



Zero-NO_x Building Appliance Rules Overview

Napa County Climate Action
Committee

June 26, 2026

Jennifer Lam

Manager, Regulatory Development, Bay Area Air District



Bay Area Air District

- Formed in 1955 by the California Legislature
- Regulates stationary sources of air pollution in the 9-county Bay Area
- Governed by Board of Directors
 - 24 locally elected representatives from each county
 - 4 from Santa Clara County



Background

Air pollution, building appliances, and Rule 9-6 (small water heaters)

Air Pollution and Public Health

Air pollutants include:

- Particulate matter
- Toxic air contaminants
- Chemicals that form ozone

Air pollution has been linked to:

- Asthma
- Bronchitis
- Emphysema
- Heart attacks and strokes

Increasing evidence of a link to:

- Diabetes
- Dementia

Check the AQI daily to stay informed about air quality!

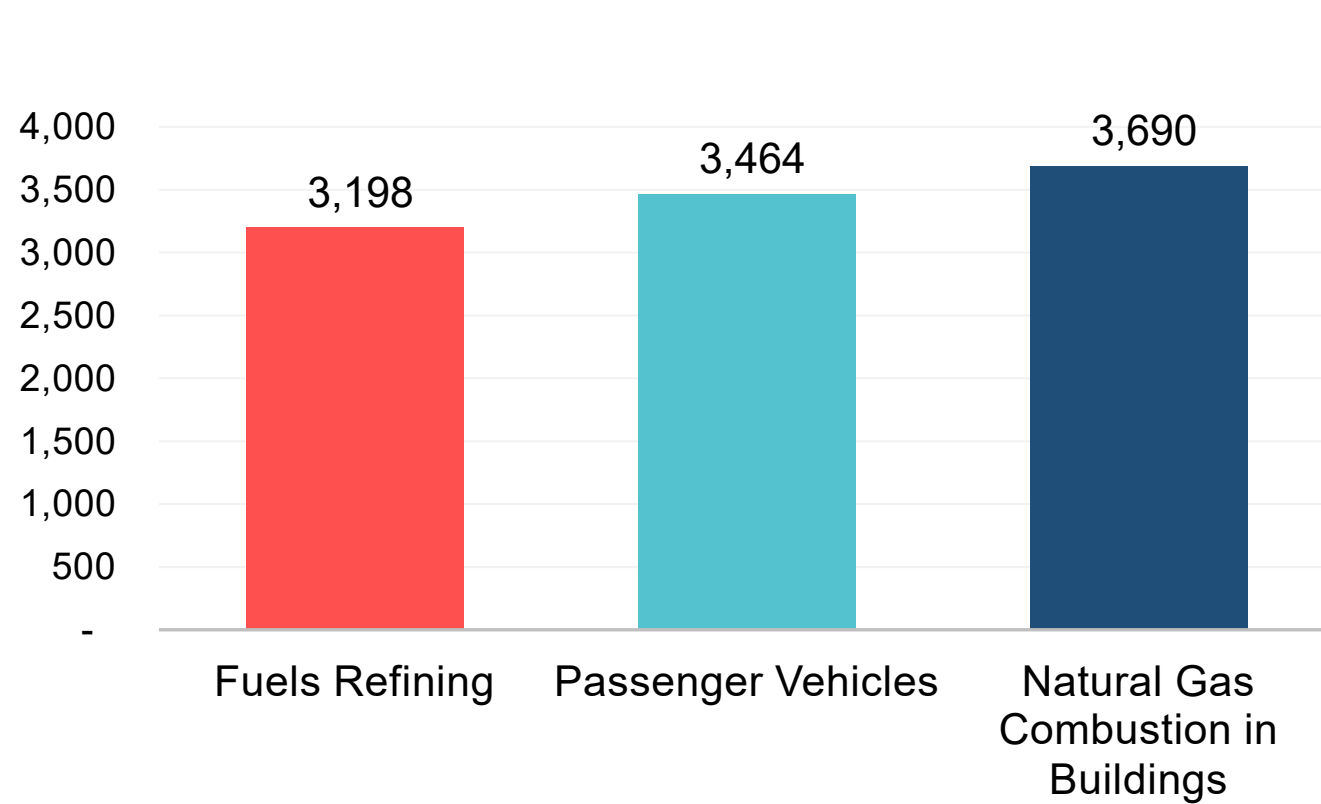
GASES
SOOT **FINE**
dioxins PARTICLES
carbon monoxide
Volatile Organic
Compounds

