

[Union of Concerned Scientists

October 31, 2018

To: Acting Administrator Andrew Wheeler

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

Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program. Vol. 83, Federal Register, No. 170, Friday, August 31, 2018. Proposed Rule. Environmental Protection Agency: 40 CFR Parts 51, 52, and 60.

U.S. Environmental Protection Agency, EPA Docket Center, Mail Code: 28221T, 1200 Pennsylvania Ave, NW, Washington, DC 20460.

Submitted directly to *Regulations.gov*

Acting Administrator Wheeler:

The Union of Concerned Scientists (UCS) vigorously disagrees with the Environmental Protection Agency's (EPA) draft replacement for the Clean Power Plan, the proposed Affordable Clean Energy (ACE) rule. This action represents a dramatic departure from science and statute and reveals an agency that has fully abdicated its mandated roles and responsibilities. Audaciously, under the cover of advancing a regulation in support of its affirmative statutory obligation to regulate greenhouse gas emissions, the EPA has managed to draft a proposal that would primarily serve to assist some of the nation's largest sources of heat-trapping emissions to run *more*, not less. It is a stunning slap in the face to every community already wrestling with the devastating effects of climate change and those bracing for all that is to come. We call on the EPA to simply *do its job*: to issue a regulation that reckons with the reality of the challenge at hand and sets the power sector back on course to a clean energy future.

UCS puts rigorous, independent science to work to solve our planet's most pressing problems. We work on behalf of our more than 500,000 supporters and network of over 24,000 scientists to advance public awareness of the science of climate change and the solutions available to forestall the worst of climate impacts. We engage at the local, state, and federal levels to inform and support the transition this challenge requires, including significant and sustained participation with the EPA surrounding the Clean Power Plan. In particular, we worked with the agency to develop, refine, and strengthen the Clean Power Plan, both independently^{1,2,3,4} and in collaboration with partner organizations^{5,6,7}. More recently, we have been regrettably forced to counter the agency's increasingly dangerous and damaging attempts at regulatory rollback, calling out the flaws in its advance notice of proposed rulemaking

¹ Cleetus, R., S. Clemmer, J. Deyette, S. Mullendore, and J. Richardson. 2014. *Strengthening the EPA's Clean Power Plan*. Cambridge, MA: Union of Concerned Scientists. Online at www.ucsusa.org/sites/default/files/attach/2014/10/Strengthening-the-EPA-Clean-Power-Plan.pdf.

² Union of Concerned Scientists. 2014. *Technical comments on the Environmental Protection Agency (EPA) Proposed Rule: Carbon Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units*. Cambridge, MA. Online at www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2013-0602-33893.

³ Union of Concerned Scientists. 2015. *Technical comments on the Clean Energy Incentive Program (CEIP) Design and Implementation*. Cambridge, MA. Online at www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2015-0734-0097.

⁴ Union of Concerned Scientists. 2016. *Technical comments on the Federal Plan Requirements for Greenhouse Gas Emissions from Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations*. Cambridge, MA. Online at <https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0199-0436>.

⁵ Midwest Power Sector Collaborative. 2014. *Midwestern Power Sector Collaborative's Final Comments to the U.S. EPA on Draft 111(d) Guidelines*. Minneapolis, MN. Online at <https://www.regulations.gov/document?D=EPA-HQ-OAR-2013-0602-23564>.

⁶ Midcontinent Power Sector Collaborative. 2016. *Midcontinent Power Sector Collaborative's Comments to the U.S. EPA on the Draft Federal Plan and Modal Rules*. Minneapolis, MN. Online at <https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0199-0893>.

⁷ Environmental Defense Fund, Institute for Policy Integrity at New York University School of Law, Natural Resources Defense Council, and Union of Concerned Scientists. 2014. *Comments on the U.S. Social Cost of Carbon*. Online at <https://academiccommons.columbia.edu/catalog/ac:182531>.

(ANPRM)^{8,9} and its proposed Clean Power Plan repeal^{10,11}.

Now, we repeat our urgent call for the EPA to reverse its misguided course and return to advancing the pollution standards the climate change challenge so desperately requires. The threat of climate change could not be any clearer than it is today, with dire warnings ringing out from scientists around the world. Just this month, the Intergovernmental Panel on Climate Change (IPCC) released a special report highlighting the scale of the challenge, the differences in impacts the globe could face based on varying emissions trajectories, and—most critically—the vanishingly small amount of time that remains for nations to get on track.¹² In the context of this blaring call to action, and the many deafening calls that have come before, it is unconscionable that the EPA can now so casually put forward an emission guideline that would not require *any emissions reductions at all*.

The EPA has already established a viable framework for achieving emissions reductions in the power sector: the Clean Power Plan. Indeed, not only does the Clean Power Plan provide a valuable initial approach, it also establishes a durable organizing framework for ratcheting down power sector emissions over time. In just a few short years, the projected cost of compliance for the Clean Power Plan has plummeted, with vastly more cost-effective emissions reductions mechanisms available across the sector, which a strengthened Clean Power Plan could readily capture. By contrast, the ACE proposal’s highly circumscribed approach, focused solely on plant-level heat rate improvements, will *never* get better over the course of source compliance. Indeed, the new proposal would, at very best, maintain its initial negligible emissions efficiency gains, but much more likely experience erosion of even those small changes over time.

With this proposal the EPA has rejected without justification the robust and cost-effective Clean Power Plan, and advanced in its place a rule that would *prop up* large emitters and establish no minimum requirement for them to meet. It is counter to statute, counter to science, and counter to all that this nation needs. We strongly oppose this effort and call on the EPA to return to its mission and statute: to protect *people*, not polluter profits.

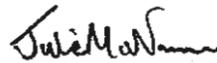
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⁸ Union of Concerned Scientists. 2018. *Technical comments on the State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Advance Notice of Proposed Rulemaking*. Cambridge, MA. Online at <https://www.regulations.gov/document?D=EPA-HQ-OAR-2017-0545-0284>.

⁹ Comments of the Appalachian Mountain Club, et al. 2018. *Joint comments of environmental and public health organizations on Advance Notice of Proposed Rulemaking Regarding Emission Guidelines for Existing Electric Utility Generating Units*. Online at <https://www.regulations.gov/document?D=EPA-HQ-OAR-2017-0545-0298>.

¹⁰ Union of Concerned Scientists. 2018. *Technical comments on the Proposed Repeal of Carbon Pollution Guidelines for Existing Stationary Sources: Electric Utility Generating Units*. Cambridge, MA. Online at <https://www.regulations.gov/document?D=EPA-HQ-OAR-2017-0355-19900>.

