

OVERVIEW OF EPA’S PROPOSAL TO UPDATE THE AIR QUALITY STANDARDS FOR GROUND-LEVEL OZONE

On Nov. 25, 2014, the U.S. Environmental Protection Agency (EPA) proposed to strengthen the National Ambient Air Quality Standards (NAAQS) for ground-level ozone, based on extensive scientific evidence about ozone’s effects on public health and welfare. The proposed updates will improve public health protection, particularly for children, the elderly, and people of all ages who have lung diseases such as asthma. Today’s proposal will expand the ozone monitoring season for many states, and will update the Air Quality Index to ensure people are notified when air quality is unhealthy. It also will improve the health of trees, plants and ecosystems.

The Clean Air Act requires EPA to set two types of outdoor air quality standards for ozone: a primary standard, to protect public health with an “adequate margin of safety,” including the health of at-risk groups; and a secondary standard, to protect the public welfare. The law requires EPA to review the standards every five years. EPA last updated the standards in 2008.

States would have time to develop and implement plans to meet revised standards, and existing and proposed federal rules will help, by making significant strides toward reducing ozone-forming pollution. EPA projections show the vast majority of U.S. counties would meet the proposed standards by 2025 just with the rules and programs now in place or under way.

SUMMARY OF ACTION

- Based on an extensive body of scientific evidence, EPA is proposing to update both the primary ozone standard, to protect public health, and the secondary standard, to protect the public welfare. Both standards would be 8-hour standards set within a range of 65 to 70 parts per billion (ppb). EPA is seeking comment on levels for the health standard as low as 60 ppb. The agency will accept comments on all aspects of the proposal, including on retaining the existing standard.
- Ozone, a key component of smog, forms in the atmosphere when emissions of nitrogen oxides and volatile organic compounds “cook” in the sun. Emissions from sources such as cars, trucks, buses, industries, power plants, and products such as solvents and paints are among the major man-made sources of ozone-forming emissions.
- People most at risk from breathing air containing ozone include: children; people with asthma and other respiratory diseases; older adults; and people who are active outdoors, especially outdoor workers. An estimated 25.9 million people have asthma in the U.S., including almost 7.1 million children. Asthma disproportionately affects children, families with lower incomes, and minorities, including Puerto Ricans, Native Americans/Alaska Natives and African-Americans.
- EPA estimates that meeting the standards will yield significant health benefits valued at \$6.4 to \$13 billion annually in 2025 for a standard of 70 ppb, and \$19 to \$38 billion annually

in 2025 for a standard of 65 ppb, nationwide, excluding California. These benefits include the value of avoiding asthma attacks, heart attacks, missed school days and premature deaths, among other health effects. EPA analyzed the benefits and costs for California separately, because a number of areas in California would have longer to meet the proposed standards. Benefits of meeting the proposed standards in California add to the nationwide benefits after 2025, with values estimated at \$1.1 to \$2 billion annually after 2025 for a standard of 70 ppb, and \$2.2 to \$4.1 billion for a standard of 65 ppb.

- Existing and proposed federal rules, including the final Mercury and Air Toxics Standards, the final Tier 3 Vehicle Emissions and Fuels Standards, requirements to reduce the interstate transport of ozone, Regional Haze rules, and the proposed Clean Power Plan, will help states meet the proposed standards by making significant strides toward reducing ozone-forming pollution. EPA projections show the vast majority of U.S. counties with monitors would meet the proposed standards by 2025 just with the rules and programs now in place or under way.
- While states ultimately decide what measures to implement to meet a standard, EPA has developed illustrative measures in order to estimate costs. Those estimates are \$3.9 billion in 2025 for a standard of 70 ppb, and \$15 billion for a standard at 65 ppb, nationwide except for California. Estimated costs in California post-2025 are \$800 million for a standard of 70 ppb and \$1.6 billion for a standard of 65 ppb. [More on benefits and costs](#)
- EPA will take comment on the proposal for 90 days after it is published in the Federal Register and will hold three public hearings. The agency will issue a final decision by Oct. 1, 2015.

Proposal is based on a large body of science

- A significantly expanded body of scientific evidence, including more than 1,000 new studies since the last review of the standards, shows that ozone can cause a number of harmful effects on health and the environment.
- Exposure to ozone can cause respiratory system effects such as difficulty breathing and airway inflammation. For people with lung diseases such as asthma and COPD (chronic obstructive pulmonary disease), these effects can lead to emergency room visits and hospital admissions.
- Studies have also found that ozone exposure is likely to cause premature death from lung or heart diseases. In addition, evidence indicates that long-term exposure to ozone is likely to result in harmful respiratory effects, including respiratory symptoms and the development of asthma.

Proposed primary (health) standard

- The Clean Air Act requires EPA to set primary air quality standards to reduce risk sufficiently to protect public health with an “adequate margin of safety,” including the health of at-risk groups. In making this judgment, the EPA Administrator considers factors such as the nature and severity of health effects, the size of the at-risk groups affected, and the degree of

certainty and uncertainty in the science.

