

## The JAMA Forum

# A Breath of Bad Air: Cost of the Trump Environmental Agenda May Lead to 80 000 Extra Deaths per Decade

David Cutler, PhD; Francesca Dominici, PhD

President Donald Trump and Environmental Protection Agency (EPA) Administrator Scott Pruitt have pledged to reexamine landmark environmental policies and to repeal regulations. In their view, excessive regulations are harming US industry, and thus reducing regulation will be good for business. As Donald Trump has said, seemingly without irony, “We are going to get rid of the regulations that are just destroying us. You can’t breathe—you cannot breathe.”



As has become apparent, however, it is the changes Trump is proposing that are likely to make breathing more difficult. A central feature of his agenda is environmental damage: making the air dirtier and exposing people to more toxic chemicals. The beneficiaries, in contrast, will be a relatively few well-connected companies.

## The Trump Agenda

In pursuit of its wide-ranging environmental agenda, the administration has already reversed or proposed to reverse more than 60 environmental rules. The full extent of the effects on health has not been tabulated and is hard to quantify, but guesses can be made for some of the larger ones (see the Table).

The largest health consequences are likely to come through changes in air quality. The Trump administration has announced its intention to repeal the Clean Power Plan rule, President Barack Obama’s signature policy on climate change. The rule provides for the EPA to assign each state a goal for limiting emissions from

existing power plants and gives the states latitude in meeting those goals, such as switching from coal to natural gas or building new wind or solar farms. Based on the regulatory impact analysis done by the EPA when the rule was implemented (as well as other analyses), repealing the rule would lead to an estimated 36 000 deaths each decade and nearly 630 000 cases of respiratory infection in children alone.

The administration is also targeting the control of air pollution from motor vehicles, indicating a desire to weaken greenhouse gas and fuel economy targets for automobiles. Nothing formal has been proposed, but Trump has spoken about rolling back new rules put in place by the Obama administration. Based on the regulatory impact analysis performed when those rules were proposed, it was estimated that they would lead to a reduction of 5500 deaths and 140 000 cases of respiratory ailments in children over a decade—benefits that would be lost if the rules are rolled back. Repealing these rules will also have negative effects on certain types of jobs, the environment (global warming pollution), and consumer savings. The administration is also planning to repeal the emission requirements for glider vehicles—rebuilt trucks that do not meet current environmental standards—a loophole that could lead to as many as 41 000 premature deaths per decade and 900 000 cases of respiratory tract symptoms.

Other elements of the administration’s environmental agenda will also affect health, though it is hard to know by how much. Withdrawing from the Paris agreement on global warming, imposing tariffs on solar panels, and rolling back the “once in, always in” rule for industrial plants will all lead to increases in fine particulate matter and additional exposure to pollutants such as sulfur dioxide, nitrogen oxides, mercury, and others that adversely affect respiratory and cardiovascular health.

Water quality is also being targeted. The Trump EPA has proposed to rescind

the Waters of the United States rule published in 2015, which brought more US streams and wetlands areas under the Clean Water Act. Rivers and streams are sources of drinking water for more than 130 million people and if polluted, might pose major health risks. The rule itself does not mandate any specific changes in water cleanliness, so we do not estimate a specific health consequence of repealing this rule.

Finally, the administration is proposing to withdraw or not implement regulatory actions affecting particular chemicals shown to be harmful to health, including lead, agricultural pesticides, and coal ash waste. Exposure to these hazardous substances will affect fewer people than the number of individuals affected by air pollution, but each will affect a concentrated number. As Christine Todd Whitman, head of the EPA under President George W. Bush, said: “You stop enforcing those regulations and [deaths] will go way up.”

Overall, an extremely conservative estimate is that the Trump environmental agenda is likely to cost the lives of over 80 000 US residents per decade and lead to respiratory problems for many more than 1 million people. This sobering statistic captures only a small fraction of the cumulative public health damages associated with the full range of rollbacks and systemic actions proposed by the Trump administration.

## An Attack on Science

One might imagine that the science that supported enactment of these rules would make repealing them difficult. But that is not the case. Even as it is targeting environmental rules, the Trump administration is taking aim at the use of science that supports public policy.