1 in 7
BAY AREA RESIDENTS
SUFFER FROM A
RESPIRATORY ILLNESS

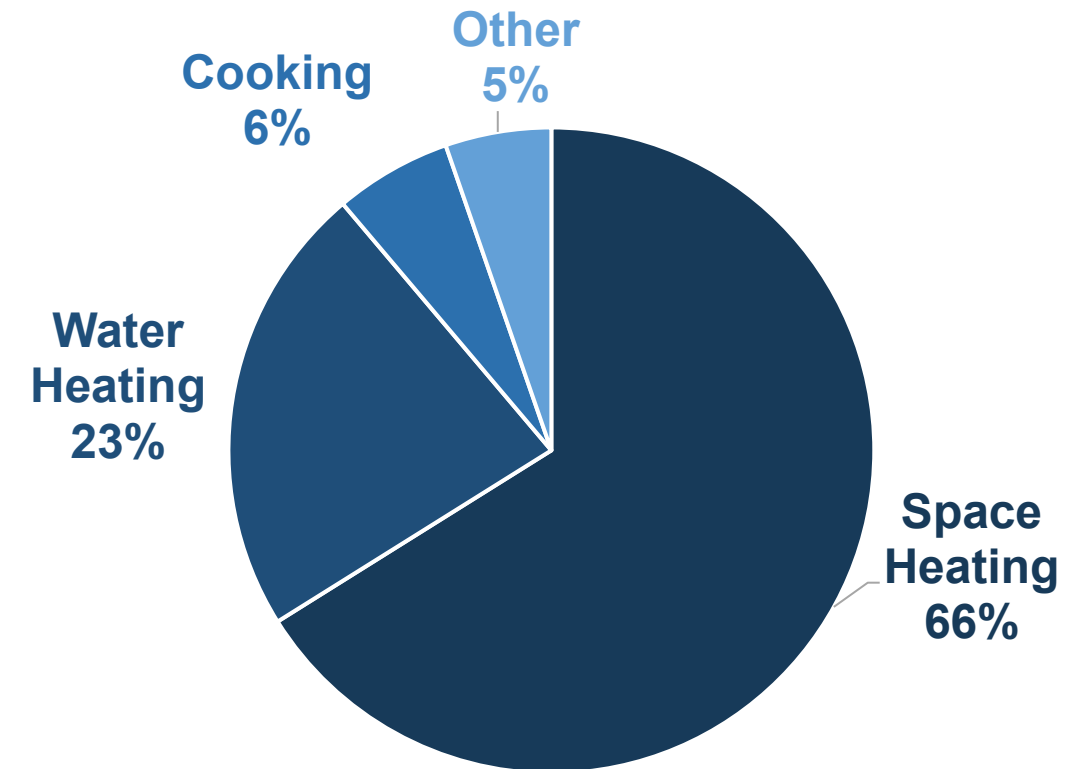
ASTHMA
LUNG IRRITATION
LUNG DISEASE
pneumonia
BRONCHITIS

The infographic features a central illustration of a human head and torso in profile, with a red speech bubble coming from the mouth. The speech bubble contains a list of air pollutants: GASES, SOOT, FINE PARTICLES, dioxins, carbon monoxide, Volatile Organic Compounds, and ASTHMA. The text '1 in 7 BAY AREA RESIDENTS SUFFER FROM A RESPIRATORY ILLNESS' is positioned below the speech bubble, and a list of respiratory conditions (ASTHMA, LUNG IRRITATION, LUNG DISEASE, pneumonia, BRONCHITIS) is shown inside the torso area.

