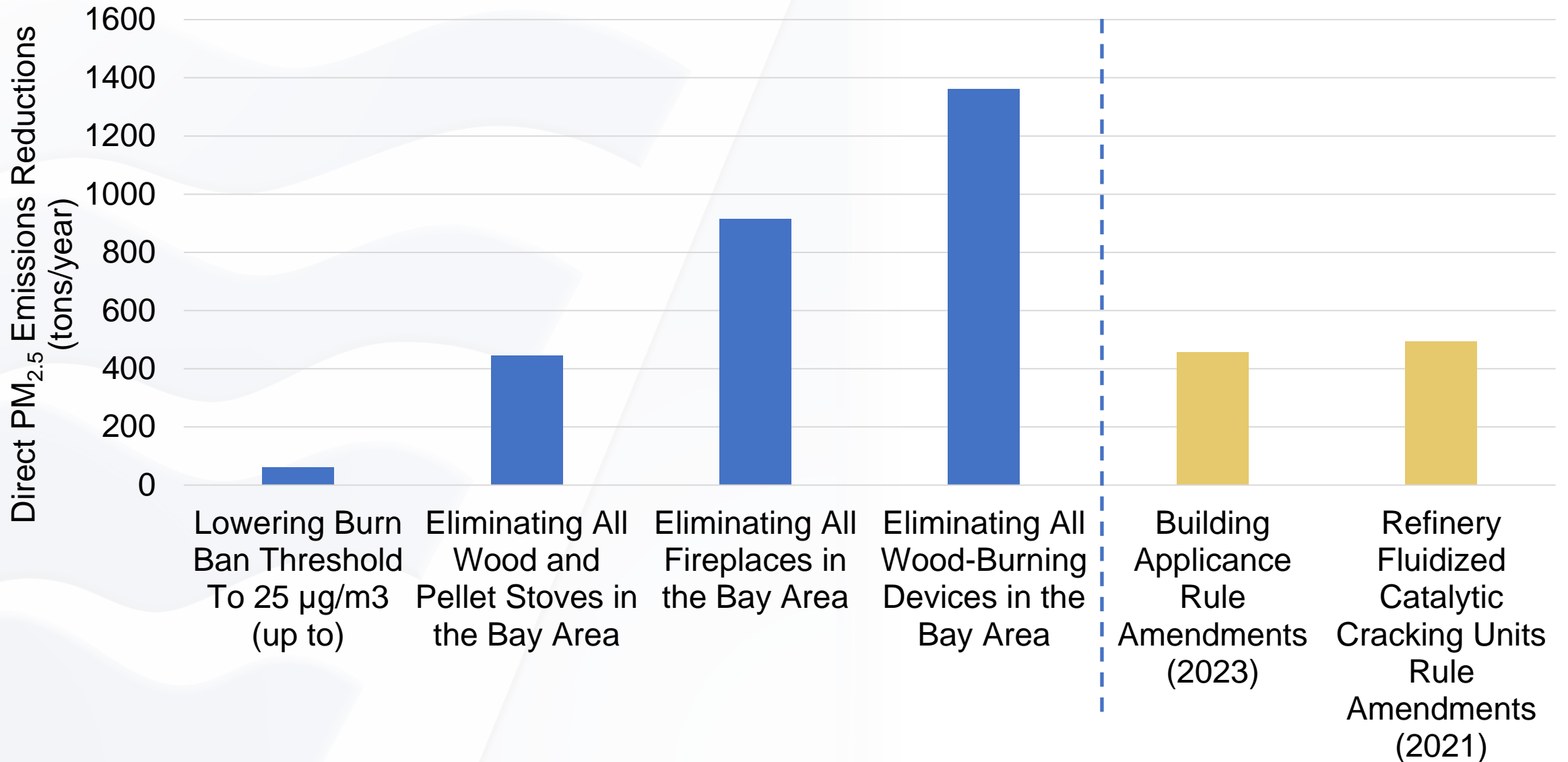
Staff are seeking input from the Committee and public stakeholders on the stringency and design of these policies