¹¹ Comments of Appalachian Mountain Club, et al. 2018. *Joint comments of environmental and public health organizations on the Proposed Repeal of Carbon Pollution Guidelines for Existing Stationary Sources: Electric Utility Generating Units*. Online at <https://www.regulations.gov/document?D=EPA-HQ-OAR-2017-0355-20656>. (“Joint Environmental Comments on Proposed Repeal”).

¹² Intergovernmental Panel on Climate Change (IPCC). 2018. *Global warming of 1.5°C, an IPCC Special Report on the impacts of global warming of 1.5°C above pre-Industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. Online at www.ipcc.ch/report/sr15/.

1. The EPA's Actions Ignore the Overwhelming Evidence that Climate Change is an Urgent Threat¹³

The EPA is demonstrating a clear dereliction of its duty and legal responsibility to the American public by repealing the Clean Power Plan and proposing to replace it with a much weaker rule, ACE, which according to the agency's own estimates would do virtually nothing to reduce CO₂ emissions from power plants. At a time when the scientific evidence for worsening climate impacts is growing and the urgency to act is increasing, the agency's actions put it at complete odds with its mission to protect public health and welfare.

Moreover, the agency acknowledges its legal responsibilities to limit power plant carbon emissions via the Supreme Court's *Massachusetts v. EPA* ruling (549 U.S. 497, 2007), which concluded that the Clean Air Act (CAA) covers greenhouse gas emissions as air pollutants; and the Endangerment and Cause or Contribute Findings (74 FR 66496, December 15, 2009), which confirmed that greenhouse gas emissions from vehicles must be regulated under the CAA. Further, the agency acknowledges that: "*In 2009, and again in 2016, the EPA Administrator issued findings under sections 202(a) and 231(a)(2)(A) of the Clean Air Act, respectively, that the current, elevated concentrations of six well-mixed GHGs in the atmosphere may reasonably be anticipated to endanger public health and welfare of current and future generations in the United States.*"¹⁴

The EPA's ACE proposal flies in the face of these basic facts. Its weakness and inappropriateness come through clearly in the proposal when it states: "*The Agency estimates there to be forgone climate benefits and forgone ancillary health co-benefits under all four illustrative scenarios in the years and discount rates analyzed relative to the base case.*"¹⁵

The Climate Science Special Report

The Climate Science Special Report (CSSR), Volume 1 of the Fourth National Climate Assessment, is an authoritative, rigorous, peer-reviewed synthesis of the latest science.¹⁶ Drafted by the United States Global Change Research Program (USGCRP) at the request of Congress,¹⁷ it is the work of 13 US federal government agencies, including the EPA, and was approved and released by the White House on November 3, 2017—under the Trump administration. The report reaffirms the findings of multiple scientific assessments that human-caused emissions of carbon dioxide and other heat-trapping gases are the dominant cause of observed warming since the mid-20th century; that increasing extreme heat, heavy precipitation events, and coastal flooding from rising seas are already affecting many parts of the United States; and that swift and deep reductions in emissions could limit the scale and severity of further climate change this century and beyond.

Climate science is of central relevance to the EPA's 2009 Endangerment Finding, which established that emissions of carbon dioxide and other heat-trapping gases endanger public health and welfare. This Finding, together with the 2009 *Mass v. EPA* Supreme Court ruling, clearly establishes EPA's authority and obligation to limit these emissions under the Clean Air Act. The Endangerment Finding is solidly grounded in a thorough assessment of policy-relevant climate science and has been upheld by the U.S. Supreme Court. Were it to be updated today, **the record would clearly show that the scientific basis for climate change, its human-caused drivers, and its impacts on human health and welfare have only become stronger in the intervening years since the finding was issued in 2009.**

¹³ See additionally: Joint Environmental Commenters on Climate Change Issues. 2018. *Joint Comments of Environmental and Public Health Organizations Regarding the Proposed Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Comments Specific to Climate Change*. Submitted to Docket ID: EPA-HQ-OAR-2017-0355; October 31, 2018.

¹⁴ "Finding that Greenhouse Gas Emissions From Aircraft Cause or Contribute to Air Pollution That May Reasonably Be Anticipated to Endanger Public Health and Welfare," 81 FR 54422 (August 15, 2016).

¹⁵ U.S. Environmental Protection Agency (EPA). 2018. *Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program*. 83 Fed. Reg. 170. ("ACE Proposal"), p. 44,789.

¹⁶ USGCRP, 2017: *Climate Science Special Report: Fourth National Climate Assessment, Volume 1* [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 470 pp, doi: 10.7930/J0J964J6. Online at science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf.

¹⁷ The USGCRP's legal mandate was established under the Global Change Research Act of 1990. Public Law 101-606(11/16/90) 104 Stat. 3096-3104.

Observed trends and advances in scientific projections, drawing primarily from the CSSR along with other sources, include the following facts:

- **Temperatures.** Global mean surface temperatures have continued to rise. The years from 2014 to 2017 were the four warmest ever recorded. Seventeen of the warmest years on record have occurred in the past 18 years. Data from NOAA also show that the continental US had its third warmest year on record in 2017 and, for the third consecutive year, every state across the contiguous US and Alaska was warmer than average—including five states with their warmest year on record.¹⁸ Annual average temperature over the contiguous United States has increased by 1.8°F (1.0°C) for the period 1895–2016; over the next few decades (2021–2050), annual average temperatures are expected to rise by about 2.5°F for the United States, relative to the recent past (average from 1976–2005), under all plausible future climate scenarios.
- **Sea Level Rise.** Regular high tide flooding, exacerbated by sea level rise, is already affecting many communities along the East and Gulf coasts of the US and it is increasing in frequency in many places.^{19,20} Global average sea levels are projected to increase by 0.3 – 0.6 feet (3.6–7.2 inches) by 2030 relative to 2000 and, by 1 to 4 feet by 2100. In light of new science emerging around Antarctic ice sheet instability, a rise of as much as 8 feet by 2100 cannot be ruled out. Research from UCS shows that worsening tidal flooding in the U.S. could put as many as 311,000 coastal homes in the lower 48 states, with a collective market value of about \$117.5 billion in today’s dollars, at risk of chronic flooding within the next 30 years—the lifespan of a typical mortgage.²¹ Roughly 14,000 coastal commercial properties assessed at a value of nearly \$18.5 billion also are at risk during that timeframe. By the end of the century, 2.4 million homes and 107,000 commercial properties currently worth more than \$1 trillion altogether could be at risk.
- **Heat Waves.** The frequency of multi-day heat waves has increased since the mid-1960s, and their frequency and intensity are projected to increase further throughout this century.
- **Wildfires.** The incidence of large forest fires in the western United States and Alaska has increased since the early 1980s and is projected to further increase in those regions as the climate changes.
- **Rainfall Intensity.** The frequency and intensity of heavy rainfall events are also on the rise over the past century, with the Northeast experiencing some of the greatest increases.
- **Eroding Snowpack.** Earlier snowmelt and reduced snowpack are already affecting water availability in the western US and projections show that the risks of prolonged and chronic drought are increasing.