Residential Appliance Emissions



2019 Air District NOx Emissions (tons)



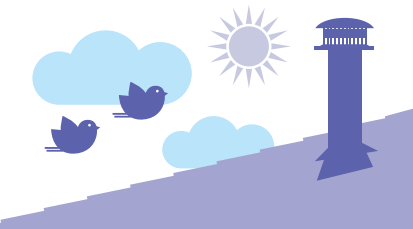
2019 Air District Residential Natural Gas Combustion NOx Emissions

Major Health Benefits from Rules 9-4 and 9-6

These appliance rules help improve regional air quality by reducing pollution from furnaces and water heaters.

Cleaner outdoor air

Less NO_x and PM_{2.5} from venting



Lower pollution means lower exposure to fine particles (PM_{2.5}).

Cleaner Bay Area communities

Biggest PM_{2.5} reductions in communities of color and overburdened neighborhoods



Reducing PM_{2.5} and NO_x exposure can prevent dozens of early deaths every year in the Bay Area.

Up to 85 early deaths avoided
each year from cleaner air



Health improvements from cleaner air avert unnecessary costs from health impacts.

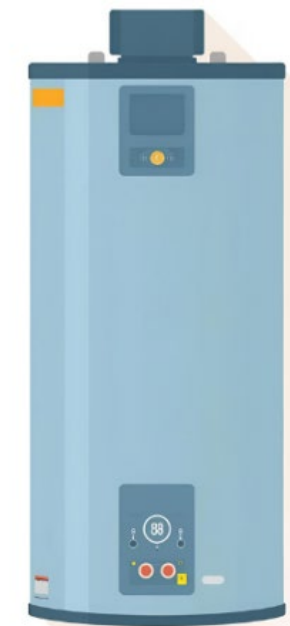
Up to \$890M

Annual health benefits saved in avoided illnesses, hospital visits, and early deaths



Appliance Rules Basics

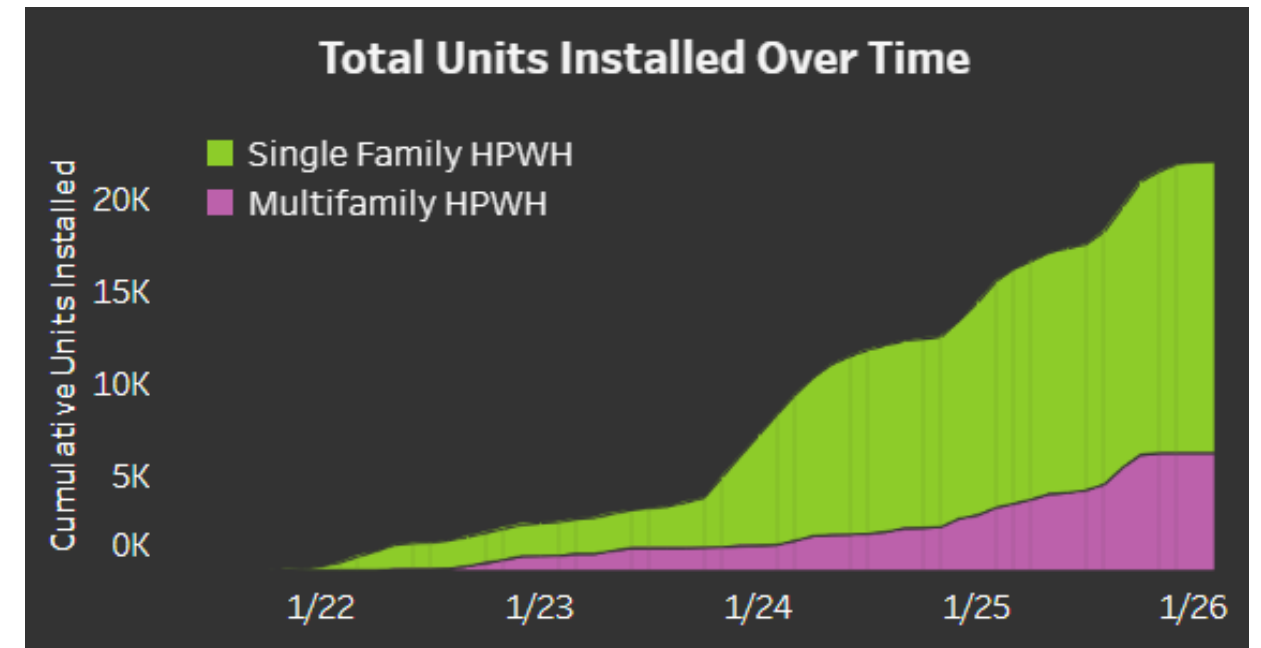
- Rules 9-4 and 9-6 have been in place for decades
 - ONLY covers **space heating** (9-4) and **water heating** appliances (9-6)
 - Does **not cover** stoves, ovens, fireplaces, and clothes dryers
- Zero-NOx standards have **gradual** phase-in: immediate replacement not required
 - Applies to new sales or installations after compliance dates
 - Upon space and water heating appliance **burn-out**, replacement needs to be zero NOx after compliance date
 - Homes can keep and repair current gas space and water heating appliances until they need to be replaced
- **Technology neutral:** Rule does not mandate any specific type of appliance, just that equipment meets zero-NOx standard.



