

SAVE THE DATE

Air District Board of Directors Public Hearing

Date: Wednesday, March 15th
Time: 9:00 AM - 4:00 PM

Join us in advocating for a zero-NOx appliance standard.
Your presence can make a difference.



RSVP To Make Your Voice
Heard: www.tinyurl.com/march15rsvp

Eliminating Pollution from Gas Appliances in the Bay Area

The Bay Area Air Quality Management District (Air District) is considering amendments to two rules to improve regional air quality and health.

Would phase in a requirement that only zero-Nitrogen Oxide (NOx) furnaces and water heaters could be sold or installed in the Bay Area

These first-in-the-nation rules would be transformational for air quality and public health and have major climate co-benefits.

Bay Area Clean Air



[Bay Area Clean Air](#) is a coalition of advocates working to reduce harmful air pollution from gas appliances. Gas appliances harm public health. We support strong standards to equitably and affordably transition Bay Area homes and buildings to pollution-free electric appliances for heating.

OUR VISION:

- Clean, affordable appliances for all residents and business owners.
- High-paying jobs created by demand for clean appliances
- A just and equitable transition to clean appliances for all
- Healthier Bay Area air for our children to breathe



Agenda

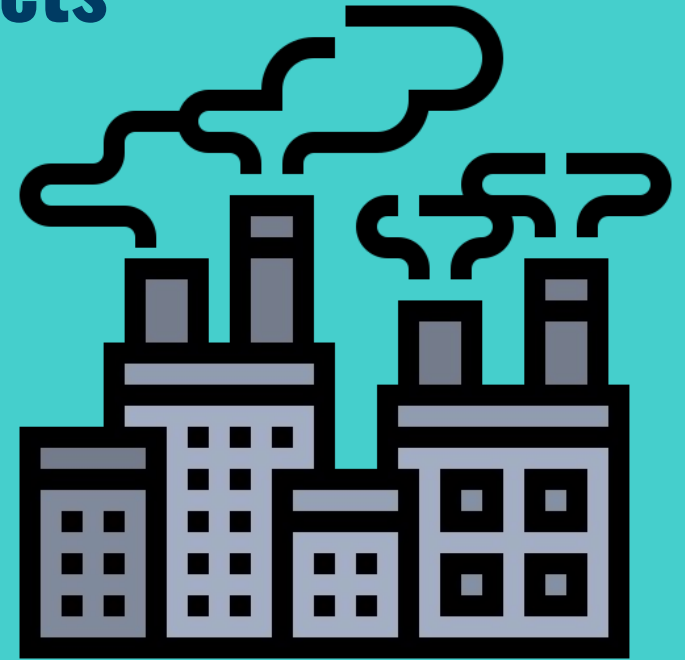
Benefits of the Rules, and the Air District's Role
Leah Louis-Prescott, RMI

Equitable Implementation
Megan Leary, Emerald Cities
Laura Feinstein, SPUR

How to Take Action
Melissa Yu, Sierra Club - San Francisco Bay Chapter

Question and Answer Session

Climate, Air, and Health Impacts of Appliance Pollution



Fuel-Burning Appliances Release...

Carbon Monoxide (CO)

Nitrogen Oxides (NO_x)

Particulate Matter (PM_{2.5})

What is it?

Odorless, invisible gas

Reddish-brown to colorless gases

Inhalable particles 2.5 microns in diameter or smaller

What are the health impacts?

Can cause CO poisoning: mild to moderate cases have flu-like symptoms, whereas serious cases can result in death

Still studying long-term, low-level exposure to CO

Can inflame lining of lungs. Linked to asthma development & respiratory symptom aggravation

Not-so-fun fact: NO₂ reacts with sunlight & other chemicals in air to form particulate matter (soot) & ozone (smog)

Can penetrate the lungs and blood stream. Linked to asthma, respiratory inflammation, & premature death

If all new appliance sales are electric in the Bay Area, we could achieve:



85

avoided premature deaths per year



15,000

avoided asthma incidents per year



73%

reduction in climate pollution by 2046

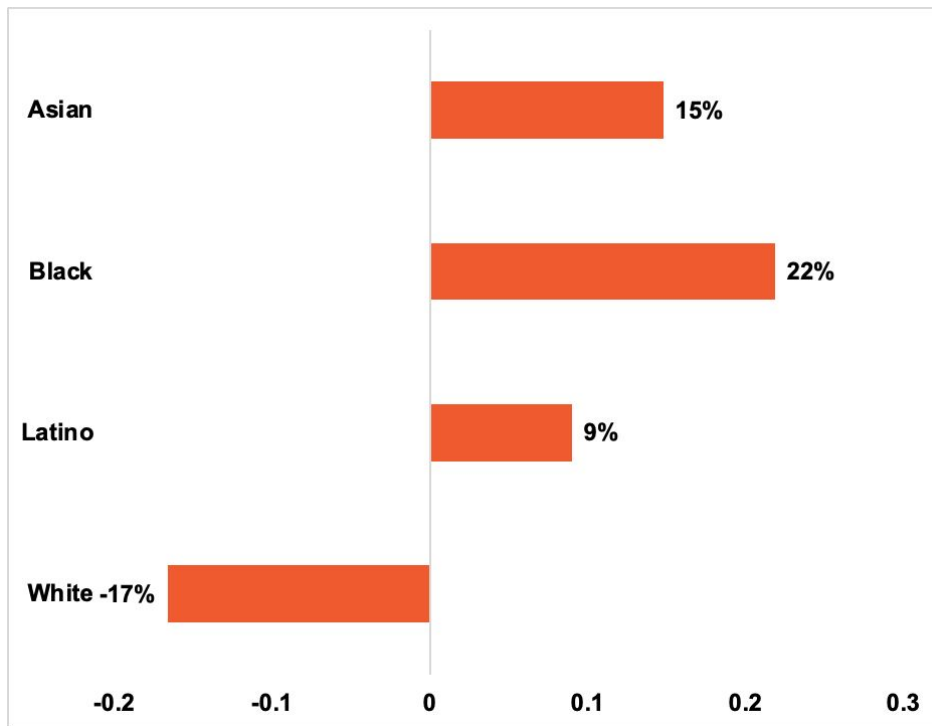


88%

reduction in NOx pollution by 2046
(more than all passenger cars)

People of Color are exposed to 32% more pollution from residential appliance combustion than Whites in California

Chart shows exposure to PM_{2.5} from residential gas combustion as percent difference from population mean by race in California.



Exposure from residential gas appliances is 32% higher for POC than White residents, with Black exposure 46% higher.*

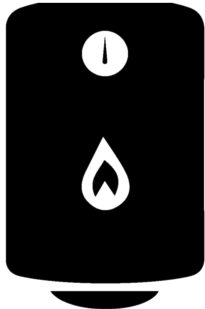
*National data Source: Christopher W. Tessum et al., *PM_{2.5} Polluters Disproportionately and Systematically Affect People of Color in the United States*, 7 *Sci. Adv.* eabf4491 (2021).

Air District's role in decarbonizing buildings: zero-emission appliance standards



Appliance pollution standards regulate allowable pollutant levels from products that are sold or installed in a given geography

Apply to new appliance sales

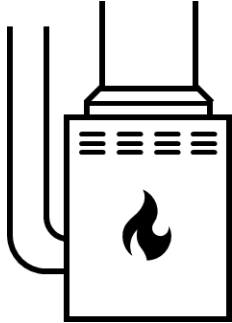


Low-NOx
≈ 40 ng/J

Ultra-Low-NOx
≈ 10-14 ng/J

Zero-NOx
= pollution-free

Usually target
Nitrogen Oxides (NOx)



Limit emissions
per unit of heat output

Appliance pollution standards have existed for decades, including in the Bay Area

Air District	Water Heater NOx Standard (date initially enacted)*	Furnace NOx Standard (date initially enacted)*
South Coast AQMD	10 ng/J (1978)	14 ng/J (1978)
Ventura County APCD	10 ng/J (1985)	40 ng/J (1993)
Bay Area AQMD	10 ng/J (1992)	40 ng/J (1983)
San Joaquin Valley APCD	0.024 lb/MMBTU (1993)	14 ng/J (2005)
Sacramento Metro AQMD	10 ng/J (1996)	
San Diego County APCD	10 ng/J (2015)	40 ng/J (1998)

Based on BAAQMD's leadership, CARB is also pursuing their own statewide zero-emission standards

CARB approved the following in their SIP and Scoping Plan:

	Residential Sector (implementation date)	Commercial Sector (implementation date)
80% of appliance sales zero-emission	2030	2030
100% of appliance sales zero-emission	2035	2045

The state also set the following statewide targets:

- 3 million all-electric and electric-ready homes by 2030
- 7 million all-electric and electric-ready homes by 2035
- 6 million heat pumps by 2030

BAAQMD is proposing zero-emission appliance standards that would enable a regional transition to pollution-free buildings

BAAQMD's proposed standards:

Appliance	NOx Standard	Effective Date
Single-family residential water heaters	Zero-NOx	2027
Residential furnaces	“Ultra-low-NOx” (14 ng/J)	2023
	Zero-NOx	2029
Multi-family & commercial water heaters	Zero-NOx	2031

Zero-emission appliance standards can enable electrification:

- Directly address appliance pollution and resulting health impacts
- Apply to all newly installed appliances – existing buildings and new construction
- Apply when an appliance breaks and/or is newly installed

Standards must be designed equitably and accompanied by equity-focused policies.

