

Power plant standards could save thousands of US lives every year

September 30 2014

Power plant standards to cut climate-changing carbon emissions will reduce other harmful air pollution and provide substantial human health benefits, according to a new study released today. The research shows that, depending on the policy options included in the final Clean Power Plan, the power plant standards could prevent thousands of premature deaths and hospitalizations, and hundreds of heart attacks in the United States every year.

In the new study, Health Co-benefits of Carbon Standards for Existing Power Plants, scientists at Harvard, Syracuse, and Boston Universities analyzed three options for standards to reduce [carbon](#) pollution from [power plants](#). They modeled air quality and health benefits for these scenarios and compared them to business as usual in the year 2020. The analysis is called a "co-benefits" study because it focuses on the added benefits of a carbon standard that come from reducing other harmful power plant emissions such as sulfur dioxide, nitrogen oxides, and particulate matter. These pollutants are precursors to smog and soot that cause heart and lung disease, exacerbate asthma, and contribute to premature death.

"Our study shows that standards to cut [carbon emissions](#) from power plants can reduce other harmful pollutants, leading almost immediately to cleaner air and improved health," said co-author Dr. Jonathan Buonocore of the Harvard School of Public Health at Harvard University. These added health benefits would help address ongoing air pollution impacts in the U.S.

"Hundreds of thousands of people suffer serious health problems from air pollution in the U.S. every year, and these health problems mostly occur in areas where pollution is meeting current EPA standards," said lead author Dr. Joel Schwartz, also of the Harvard School of Public Health at Harvard University.

The three scenarios analyzed by the research team vary in the stringency of the carbon targets, the flexibility in compliance options given to utilities, and the levels of investment in end-user energy efficiency. The scenarios were developed prior to the June 2014 release of the proposed Clean Power Plan and represent a range of options relevant to the development of the final standards.

The researchers found that the scenario that is moderately stringent and highly flexible (Scenario 2) yields the greatest estimated health benefits. Of the three options analyzed, this scenario is most similar to the proposed Clean Power Plan. The study shows that in 2020, this top-performing scenario results in approximately:

- 3,500 premature deaths from [air pollution](#) avoided every year (equivalent to nine deaths prevented every day);
- 1,000 fewer hospital admissions from heart and lung problems every year;
- 220 heart attacks prevented every year; and
- Many other health benefits including reduced asthma symptoms.

The other two scenarios the researchers analyzed had lower health benefits. The option that is focused on cutting carbon at existing power plants but has limited flexibility for compliance and does not include demand-side energy efficiency (Scenario 3), results in higher carbon reductions but slightly lower added health benefits than the top-performing scenario. The option that is focused only on improving heat rates at existing power plants (Scenario 1), results in very modest carbon

reductions and a slight estimated increase in mortality and heart attacks compared to business-as-usual.

The results from the three scenarios suggest that power plant standards with more stringent carbon targets can result in greater reductions in carbon emissions, and that they will achieve larger health benefits if implemented within a flexible framework.

"The results from the different scenarios show that policy choices matter and we can't take health benefits for granted," said co-author Dr. Jonathan Levy of the Boston University School of Public Health.

"Whether communities experience these health gains from cleaner air will depend on the details of the final power plant standards," adds Levy.

Today's study builds on research the authors released in May by using the air quality changes reported in that study to calculate estimated health benefits. It is the only research to-date that compares the added non-climate health benefits of a wide range of alternatives for the power plant carbon standards and maps them for the entire continental U.S.

The maps in the study depict the magnitude of estimated health benefits and where they are likely to occur. The results show that the top scenario would provide health benefits in all of the lower 48 states. The states with the greatest estimated number of lives saved per year under this scenario are: PA, OH, TX, IL, MI, NY, NC, GA, MO, VA, TN, and IN. All of these states have experienced persistent [air quality](#) problems associated with power plant pollution.

"In a nutshell," said co-author Dr. Charles Driscoll of Syracuse University, "our research shows that power plant carbon standards that are both stringent and flexible have the highest clean air and [health benefits](#) and could save thousands of lives in communities across the United States every year."

The U.S. EPA is taking public comments on the proposed Clean Power Plan through December 1, 2014, and is expected to issue a final rule for carbon emissions from power plants in June 2015.

Provided by Harvard School of Public Health

Citation: Power plant standards could save thousands of US lives every year (2014, September 30) retrieved 10 April 2024 from <https://phys.org/news/2014-09-power-standards-thousands-year.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.