Source: Canva.com

Zero NOx Water Heater Technology is Widely Available

- Diverse technology options available for installation
- 20,000+ units installed in the Bay Area and growing



Source: [TECH Public Reporting Heat Pump Data Visuals](#)

Rule 9-6 for Small Water Heaters

- Current compliance start date: January 1, 2027
- Implementation Readiness report (December 2024)
 - Bay Area average incremental cost of zero-NOx heat pump water heaters (HPWH) is:
 - \$1,800 (vs. new gas tankless)
 - \$3,500 (vs. new gas tanked)
 - New 120-volt “plug-in” HPWHs and “watt diet” strategies can help manage and lower costs
 - Installations requiring extensive work need flexibility
 - Appliance relocation, electric panel upsizing
 - Emergency replacements
- Board of Directors currently considering flexibility amendments (covered in following slides).



Rule 9-4: Furnaces

- Current compliance start date: January 1, 2029
- Focus of Implementation Working Group Phase 2
 - IWG Phase 2 will meet regularly through summer 2026
 - Public session on IWG Phase 2 findings is planned Fall 2026
- Implementation Readiness report due to Board of Directors by end of 2026
- Visit <https://www.baaqmd.gov/rules-and-compliance/rule-development/building-appliances> and hit “Subscribe” to receive updates.



Source: Canva.com

Current Status

Potential flexibility exemptions for Rule 9-6

Flexibility Concept #1: Project Constraints

Goal

- Alleviate financial burdens for certain conditions or applications known to result in higher costs and longer installation times.

Examples

- Electrical or space constraints
- Existing hydronic system (space and water heating combo units)
- High-heat demands (e.g. restaurants)

How it could work

- Licensed contractor certifies the project has a covered condition, then approval provided to purchase and install non-compliant equipment.

Flexibility Concept #2: Emergencies

Goal

- Support certain situations when gas equipment may be needed to provide hot water for the homeowner until a zero-NOx unit can be installed.

Examples

- Sudden equipment failure and/or home needs electrical service upgrade or additional construction.

How it could work

- Licensed contractors have access to non-compliant equipment that they can install on a temporary basis.

