



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

Draft Regulation 13: Climate Pollutants Concept Paper

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Regulation 13: Climate Pollutants Concept Paper

1. Background and Air Quality Issues

Human-caused climate change poses a threat to residents of the Bay Area. In Chapter 3 of the 2017 Clean Air Plan, the Air District explained how climate pollutant emissions and climate change are expected to impact air quality and public health. There is a strong scientific consensus that climate change is caused by a variety of human activities that release climate pollutants into the atmosphere.¹ In the Bay Area and California, climate change is expected to cause higher temperatures, droughts, and increased risk of wildfires, all of which can lead to poor air quality and negatively impact human health.² In the near- to longer-term future, climate change is expected to result in more frequent and damaging weather events, air and water issues, and disease spread, as well as alter the natural landscape of the Bay Area.³

Changing weather conditions have increased episodes of poor air quality in the Bay Area, overwhelming efforts by the Air District and the California Air Resources Board to reduce emissions of criteria air pollutants (including particulate matter (PM)) and toxic air contaminants. Wildfires in the fall of 2017 in Napa and Sonoma counties resulted in unprecedented levels of air pollution throughout the Bay Area. In Summer 2018, massive fires north and east of the Bay Area resulted in multiple Spare-the-Air days. Extreme heat, like the heat wave that blanketed the region in August 2017, leads to worsening air quality due to elevated concentrations of ground-level ozone and secondary PM.⁴ Periods of drought and low wind conditions during the winter months can lead to greater population exposure to PM—as evidenced by the increased numbers of Winter Spare-the-Air alerts during the dry periods of 2017-2018, 2014-2015, and 2013-2014.⁵

Table 1: Winter Spare-the-Air Days and corresponding drought periods, by season⁶

Season	Number of Spare-the-Air Days	Spare-the-Air day occurrence period
Nov.-Feb. 2017-2018	19	December 2017 through early January 2018: all 19 Spare-the-Air days occurred during the midst of high pressure systems and strong inversion layers.
Nov.-Feb. 2016-2017	7	Winter Spare-the-Air days occurred during the dry periods of December 2016, January 2017, and February 2017.
Nov.-Feb. 2015-2016	1	More frequent storm systems in December 2015 and January 2016 resulted in improved air quality.

¹ Source: Bay Area Air Quality Management District, Final 2017 Clean Air Plan, Chapter 3: Greenhouse Gases and Climate Change Impacts. Accessible URL: http://www.baaqmd.gov/~media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en

² Source: Bay Area Air Quality Management District, Final 2017 Clean Air Plan, Chapter 3.

³ Source: Bay Area Air Quality Management District, Final 2017 Clean Air Plan, Chapter 3.

⁴ Source: Bay Area Air Quality Management District, Final 2017 Clean Air Plan, Chapter 3.

⁵ Source: Bay Area Air Quality Management District, Final 2017 Clean Air Plan, Chapter 3.

⁶ Sources: Bay Area Air Quality Management District, “Particulate Matter: PM Box Scores.” Accessible URL: <http://www.sparetheair.org/stay-informed/particulate-matter/pm-box-scores>; Bay Area Air Quality Management Division; and National Oceanic and Atmospheric Administration, “NOWData—NOAA Online Weather Data.” Accessible URL: <https://w2.weather.gov/climate/xmacis.php?wfo=mtr>

Season	Number of Spare-the-Air Days	Spare-the-Air day occurrence period
Nov.-Feb. 2014-2015	23	November 2014 through January 2015: Spare-the-Air days occurred when a persistent high-pressure system stalled over the region, especially between late December 2014 through January 2015.
Nov.-Feb. 2013-2014	30	Late November 2013 through January 2014: all 30 Spare-the-Air Days occurred during a persistent high-pressure system that prevented rainfall and caused polluted air to remain in the region.

Poor air quality is a public health concern. Ground-level ozone, oftentimes informally called “smog,” can aggravate respiratory illnesses such as asthma.⁷ Repeated exposure to high ozone levels can make people more susceptible to respiratory infection and lung inflammation and permanently damage lung tissue.⁸ PM consists of small, airborne particles that can become lodged in the human body via breathing and subsequent respiratory processes.⁹ When ingested, PM can cause a variety of physical impairments ranging from aggravation of lung tissues to eventual blood clots and heart attacks.¹⁰ The Air District has achieved reductions in air pollution over the past several decades, however, the potential for elevated levels of ground level ozone and particulate matter due to climate change threaten to undermine this progress.

