

# FILED

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT MAY 20 2022**  
**NOTICE OF PREPARATION OF**  
**AN ENVIRONMENTAL IMPACT REPORT**  
**AND NOTICE OF PUBLIC SCOPING MEETING**  
**FOR THE PROPOSED AMENDMENTS TO RULES 9-4 AND 9-6 PROJECT**

Bill Emlen, Clerk of the  
Board of Supervisors of  
the County of Solano,  
State of California  
Deputy

To: Solano County Clerk  
Attn: Clerk to the Board of Supervisors 675 Texas Street, Suite 6500  
Fairfield, CA 94533

Lead Agency and Project Applicant: Bay Area Air Quality Management District  
375 Beale Street, Suite 600  
San Francisco, CA 94105

Subject: Notice of Preparation of a Draft Environmental Impact Report for the  
Proposed Amendments to Rules 9-4 and 9-6 Project

Project Title: Amendments to Rule 9-4 and Rule 9-6

In accordance with the provisions of the California Environmental Quality Act (CEQA), the Bay Area Air Quality Management District (BAAQMD) will prepare an Environmental Impact Report (EIR) to study the potential impacts of proposed Amendments to Rules 9-4 and 9-6 (Project). The purpose of this Notice of Preparation (NOP) and attached Initial Study is to provide an opportunity for the public, interested parties and public agencies to comment on the scope and proposed content of the EIR.

This NOP (and attached Initial Study) initiates the CEQA scoping process. The BAAQMD will be the lead agency for preparation of the EIR. Documents related to this Project will be available for review on the BAAQMD's website at: <https://www.baaqmd.gov/ruledev>.

## PUBLIC SCOPING MEETING

The BAAQMD will conduct a public scoping meeting to inform interested parties about the Project, and to provide agencies and the public with an opportunity to provide comments on the scope and content of the EIR. The public scoping meeting will be held virtually on June 9, 2022, from 6:00 p.m. to 8:00 p.m. To access the Zoom meeting, you can join via web browser or by phone as described below:

To join via web browser: <https://us02web.zoom.us/j/86192822047>

To join via phone: +1 669 900 6833

Meeting ID: 861 9282 2047

## PROVIDING COMMENTS ON THIS NOTICE OF PREPARATION AND INITIAL STUDY

Written and/or email comments on the NOP and Initial Study should be provided at the earliest possible date, but must be received by 5:00 p.m. on June 21, 2022. Please send all comments on the NOP and Initial Study to:

Jennifer Elwell, BAAQMD  
375 Beale Street, Suite 600  
San Francisco, CA 94105  
E-mail: [jelwell@baaqmd.gov](mailto:jelwell@baaqmd.gov)

Comments provided by email should include the name and mailing address of the commenter in the body of the email.

## Focus of Input

The BAAQMD relies on responsible and trustee agencies to provide information relevant to the analysis of resources falling within their jurisdiction. The BAAQMD encourages input for the proposed EIR, with a focus on the following topics:

Scope of Environmental Analysis. Guidance on the scope of analysis for this EIR, including identification of specific issues that will require closer study due to the location, scale, and character of the Project;

Mitigation Measures. Ideas for feasible mitigation, including mitigation that could potentially be imposed by the BAAQMD and that would avoid, eliminate, or reduce potentially significant or significant impacts;

Alternatives. Suggestions for alternatives to the Project that could potentially reduce or avoid potentially significant or significant impacts; and

Interested Parties. Identification of public agencies, public and private groups, and individuals that the BAAQMD should notice regarding this Project and the accompanying EIR.

## PROJECT OVERVIEW

BAAQMD is proposing amendments to Regulation 9: Inorganic Gaseous Pollutants, Rule 4: Nitrogen Oxides from Fan Type Residential Central Furnaces (Rule 9-4) and Regulation 9: Inorganic Gaseous Pollutants, Rule 6: Nitrogen Oxides Emissions from Natural Gas-Fired Boilers and Water Heaters (Rule 9-6). Rule 9-4 applies to the natural gas-fired space-heating furnaces commonly found in single-family homes, and Rule 9-6 applies to natural gas-fired water heaters commonly found in residential and commercial applications. Space- and water-heating appliances generate a large portion of nitrogen oxide (NO<sub>x</sub>) emissions from sources in the Bay Area. NO<sub>x</sub> is formed during natural gas combustion when ambient nitrogen and oxygen combine at high temperatures. The proposed amendments would substantially reduce NO<sub>x</sub> emissions from these appliances.