Flexibility Concept #3: Income Qualification

Goal

- Alleviate financial burdens for lower income property owners.

Examples of thresholds under consideration

- At or below 80% area median income (“AMI,” varies by county)
- At or below 250% Federal Poverty Guidelines OR housing cost-burdened (HCB)*

How it could work

- Homeowner or property owner provides information regarding their income and/or housing costs, receives approval for an exemption.

*HCB (defined for this purpose) is monthly rent/mortgage + taxes \geq 28% of monthly income.

Flexibility Concept #4: Very small capacity water heaters

Goal

- Accommodate for technology gap for very small-sized water heaters (i.e. lack of available zero-NOx options in market) and related space constraints in certain housing stock.

Examples

- Water heaters typically found in smaller housing units such as apartments, studios, and accessory dwelling units (ADU's)

How it could work

- Continued sales of very small capacity tanked water heaters.

Timeline and Next Steps

June 2026	Rule 9-6 draft amendment language published for comment
November 2026	Rule 9-6 final amendments language brought to full Board of Directors
January 1, 2027	Rule 9-6 compliance start date, subject to change per flexibility exemptions process, outcomes and administrative requirements

Questions?

Backup Slides

Cost Distribution of Replacement Projects



- Majority of ~4,000 Bay Area HPWH projects evaluated were close to the median and average of ~\$7,000 for total equipment and install costs
- Program data showed some outliers and high-cost projects due to:
 - Electrical upgrades
 - Water heater relocation

Source: Appendix A of Staff Report: Informational Update on Rule 9-6 & TECH Clean CA December 2023

Learning and engagement: April 2023-present

Implementation Working Group (2023-2024)

- Multi-stakeholder process that met for over a year.
- Technical research on the market, costs, challenging installations, workforce, and grid impacts.

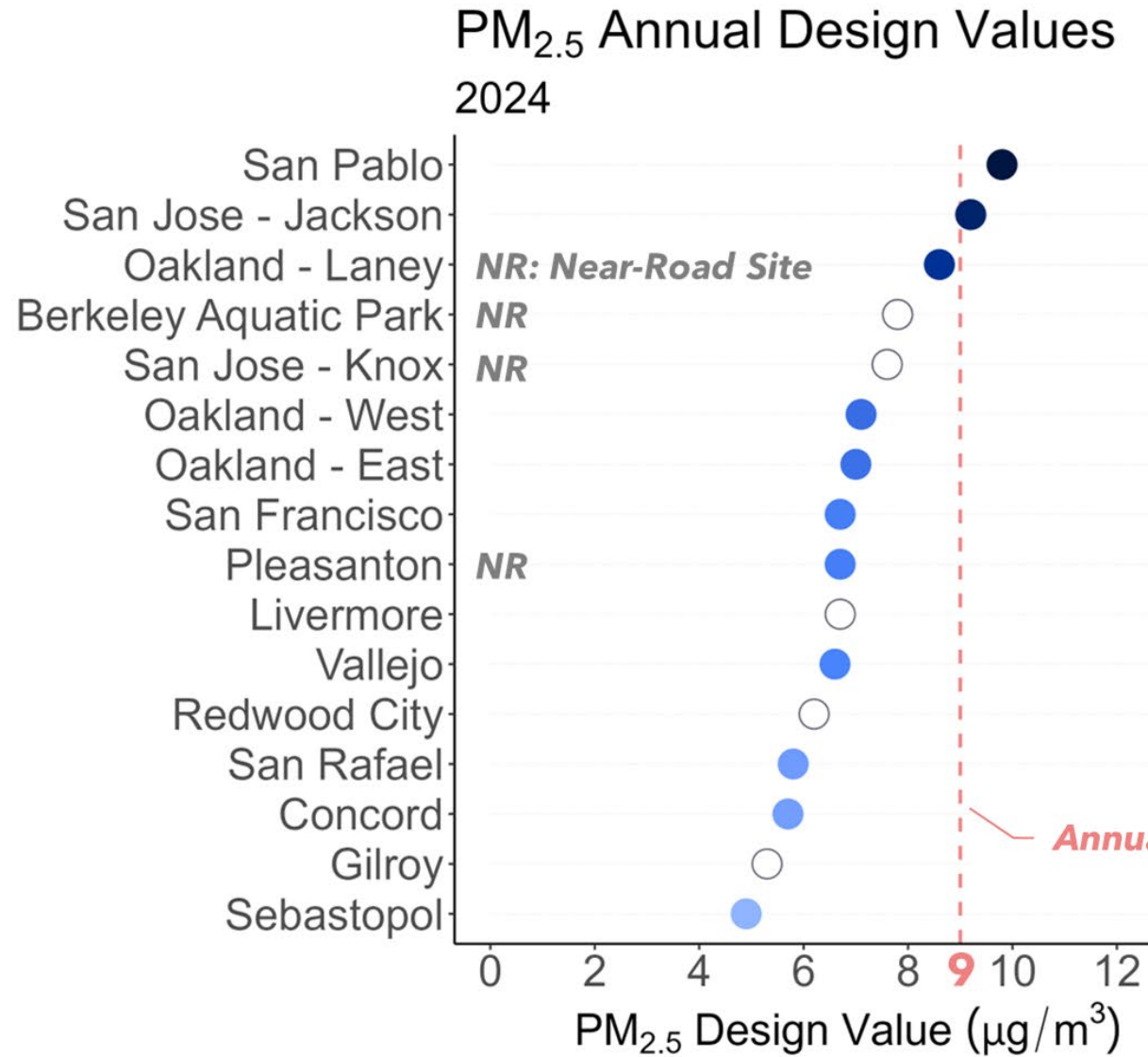
Updates to Air District Board of Directors

