

# PSR<sup>®</sup> Physicians for Social Responsibility



United States Affiliate of International Physicians for the Prevention of Nuclear War

January 9, 2018

E. Scott Pruitt, Administrator  
U.S. Environmental Protection Agency

Comments submitted via [www.regulations.gov](http://www.regulations.gov)

Re: Docket ID No. EPA-HQ-OAR-2017-0355

Dear Administrator Pruitt,

Physicians for Social Responsibility (PSR) is a nonprofit organization based in Washington, DC and with chapters in multiple states across the country. Our mission is to protect human life from the gravest threats to health and survival; we number environmental pollution and climate change among those threats.

PSR writes in strong **opposition** to the U.S. Environmental Protection Agency (EPA)'s proposal to repeal the Clean Power Plan (CPP). The CPP should be made **stronger**, not repealed. Any replacement should reduce carbon pollution even more than the original standards to reflect the shift towards clean energy and renewable energy sources like wind and solar.

Climate change is one of the greatest health threats of the 21st century. The American Medical Association (AMA) has declared that "climate changes will create conditions that affect public health, with disproportionate impacts on vulnerable populations" that include children, the elderly, and the poor. In June 2015, the AMA passed a resolution calling for "efforts to limit carbon dioxide emissions through the reduction of the burning of coal in the nation's power generating plants."

We are already facing increased health risks associated with climate change due to intense storms, heat waves, worsened air quality, flooding, sea surges, spread of insect-borne diseases, extended allergy seasons, and more. The CPP helps protect us from these growing threats. It sets achievable targets for each state to reduce carbon emissions from its electricity sector, and

gives the states time and flexibility to meet those goals. Taken together, the states would succeed in reducing carbon emissions from power plants by 32% below 2005 levels by 2030. These reductions are a significant contribution to national efforts to reduce greenhouse gas emissions, yet are still small in comparison with what is needed to limit global temperatures from rising over 2°C.

Furthermore, reducing carbon pollution from power plants reduces other dangerous air pollutants at the same time. This directly benefits local communities. According to the EPA, the CPP will prevent up to 3,600 premature deaths, 90,000 asthma attacks, and 300,000 lost days of work and school annually by 2030.

### **Delaying action on carbon only hurts our communities**

The EPA's CPP repeal proposal overstates the costs of industry compliance with the 2015 rule and understates the health benefits that will be lost if the 2017 repeal is finalized. Denying the science on health impacts of climate change will not slow the increase in frequency and intensity of extreme weather events, the inevitable rise in sea levels, or the increase in toxic air pollution that communities across the U.S. and world are already experiencing.

Across the United States, close to 58,000 wildfires burned more than 9.2 million acres<sup>i</sup> in 2017, making the air in many communities too dangerous to breathe.<sup>ii</sup> Last year is now second only to 2015 as the worst wildfire season on record. Human-caused climate change is increasing the frequency and size of wildfires<sup>iii</sup> for much of the United States.

Last year was also an extreme year for hurricanes, which devastated communities across the U.S. Hurricanes Harvey and Irma are estimated to have caused \$200 billion in damage.<sup>iv</sup> We still don't have an accurate number of deaths from Maria's destructive path through Puerto Rico, a storm that could end up costing the U.S. close to \$95 billion.<sup>v</sup> A scientific consensus exists<sup>vi</sup> that in a warming world, hurricanes will become more intense, carry more rain, and cause worse coastal flooding, linked in part to sea level rise.

The economic costs to the U.S. of harmful air pollutants and climate change from combustion of fossil fuels amount to many billions of dollars a year. Worldwide, according to the World Health Organization (WHO), about three million deaths a year are linked<sup>vii</sup> to ambient air pollution. By 2030 the global health cost of climate-related diseases that disproportionately affect children (diarrhea, malnutrition, malaria and heat stress) will be as high as \$4 billion a year.<sup>viii</sup> These statistics show the need increased regulatory action to reduce fossil fuels emissions. The U.S. government should be incentivizing states to reduce energy from carbon and increase energy from healthy energy sources like wind and solar. Dismantling the CPP won't help our economy, but it will hurt public health.