Lest there be any doubt, the CSSR states: “*Many lines of evidence demonstrate that it is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century. Over the last century, there are no convincing alternative explanations supported by the extent of the observational evidence*” [emphasis added].

Equally important, the report states that the magnitude of projected climate impacts beyond the next few decades depends principally on the amount of global emissions of heat-trapping gases humans emit. According to the CSSR: “*Without major reductions in emissions, the increase in annual average global temperature relative to preindustrial times could reach 9°F (5°C) or more by the end of this century. With significant reductions in emissions, the increase in annual average global temperature could be limited to 3.6°F (2°C) or less.*” Therefore, it is crucial that the US join the global community in doing its utmost to cut these emissions, including through measures like robust power plant carbon standards.

¹⁸ National Centers for Environmental Information. 2018. *Assessing the U.S. climate in 2017: 2017 was the third warmest year on record for the United States*. National Oceanic and Atmospheric Administration. 5 January. Online at <https://www.ncei.noaa.gov/news/national-climate-201712>.

¹⁹ Spanger-Siegfried, E. Dahl, K., A. Caldas, S. Udvardy, R. Cleetus and P. Worth. 2017. *When Rising Seas Hit Home: Hard Choices Ahead for Hundreds of US Coastal Communities*. Cambridge, MA: Union of Concerned Scientists. Online at <https://www.ucsusa.org/sites/default/files/attach/2017/07/when-rising-seas-hit-home-full-report.pdf>.

²⁰ Sweet, W.V., G. Dusek, J. Obeysekera, J. Marra (2018). *Patterns and Projections of High Tide Flooding Along the U.S. Coastline Using a Common Impact Threshold*. NOAA Tech. Rep. NOS CO- OPS 44p. Online at https://tidesandcurrents.noaa.gov/publications/techrpt86_PaP_of_HTFlooding.pdf

²¹ K. Dahl, R. Cleetus, E. Spanger-Siegfried, S. Udvardy, A. Caldas and P. Worth. 2018. *Underwater: Rising Seas, Chronic Floods, and the Implications for US Coastal Real Estate*. Online at <https://www.ucsusa.org/underwater>

The IPCC 1.5°C Special Report

On October 8, 2018, the Intergovernmental Panel on Climate Change (IPCC) released an important report, which was requested by nations at the time they forged the 2015 Paris Agreement, to help inform global efforts to limit climate change. The special report details the impacts of a global average temperature increase of 1.5°C relative to 2°C above pre-industrial levels, and pathways to limit temperature increase to that level. The findings of this report are sobering indeed, and further emphasize the need for nations of the world to take urgent, ambitious actions to curtail heat-trapping emissions. What is striking is that significant climate impacts will occur even if we manage to keep temperature increase limited to 1.5°C above pre-industrial levels.

The Special Report finds that:

- Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C. Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate.
- Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C.
- Any increase in global warming is projected to affect human health, with primarily negative consequences (high confidence). Lower risks are projected at 1.5°C than at 2°C for heat-related morbidity and mortality (very high confidence) and for ozone-related mortality if emissions needed for ozone formation remain high (high confidence).
- Estimates of the global emissions outcome of current nationally stated mitigation ambitions as submitted under the Paris Agreement would lead to global greenhouse gas emissions in 2030 of 52–58 GtCO₂eq yr⁻¹ (medium confidence). Pathways reflecting these ambitions would not limit global warming to 1.5°C, even if supplemented by very challenging increases in the scale and ambition of emissions reductions after 2030 (high confidence).

The report also finds that limiting further global temperature increase to 1.5°C rather than 2°C would:

- Limit the further increase in the number of extremely hot days across most regions, with lower risks for heat-related morbidity and mortality;
- Limit the extent of increased flooding from extreme precipitation, including rainfall associated with hurricanes;
- Lower the rate of sea level rise, exposing an estimated 10 million fewer people to associated risks by 2100;
- Limit the reduction in yields and nutritional quality of rice, wheat and other major crops;
- Pose far lower risks of species extinction and impacts on terrestrial and wetland ecosystems and the services they provide to humanity;
- Substantially reduce risks to marine biodiversity, ecosystems and their services, especially in Arctic sea ice and warm water coral reef ecosystems – avoiding the virtually complete loss of warm water coral reefs that is projected to result from 2°C warming; and
- Prevent the thawing of some 2 million square kilometers of permafrost over centuries.

The IPCC report also lays out starkly what will be needed to limit global average temperature increase to 1.5°C or 2°C. It finds that:

- In model pathways with no or limited overshoot of 1.5°C, global net anthropogenic CO₂ emissions decline by about 45% from 2010 levels by 2030, reaching net zero around 2050.
- For limiting global warming to below 2°C, CO₂ emissions are projected to decline by about 20% by 2030 in most pathways and reach net zero around 2075.
- Non-CO₂ emissions in pathways that limit global warming to 1.5°C show deep reductions that are similar to those in pathways limiting warming to 2°C.
- All pathways that limit global warming to 1.5°C with limited or no overshoot project the use of CDR on the order of 100–1000 GtCO₂ over the 21st century.

Climate Impacts

Extreme weather events across the globe have been intensifying with just an approximately 1°C increase in the global average temperature above pre-industrial levels. Here in the United States, we have recently experienced a relentless series of intense hurricanes, drought, heatwaves, extreme precipitation, flooding and wildfires over the last few years—all impacts whose risks grow with warming temperatures. NOAA’s National Climatic Data Center’s yearly report on “billion-dollar weather and climate disasters” that affected the US in 2017 showed that those costs exceeded \$300 billion, setting a new US record that blew past previous totals.²² These events also resulted in over 3,000 fatalities, most of which are attributable to Hurricane Maria.²³ Hurricanes Harvey, Maria, and Irma propelled 2017 to become the costliest hurricane season on record at \$270 billion, and California’s terrible wildfires led to it also being the costliest wildfire year at over \$18 billion.