- December 2024 to full Board – interim readiness report on Rule 9-6 (small water heaters)
- Stationary Source Committee – initial exemption concepts (April and December 2025, low-income definitions (February 2026)
- Board of Directors (May 2026 and Fall 2026)

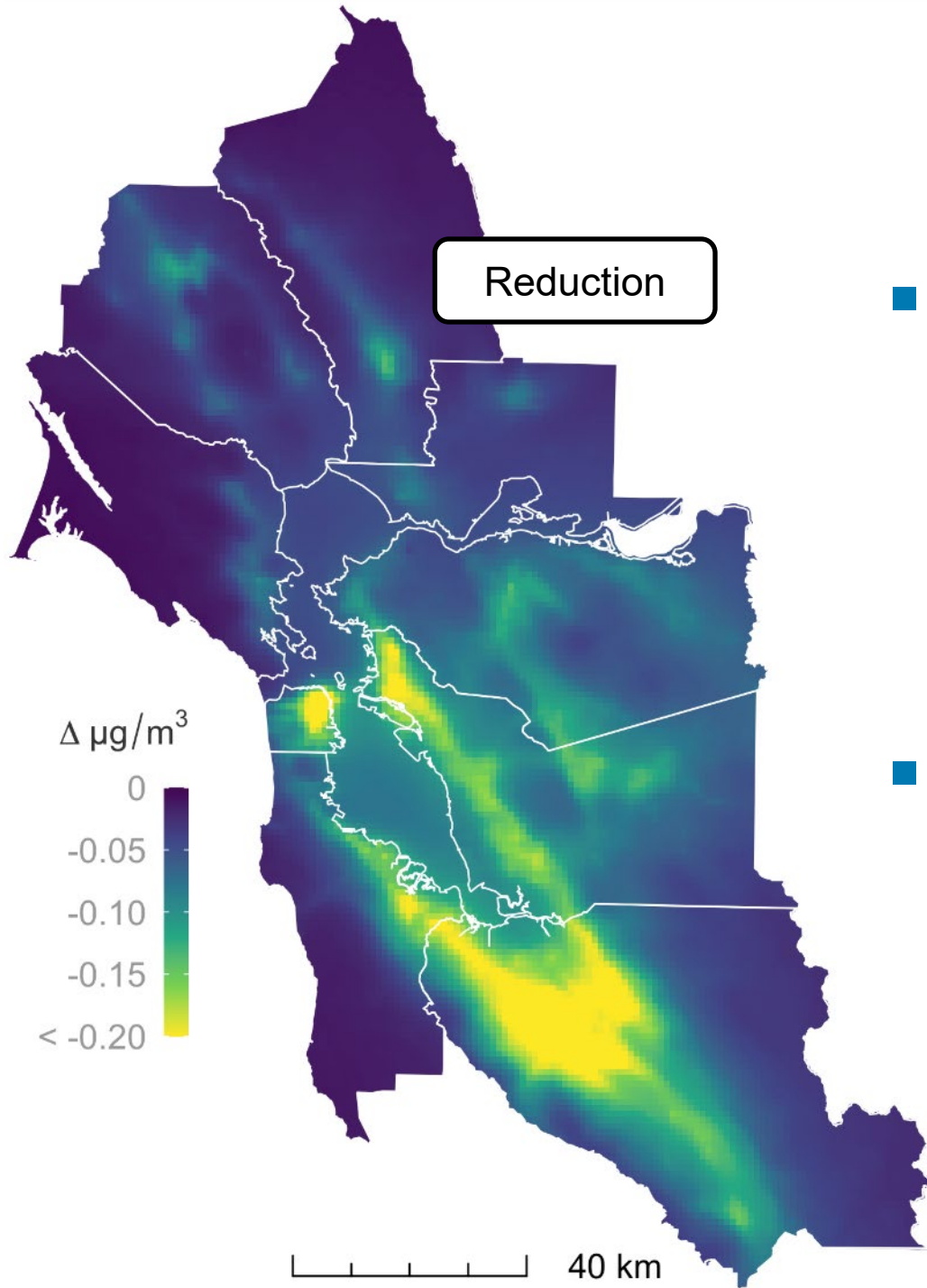
Public Involvement and Feedback

- November 2024 “learning session” (>100 attendees)
- Public comment and written comments for all Board and committee meetings.