2. Existing Regulatory Setting

Emissions of GHGs and PM are currently regulated by the U.S. Environmental Protection Agency (EPA) and, in California, by the California Air Resources Board (CARB) and the Air District. Under the California Health and Safety Code, the Air District has authority to regulate emissions of these pollutants from stationary sources, except where the California Cap-and-Trade program preempts such regulation.

At present, there are several Air District rules that are designed to inventory and reduce emissions of climate pollutants. Regulation 3: Fees, Schedule T, requires facilities that operate under Air District permits to pay a fee based on the quantity of GHGs they emit. The fee is calculated by the product of the mass of the emitted gas and its global warming potential and the unit fee amount for the equivalent emission of carbon dioxide (CO₂), which has a global warming potential value of 1. Rule 8-34 regulates emissions from solid waste disposal sites, which are major sources of methane. Methane is a potent GHG and a known short-lived climate pollutant; its radiative forcing ability (measured as its global warming potential) is over 80 times greater than CO₂ on a 20-year timeframe and over 30 times greater on a 100-year timeframe. Rule 8-37 also addresses methane emissions, although it is focused on emissions from natural gas and crude oil facilities. Rule 12-7: Motor Vehicle Air Conditioner Refrigerant regulates

⁷ Source: Bay Area Air Quality Management District, Final 2017 Clean Air Plan, Chapter 2: Air Pollution and Public Health. Accessible URL: http://www.baaqmd.gov/~media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-_proposed-final-cap-vol-1-pdf.pdf?la=en

⁸ Bay Area Air Quality Management District, Final 2017 Clean Air Plan, Chapter 2.

⁹ Bay Area Air Quality Management District, Final 2017 Clean Air Plan, Chapter 2.

¹⁰ Bay Area Air Quality Management District, Final 2017 Clean Air Plan, Chapter 2.

handling of motor vehicle air conditioner refrigerant. Refrigerants can contain chemicals that have high global warming potentials, such as hydrofluorocarbons. This rule reduces leaks from vehicle air conditioning systems. Rules 12-11: Flare Monitoring at Petroleum Refineries and 12-12: Flares at Petroleum Refineries address flaring operations at petroleum refineries. Rule 12-11 requires continuous flare monitoring for total hydrocarbon and methane emissions, while Rule 12-12 only allows flaring that is consistent with a flare minimization plan and requires facilities to investigate and determine corrective actions needed to prevent future flaring in the case of a flaring event. In the mobile source arena, Rule 14-1: Bay Area Commuter Benefits Program requires employers with 50 or more full-time employees in the Bay Area to provide commuter benefits to their employees—to reduce vehicle trips and associated GHG emissions from automobiles.

CARB has set ambitious targets for reducing GHG emissions. It has several programs and regulations in place that focus on climate pollutant emissions. CARB's Mandatory Reporting Regulation requires facilities that emit more than 10,000 metric tons of carbon dioxide-equivalent emissions (MTCO₂e) on an annual basis to adhere to the reporting requirements established in the regulation. CARB has also adopted regulations to reduce GHG emissions from the following operations: sulfur hexafluoride emissions, semiconductor operations that use fluorinated gases or heat transfer fluids, emissions from small containers of automotive refrigerant, leak detection and repair requirements for stationary sources with refrigeration systems, methane emissions from municipal solid waste landfills, energy efficiency assessments for large stationary sources, and regulations on GHG emissions from crude oil and natural gas facilities throughout the state. Additionally, CARB has adopted regulations for mobile sources that are designed to reduce GHG emissions. These regulations focus on sources that include heavy duty vehicles, transportation fuels, and tire pressure levels.

EPA's Greenhouse Gas Reporting Program, in general, requires entities that emit more than 25,000 MTCO₂e per year to report their emissions annually. Title 40, Part 98 of the Code of Federal Regulations prescribes methodologies that entities must use to quantify emissions of climate pollutants and they report their data to EPA using an electronic reporting tool. The EPA also regulates emissions of GHGs under its New Source Review (NSR) Program if: (1) the stationary source is a new major stationary source for a regulated NSR pollutant that is not a GHG and will emit or potentially emit 75,000 or more short tons per year CO₂e; or (2) is an existing major stationary source for a regulated NSR pollutant that is not a greenhouse gas, and also will have an emissions increase of a regulated NSR pollutant, and an emissions increase of 75,000 or more short tons per year CO₂e.