Several recent attribution studies done in the wake of Hurricane Harvey show that climate change worsened the extreme rainfall associated with that storm.^{24,25,26} 2018 has already brought two devastating landfalling hurricanes in the continental US, Hurricanes Florence and Michael, both of which bear the fingerprints of climate change.^{27,28,29,30} A recent report published as a special supplement to the Bulletin of the American Meteorological Society (BAMS), *Explaining Extreme Events in 2016 from a Climate Perspective*, highlights several extremes in 2016 that were exacerbated by climate change.³¹ They include the record global heat, extreme heat over Asia, and unusually warm waters in the Bering Sea. The report contains 27 peer-reviewed analyses of extreme weather across 5 continents and 2 oceans during 2016, based on the research of 116 scientists from 18 countries. As the science of attribution advances, we can expect more and more research of this type to explain whether and how human-made global warming influenced specific extreme events.

Conclusion

Against this backdrop of sobering climate science facts, it is alarming to see the EPA bent on reversing even the modest actions the U.S. had committed to make to lower its CO₂ emissions under the Clean Power Plan and other rulemakings across the economy. The ACE proposal falls far short of the agency’s legal obligation to act to limit heat-trapping emissions from power plants. Relative to the CPP, EPA itself estimates that the Proposal would lead to a 3 percent increase in CO₂ emissions in 2030 and 2035,³² amounting to as much as 103 million tons of additional carbon pollution in 2030 alone.³³ Equally concerning are the years of delay caused by the process of undoing the Clean Power Plan and

²² National Centers for Environmental Information. 2018. *Billion-dollar weather and climate disasters*. National Oceanic and Atmospheric Administration. Online at <https://www.ncdc.noaa.gov/billions/>, accessed April 17, 2018.

²³ George Washington University, [Milken Institute School of Public Health](http://www.milkeninstitute.org/). 2018. Ascertainment of the Estimated Excess Mortality from Hurricane Maria in Puerto Rico. Online at <https://prstudy.publichealth.gwu.edu/sites/prstudy.publichealth.gwu.edu/files/reports/PR%20PROJECT%20REPORT%20FINAL%20Aug%2031%202018%20AGM%200933hrs.pdf>

²⁴ Risser, M.D. 2017. *Attributable human-induced changes in the likelihood and magnitude of the observed extreme precipitation during Hurricane Harvey*. Geophysical Research Letters, Vol. 44: Issue 24. Online at <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017GL075888>, accessed April 17, 2018.

²⁵ Oldenborough, G.J., K. Wiel, A. Sebastian, R. Singh, J. Arrighi, F. Otto, K. Haustein, S. Li, G. Vecchi, and H. Cullen. 2017. *Attribution of extreme rainfall from Hurricane Harvey, August 2017*. Environmental Research Letters, Vol. 12: 12. Online at <http://iopscience.iop.org/article/10.1088/1748-9326/aa9ef2>, accessed April 17, 2018.

²⁶ Trenberth, K. E., L. Cheng, P. Jacobs, Y. Zhang, and J. Fasullo. 2018. Hurricane Harvey links to ocean heat content and climate change adaptation. *Earth’s Future*, 6, 730–744. Online at <https://doi.org/10.1029/2018EF000825>.

²⁷ K. A. Reed, A. M. Stansfield, M. F. Wehner, C. M. Zarzycki. 2018. The human influence on Hurricane Florence. Online at https://cpb-us-e1.wpmucdn.com/you.stonybrook.edu/dist/4/945/files/2018/09/climate_change_Florence_0911201800Z_final-262u19i.pdf

²⁸ Emanuel, K. 2017. Will global warming make hurricane forecasting more difficult? *Bulletin of the American Meteorological Society*, Vol. 98 No. 3, March 2017. DOI:10.1175/BAMS-D-16-0134.1

²⁹ Bhatia, K., G. Vecchi, H. Murakami, S. Underwood and J. Kossin. 2018. Projected Response of Tropical Cyclone Intensity and Intensification in a Global Climate Model. *Bulletin of the American Meteorological Society*, Vol. 31 No. 20, October 2018. Online at <https://doi.org/10.1175/JCLI-D-17-0898.1>

³⁰ Union of Concerned Scientists. Hurricanes and Climate Change. Online at <https://www.ucsusa.org/global-warming/science-and-impacts/impacts/hurricanes-and-climate-change.html>

³¹ Herring, S. C., N. Christidis, A. Hoell, J. P. Kossin, C. J. Schreck III, and P. A. Stott, Eds., 2018: Explaining Extreme Events of 2016 from a Climate Perspective. *Bull. Amer. Meteor. Soc.*, 99 (1), S1–S157.

³² RIA, Table ES-5.

³³ RIA, Table ES-5 and Table 3-41.

undertaking a new rulemaking. We have no time to waste in cutting emissions—postponing action only makes the task more daunting and likely more costly.

As a leading contributor to global CO₂ emissions to date, the US has a responsibility to show global leadership in addressing climate change. This is no time for delay and prevarication about the EPA’s responsibility to act. The agency’s mission is to protect public health and the environment, and it is required to do so based on the best available science. It is long past time for robust actions to protect current and future generations of Americans from the harmful and costly impacts of climate change.

2. The EPA Has Proposed an Ineffective and Unreasonable Best System of Emission Reduction³⁴

- UCS objects to the EPA’s wholesale abandonment of the robust record supporting the Clean Power Plan in its attempt to advance the ACE proposal.
- UCS holds up the EPA’s limiting of covered sources and possible emission control options as evidence the agency is not advancing the best system of emission reduction.
- UCS highlights the EPA’s own analysis showing its proposed approach resulting in higher emissions and potentially higher costs when compared to the Clean Power Plan, precluding the ACE proposal from being considered “best” in any way.

The best system of emission reduction (BSER) advanced in the ACE proposed rule makes unmistakably clear that while in word the EPA has not questioned its statutory obligation to regulate greenhouse gas emissions, in action it most certainly has. In its dramatic tack away from the BSER established by the Clean Power Plan, the agency has failed to engage with the compelling existing record, failed to rationalize its new proposed approach, and failed to reckon with the fact that in the face of the escalating global climate crisis, this “emissions reduction” proposal would *prop up* some of the nation’s very largest greenhouse gas emitters. By the EPA’s own measure, the ACE proposal would achieve far smaller emissions reductions than the Clean Power Plan while potentially costing more, suggesting no plausible route for the ACE approach to be deemed “best” by any account. The good news is that EPA has a strong example of a true BSER in the form of the Clean Power Plan, an approach that was painstakingly crafted to reflect the intricacies of, and opportunities for, the nation’s interconnected power sector. What’s more, the Clean Power Plan’s approach provides a wide range of emissions reduction options to states, giving them considerable flexibility to chart their own low-carbon pathway while meeting an overall standard within reasonable compliance deadlines. EPA should abandon this farce of a proposed approach and return to advancing an approach at least as ambitious as the existing Clean Power Plan.