- EPA's task is to set standards that are "requisite" -- neither more nor less stringent than necessary -- to accomplish this. The law does not require EPA to set primary standards at a zero-risk level.
- EPA's proposal finds that the current level of the standard – 75 ppb – is not adequate to protect public health, and it would strengthen the standard by setting the primary standard at a level within a range from 65 to 70 ppb. EPA staff experts and the agency's independent science advisors, the Clean Air Scientific Advisory Committee (CASAC), concluded that scientific evidence supports a standard within a range of 60 to 70 ppb.
- The Administrator did not include a standard of 60 ppb in the proposed range because of increasing uncertainty in the scientific evidence at lower ozone concentrations. This uncertainty reduces confidence that ozone standard levels below 65 ppb will result in additional health improvements, compared to improvements that would result from a standard in the proposed range of 65 to 70 ppb. EPA is taking comment on levels for the health standard as low as 60 ppb.
- The agency will accept comments on all aspects of the proposal, including on retaining the existing standard.

Proposed secondary (public welfare) standard

- The Clean Air Act also requires that EPA set standards to protect the public welfare. EPA's proposal would strengthen the secondary standard, also currently set at 75 ppb, to improve protection for trees, plants and ecosystems.
- New studies since the last review of the standards add to evidence showing that repeated exposure to ozone reduces growth and has other harmful effects on plants and trees. These types of effects have the potential to impact ecosystems and the benefits they provide.
- EPA is proposing that the secondary standard should provide protection against the cumulative exposures that can damage plants and trees during the consecutive three months in the growing season when daytime ozone concentrations are the highest and plant growth is most affected.
- The Agency is proposing to define this necessary protection in terms of a "W126 index" in a range of 13 to 17 parts per million-hours (ppm-hours), averaged over three years. A "W126 index," named for the formula used to calculate it, is a seasonal index often used to assess the impact of ozone on ecosystems and vegetation.
- To achieve a level of protection equivalent to 13 to 17 ppm-hours based on the W126 metric, EPA is proposing to set an 8-hour secondary standard at a level within the range of 65 to 70 ppb. EPA analyzed data from air quality monitors and found that setting a standard in a W126 form would not provide additional protection beyond an 8-hour standard.

- However, the Agency is seeking comment on setting the standard based on the W126 metric within a range of 13 to 17 ppm-hours, averaged over three years. EPA also is seeking comment on defining a target protection level in terms of a W126 index value as low as 7 to 13 ppm-hours. In addition, EPA is taking comment on retaining the existing 8-hour secondary standard.

Protecting Air Quality: A Partnership Across Governments

- Protecting air quality is a federal/state partnership, and EPA, states and tribes have made significant progress reducing ozone. Nationwide, ozone levels have dropped by a third since 1980 at monitor sites that track ozone trends. Ozone levels declined 18 percent from 2000 to 2013. And 90 percent of areas designated as nonattainment for the 1997 ozone standard now meet that standard.
- EPA has a long history of working closely with states as they develop State Implementation Plans (SIPs) to reduce emissions of ozone precursors within individual jurisdictions. The agency will continue these collaborative efforts for any revised ozone standards, including working with California as it continues to explore regulatory strategies and technologies to reduce pollution and improve public health protection. California has faced a uniquely difficult attainment task due to the combination of adverse meteorology and topography, population growth, and the pollution burden associated with mobile sources.
- The agency also will work closely with states that may need to address relatively infrequent events when ozone formed from sources such as wildfires or stratospheric intrusions contributes to ozone exceedances.
- The agency plans to propose rules and guidance to assist areas with implementing revised standards within one year after the final standards are issued, or sooner. The agency also plans to update its Exceptional Events Rule, which outlines the requirements for excluding air quality data (including ozone data) from regulatory decisions if the data is affected by an exceptional event. The Exceptional Events rule is one of several tools available to states for addressing background ozone as they develop their clean air plans. In addition, EPA is developing guidance to address Exceptional Events Rule criteria for wildfires that could affect ozone concentrations.
- EPA projects that peak ozone levels will continue to improve over the next decade as additional reductions in ozone-forming pollutants are realized. However, research also shows that temperature and other meteorological changes associated with the changing climate have the potential to offset some of the future improvements in ozone air quality, along with public health improvements that would result -- underscoring the need to address both ozone and climate change.
- In June 2013, President Obama issued the Climate Action Plan, which directed EPA and other federal agencies to take a series of actions to reduce carbon pollution, prepare the U.S. for the impacts of climate change, and lead international efforts to address global

climate change. EPA is taking several actions to cut carbon pollution from passenger cars and trucks, cut methane emissions from the oil and gas sector and landfills, and cut potent HFCs from industrial sources.

