

# FAQ

## FREQUENTLY ASKED QUESTIONS



# ABOUT AIR DISTRICT APPLIANCE RULES

### What do the amended Appliance Rules cover?

ZERO-NO<sub>x</sub>  
emissions

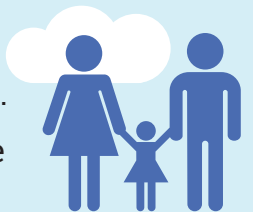
The amendments establish zero-NO<sub>x</sub> emissions standards for natural gas fired furnaces and water heaters that are typically found in residential and commercial buildings.

Any of these appliances manufactured after the compliance dates outlined in the amendments (beginning on January 1, 2027) will not be allowed to be sold or installed in the Bay Area if they emit NO<sub>x</sub> upon operation. The amendments only apply to appliances that would be newly installed; they require no change-out of already existing appliances.

### Why did the Air District adopt these amendments?

These amendments will lead to improvements in regional air quality and public health.

In 2019, emissions from residential natural gas combustion accounted for roughly the same amount of NO<sub>x</sub> emissions as passenger vehicles. Furnaces and water heaters, which vent emissions to the outdoors and therefore impact regional air quality, account for about 90 percent of the total emissions from building appliances.



Through the reduction of NO<sub>x</sub> and particulate matter emissions, the proposed amendments are projected annually to prevent up to 85 premature deaths and save up to \$890 million in health impacts.

### Do the health benefits come from improving indoor air quality?



The amendments only affect water heaters and furnaces, whose emissions are vented to the outside. However, appliances may not be vented properly, and gas pipes in homes often leak, contributing to poor indoor air quality. Most concerning is that NO<sub>x</sub> and PM<sub>2.5</sub> pollution from these 1.8 million appliances degrades outdoor air quality and causes negative health impacts.



### What is the timeline for compliance with these amendments?

- Ultra-low NO<sub>x</sub> standard implementation date (applies to appliances manufactured after the noted date):
  - **Jan. 1, 2024** – For residential fan-type central furnaces. This standard matches existing standards in other large California air districts, and natural gas appliances are currently available to meet this standard.
- Zero NO<sub>x</sub> standard implementation dates (applies to appliances manufactured after the noted date):
  - **Jan. 1, 2027** – Water heaters less than 75,000 BTU/hr (typically residential tank water heaters)
  - **Jan. 1, 2029** – Residential and commercial furnaces
  - **Jan. 1, 2031** – Water heaters between 75,000 and 2 million BTU/hr (commercial and multifamily)



### Is this a natural gas ban?

No, these rules cover only furnaces and water heaters, and no other natural gas appliances. Under these rules, water heaters and gas furnaces would have to meet zero-emission standards for oxides of nitrogen, or NO<sub>x</sub>. The only commercially available appliances that currently meet those standards are electric, but if a natural gas appliance demonstrates that it meets the standards, it would be allowed under the proposed amendments.

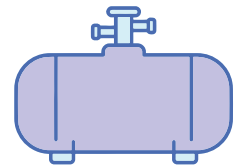


### Do the rule amendments impact gas stoves?

No, these Appliance Rules do not include any requirements for gas stoves.

### Does this affect propane-fired equipment?

No. These rules only apply to natural gas-fired equipment, which is the cause of most air pollution from water heaters and furnaces in the Bay Area. Propane-fired equipment is not impacted.



### What appliances are available to meet the zero-NO<sub>x</sub> standards?

There are currently no natural gas-fired appliances on the market that would meet the zero NO<sub>x</sub> standards, though manufacturers may choose to develop them. Until that time, it is likely that consumers will need to comply with the standards through the use of electric, typically heat pump, technologies.

There are currently a wide variety of electric appliances available for both space and water heating. The Air District's [Staff Report](#) includes an evaluation of these technologies. With complementary policies, such as building codes and federal incentive programs, the development and market availability of these technologies is expected to continue to grow rapidly.

Low-voltage technology for these appliances is rapidly developing. The 2027 compliance date for small water heater compliance with the zero-NO<sub>x</sub> standard was based on the projected availability of appliances that could be used on standard residential 100-amp electric service. The first of these units became available to consumers in the fall of 2022.

### What are the advantages of electric appliances?

While zero-NO<sub>x</sub> natural gas furnaces and water heaters are not yet available, electric heat pumps are available and can provide additional functionality and environmental and public health benefits. Heat pumps provide both space heating and cooling functions, so can double as air conditioners in warmer areas, an added benefit for many households. Also, in addition to emitting zero NO<sub>x</sub> emissions, electric appliances do not emit any particulate matter or greenhouse gases, leading to cleaner air quality and less impact on the global climate.



### Will property owners be required to replace their gas appliances immediately when the zero-NO<sub>x</sub> standard takes effect?

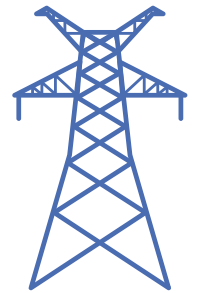
No, immediate replacement is not required. However, if an appliance fails and needs to be replaced after the effective compliance date, the replacement must be zero-NO<sub>x</sub>.