2.1. UCS objects to the EPA’s wholesale abandonment of the robust record supporting the Clean Power Plan in its attempt to advance the ACE proposed rule.

The Clean Power Plan was developed, revised, and issued based upon a meticulously generated record, driven by significant and sustained stakeholder engagement and outreach. As a result, the final BSER reflects a careful application of statutory obligation to the interconnected and dynamic power sector. This responsibility was not taken lightly, with the EPA methodically anchoring its formulation of the BSER in the accumulated lengthy and robust record. The result is a BSER, and an approach to evaluating and establishing a BSER, that is fully in line with the agency’s legal requirements. With this proposed rule, the agency has pivoted away from that record with little more than a cursory write-off of all that came before, incorrectly and without justification. This action is unsupported by fact, reason, and agency obligation.

In the ACE proposal, EPA first mischaracterizes the Clean Power Plan’s BSER, then dismisses that interpretation as exceeding the agency’s statutory authority, then pivots to an unreasonably constrained interpretation of “BSER” to arrive at the final ACE proposal, a “system” based only on heat-rate improvements (HRI) at coal-fired electric generating units. This action entirely fails to engage with the agency’s former analysis and reasoned decision-making. A mischaracterization cannot relieve the EPA of needing to do the actual work of countering that past record, nor can it

³⁴ See additionally: Joint Environmental Commenters on BSER Issues. 2018. *Joint Comments of Health, Environmental, and Conservation Groups on EPA’s Proposed Rule; Comments on BSER Issues*. Submitted to www.regulations.gov, Docket ID No. EPA-HQ-OAR-2017-0355, October 31, 2018.

justify a new approach to BSER that achieves less emissions reductions and worsened public health, all while likely costing more.

A further issue with the EPA’s wholesale rejection of the underlying Clean Power Plan record is its failure to reckon with the integrated nature of the power sector, which readily points to a BSER in line with that from the Clean Power Plan as opposed to the highly circumscribed approach advanced in the ACE proposal. The agency acknowledges that the market in the power sector is driving down greenhouse gas emissions but does not recognize that such gains are commonly a result of generation shifting from coal to cleaner forms of energy like natural gas, wind, and solar power. Instead, the agency writes that with its new proposed emission guideline, it is “reinforcing the market in many respects and also ensuring that available emission reductions that are not market driven are achieved.”³⁵ In reality, however, “reinforcing the market” would mean recognizing and further supporting the clean energy transition already underway, not devising a system that overtly attempts to intervene in the marketplace to *prop up* economically struggling coal-fired power plants instead. These power sector trends also make meaningful carbon emission reductions even more feasible and less costly than when the Clean Power Plan was finalized. They further confirm that a power sector with higher and higher levels of renewables is entirely reliable, and indeed grid planners are confidently committing to ever higher penetrations every year.

2.2. UCS holds up the EPA’s limiting of covered sources and possible emission control options as evidence the agency is not advancing the best system of emission reduction.

Beyond its arbitrary and capricious departure from the rigorously established Clean Power Plan BSER, the EPA further acted irrationally in its formulation of the ACE proposal’s BSER. Specifically, the agency inexplicably omitted readily available forms of emission controls, and unreasonably excluded natural gas plants and integrated gasification combined cycles from being considered affected units. These actions further undermine an already unreasonable approach.

In the proposed rule, EPA limits its already arbitrarily constrained BSER to HRI, omitting other emission control options that could fit even within this highly restricted interpretation. In particular, the agency’s rejection of fuel-switching, co-firing with natural gas or biomass, and carbon capture and sequestration as BSER is arbitrary and unreasonable. The EPA’s reliance on its previous determination for these decisions is particularly egregious, given that those determinations were made when comparing against the much more cost-effective system determined for the Clean Power Plan’s BSER, not the current proposed options.

The ACE proposal also proceeds to exclude natural gas plants and integrated gasification combined cycle coal plants from being considered as affected sources, despite the agency’s responsibility to develop guidelines for sources covered under section 111(b). The agency’s proposed excusal of natural gas plants is unacceptable, citing a lack of identified HRI as justification for no determined BSER. This suggests that the EPA is comfortable allowing the second-largest source of power sector carbon dioxide emissions, and eventually the largest as coal plants continue to come offline, to emit unabated over time. The agency has a responsibility to issue BSER for natural gas plants; it must.

2.3. UCS highlights the EPA’s own analysis showing its proposed approach resulting in higher emissions and likely higher costs when compared to the Clean Power Plan, precluding the ACE proposal from being considered “best” in any way.

We know that the nation’s power sector has undergone a rapid transformation away from uneconomic, heavily polluting coal plants and toward cleaner, more cost-effective resources in the form of renewables and natural gas—and we also know that this transition is not expected to stop.³⁶ However, the ACE proposal works to thwart that transition, not support and accelerate it, somehow managing to *boost* the performance of the struggling coal sector compared to no policy at all. According to the EPA’s own analysis, the ACE proposal is worse than the Clean Power Plan by every major measure: higher expected power sector emissions, worsened health outcomes, and potentially even higher costs, especially when

³⁵ ACE Proposal, p. 44,749.

³⁶ Richardson, J., S. Gomberg, J.C. Kibbey, and J. McNamara. 2017. *A dwindling role for coal: Tracking the electricity sector transition and what it means for the nation*. Cambridge, MA: Union of Concerned Scientists. Online at <https://www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/coal-transition>.

considering that the agency modeled the costs of Clean Power Plan compliance in an unreasonably and unrealistically expensive and inefficient manner.

This intervention in the markets to achieve negligible emissions reductions—and possibly even emissions *increases* due to rebound from the proposed revisions to New Source Review—runs counter to agency responsibility, and counter to common sense. The EPA itself notes that given the transition at hand, work undertaken to address section 111(d) requirements “could quickly be overtaken by external market forces which could make those efforts redundant or, even worse, put them in conflict with industry trends that are already reducing CO₂ emissions.”³⁷ Indeed, this is a fundamental flaw of the EPA proposal’s constrained, blinkered approach to BSER. The agency is threatening to drive ill-advised investments into a rapidly eroding sector for minimal to non-existent emission reductions, and in the process leaving people on the hook for higher costs and worsened health.