- In addition, in June 2014, EPA proposed the Clean Power Plan to cut carbon pollution from power plants, while maintaining an affordable, reliable energy system. Actions to reduce carbon pollution under the proposed plan also would reduce emissions of ozone- and particle-forming pollutants by about 25 percent in 2030. [Learn more about the Clean Power Plan.](#)
- Today's proposed updates also include changes to monitoring requirements, including extending the ozone monitoring season for 33 states to match the times of year when data show ozone can approach unhealthy levels, and to alert the public. The agency also is proposing to:
 - Streamline and modernize the Photochemical Assessment Monitoring Stations (PAMS) network to use monitoring resources most efficiently. The PAMS network measures ozone, the pollutants that form it, and meteorology in order to better understand ozone formation and to evaluate national and local ozone-reduction options; and
 - Update the Federal Reference Method for ozone to include an additional method for measuring ozone in the outdoor air, which will provide flexibility and choice to state, local and tribal air agencies.
- The proposal also would update the Air Quality Index, EPA's color-coded tool for communicating air quality to the public, to reflect changes to the ozone health standard.
- In addition, to ensure a smooth transition to the new standards, EPA is proposing to grandfather preconstruction permitting applications that have made substantial progress through the review process at the time final standards are issued.
- As required by the Clean Air Act, EPA would make attainment/nonattainment designations for any revised standards by October 2017; those designations likely would be based on 2014-2016 air quality data.
- States with nonattainment areas would have until 2020 to late 2037 to meet the proposed health standard, with attainment dates varying based on the ozone level in the area. Most states are familiar with this process and can build off work they are already doing to reduce pollution to help them meet the standards.
- The Clean Air Act does not specify deadlines for states to meet secondary ozone standards. EPA and states determine that through the implementation planning process.
- Existing and proposed federal rules will help states meet the proposed standards by reducing ozone-forming pollution. These rules include: the final Mercury and Air Toxics Standards, requirements to reduce the interstate transport of air pollution, Regional Haze

regulations, the proposed Clean Power Plan, and the final Tier 3 Vehicle Emissions and Fuels Standards. Other rules include: Light-Duty Vehicle Tier 2 Rule, the Mobile Source Air Toxics Rule, the Light-Duty Greenhouse Gas/Corporate Average Fuel Efficiency Standards, the Heavy-Duty Vehicle Greenhouse Gas Rule, the Reciprocating Internal Combustion Engines (RICE) NESHAP, and the Industrial/Commercial/Institutional Boilers and Process Heaters MACT and amendments.

Benefits and Costs

- EPA’s proposal is about setting a health standard and determining that level. By law, EPA cannot consider costs in doing that. However, to inform the public, EPA analyzes the benefits and costs of implementing the standards as required by Executive Orders 12866 and 13563 and guidance from the White House Office of Management and Budget.
- Reducing pollution to meet the ozone standard will reduce both ozone and particle pollution. EPA estimates that reducing pollution to meet the standards in 2025 will yield annual health benefits of \$6.4 to \$13 billion annually for a standard of 70 ppb, and \$19 to \$38 billion annually for a standard of 65 ppb, except for California. This includes the value of preventing harm to health that includes, among other effects:
 - 750 to 4,300 premature deaths;
 - 790 to 2,300 cases of acute bronchitis in children;
 - 1,400 to 4,300 asthma-related emergency room visits;
 - 320,000 to 960,000 asthma attacks in children;
 - 65,000 to 180,000 days when people miss work; and
 - 330,000 to 1 million days when children miss school.
- Costs are estimated at \$3.9 billion in 2025 at a standard of 70 ppb, and \$15 billion at a standard at 65 ppb nationwide, excluding California. EPA has analyzed costs and benefits for California separately, because a number of California counties would have longer to meet the proposed standard, based on their ozone levels. A number of California counties likely would have attainment dates ranging from 2032 to late 2037.
- Benefits of meeting the proposed standards in California add to the nationwide benefits after 2025, with the value of the additional benefits ranging from an estimated \$1.1 to \$2 billion at a standard of 70 ppb to \$2.2 to \$4.1 billion for a standard of 65 ppb. This includes the value of preventing, among other effects:
 - 110 to 430 premature deaths;
 - 67 to 130 cases of acute bronchitis in children;
 - 340 to 740 asthma-related emergency room visits;
 - 99,000 to 210,000 asthma attacks in children;

- 110,000 to 230,000 days when children school; and
 - 5,500 to 11,000 days when people miss work.
- Estimated costs of meeting the proposed standards in California post-2025 are \$800 million for a standard of 70 ppb, and \$1.6 billion for a standard of 65 ppb.

FOR MORE INFORMATION

- To read the proposed rule and additional fact sheets, visit <http://www.epa.gov/glo/actions.html>
- For instructions on submitting comments, see: <http://epa.gov/glo/pdfs/20141125fs-comment.pdf>
- For your local air quality forecasts and information on current air quality, visit www.airnow.gov