### **The CPP needs to be made stronger, NOT weaker**

PSR submitted comments supporting the 2015 CPP and its goals to reduce carbon emissions by 30% from 2005 levels. However, we recognized in those comments that goal needed to be an initial step. A 30% reduction in carbon dioxide emissions is not adequate to "prevent the worst

consequences of the changes in the Earth's climate."<sup>ix</sup> A 30% reduction, even if applied worldwide to all emissions by existing stationary electrical generating units, would not be sufficient. We based our comments on the peer-reviewed science summarized in the Intergovernmental Panel Climate Change (IPCC) 5th Assessment Report.<sup>x</sup>

**The 2015 CPP rule projected compliance costs to be between \$5.1 and \$8.4 billion by 2030. In contrast, the 2017 CPP repeal suggests these costs would be as high as \$33.3 billion by 2030. This appears to be because the cost savings associated with energy efficiency improvements in homes and businesses are no longer counted in the costs column. That change in accounting is inappropriate and misleading.**

EPA's 2017 repeal analysis neglects the reality that by limiting energy waste, we cut not only carbon but also dangerous air pollutants and the costly health effects they cause. Coal combustion releases sulfur dioxide, particulate matter, nitrogen oxides, mercury, and dozens of other substances known to be hazardous to human health.

Nitrogen oxides can irritate airways in humans. Exposure over short periods can aggravate respiratory diseases, particularly asthma, leading to hospital admissions and visits to emergency rooms. Longer exposures to elevated concentrations of nitrogen oxides contribute to the development of asthma and increase susceptibility to respiratory infections.<sup>xi</sup> There is growing evidence for effects of nitrogen dioxide on premature deaths and disease incidence.<sup>xii</sup>

Coal combustion contributes to smog through the release of oxides of nitrogen, which react with volatile organic compounds in the presence of sunlight to produce ground-level ozone, smog's primary ingredient. Smog is associated with asthma attacks, new-onset asthma, heart attacks and stroke.<sup>xiii</sup> Researchers conducted the largest study<sup>xiv</sup> ever in 2017 that looked at threshold standards for ozone. The 2017 study could find no sign of a "safe level" of exposure to ozone/smog. For every 1 ppb of ozone reduction, 1,900 deaths were prevented. Previous studies have concluded the same thing, but this new study stands out for several reasons including its size, accuracy and scope. The study followed over 61 million U.S. seniors in 48 states, for 13 consecutive years. Unlike previous studies, this one assessed ozone health impacts in rural areas. It found that low levels of pollution, as low as 30 parts per billion, significantly increase the risk of death for seniors.

Coal-fired power plants remain the single largest source of mercury emissions in the U.S. Mercury targets the nervous system, particularly the brain, leading to serious neurological impacts including stroke and loss of intellectual capacity.<sup>xv</sup> Pregnant women and children are particularly vulnerable to the toxic effects of mercury. Hundreds of thousands of U.S. children are born each year with dangerous levels of mercury in their bodies, putting them at heightened risk for developmental disabilities. This is particularly concerning given the increasing incidence of autism spectrum disorders and other neurological problems among U.S. children.<sup>xvi</sup>

Energy efficiency, by reducing these air toxics, shields the public from significant costs in health care, days lost from school and work, and premature death. Those cost savings should be included in the accounting of compliance costs and savings associated with the CPP.

**The 2017 CPP repeal proposal asserts that there are not health effects associated with exposure to small particles below certain thresholds. This is not a credible claim.** In a retreat from the latest air pollution science, the current EPA calculated the PM 2.5 health benefits from repealing the CPP by presuming health benefits “fall to zero in areas whose model-predicted air quality is at or below the annual average PM 2.5 National Ambient Air Quality Standards (NAAQS) of 12 µg/m<sup>3</sup>.” The scientific consensus that particulate matter (PM) 2.5 is a “no-threshold” pollutant—with a risk of PM 2.5-related harm and death below the NAAQS—has been confirmed by EPA’s Clean Air Science Advisory Committee,<sup>xvii</sup> EPA’s Science Advisory Board<sup>xviii</sup> and the National Academy of Sciences.<sup>xix</sup>

Prior to 2017, EPA’s approach for estimating benefits associated with reducing exposure to fine particles mirrored the latest research, which outlined that health effects can occur along the entire range of potential exposures. EPA’s best estimate of PM<sub>2.5</sub>-related benefits reflected this science and assumed no level below which health effects do not occur. In previous benefits analyses, EPA recognized the importance of this assumption and conducted analyses showing the impact this assumption would have on the total monetized benefits. EPA’s use of the no-threshold model as the best estimate was supported by outside experts, including the National Academies of Science<sup>xx</sup> and the EPA’s independent Science Advisory Board.<sup>xxi</sup>

Further, the World Health Organization (WHO) reports that there is not a threshold below which no damage to human health is observed. Their guidelines for maximizing health within the constraints of our current economy are that PM<sub>2.5</sub> should not exceed an average of 25 micrograms per cubic meter of air (25mcg/m<sup>3</sup>) in a 24-hour period, and not exceed an average annual exposure of 10mcg/m<sup>3</sup>.<sup>xxii</sup>

**The research on particulate matter (PM) pollution and its health-damaging effects is particularly strong.** PM consists of a complex mixture of extremely small airborne particles, many of which are harmful to the body when inhaled into the lungs. The most damaging particles are those with a diameter of 10 microns or less, ( $\leq$  PM<sub>10</sub>), which can penetrate and lodge deep inside the lungs.<sup>xxiii</sup> The fine (PM<sub>2.5</sub>) and ultrafine particles (<0.1 microns) are particularly important in triggering disease because they can gain direct access to the bloodstream and may then contribute to various diseases in organs far from the lungs.