3. The EPA has Inappropriately and Detrimentially Reworked the Implementing Regulations to Support its Flawed Approach³⁸

- UCS finds the EPA’s proposed revisions to the implementing regulations unnecessary and potentially damaging, upending the current order and threatening to trigger a race to the bottom by laggard states.
- UCS objects to the EPA’s egregious lengthening of timelines as a cynical attempt to help polluting plants pollute for longer.

In its introduction to the revised implementing regulations for section 111(d), EPA referred to the proposed changes as being “distinct” from the proposed emission guidelines.³⁹ However, the major revisions advanced in this section are in fact of central importance to the relative impact of the regulation as a whole on the power sector. By shifting authority from the EPA to the states, by significantly lengthening timelines at every step of the way, by upending the very framework by which the Clean Air Act was designed to ensure that a race to the bottom could not take place—by all these changes, the agency has committed itself to protecting the interests and economic viability of a select polluting few over the significant and pressing interests of the public as a whole. We urge the EPA to reconsider these proposed revisions.

3.1. UCS finds the EPA’s proposed revisions to the implementing regulations unnecessary and potentially damaging, upending the current order and threatening to trigger a race to the bottom by laggard states.

The EPA has proposed major, consequential revisions to the section 111(d) implementing regulations in its easing of the agency’s obligation to establish numerical limits for each covered pollutant in an emission guideline. This action would upend the current framework, shifting authority from the agency to states, and risking the triggering of a race to the bottom, whereby states ease pollution restrictions to encourage industry to relocate—and pollute—in their state. Such a result would be counter to the very mandate underlying the Clean Air Act. This shift would be primarily caused by proposals to significantly revise the definition of “emission guideline” and to expand the variance provision such that states are afforded wide latitude in their application of the standard to any given source.

Regarding the proposed revised definition of “emission guideline,” the agency would dramatically alter the intent by shifting from a numerical standard to, effectively, *information on* a standard, with no actual standard to achieve. This would fundamentally change the nature of the section, ultimately ceding significant authority from the EPA to the states. The implications are dire for public health; as Assistant Administrator Bill Wehrum himself explained upon release of the proposal, “At the end of the day, there is no floor, there is no maximum.”⁴⁰

The EPA’s proposed expansion of the variance provision threatens to further erode the veracity of any established emission guideline. States would gain the ability to consider source-specific factors across *all* covered sources,

³⁷ ACE Proposal, p. 44,751.

³⁸ See additionally: Joint Environmental Commenters on Framework Regulations. 2018. *Joint Comments of Environmental and Public Health Organizations Regarding the Proposed Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Comments Specific to Framework Regulations*. Submitted to Docket ID: EPA-HQ-OAR-2017-0355; October 31, 2018.

³⁹ ACE Proposal, p. 44,769.

⁴⁰ Niina Heikkinen and Nick Sobczyk, E&E News, 21 Aug. 2018, *Trump kicks off next big climate battle*, online at www.eenews.net/stories/1060094871.

not just specific targeted cases. Combined with the agency's further proposal to loosen the requirements surrounding consideration of remaining useful life factors, the use of variances—and the subsequent departures from the emission guideline—are likely to increase.

3.2. UCS objects to the EPA's egregious lengthening of timelines as a cynical attempt to help polluting plants pollute for longer.

In its proposed revisions to the implementing regulations, the EPA has suggested lengthening or delaying multiple timing requirements, serving to significantly increase the amount of time before the proposed rule would actually enter into effect. In the face of a severe and escalating climate crisis, this lackadaisical response is inimical to that demanded by the pressing problem. The EPA should be *accelerating* its response, not dragging out timelines to allow polluters to continue to pollute carbon emissions for that much longer. This is irresponsible, unnecessary, and quite clearly not the result of reasoned decision-making.

4. The EPA's Proposed Revisions to New Source Review Are Harmful to Health and Unsupported by Statute⁴¹

- The EPA's proposal to add an hourly emissions rate test to the NSR determination is in direct conflict with the clear directive of the Clean Air Act to prevent a significant deterioration of air quality, to establish and maintain science-based limits on air pollutant concentrations, and to protect human health and the environment from damaging levels of regulated NSR pollutants.
- The EPA's proposed changes to NSR would allow the dirtiest emitters to avoid investments in appropriate and modern pollution controls, giving them an unfair and perverse advantage over those plant owners that have invested in more modern, cleaner electric generating units.
- The EPA's proposed changes to NSR are unnecessary and an excessive erosion of Clean Air Act protections, especially given significant flexibility already built into the program.
- This is a dangerous precedent that, if applied to the full range of applicable stationary sources, could have tremendous detrimental air quality impacts and lead to significant increases in pollution levels across the nation.

4.1. The EPA's proposed revisions to NSR directly conflict with the clear intent of the Clean Air Act.

The EPA's proposal to insert an hourly emission rate criteria to determine whether NSR permitting is required would significantly erode the clear intent of the CAA to protect human health and the environment from excessive air pollutant concentrations and maintain national ambient air quality standards (NAAQS) based on overall pollution concentration, not pollution emission rates.⁴² Air pollution emitted from coal-fired power plants, of which this proposed change would affect, causes severe adverse health effects, including respiratory conditions and premature deaths for thousands of people in America each year.⁴³

Already these sources have been able to avoid installing equipment to reduce emissions because of exemptions granted to them under the CAA at the time of its enactment.⁴⁴ These exemptions were not designed to be permanent. The enactment of the NSR permitting process was specifically designed to ensure existing sources of air pollution would eventually install pollution control equipment when they were upgraded or undertook major modifications that would lead to an increase in emissions.⁴⁵ The CAA, including the NSR provisions, have led to tremendous progress in reducing levels of critical air pollutants, saving lives, and creating a safer, more prosperous quality of life in the United States.

The EPA's proposed revisions to NSR permitting would be an enormous step backwards. Science-based NAAQS are rightfully established based on overall ambient concentrations of air pollutants that can cause degradation of public health and the environment, *not* on the hourly rate at which those pollutants are emitted. This distinction is critical to the

⁴¹ See additionally: Joint Environmental Commenters on NSR Issues. 2018. *Joint Comments of Environmental and Public Health Organizations Regarding the Proposed Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Comments Specific to NSR*. Submitted to Docket ID: EPA-HQ-OAR-2017-0355; October 31, 2018.

