

OZONE SOURCES, PLANS AND CONTROLS

What is ozone?

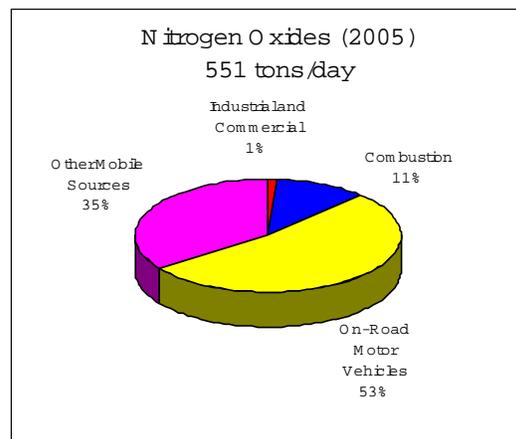
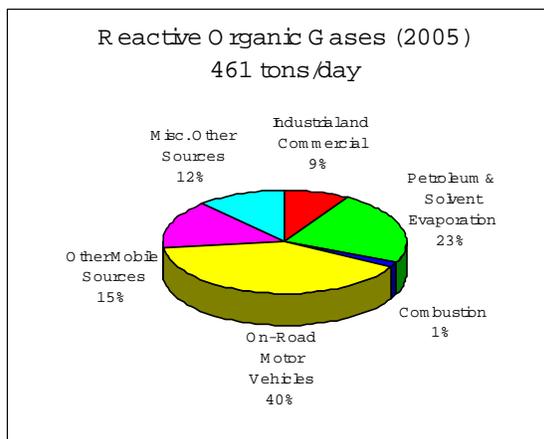
Ozone is the main ingredient in the air pollution we often refer to as “smog”. Ozone is highly reactive, and in high concentrations near ground level, can be harmful to human health. Ozone in the upper atmosphere is beneficial because it blocks the sun’s harmful ultraviolet rays. Efforts to protect the environment seek to reduce ground level ozone and preserve ozone in the upper atmosphere.

How is ozone harmful?

High concentrations of ozone can irritate the nose, throat and respiratory system, and constrict the airways. Ozone also can aggravate other respiratory conditions such as asthma, bronchitis and emphysema. Long-term exposure to high ozone levels can permanently damage lung tissue. Children, seniors and people with respiratory illnesses are especially sensitive to ozone’s effects. Ozone also damages trees, agricultural crops and other plants.

Where does ozone come from?

Ozone is not emitted directly from pollution sources. Instead, ozone is formed in the atmosphere through complex chemical reactions between hydrocarbons (or “reactive organic gases”) and nitrogen oxides, in the presence of sunlight. Ozone levels are usually highest on hot, windless summer afternoons, especially in inland valleys. The main sources of hydrocarbons are motor vehicles and evaporation of solvents, fuels and other petroleum products. The main sources of nitrogen oxides are motor vehicles and combustion.



What are ozone conditions in the Bay Area?

The State and national governments have established health-based standards for the amount of ozone allowed in the air. The State standard is more strict. In recent years, the Bay Area has exceeded the national standard on zero, one or two days per year. The State standard is exceeded more often. Ozone conditions have improved significantly over the years. Concentrations of ozone in the air we breathe and the number of days on which the region experiences unhealthy ozone levels have dropped dramatically. In April 2004 US EPA determined that the Bay Area had attained the national 1-hour ozone standard. However, there are still a few days each year when parts of the Bay Area experience unhealthy ozone levels.

What is an ozone plan?

The State and national Clean Air Acts require regions that violate air quality standards to prepare plans to achieve the standards. These plans must include estimates of current and future emissions of the pollutants that form ozone, and a list of control measures to reduce emissions in order to meet the ozone standards. These ozone plans are prepared by the Bay Area Air Quality Management District (BAAQMD), the Metropolitan Transportation Commission (MTC), and the Association of Bay Area Governments (ABAG).

The most recent plan for the national ozone standard is the *2001 Ozone Attainment Plan*, and the most recent plan for the State standard is the *2000 Clean Air Plan*. The *Bay Area 2004 Ozone Strategy* currently being prepared will update both of these plans. The *2004 Ozone Strategy* will include control measures to help meet the State ozone standard and reduce pollution transported to neighboring regions. It will also show that the region will continue to meet the national 1-hour standard.

What types of control measures are included in ozone plans?

Plans to reduce ozone levels aim to reduce emissions of the pollutants that form ozone: hydrocarbons and nitrogen oxides. Ozone plans usually include three types of control measures: stationary source control measures, mobile source control measures, and transportation control measures.

Stationary source control measures reduce emissions from industrial and commercial facilities. Stationary sources range in size from large facilities like oil refineries and power plants to smaller facilities such as gasoline stations and print shops. Stationary source measures are adopted as rules by the BAAQMD. The BAAQMD enforces these rules through permits, inspections, and other enforcement actions. An example is the BAAQMD's Aqueous Solvent Rule, which requires auto repair and maintenance shops to switch from oil-based cleaners to (lower polluting) water-based cleaners.