## PROJECT LOCATION

The proposed amendments to Rules 9-4 and 9-6 would apply to building appliances within the BAAQMD's jurisdiction, which encompasses 5,600 square miles. The area of the BAAQMD's jurisdiction includes all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties (Figure 1). The San Francisco Bay Area is characterized by a large, shallow basin surrounded by coastal mountain ranges tapering into sheltered inland valleys. The combined climatic and topographic factors result in increased potential for the accumulation of air pollutants in the inland valleys and reduced potential for buildup of air pollutants along the coast.

## PROJECT BACKGROUND

The BAAQMD has regulated NO<sub>x</sub> emissions from space- and water-heating appliances for several decades. Rule 9-4 for furnaces was first adopted in 1983, with this version of the rule still in place. Rule 9-6 was first adopted in 1992 and was most recently updated with more stringent NO<sub>x</sub> emissions standards for certain equipment in 2007. All versions of these rules have included a NO<sub>x</sub> emissions standard expressed as nanograms of NO<sub>x</sub> per joule of useful heat (ng/joule) delivered by the appliance.

In addition, the South Coast Air Quality Management District (SCAQMD) and San Joaquin Valley Air Pollution Control District (SJVAPCD) have adopted regulations that are similar in structure and standards to Rules 9-4 and 9-6. SCAQMD Rule 1111 and SJVAPCD Rule 4905, which are similar to Rule 9-4 in applicability to furnaces, have been updated within the last 10 years and require a NO<sub>x</sub> emissions standard of 14 ng/joule, the same initial standard identified in the proposed amendments. Rule 9-6 for water heaters and small boilers currently contains NO<sub>x</sub> emission standards equivalent to those in SCAQMD Rules 1146.2 and 1121 and SJVAPCD Rules 4308 and 4902 for similar equipment.





Source: Adapted from the BAAQMD.

Figure 1 Boundary of BAAQMD's Jurisdiction

The proposed rule amendments to the two rules focus on emissions from natural gas-fired space- and water-heating appliances in buildings. Space and water heaters are the greatest source of NO<sub>x</sub> emissions in the building sector and unlike some other appliances, space and water heaters vent directly outdoors into the ambient air, affecting the local and regional air quality of the Bay Area, which is the focus of the BAAQMD.

Nitrogen oxides are a key criteria pollutant as a precursor to ozone and secondary particulate matter (PM) formation. Secondary PM is formed from the conversion of NO<sub>x</sub> to ammonium nitrate through atmospheric chemical reactions with ammonia. Particulate matter, a diverse mixture of suspended particles and liquid droplets, is the air pollutant most harmful to the health of Bay Area residents. The Bay Area is currently classified as non-attainment for particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less (PM<sub>2.5</sub>) under California Ambient Air Quality Standards (CAAQS) and unclassifiable under National Ambient Air Quality Standards (NAAQS). Exposure to PM<sub>2.5</sub>, on either a short-term or long-term basis, can cause a wide range of respiratory and cardiovascular health effects, including strokes, heart attacks, and premature deaths. Because NO<sub>x</sub> compounds in the atmosphere contribute to the formation of secondary PM, any NO<sub>x</sub> emission reduction would also result in PM<sub>2.5</sub> reductions.

In addition, the Bay Area is currently in non-attainment for ozone, a regional pollutant, under CAAQS and NAAQS. Emissions of reactive organic gases (ROG) and NO<sub>x</sub> throughout the Bay Area contribute to ozone formation in downwind areas. Therefore, reductions in emissions of ROG and NO<sub>x</sub> are needed throughout the region to decrease ozone levels. As the ambient temperature rises, ground-level ozone forms at an accelerated rate. Ozone levels are usually highest on hot, windless summer afternoons, especially in inland valleys. Exceedances of State or national ozone standards in the Bay Area occur only on hot, relatively stagnant days. Because weather conditions have a strong impact on ozone formation, ozone levels can vary significantly from day to day or from one summer to the next. Longer and more severe heat waves expected as a result of climate change may cause more ozone formation, resulting in more frequent exceedances of ozone standards.