⁴² <https://www.epa.gov/criteria-air-pollutants/process-reviewing-national-ambient-air-quality-standards>

⁴³ <https://www.ucsusa.org/clean-energy/coal-impacts>

⁴⁴ http://frankackerman.com/publications/climatechange/Grandfathering_Coal_Emissions.pdf

⁴⁵ <https://scholarlycommons.law.hofstra.edu/cgi/viewcontent.cgi?article=2434&context=hlr>

goal of the CAA – to establish and maintain health-protective overall concentrations of air pollutants. EPA’s proposed NSR revisions would allow EGUs to avoid NSR permitting while ramping up emissions to just below the hourly emissions maximum established under EPA’s proposal. This would essentially allow polluting EGUs to significantly increase annual emissions and avoid installing modern pollution controls – specifically what the NSR provisions are designed to avoid.

This increase in annual emissions could ultimately lead to increases in ambient air pollution and a significant degradation of air quality that is in direct conflict with the clear directive of the CAA. The EPA’s argument that it has the broad discretion to propose a reasonable method by which to calculate the amount of an emissions “increase” for purposes of NSR applicability rings hollow in the context of actual impacts to public health and the environment because in many cases, adverse impacts are determined by the cumulative burden of pollution that people and the environment are exposed to, not necessarily the hourly rate of pollution.

The EPA’s attempt to hide behind uncertainty in its rationale for the proposed NSR amendment also rings hollow. The contention that “while it is possible that some individual units may experience an increase in annual emissions due to increases in operation, it is very difficult to project with confidence at which of the units this would actually occur”⁴⁶ undermines EPA’s argument that this change is unlikely to have an adverse impact on local air quality. The fact is, this change would allow polluters to pollute more. It is common sense that more pollution will lead to degraded air quality and worse health outcomes.

Further, the EPA’s failure to identify (or at least attempt to identify) the particular sources at which NSR permitting may be required absent the proposed revisions to the NSR regulations, or to incorporate a specific cost for NSR permitting within any of the scenarios put forth in the Regulatory Impact Assessment, reveals a lack of understanding of the impact this proposed change will have on air quality or the cost of compliance. In essence, the EPA is significantly weakening CAA regulations based on a hunch and feedback provided by the very industries EPA is charged with regulating.

4.2. The EPA’s proposed NSR revisions would give a perverse advantage to the dirtiest EGUs.

The insertion of an hourly emission rate assessment into the NSR review process further exacerbates an unfair and perverse advantage to the dirtiest stationary sources. Those that have avoided emission reductions to date would have an easier time meeting this significantly weakened threshold for NSR review than those that have already installed pollution control equipment simply because less efficient, dirtier plants could potentially take advantage of hourly emission rate reductions that other plants have already achieved while still significantly increasing their overall annual emissions.

Further, the EPA’s proposed approach to allow states the discretion to include a new Step 2 for major NSR applicability at existing EGUs could cause a race to the bottom, significantly disadvantaging those states that choose to prioritize health and the environment over increased air pollution from outdated, inefficient EGUs. Allowing some states to significantly weaken the protections embodied in NSR is contrary to the purpose of the CAA and the proper federal role in not only protecting human health and the environment, but in providing a baseline for the nation’s environmental controls and providing a level playing field that does not allow states to skirt basic protections of human health to the benefit of select polluting industries.

Lastly, the EPA’s attempt to wave away this significant deterioration of regulatory authority by claiming that the minor NSR process, by which states have the discretion to require an air quality impact analysis and ultimately require the installation of air pollution controls, cedes too much discretion to individual states is misguided. This simply shirks the EPA’s authority and responsibility to provide baseline regulations that protect all people in America from deadly air pollution, and does nothing to avoid the race to the bottom as some states weaken air pollution regulations, negatively impacting not just their residents, but those in downwind states.

4.3. The EPA’s proposed NSR revisions are unnecessary, harmful to air quality, and based on flawed logic.

The EPA’s proposed NSR revisions are unnecessary because there is already plenty of flexibility in the NSR program, including discretion to define protections Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) that are consistent with industry best practices and, in the case of BACT, to consider economic impacts and

⁴⁶ ACE Proposal, p. 44,781.

other costs. In addition, the EPA's proposed rule already affords so much latitude to states to develop standards of performance, they are able to set standards so low as to ensure that EGU's will not have to invest in HRIs that could trigger NSR.

Weakening one regulatory requirement simply to allow easier compliance with another already weak regulatory requirement is completely antithetical to the protections explicitly afforded by Congress when enacting the CAA. Since, according to the EPA's own analysis, the ACE proposal will barely affect emissions, the proposed NSR revision is revealed to be nothing more than a giveaway to the same polluting facilities that EPA purports to regulate.

Further, the EPA's logic that it is neither (1) exempting EGU's from NSR review for purposes of the proposed ACE rule, nor (2) exempting pollution control projects from NSR review (as was struck down in *New York v. EPA* in 2005 in the circuit court of DC⁴⁷) is nonsensical, circular logic.

Regarding EPA's assertion that it is not exempting EGU's from NSR review for purposes of this rulemaking, EPA is, in fact, putting forth HRI that by their very nature will reduce the lbs/MWh of emissions because less fuel will be burned per MWh. EPA is then proposing to create a de facto exemption to NSR permitting for modifications that reduce the lbs/MWh of pollution. This legal shell game is, in fact, exempting EGU's from NSR review for purposes of complying with the proposed ACE rule.

EPA's rationale also appears to be a thinly-veiled attempt to distinguish this from an exemption of pollution control projects that the DC Circuit court ruled unlawful in 2005. Through the ACE proposal, the EPA is putting forth various HRI technologies as the only available technologies to reduce greenhouse gas emissions at EGUs. Because these HRI technologies will, by their very nature, reduce hourly emission rates, and because the EPA is proposing to exempt EGU's from NSR permitting based on an hourly emission rate test, the EPA is effectively classifying HRI technologies as environmental controls, then exempting them from NSR permitting. This latest attempt to exclude pollution reduction technologies from NSR review does not pass legal muster for similar reasons as those outlined in the 2005 court decision.