The effects of PM on health occur at levels of exposure currently being experienced by most urban and rural populations in both developed and developing countries. Burning fossil fuel results in two phases of emissions, both containing the highly toxic polycyclic aromatic hydrocarbons (PAHs). In addition to the “particulate phase,” there is a “gas phase” containing other air pollutants such as acrolein, benzene, and formaldehyde, which also contribute to disease.<sup>xxiv</sup>

Exposure to increased levels of particulate matter are associated with a number of severe health effects, including increased cancer rates, especially lung and breast,<sup>xxv</sup> congenital lung, heart and immune system anomalies in children,<sup>xxvi</sup> increased rates of asthma, worsening of preexisting asthma and chronic obstructive pulmonary disease (COPD),<sup>xxvii</sup> higher rates of heart attacks and strokes,<sup>xxviii</sup> and higher rates in children (exposed prenatally) of neurodevelopmental disorders such as autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), lowered IQ, and adverse behaviors.<sup>xxix xxx</sup>

The populations most vulnerable to particulate matter pollution are pregnant women, children, people that already have pulmonary diseases like COPD or asthma, and the elderly. A study completed in 2017 looked at mortality rates in the Medicare population and exposure to PM2.5. For each 10-microgram-per-cubic-meter daily increase in PM2.5, the daily mortality rate increased by 1.05%. For low-income seniors (defined as those receiving Medicaid), deaths linked to PM2.5 increases were three times higher than those not on Medicaid. Women and people of color had a 25% higher death risk from the pollution than white men.<sup>xxxi</sup>

In summary, decreasing particulate matter in the air, especially particles of 2.5 microns or less, will generate decreases in morbidity and mortality from many diseases, as well as a decrease in the health care costs associated with these chronic and acute illnesses. These benefits should be incorporated into the cost/benefit analysis of implementing or repealing the CPP.

**The 2015 Rule was projected to yield \$20 billion in climate benefits by 2030, whereas the 2017 Repeal projects only \$0.5-\$2.7 billion. This is because in the 2017 Repeal proposal, EPA confined its analysis to climate damages predicted to occur only within the United States. That change in the analysis creates misleading projections.** Climate change is a global phenomenon. What we do in the U.S. impacts other countries and vice versa.

Here are a few examples of how our climate is changing globally:

- Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850. The time period from 1983 to 2012 was the warmest 30-year period of the last 1400 years in the Northern Hemisphere.
- Ocean warming dominates the increase in energy stored in the climate system, accounting for more than 90% of the energy accumulated between 1971 and 2010.
- Since the beginning of the industrial era, oceanic uptake of CO<sub>2</sub> has resulted in acidification of the ocean.
- Over the period 1992 to 2011, the Greenland and Antarctic ice sheets have been losing mass (high confidence), likely at a larger rate over 2002 to 2011. Glaciers have continued to shrink almost worldwide.
- Over the period 1901 to 2010, global mean sea level rose by 0.19 m. The rate of sea level rise since the mid-19th century has been larger than the rate during the previous two millennia.<sup>xxxii</sup>

Impacts of climate change occur worldwide, threatening U.S. residents as well as others:

- The probability of heat waves has doubled, increasing heat-related human mortality.
- Extreme precipitation and discharge means greater risks of flooding at a regional scale.

### **The CPP will save lives**

The CPP was developed based on solid scientific research documenting the serious health consequences of climate change and exposure to dirty air. The proposal was finalized with the input of over 4 million public comments, including comments from PSR members, chapters and staff. Repealing the CPP will result in preventable deaths and acute illnesses across the U.S. The current EPA's analysis found that the CPP could prevent as many as 4,500 premature deaths each year by 2030, and previous estimates found it could provide up to \$54 billion in health and climate benefits.

There is abundant evidence in the scientific and medical literature for the public health impact of climate change. The science is solidly in support of reducing carbon dioxide emissions. Federal policies and rules that promote clean energy, restrict climate-altering emissions from power plants and natural gas production are essential to slowing the health damaging impacts of climate change. They must not be weakened. Physicians for Social Responsibility thus strongly opposes the EPA's proposal to repeal the CPP.