BAAQMD's pursuit of equitable zero-emission standards includes 3 key design features:



Lead time: future implementation dates signal ahead that the transition is coming with time to enact equity-focused policies and increase investments



Conditional implementation: commitment to evaluate market conditions 2 years prior to the rules taking effect to ensure an equitable and affordable transition is feasible (“off-ramp” if needed)



Implementation working group: interdisciplinary stakeholder group to identify and implement equity protections before the rules take effect

Equitable Implementation



Identifying and Addressing Key Equity Concerns

Key equity considerations heard from community-based organizations:

- **No concerns regarding new construction**
- **Affordability concerns for upfront costs to retrofit existing buildings**
 - Clean, electric appliances themselves
 - Electrification readiness of homes and small businesses
- **Utility bills**
- **Pass-through costs to tenants**

⇒ **Implementation process designed to address equity**

Equitable Implementation Process

How does BAAQMD's implementation process address equity?

- **Air District has appointed an Implementation Working Group**
- **Long lead time**
- **Opportunities for public to engage**
- **Conditional Implementation**
 - 2 years prior to compliance dates staff will write a report on market readiness and equity considerations

The Air District has shown good faith on committing to an equitable implementation process

Bring Down Costs of Installing Clean Appliances

Grow the supply chain

Incentives and awareness of pending mandates will increase demand for heat pumps

Scaling up the market for heat pumps is projected to bring down costs 19% to 40% (NREL 2021)

Reduce costs for electrical service and panel upgrades

If electrifying triggers an electrical service or panel upgrade, can add substantial costs and delays

Many, if not most homes can convert to clean electric appliances within their existing electrical service and panels

Direct-install and turnkey programs can install units at lower cost

Sacramento Municipal Utility District installed heat pumps at much lower cost than in rebate program

Incentive Programs

The Inflation Reduction Act invests over 50 billion in clean energy

Specific to home energy retrofits:

- **5 incentive programs totaling \$40 billion plus tax credits valued at at least 12.5 billion**

State Investments: \$1.1 billion in 2022 California budget for Building Decarbonization

Bay Area Programs

- **BayREN (Bay Area Regional Energy Network) offers incentives to all nine counties**
- **At least 10 incentive programs offered by Bay Area cities and local energy providers**

There are incentives for homeowners and landlords; incentives for households at any income level and low-income households.

Funding and Financing - Low Income Homeowners

IRA, TECH, BayREN, and local incentives are substantial

A single family low-income homeowner:

Spends \$13,000 to install a heat pump for home heating and cooling

Saves \$6,500 by not buying a new gas furnace

Gets \$12,000 in incentives for the heat pump (8K from IRA HEEHR, 1K from BayREN, 3K from TECH)

Spends \$1,000 out-of-pocket, saving \$5,500 compared to replacing their gas furnace like-for-like

Cheaper to convert to a heat pump!

Limiting Impacts to Renters

Most of the incentive programs described are available to landlords.

- **Offer loans to landlords for decarbonization that turn into grants after ten years if they show their rent increases were in line with increases in cost of living.**

For rent-stabilized apartments, cities can limit pass-through costs.

How to Take Action



Air District Board Vote March 15th at 9AM!



RSVP to make your voice heard

- www.tinyurl.com/march15rsvp



Call the air district board members

- Phone script & board member numbers
- www.tinyurl.com/march15phonescript



Write a letter to the air district board



Thank you!

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Extra Slides

The electric grid is ready for the proposed rule amendments

- **Gradual transition:** rules phase in new clean technology at the pace of water heaters (~15 years) and furnaces (~30 years) burning out or being remodeled away
- **Efficiency gains:** zero-emission heat pumps use modified refrigeration technology, which is 2-4x more efficient than traditional appliances
- **Demand flexibility:** innovative utility programs help these devices run more when the grid needs them to run and run at low power when the grid needs less load
- **Continued reform:** SB68 (Senator Becker) has the CEC developing materials for even more grid gentle electrification design

Policy Approaches on Affordability

Bring Down Costs of Installing Clean Appliances

Funding and Financing to Offset Costs

Renter Considerations

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