## PROJECT OBJECTIVES

The overall purpose of the proposed amendments is to reduce NO<sub>x</sub> emissions from natural gas-fired space- and water-heating appliances in buildings in the Bay Area. Specifically, the objectives of the proposed amendments to Rules 9-4 and 9-6 are to:

- ▶ for Rule 9-4, introduce an “ultra-low” NO<sub>x</sub> standard with a compliance date of 2023;
- ▶ for Rule 9-4, establish a zero-NO<sub>x</sub> standard in 2029;
- ▶ for Rule 9-6, establish a zero-NO<sub>x</sub> standard with compliance dates ranging from 2027 to 2031 based on equipment type, use, and size;
- ▶ expand the applicability of Rule 9-4 to a larger breadth of space-heating appliances;
- ▶ update and clarify the certification and calculation methods contained in the rules; and
- ▶ improve the clarity and enforceability of the rules.

## PROJECT DESCRIPTION

The proposed amendments to Rules 9-4 and 9-6 would establish more stringent NO<sub>x</sub> emission standards for natural gas-fired space- and water-heating appliances in buildings in the Bay Area.

### Proposed Amendments to Rule 9-4

The proposed amendments for Rule 9-4 include introducing an “ultra-low” NO<sub>x</sub> standard with a compliance date of 2023 and setting a zero-NO<sub>x</sub> standard in 2029. Like the current rule, amended Rule 9-4 would apply only to new devices and only to natural gas-fired devices. The proposed new lower and zero-NO<sub>x</sub> standards would apply to appliance manufacturers, retailers/wholesalers, and installers and would affect Bay Area consumers when they replace their existing furnaces.

## **Proposed Amendments to Rule 9-6**

The proposed amendments for Rule 9-6 include setting a zero-NO<sub>x</sub> standard with compliance dates ranging from 2027 to 2031 based on equipment type, use, and size. Like the current rule, amended Rule 9-6 would apply only to new devices and only to natural gas-fired devices. The proposed new zero-NO<sub>x</sub> standards would apply to appliance manufacturers, retailers/wholesalers, and installers and would affect Bay Area consumers when they replace their existing water heaters.

## **Emission Control Methods**

Emission control methods to meet the proposed 14 ng/joule standard for Rule 9-4 are well established and currently required by SCAQMD Rule 1111 and SJVAPCD Rule 4905. Potential complications identified in other jurisdictions, such as high-altitude and cold weather scenarios, are not applicable in the Bay Area. The BAAQMD anticipates that dual-fuel systems able to demonstrate compliance with this new proposed standard would be eligible for certification.

Current emission control methods for the zero-NO<sub>x</sub> emissions standard available on the market consist mainly of electric and electric heat pump systems. The BAAQMD does not intend to mandate specific technology solutions, but currently available electric solutions were used to form estimates and projections. Natural gas technologies, with combustion occurring in the absence of nitrogen, along with a variety of other technologies, could also meet the proposed standards. The assumed use of electric appliances for CEQA analysis purposes allows for a conservative estimate for NO<sub>x</sub> reductions because the assumption requires analyzing the potential for additional NO<sub>x</sub> emissions from natural gas-fired power plants used to generate electricity. Should natural gas-fired appliances that meet the zero-NO<sub>x</sub> standard be developed and used in practice, NO<sub>x</sub> emission reductions would be greater than those shown here as the resultant emissions would be zero (i.e., no potential emissions associated with electricity generation), and there would be no foreseeable potential adverse impacts on any environmental impact areas. Thus, for CEQA analysis purposes, the BAAQMD assumes that currently in-use natural gas-fired appliances would be replaced with electric appliances. The proposed amendments include a zero-NO<sub>x</sub> standard six to ten years in the future to encourage technology development, as well as availability and accessibility throughout the Bay Area.