Disparities in Annual Average PM_{2.5}

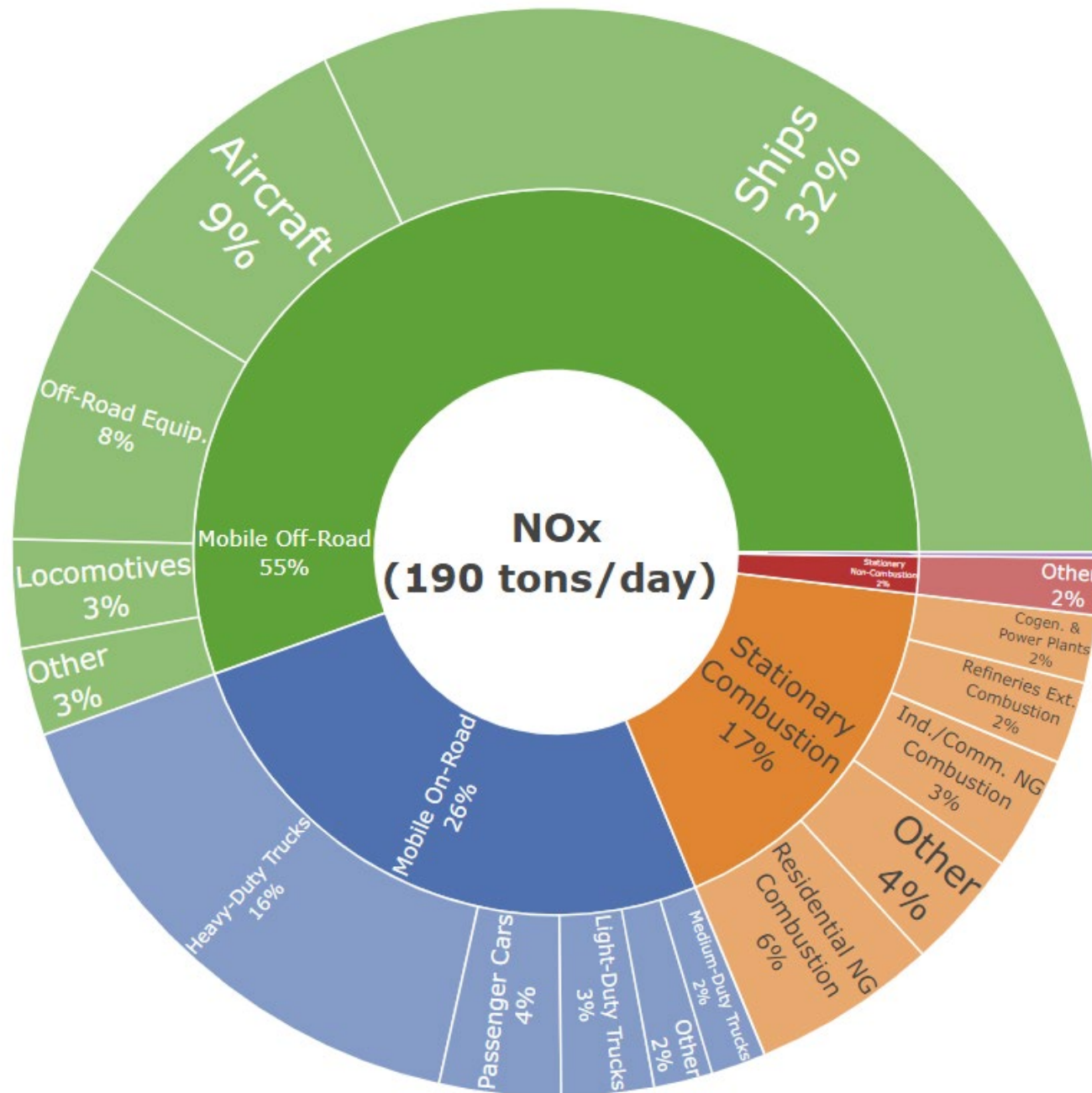


Modeled PM_{2.5} Reductions with Electric Appliances



- From elimination of **NO_x and PM_{2.5} emissions** from Bay Area natural gas-fired commercial & residential space/water heating appliances covered by Rules 9-4 and 9-6
- Reductions in total (primary and secondary) PM_{2.5} attributed to these appliances

Example of Source Contributions: NOx



Sub-sectors highlighted from 2022 emissions estimates

- Ships
- Heavy-duty trucks
- Aircraft
- Off-road equipment
- Residential natural gas combustion

Incentive Availability

- State, utility and local incentives are currently available
- Not enough current funding to cover incremental costs for all Bay Area low-income homes beyond the next few years

The screenshot displays the 'THE SWITCH IS ON' website interface. On the left, a dark teal box contains the text 'INCENTIVE LOOKUP FOR CUSTOMERS'. Below this, there are three filter sections: 'INCENTIVE TYPE' with checkboxes for 'REBATE' and 'FINANCING'; 'EQUIPMENT TYPE' with a dropdown menu showing 'Heat Pump Water Heater'; and 'INCENTIVE PROVIDER'. On the right, the main search area features a 'Zipcode' input field, a dropdown menu with 'Water Heating' selected, and a 'SEARCH' button. Below the search area is a process flow diagram with two steps: 'SEARCH for local incentives by location, specialty and more.' and 'CONNECT with trusted contractors, in our contractor directory'. A button labeled '(-) HEAT PUMP WATER HEATER' is visible at the bottom of the search results area.

Source: www.switchison.org