



LPRO: Legislative Policy and Research Office

# AIR QUALITY

## BACKGROUND BRIEF

### BACKGROUND

In 1955, Congress enacted the first air quality legislation with the passage of the Air Pollution Control Act. Major amendments in 1970, 1977 and 1990 resulted in what is known as the Clean Air Act (CAA). The CAA addresses ambient air quality standards, toxic air pollutants, new source performance standards and new source review—the latter requiring the best available technology in air pollution control equipment for facilities that are major sources of contaminants.

The U.S. Environmental Protection Agency (EPA) has delegated implementation of most CAA requirements to the Oregon Department of Environmental Quality (DEQ), except in Lane County where the Lane Regional Air Protection Agency has primary jurisdiction. State air quality laws are codified in ORS Chapter 468A. The EPA retains oversight of the program and regularly audits DEQ's program to ensure that it meets federal requirements. In addition, the EPA has the authority to "overfile," or bring action against pollution sources if they believe enforcement at the state or regional level is inadequate. To date, DEQ has been successful in preventing federal overfiles.

### CAUSES OF AIR POLLUTION IN OREGON

Motor vehicles and woodstoves, fireplaces and open burning are now the primary sources of manmade air pollution in Oregon. Emissions from cars contribute to ground level ozone pollution (smog) especially on hot summer days. Woodstoves and fireplaces are a primary source of winter time particulate pollution. Other major sources of pollution are from individual actions such as outdoor burning and using gas-powered lawn mowers, paints, solvents, charcoal barbeques and aerosol products like hairspray and air fresheners. Forest fires are a major contributor of particle pollution due to smoke. Industrial facilities are also sources of air pollution in Oregon.

According to DEQ, air pollutants of great concern in Oregon are:

- Ground-level ozone (commonly known as smog);
- Fine particulate matter (PM<sub>2.5</sub>);
- Hazardous air pollutants (known as Air Toxics); and

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- Pollution affecting climate change and ecosystems.

### NATIONAL AMBIENT AIR QUALITY STANDARDS

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In 1980, only 30 percent of Oregonians lived in areas where the air met National Ambient Air Quality Standards. Communities routinely violated federal clean air standards for particulate matter (smoke and dust), ozone (smog) and carbon monoxide. As a result of federal, state and local pollution control programs, all areas in Oregon achieved compliance with these standards. However, in 2006, the EPA tightened the standard for fine particulate matter. Health studies showed that fine particulate matter is more dangerous than previously thought because fine particles evade the body's natural defenses and travel deep into the lungs.

Two communities (Klamath Falls and Oakridge) initially violated the federal standard for fine particulate matter and were designated nonattainment by the EPA. Two other communities (Lakeview and Prineville) are violating the health standard, but have not been designated nonattainment, while several others including Burns, Hillsboro and Medford are very close to being in violation. Older, "uncertified" woodstoves are a major source of pollution in those communities with the highest fine particulate levels. These stoves emit up to 70 percent more pollution than newer "certified" woodstoves.

On October 1, 2015, the EPA strengthened the National Ambient Air Quality Standard for ground-level ozone to 70 parts per billion (ppb) from 75 ppb to protect public health. Oregon communities are currently in compliance with the new, more protective ozone standard; however the communities of

Hermiston, Medford and Portland have ozone levels not far below the new standard.

### CLEAN AIR STRATEGIES

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The primary way air pollution is controlled and federal standards are met is through comprehensive airshed planning. These plans, which are developed with help from local advisory committees, include strategies tailored to meet local issues and needs. Strategies to reduce particulate pollution include emission reductions from woodstoves, outdoor burning and industrial wood-fired boilers. Strategies to reduce smog (ozone) include vehicle inspection, emission reductions from industrial operations and air quality advisories to reduce emissions on high smog days. For industrial sources, these strategies are implemented through federally required construction and operating permitting programs.

Comprehensive plans to bring Klamath Falls and Oakridge into compliance with federal standards for fine particulate matter have been developed and submitted to the EPA. Lakeview and Prineville are not officially designated as fine particulate matter nonattainment areas; nonetheless, DEQ has been working with these communities to reduce emissions, restore healthy air quality and avoid the official nonattainment status and the resulting economic development restrictions.

### WOOD SMOKE

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Woodstove smoke has long been a problem in many communities struggling to meet federal air quality health standards for fine particulate matter. Wintertime residential wood burning is the most significant source of fine particulate matter in some such communities. Since 1991, Oregon has required new



woodstoves to be certified to meet air pollution standards.

Due to the growing concern about the health and economic effects of wood smoke in communities, House Bill 3068 (2015) directed DEQ to form a work group to study and develop recommendations to reduce woodstove smoke for legislative consideration. The work group recommended: funding for local communities to implement wood smoke reduction programs, woodstove changeout programs with special consideration given to serious nonattainment areas or those at risk of being declared serious nonattainment and education and outreach across the state on the health effects of excessive wood smoke.

### TOXIC AIR POLLUTANTS

Toxic air pollutants can cause serious health risks, including cancer, immune system damage, nerve damage, birth defects, respiratory diseases and other health problems. Air toxics come from a variety of sources, including cars and trucks, all types of burning, businesses, industry and consumer products such as paints.

In 2006, Oregon's Environmental Quality Commission (EQC) adopted ambient benchmark concentrations that serve as clean air goals for 52 air toxics known to be present in the state.

Each air toxic of concern has a benchmark based on its non-cancer or cancer causing effects. These benchmarks allow DEQ to assess public health risks from air toxics, and to identify high priority geographic areas and source categories for emission reduction work.