Mobile source control measures reduce emissions from vehicle engines, such as cars, trucks and buses (on-road mobile sources) or boats, aircraft, trains and construction equipment (off-road mobile sources). The national and State governments adopt regulations limiting emissions from mobile sources. An example is the State of California's Low Emission Vehicle II regulation, which requires cleaner engines and lower emissions from cars, pick-up trucks, and other on-road vehicles. The BAAQMD also reduces mobile source emissions through incentive programs, such as the Transportation Fund for Clean Air, which funds clean fuel vehicles.

Transportation control measures (TCMs) seek to reduce emissions by reducing motor vehicle use by encouraging alternative means of transportation such as transit, walking, biking, and carpooling. TCMs are not regulations. Instead they are implemented by providing transportation alternatives (such as transit lines or bicycle facilities) and public education. TCMs are implemented by various agencies, including the Metropolitan Transportation Commission, transit districts, cities and counties. An example is the Regional Express Bus Program, under which MTC and transit operators provide low emission buses for express bus routes.

Who does what?

National

The U.S. Environmental Protection Agency:

- Sets national ambient air quality standards
- Oversees and approves State air quality programs
- Adopts regulations for cars, trucks, buses, trains, aircraft, ships, and construction and farm equipment

State

The California Air Resources Board:

- Sets State air quality standards
- Oversees and assists local air pollution control districts
- Conducts air pollution research
- Adopts regulations for cars, trucks, buses, fuels, and consumer products

Regional/Local

The Bay Area Air Quality Management District:

- Prepares and adopts plans to achieve national and State air quality standards
- Develops stationary and mobile source control measures for regional air quality plans
- Adopts regulations and issues permits for stationary sources of air pollution
- Helps develop transportation control measures
- Implements Spare the Air program to encourage citizens and businesses to minimize polluting activity and protect themselves on high pollution days

The Metropolitan Transportation Commission:

- Plans regional transportation strategies and investments
- Distributes federal and State transportation funding
- Develops transportation control measures for regional clean air plans
- Works with cities, counties, Caltrans, transit districts and others to implement transportation projects

How do the agencies identify new control measures?

When preparing air quality plans, the Air District, MTC and ABAG consider many potential control measures. Previous air quality plans for the Bay Area have included a wide variety of control measures for stationary, transportation and other sources. Each time that air quality plans are updated, the agencies take a new look at opportunities to reduce emissions, either through new measures or revisions to previous measures. For the *2004 Ozone Strategy* the agencies looked at a wide range of potential ideas, including:

- Rules and programs in other California regions, as well as other states
- Suggestions from ARB and other air districts
- Suggestions from the Ozone Working Group
- Suggestions from September 2003 community meetings
- Comments from environmental, community and business groups; cities, counties and other agencies; and the public

How do the agencies evaluate potential control measures?

The Air District, in consultation with MTC and ABAG, evaluates all of the potential measures to determine which ones are appropriate to include in Bay Area air quality strategies. The national and State Clean Air Acts provide guidance on how to evaluate potential control measures to determine whether they should be included in air quality plans. The Air District considers a variety of factors when evaluating each potential control measure, including:

- Technological feasibility of proposed controls;
- Total likely emission reductions from proposed controls;
- Public acceptability, including interests and concerns of community members;
- Whether reduction is of volatile organic compounds or nitrogen oxides or both;
- Cost-effectiveness in dollars per ton of emissions reduced;
- Rate of emission reduction;
- Potential environmental impacts;
- Socioeconomic impacts;
- Whether the emission reductions are real, quantifiable, permanent, enforceable, and surplus

What types of control measures are proposed for the 2004 Ozone Strategy?

After thorough analysis by Air District and MTC, and considering input from the Ozone Working Group and members of the public, the agencies developed draft control measures proposed for inclusion in the *Draft 2004 Ozone Strategy*. The draft control measures include

- 15 stationary source measures
- 4 mobile source measures
- 19 transportation control measures

The draft control measures are available on the Air District website (see the link below) and will be discussed at the September/October 2004 community meetings, at the September 28 Ozone Working Group meeting, and through other outreach efforts.

The agencies' review of potential measures also identified some ideas that meet some of the evaluation criteria, but that need further analysis to determine whether they are feasible as control measures. Therefore, the *2004 Ozone Strategy* will identify Further Study Measures that staff will continue to evaluate to determine whether they should be implemented.

How can I get more information?

Visit the Air District's ozone planning webpage at:
http://www.baaqmd.gov/pln/plans/ozone/2003_04.asp

Or contact Henry Hilken at hhilken@baaqmd.gov or (415) 749-4642.

Please provide your name, mailing address and email address on the attendance list and we will send you notices about future meetings.