## **Other Potential Physical Effects**

As described above, the proposed amendments to Rules 9-4 and 9-6 would affect natural gas-fired space- and water-heating appliances, including furnaces and water heaters used in single-family homes; multifamily residences; and commercial spaces, such as retail and office buildings. These appliances would be installed inside of residential and commercial buildings and would not be visible to the public. The proposed rule amendments would not result in any land use changes and would not require construction. These proposed amendments would also not result in foreseeable changes to equipment manufacturing processes that could require construction of new or expanded equipment manufacturing facilities or notable changes to equipment distribution patterns that could increase vehicle miles traveled. BAAQMD is currently conducting additional research on electrical grid capacity to serve the project. The results of this research will be included in the EIR and, if it is determined that increased generation of electricity and/or construction of additional grid capacity may be required as a result of the proposed rule amendments, the project's potential to result in indirect physical effects associated with any electrical supply increases or necessary grid capacity upgrades will be analyzed in the EIR.

## **Project Timeline**

The proposed rule amendments would be in effect beginning in 2023. They would apply to appliance manufacturers, retailers/wholesalers, and installers and would affect Bay Area consumers when they replace their existing furnaces and water heaters. The equipment changeout is projected to be completed in 2046.

## **Environmental Permits**

No environmental permits would be required for Project implementation.



## POTENTIAL ENVIRONMENTAL EFFECTS

As required by CEQA, the EIR will describe existing conditions and evaluate the potential environmental effects of the proposed project and a reasonable range of alternatives, including the no-project alternative. It will address direct, indirect, and cumulative effects. The EIR will also discuss potential growth-inducing impacts and summarize significant and unavoidable environmental effects. The EIR will identify feasible mitigation measures, if available, to reduce potentially significant impacts. Based on the attached Initial Study prepared for this Project, the BAAQMD anticipates that the Project could potentially result in significant environmental impacts in the following resource areas, which will be further evaluated in the EIR:

**Air Quality.** The overall purpose of the proposed amendments is to reduce NOx emissions from natural gas-fired space- and water-heating appliances in buildings in the Bay Area. However, implementation of the proposed rule amendments is not expected to, but could result in a net increase in criteria air pollutant emissions if production of additional electricity that may be required to meet potential Project demand generates significant NOx emissions in excess of the reduction in NOx emissions expected from implementation of the zero NOx appliances emissions standards. These potential emissions could exceed significance criteria established by the BAAQMD to identify significant contributions to regional air pollution and thereby could conflict with the BAAQMD's regulations and applicable air quality plans. Further study is needed. The Bay Area is in non-attainment for pollutants such as ozone and particulate matter. Thus, the Project, along with increases in criteria pollutant emissions from other development in the region, could contribute to non-attainment status pursuant to federal or state ambient air quality standards. Because the Project may exceed the BAAQMD's established significance criteria for criteria pollutants (as noted above), the Project's contribution may be cumulatively considerable. Additionally, production of additional electricity could expose nearby sensitive receptors to increased concentrations of pollutants. These issues will be evaluated in the EIR.

**Greenhouse Gas Emissions.** The overall purpose of the proposed amendments is to reduce NOx emissions from natural gas-fired space- and water-heating appliances in buildings in the Bay Area, but implementation may also reduce greenhouse gas (GHG) emissions in the future should existing natural gas-fired appliances be replaced with electric appliances. However, implementation of the proposed rule amendments could generate GHG emissions if production of additional electricity is required to meet Project demand. GHG emissions associated with increased production of electricity could have a significant effect on the environment and could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. These issues require further technical study and will be evaluated in the EIR.

**Utilities and Service Systems (Energy Resources).** The proposed amendments would not generate substantial demand for water, water treatment, wastewater treatment, or natural gas supplies and infrastructure. Further, the proposed amendments would not alter drainage and stormwater conveyance, or water and wastewater conveyance and treatment. The proposed amendments may require increased amounts of electricity, which could result in the need for additional production of electricity and/or additional electrical grid capacity if Project demands exceed existing and planned supply. The construction of this new or expanded electrical infrastructure could cause significant environmental effects. This issue (energy resources) will be evaluated in the EIR.

Secondary and cumulative effects on other environmental resource areas associated with the potential need for construction of new electricity generation and transmission infrastructure will also be evaluated in the EIR.