### PORTLAND AIR TOXICS SOLUTIONS

In 2009, DEQ convened the Portland Air Toxics Solutions Advisory Committee to

develop the state's first plan to reduce air toxics risk comprehensively in a geographic area. The largest sources of air toxics in Portland are gasoline and diesel engines that produce 1,3-butadiene, benzene, diesel particulate, arsenic and chromium 6 and residential wood burning that produces 15 polycyclic aromatic hydrocarbons (PAH) which are tar-like byproducts and naphthalene. The study also showed emissions of metals including manganese, nickel and cadmium that are concentrated in or near some industrial areas.

DEQ and the advisory committee identified five high priority emission categories for follow up action, along with potential emission reduction recommendations for each category. DEQ is incorporating the recommended air toxics reduction strategies into ongoing ozone, particulate, clean diesel and greenhouse gas reduction work. DEQ is also coordinating with local government partners to bring current air toxics considerations into the transportation and land use planning process.

Air quality is influenced by many factors including land use, weather and forest fires. According to DEQ, programs that contribute to Oregon's air quality include:

- Vehicle inspection programs in the Portland and Medford areas;
- Permitting industrial sources;
- Providing assistance to small businesses to adopt best management practices;
- Adopting vehicle standards to increase mileage and reduce emissions;
- Implementing Heat Smart legislation that requires the removal of uncertified stoves upon sale of home; and



- Federal grant programs to retrofit, repower or replace diesel engines to reduce emissions.

### CLEANER AIR OREGON

Oregon's current rules aim to restrict pollution by imposing industry- or technology-specific requirements on manufacturing facilities (e.g., emissions control devices, specific work practices or equipment designs). The rules impose requirements based on the size of a facility and the hazardous materials it uses.

While the current rules are intended to reduce industrial air toxics emissions, they do not cap the total amount of contaminants a facility may release. Current industrial air toxics regulations are not designed to take into account the local impacts of industrial pollution on human health.

In early 2016, high levels of metals emissions were discovered near two art glass facilities in Portland. On April 6, 2016, Governor Kate Brown announced the launch of the statewide interagency Cleaner Air Oregon program, led by the Oregon Health Authority and DEQ. The agencies are engaged in a public and advisory committee process and plan to have new rules for consideration by the EQC in December 2017 that will tie the standards regulators use in permitting decisions and enforcement actions to health based standards.

### CLEAN DIESEL

Older diesel engines emit a complex mixture of gases and particles that lead to elevated risk for cardiovascular and respiratory diseases including cancer, asthma and bronchitis. DEQ provides diesel fleet owners with technical and financial assistance through federal grants for the installation of particulate

filters, repowering engines on existing vehicles or vehicle replacement.

In 2016, the U.S. Department of Justice filed notice of a consent decree to partially settle allegations by the EPA and California that Volkswagen used illegal devices on model year 2009 through 2015 vehicles to evade emission tests. Oregon's portion of the settlement is \$68.2 million, which must be used for diesel (**NOx**) reduction projects authorized by the settlement. DEQ is leading the process for developing Oregon's mitigation plan for expenditure of the funds.

### REGIONAL HAZE

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EPA regulations require states to adopt and update plans to reduce haze in the nation's national parks and wilderness areas. The goal of the federal regional haze program is to reach natural background conditions in these scenic areas by the year 2064 through gradual improvements adopted every five years. The first plans were required to include regulations, known as Best Available Retrofit Technology (**BART**), for certain large industrial sources that were built before modern pollution control laws were adopted.

In Oregon, the most significant BART source is Portland General Electric's (**PGE**) coal-fired power plant in Boardman. In 2009, the EQC adopted BART rules for this facility. At the request of PGE, the EQC revised the BART rules in December 2010 to require permanent closure of the coal-fired boilers at the Boardman plant by 2020 with interim controls for NOx and sulfur dioxide (**SO<sub>2</sub>**) consistent with the reduced life of the plant. The next significant update of Oregon's regional haze plan is due in 2021.



### CLIMATE CHANGE

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Scientists generally cite greenhouse gases as contributing to climate change, which is expected to have serious impacts in Oregon including coastal and river flooding, snow pack declines, lower summer river flows, reduction of farm and forest productivity, energy cost increases, public health effects and increased pressures on many fish and wildlife species.

Oregon, through DEQ, leads or participates in three efforts to reduce greenhouse gas emissions from transportation:

*Reduce the number of miles traveled:* In response to Senate Bill 1059 (2009), DEQ along with other state agencies and local governments developed state goals for greenhouse gas reduction from motor vehicles for each of Oregon's metropolitan planning organizations.

*Reduce emissions of conventional cars and light trucks plus increase the use of zero-emission vehicles:* Low and Zero Emission Vehicle program requires manufacturers to reduce average greenhouse gas emissions from new vehicles to the equivalent of 50+ miles per gallon by 2025. It also requires that zero-emission vehicle sales increase to approximately 13 percent of new vehicle sales by 2025. The standards mirror [California's emission standards](#) for light-duty vehicles.

*Reduce the greenhouse gas emissions per unit of fuel used through the Clean Fuel Program:* The clean fuels standards, authorized by the legislature in 2009 as part of House Bill 2186, are intended to reduce greenhouse gas emissions from the transportation sector. The goal of the Clean Fuels Program is to reduce the average carbon intensity of Oregon's transportation fuels by 10 percent over a 10-year period. DEQ has set a series of annual

reduction targets to reach the overall goal between 2016 and 2025. Compliance with the annual targets is shown through quarterly reports submitted by Oregon producers and importers of gasoline, diesel, ethanol and biodiesel.

In 2016, Senate Bill 5701 provided DEQ with \$230,000 on a one-time basis to provide information for the 2017 legislative session on how a market-based carbon reduction system would work in Oregon. DEQ is working with experts to develop the plan for the 2017 session.

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