### How will this rule affect renters?

Typically, only building owners/landlords are required to purchase new appliances when old ones must be replaced, and thus the rules should not significantly impact renters. However, the Air District is aware of concerns regarding potential pass-through costs and rental housing impacts. The Air District has convened an Implementation Working Group that will be exploring these types of equity issues, including making potential recommendations for tenant protections and local housing policy.

### Are we going to have sufficient generation and grid capacity to meet the huge demand if everyone's homes are mostly, if not entirely, electric?

The state is looking to significantly increase generation and grid capacity to meet future demand scenarios, including electrification of multiple sectors with renewable energy. By 2030 at least 60 percent of California's electricity must be renewable, and by 2045, all retail electricity sold in California must be renewable and zero-carbon.



One of the reasons for delayed implementation dates and a phased-in approach is to allow for any grid and resource expansion that may be necessary. The Air District has looked closely at this issue, which is addressed in the [Environmental Impact Report](#) we prepared. Issues related to infrastructure readiness will also be addressed during meetings of the Implementation Working Group.

### Given power outages, are zero-NO<sub>x</sub> electric appliances less reliable than natural gas water and space heaters?



These rules will only impact newly purchased and installed (i.e., modern) equipment after the rule implementation dates (beginning January 1, 2027). Many modern natural gas appliance types require electricity to function and will not operate during a power outage—such as central gas furnaces or HVAC, which rely on electric fans; all gas-fired tankless water heaters, which require electricity for the control system; and gas-fired tank water heaters with electric ignition. The California Building Code does not currently allow for natural gas fired space or water heaters to have standing pilot lights.

### Can my electrical panel handle that much more electricity?

Electric water heaters that are compatible with older homes with lower-amp electric panels are already available. Low-voltage solutions are rapidly developing and becoming increasingly available. Low-voltage equipment would mean you likely would not have to upgrade your electrical panel to handle the additional load.

The Air District has instituted an ongoing Implementation Working Group to investigate a number of implementation topics, including practical implications of the rule amendments on electric panels, potential costs, options for limiting these impacts, and potential public education materials.



**Older homes may need infrastructure upgrades to provide this much electricity for heat and hot water, which can take time to order and install. How concerned is the Air District, and what solutions are in the works to help with that?**



Panel upgrades may not be needed for all homes; lower-voltage heat pump water heaters can negate the need for panel upgrades, as well as load-sharing plug devices and other technology options.

If home electrical infrastructure upgrades are needed, funding from the federal, state and local levels will be available. The Implementation Working Group will track costs to consumers, facilitate access to funding as appropriate (focusing on low-income households) and track workforce availability and training issues.

The Implementation Working Group will also be exploring emergency replacement plans, including loaner programs, workforce training, and alignment with building code processes.

**What is the Implementation Working Group and what is its role?**

The Implementation Working Group is a multi-stakeholder group made up of state, regional and local agencies; appliance manufacturers; utility and energy service providers; subject matter experts; community-based organizations; labor and contractors; environmental justice groups, and more.

The Implementation Working Group will provide guidance on some of the outstanding questions regarding the Building Appliances Rules implementation (technology availability, accessibility, costs/incentives, contractor training/readiness, infrastructure, equity, etc.).

**Is there a way to help make installation more affordable?**

There are a variety of funding and incentive sources that are currently available to Bay Area residents who wish to install zero-NO<sub>x</sub> electric appliances. Residents can visit [Incentives.SwitchIsOn.org](https://www.incentiveswitchison.org) to find funding that is currently available for their household.

There are also plans to greatly expand the funds and financing available and make them accessible over the course of the next several years as this rule rolls out.

**Are there plans to limit other gas appliances like gas stoves, gas inserts for fireplaces, or gas dryers?**

No, the appliance rules only apply to gas water heaters and furnaces.





**Are electric appliances more expensive to operate than gas appliances?**

Heat pump water heaters are typically cheaper to operate than gas water heaters. Heat pump space conditioning is generally cheaper for larger homes that use both heating and cooling.

For homes in milder climate zones that do not use space cooling, electric heat pumps can be more expensive to operate than gas equivalent furnaces. Note that this may change as gas rates increase, and as new electricity rates are developed to support electric appliances.



**Will mobile homes be required to adhere to the rule amendments?**

No, requirements for appliances installed in mobile homes are not impacted by the rule amendments.

**Do the rules only apply to the Air District's jurisdiction?**

Yes. The Air District jurisdiction includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma counties.



**Is the state of California planning on implementing similar rules?**

The California Air Resources Board is planning to implement similar rules as outlined in their 2022 State Strategy for the State Implementation Plan. You can find out more about CARB rulemaking at: [www.arb.ca.gov/our-work/programs/zero-emission-appliance-standards](http://www.arb.ca.gov/our-work/programs/zero-emission-appliance-standards).