Sincerely,

Kathy Attar  
Environmental Health Program Manager  
Physicians for Social Responsibility

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<sup>i</sup> National Interagency Fire Center. <https://www.nifc.gov/fireInfo/nfn.htm>

<sup>ii</sup> Miller, Casey and Umair Irfan. October 12, 2017. "Map: see where wildfires are causing record pollution in California." VOX. <https://www.vox.com/energy-and-environment/2017/9/12/16295246/wildfires-air-quality-map>

<sup>iii</sup> John T. Abatzoglou and A. Park Williams. **Impact of anthropogenic climate change on wildfire across western US forests** PNAS 2016 113 (42) 11770-11775; published ahead of print October 10, 2016, doi:10.1073/pnas.1607171113. <http://www.pnas.org/content/113/42/11770.abstract>

<sup>iv</sup> Liesman, Steve. "Harvey and Irma economic hit could total \$200 billion: Moody's." September 11, 2017. CNBC. <https://www.cnbc.com/2017/09/11/harvey-and-irma-economic-hit-could-total-200-billion-moodys.html>

<sup>v</sup> Disis, Jill. "Hurricane Maria could be a \$95 billion storm for Puerto Rico." September 28, 2017. CNN Money. <http://money.cnn.com/2017/09/28/news/economy/puerto-rico-hurricane-maria-damage-estimate/index.html>

<sup>vi</sup> IPCC Fourth Assessment Report: Climate Change 2007. [https://www.ipcc.ch/publications\\_and\\_data/ar4/wg1/en/ch10s10-3-6-3.html](https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch10s10-3-6-3.html)

<sup>vii</sup> WHO. September 2016. <http://www.who.int/mediacentre/news/releases/2016/air-pollution-estimates/en/>

<sup>viii</sup> WHO. July 2017. <http://www.who.int/mediacentre/factsheets/fs266/en/>

<sup>ix</sup> PSR's Comments on the Clean Power Plan. <http://www.psr.org/assets/pdfs/psrs-comments-on-the-epa.pdf>

<sup>x</sup> Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland: Intergovernmental Panel on Climate Change, 2014

<sup>xi</sup> EPA. Basic Information about NO2. <https://www.epa.gov/no2-pollution/basic-information-about-no2>

<sup>xii</sup> Harrison et al. "Efficacy of Recent Emissions Controls on Road Vehicles in Europe and Implications for Public Health." Sci Rep. 2017 Apr 25;7(1):1152. doi: 10.1038/s41598-017-01135-2. <https://www.ncbi.nlm.nih.gov/pubmed/28442773>

<sup>xiii</sup> EPA. Basic Information About Ozone. <https://www.epa.gov/ozone-pollution/basic-information-about-ozone>

<sup>xiv</sup> Di et al. "Air Pollution and Mortality in the Medicare Population." N Engl J Med 2017; 376:2513-2522 June 29, 2017 DOI: 10.1056/NEJMoa1702747. <http://www.nejm.org/doi/full/10.1056/NEJMoa1702747#t=abstract>

<sup>xv</sup> EPA. Health Effects of Mercury Exposure. <https://www.epa.gov/mercury/health-effects-exposures-mercury>

<sup>xvi</sup> Centers for Disease Control. Autism Spectrum Disorder. Data and Statistics. <https://www.cdc.gov/ncbddd/autism/data.html>

<sup>xvii</sup> EPA 2009. <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=216546>

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<sup>xviii</sup> EPA 2004.

<https://nepis.epa.gov/Exe/ZyNET.exe/901R0B00.txt?ZyActionD=ZyDocument&Client=EPA&Index=2000%20Thru%202005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C00THRU05%5CTXT%5C00000012%5C901R0B00.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p%7Cf&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1>

<sup>xix</sup> National Academy of Sciences. Estimating the Public Health Benefits of Proposed Air Pollution Regulations. 2002.

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<sup>xxi</sup> U.S. Environmental Protection Agency– Science Advisory Board (U.S. EPA-SAB). 2004. Advisory on Plans for Health Effects Analysis in the Analytical Plan for EPA's Second Prospective Analysis - Benefits and Costs of the Clean Air Act, 1990-2020. Advisory by the Health Effects Subcommittee of the Advisory Council on Clean Air Compliance Analysis. EPA-SAB-COUNCIL-ADV-04-002. March.

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<sup>xxiv</sup> Oregon-Physicians for Social Responsibility. Airborne Particulate Matter and Public Health.

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