Lowering the Burn Ban Threshold

	Burn Ban Threshold	Average Spare the Air Alerts
Current	35 $\mu\text{g}/\text{m}^3$	3.6 days
Estimated*	25 $\mu\text{g}/\text{m}^3$	~11 days

*Based on forecast Air Quality Index (AQI) exceeding the lower burn ban threshold AQI-equivalent from 2018-2022 winter months

PM_{2.5} Emissions Reduction Comparison



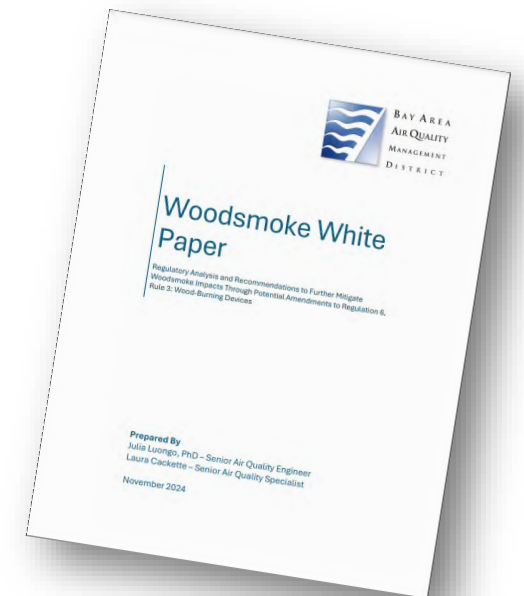
Device Elimination: Incentive Program Scale



	All Active Wood and Pellet Stoves	All Active Fireplaces	All Active Wood-Burning Devices
Direct PM _{2.5} Emissions (tons/year)	-445	-916	-1,361
Attributable PM _{2.5} Exposure (µg/m ³)	-0.11	-0.23	-0.34
Number of Active Devices	91,500	287,000	378,000
Estimated Incentive Program Scale	\$92+ million	\$287+ million	\$378+ million

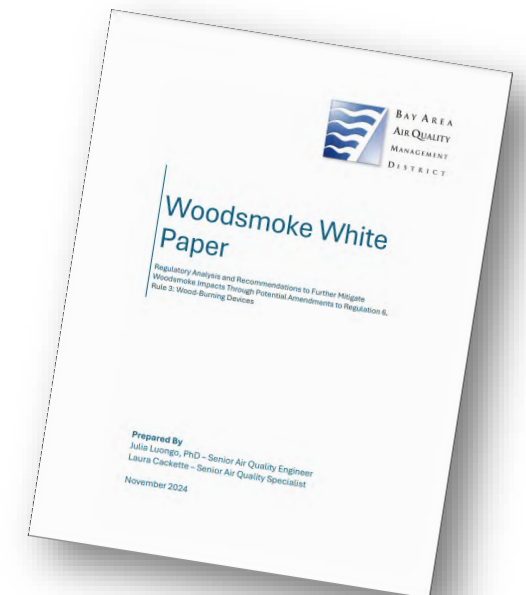
White Paper Public Comments

- Public comment period (75 days): November 6, 2024 to January 20, 2025
- Announced via Air District E-blasts, social media posts, November 6 Board of Directors Meeting, AB 617 Community Steering Committees, Community Advisory Council, project website, direct communication with interested stakeholders
- Received 37 public comments



White Paper Public Comments

- Majority of public comments (> 85%) support further minimizing woodsmoke impacts
- General public comment themes:
 - Health and nuisance impacts of woodsmoke
 - Ban wood burning in dense/populated areas
 - Very few need to burn wood for heat
 - Support for further restrictions, a ban on recreational/aesthetic burning, or a full ban of all wood burning
 - Consider the needs of households habitually burning
 - Fuel cost considerations
 - Wood as a renewable fuel



Next Steps – Initiate Rule Amendment Process



Questions?