Scott Pruitt recently signed a controversial rule stipulating that policy can be based only on research for which the underlying data have been made accessible to the general public. The idea is to

Proposed Changes in Environmental Protections and Possible Effects		
Area	Actions	Projected Effects
Air Quality	Repeal of Clean Power Plan	<ul style="list-style-type: none"> <li>Increases exposure to small atmospheric particulate matter</li> <li>An estimated 36 000 deaths over a decade</li> <li>An estimated 630 000 cases of respiratory ailments in children over a decade</li> </ul>
	Rollback of CAFE <sup>3</sup> standards for automobiles	<ul style="list-style-type: none"> <li>Increases exposure to small atmospheric particulate matter and ozone</li> <li>An estimated 5500 deaths over a decade</li> <li>An estimated 140 000 cases of respiratory ailments in children over a decade</li> </ul>
	Repeal of emission requirements for glider vehicles	<ul style="list-style-type: none"> <li>Allows noncompliant diesel trucks on the roads</li> <li>An estimated 41 000 premature deaths over a decade</li> <li>An estimated 900 000 cases of respiratory ailments over a decade</li> </ul>
	Loosening of other air pollution rules (eg, power plants, solar power tariffs)	<ul style="list-style-type: none"> <li>Potential for industrial plants to increase emissions by 4 times</li> <li>Endangering those living near power plants (areas of high poverty)</li> </ul>
Water Quality	Repeal of Waters of the United States rule	<ul style="list-style-type: none"> <li>Exposes water sources for approximately 117 million US residents</li> <li>At least 1 million people in each of 21 different states depend on small streams for their drinking water</li> </ul>
Chemicals	Scale back of lead-risk reduction program	<ul style="list-style-type: none"> <li>Leaves an estimated 4 million households with children at risk of exposure to high levels of lead</li> <li>Approximately 500 000 children currently have elevated blood lead levels</li> </ul>
	Delay or reduction of chemical bans	<ul style="list-style-type: none"> <li>Exposes toddlers and older children to 11 to 15 times the recommended levels of chlorpyrifos (because of denial of ban on use in agriculture)</li> <li>Exposes public to 3 carcinogens (methylene chloride, trichloroethylene, and N-Methylpyrrolidone) used in furniture stripping, grease removal, and dry cleaning (action delayed)</li> </ul>
	Weakening of rules on coal ash waste	<ul style="list-style-type: none"> <li>More than 100 million tons of coal ash are produced annually, resulting in more than 100 documented cases of coal ash poison contamination in the drinking water, wetlands, creeks, and rivers between 1948 and 2008</li> </ul>

<sup>3</sup> There is substantial uncertainty with respect to the extent of the rollback of the Corporate Average Fuel Economy (CAFE) rules. Projected health effects are calculated based on the assumption of full achievement of CAFE standards vs rollback of those standards.

remove most observational studies of health effects of air pollution exposure from being considered in regulatory settings, unless the individual health records are made publicly available. This is a nearly impossible task because the health data are collected under the agreement to maintain patient confidentiality. With no evidence of harms (because of constraints on presenting the available evidence), regulations cannot be sustained. On April 23, 985 scientists sent him a [letter](#) urging him to abandon the proposal.

Fortunately for those interested in public health, the regulatory process will take many years. Whoever is sworn in as President in January 2021 will have a large effect on whether the Trump administration's full environmental agenda goes into effect.

### Implications for Physicians and Policy

For physicians, the manifestation of these changes is likely to be an increase in disease and number of deaths. Respiratory and cardiovascular problems are most likely, but a wide variety of conditions are likely to

be seen. Poor, black, or elderly populations are [likely to be affected the most](#). People working with chemicals in industrial settings will also be affected, as will people who live in [areas with high concentrations of power plants](#) such as the Ohio River Valley from Indiana to Pennsylvania, and in the southeast from Alabama and Georgia to Maryland.

One could debate the merits of these tradeoffs if there were a large number of people who would benefit economically from these changes. In practice, however, any economic benefits are not likely to accrue to those most in need. Employment is down in many fossil fuel industries because [technology has made workers less necessary for production](#), not because of environmental regulations. And even if a large number of coal jobs were restored, it would come at the expense of employment in new industries such as wind and solar, which are [already being hurt](#) by the Trump administration policies. Not having to comply with environmental rules will increase corporate profits, but not worker bank accounts.

Overall, the ultimate effects of the Trump administration's policies seem clear, even through the haze they will create. ■

**Author Affiliations:** Otto Eckstein Professor of Applied Economics in the Department of Economics and Kennedy School of Government at Harvard University and a member of the Institute of Medicine (Cutler); professor of biostatistics at the Harvard T.H. Chan School of Public Health and codirector of the Harvard Data Science Initiative (Dominici).

**Corresponding Author:** David Cutler, PhD ([dcutler@harvard.edu](mailto:dcutler@harvard.edu)).

**Published Online:** May 10, 2018, at <https://newsatjama.jama.com/category/the-jama-forum/>.

**Disclaimer:** Each entry in The JAMA Forum expresses the opinions of the author but does not necessarily reflect the views or opinions of JAMA, the editorial staff, or the American Medical Association.

**Additional Information:** Information about The JAMA Forum, including disclosures of potential conflicts of interest, is available at <https://newsatjama.jama.com/about/>.

**Note:** Source references are available through embedded hyperlinks in the article text online.