3. Proposal for Addressing Air Quality Issues

The mission of the Air District is to create a healthy breathing environment for every Bay Area resident while protecting and improving public health, air quality, and the global climate. Air District staff is developing climate pollutant-specific rules to address climate change, which poses a threat to the Air District's ability to achieve its mission. Draft Regulation 13 is an umbrella regulation that would establish, where necessary and relevant, uniform definitions, administrative requirements, monitoring and recordkeeping requirements, and test methods that apply to regulating climate pollutants. Draft Regulation 13 would provide for a streamlined approach to regulating climate pollutants and would serve as a repository for terms, methods, and general requirements that apply to most or all climate pollutants. Subsequent rules in the Regulation 13-series would focus on specific climate pollutants, processes, or both.

In 2013, the Air District Board of Directors adopted Resolution 2013-11, which set a target to reduce greenhouse gas emissions to 80 percent below 1990 levels by 2050 and develop specific performance objectives to track progress in achieving that goal. The 2017 Clean Air Plan supplements Resolution 2013-11 by targeting a reduction in greenhouse gas emissions of 40 percent below 1990 levels by 2030. The 2017 Clean Air Plan also envisions a post-carbon Bay Area in 2050, but the plan acknowledges that there are significant hurdles to overcome to achieve such a reality.

Any requirements under draft Regulation 13 would apply to all facilities and activities that occur within the Air District's jurisdiction, except where exemptions would apply. For example, Assembly Bill 398 voided the Air District's authority to adopt or implement emission reduction rules for carbon dioxide from stationary sources that are subject to Cap-and-Trade.

Potential Provisions

Draft Regulation 13 would serve as a repository for terms that are broadly applicable to regulating climate pollutants. It would include definitions for key compounds associated with the greenhouse effect, such as carbon dioxide, nitrous oxide, methane, fluorinated gases, and other compounds, such as black carbon, that exist in the Bay Area and have high global warming potential values. The regulation would also define terms that are integral to the field of climate change regulation, such as "carbon dioxide equivalent," "global warming potential," "atmospheric lifespan," and others deemed necessary during the rule development process. The regulation could include tables indicating the global warming potentials and atmospheric lifetimes for compounds that the District regulates or plans to regulate. The regulation could include a statement of preference for regulating according to a 20- or 100-year time horizon. The role of draft Regulation 13 as a repository for terms that are necessary for climate change regulation would enable the application of standardized terminology for District-wide climate pollutant regulation. Draft Regulation 13 could therefore serve as an umbrella regulation for subsequent rulemaking on climate pollutants.

Administrative Requirements: Draft Regulation 13 could include administrative requirements that require entities to notify the Air District of climate pollutant emissions if they surpass a threshold level, expressed as carbon dioxide-equivalent emissions. Additionally, the Air District could require facilities that have and use a threshold quantity of climate pollutant-producing materials to register relevant equipment with the Air District, even if the operation that uses the specified equipment does not require an Air District permit to operate. The Air District could require monitoring and recordkeeping based on CARB's Mandatory Reporting Regulation for Greenhouse Gas Emissions, either through incorporation by reference of relevant sections of CARB's regulation or by tailoring sections to suit the Bay Area emissions profile. After further review of the Air District's Emissions Inventory, the regulation could include a threshold for reporting that is different from CARB's reporting threshold (10,000 MTCO_{2e} per year) or EPA's (25,000 MTCO_{2e} per year). The Air District could require monitoring, recordkeeping, and/or reporting of climate pollutants, depending upon feasibility.

Compliance Determinations: Draft Regulation 13 could include methods for determining compliance with this regulation or with subsequent rules in the Regulation 13-series. Methods applicable to proposed Regulation 13 could include those developed within the District and/or methods promulgated by CARB and EPA. Because climate change regulation is a relatively new effort, there is likely to be continued progress in measurement techniques. As methods are

developed in the future, they can be incorporated into proposed Regulation 13 and the District's Manual of Procedures.

4. Schedule

Staff members are in the early phases of rule development for draft Regulation 13. Staff plans to propose the regulation to the Board of Directors in early 2020.