4.4. The sole purpose of the NSR changes proposed by the EPA are to offset the flaws in its proposed BSER.

It is patently clear that the EPA has been boxed into a need to propose changes to the NSR simply because the ACE proposal's single system for BSER—HRI—could trigger NSR provisions as they currently stand. The agency acknowledges this in the proposal itself, stating:

“...the EGU which undergoes the HRI project will typically experience greater unit availability and reliability, all of which contribute to lower operating costs. EGUs that operate at lower costs are generally preferred in the dispatch order by the system operator over units that have higher operational costs,⁴⁷ and EPA's regulatory impact analysis (RIA) for this action (located in the docket) shows that improving an EGU's heat rate will lead to increased generation due to its improved efficiency and relative economics. As the EGU increases its generation, to the extent the EGU operates beyond its historical levels by a meaningful amount, it could result in an increase in emissions on an annual basis, as calculated pursuant to the current NSR regulations. Specifically, if a source is undertaking a HRI project and its future emissions (i.e., PAE) are projected to increase above its historical emissions (i.e., BAE) in an amount greater than the relevant “significant” level, the source could be required to obtain a major NSR permit for the modification.”⁴⁸

Further, the EPA is aware that were the NSR provisions to be triggered, plant owners could be faced with the need to make significant investments in modern pollution controls, thus undermining any intended savings from ACE's weak regulatory approach. Such is the foolishness of the proposal at hand. The agency should go back to the robust BSER established in the Clean Power Plan instead of embarking on a strategy of undermining bedrock environmental laws simply to prop up its deeply flawed proposal.

⁴⁷ *New York v. EPA*, 413 F.3d 3 (D.C. Cir. 2005); <http://columbiaclimatelaw.com/resources/state-ag-environmental-actions/new-york-v-u-s-epa-2005/>.

⁴⁸ ACE Proposal, p. 44,775.

4.5. The EPA’s proposed NSR revisions set a dangerous precedent.

The changes to the NSR provisions that the EPA is proposing could have far-reaching consequences, both for EGUs and other stationary sources. For EGUs, it is not only HRI that would avoid triggering NSR review; as currently worded the EPA’s NSR changes would apply to any major modification undertaken. This could lead to significant increases in pollution, contrary to the intent of the CAA. UCS roundly rejects the EPA’s proposed revisions to the NSR and calls for them to be withdrawn.

5. The EPA Errs in its Analysis of the Proposed Rule and Advances Misleading Findings⁴⁹

- UCS objects to the EPA’s presentation of unsupported, unscientific conclusions alongside accepted scientific work, muddying public understanding of the actual health risks of its proposal.
- UCS calls on the EPA to abandon its obfuscation of the true costs and benefits of the proposed rule by comparing costs against only a subset of benefits, and to cease its use of an inaccurate and unrepresentative value for the social cost of carbon.
- UCS finds that the agency’s analysis is misleading in its discussion and presentation of a “no CPP world,” and is lacking in pertinent and necessary sensitivity analyses.
- UCS objects to the EPA’s inadequate analysis of the distributional impacts of its proposal and finds the agency’s pledge to complete them for the final rule insufficient, voiding the public’s ability to comment in a fully informed manner.

The regulatory impact analysis (RIA) supporting the ACE proposed rule is replete with analytical distortions and misleading presentations of findings. The EPA is advancing unsupported estimates of public health impacts alongside accepted approaches and putting forward tables that purportedly compare the costs and benefits of the proposed action yet exclude key benefits. The agency has failed to undertake required analyses considering the distributional impacts of its proposal and has ignored or omitted highly relevant sensitivities related to its assumptions. And throughout all of these flawed analytical efforts courses the most significant flaw of all: the agency’s failure to accurately model the regulation it is proposing to put in place, arising from the fact that the ACE proposal is designed to create room for states to regulate or *not regulate* covered sources however they see fit. The agency makes no real attempt to model such possibilities, thereby suggesting a level of certainty in the presented results that is likely far from representative.

With these many and varied efforts, the EPA has systematically skewed the RIA’s findings to support its predetermined favored outcome. The issuance of this proposal threatens to further undermine public confidence in its work, a damaging outcome that could reverberate long into the future.

5.1. UCS objects to the EPA’s presentation of unsupported, unscientific conclusions alongside accepted scientific practice.

In the ACE proposal’s RIA, the EPA has redoubled its efforts to muddy public understanding of the potential health impacts of the agency’s actions. Specifically, in considering the effect of changes in fine particulate matter (PM_{2.5}) on premature mortality, alongside accepted practice the agency also displays results that assumed concentration cut-points unsupported by the literature—and unsupported by even its own scientific advisors. Citing the fact that the agency has “less confidence” in the risks estimated at lower ambient levels, EPA proposed two additional approaches that assumed no health responses below alternative cut-points. Such an action is wholly unsupported by scientific finding; as the RIA acknowledges, EPA’s own Integrated Science Assessment for Particulate Matter (PM ISA)⁵⁰ found that “the scientific literature supports the use of a no-threshold log-linear model to portray the PM-mortality concentration-response

⁴⁹ See additionally: Joint Environmental Commenters on Regulatory Impact Analysis. 2018. *Joint Comments of Environmental and Public Health Organizations Regarding the Proposed Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Comments Specific to Regulatory Impact Analysis*. Submitted to Docket ID: EPA-HQ-OAR-2017-0355; October 31, 2018.

⁵⁰ U.S. Environmental Protection Agency. 2009. *Integrated Science Assessment for Particulate Matter: Final Report*. Online at <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=216546>.

relationship,” and that “little evidence was observed to suggest that a threshold exists.”⁵¹ Somehow, the agency has now twisted uncertainty into non-zero thresholds—*exactly counter* to that which the science supports.

The net result of this action is an RIA with tables displaying unsupported, unscientific analyses alongside best practice. This damaging tactic creates room for a narrative quoting much lower numbers of premature deaths due to agency action *despite* a recognition by the agency itself that those lower numbers do not represent science advisement. Most concerning, EPA appears to be moving toward a world in which those lower numbers could become the new normal for what it reports going forward—regardless of inaccuracy—given its ongoing effort at restricting the science that can be used to inform agency action.⁵²

These efforts not only undermine public trust in agency reporting but also public trust in agency action. Such maneuvering appears solely motivated by attempts to increase uncertainty in the benefits of rules and subsequently improve the optics of a deregulatory agenda.

5.2. UCS calls for the EPA to abandon its obfuscation of the true costs and benefits of the proposed rule, and to cease its use of an inaccurate value for the social cost of carbon.

In the RIA for the EPA’s proposed Clean Power Plan repeal, and now again in the RIA supporting the ACE proposed rule, the EPA has included a deeply pernicious approach to tabulating—and as importantly presenting—the costs and benefits of its proposed action. In the process, the agency is seeking to undercut a major category of benefits of carbon pollution standards: the significant public health co-benefits from simultaneously reducing co-pollutants. Having a full picture of the costs and benefits of a regulatory action is critically important to understanding the scope of impact a rule could have. Although the process can be challenging, cost-benefit analysis allows for these important insights, and thus its careful undertaking and considered treatment is of utmost importance in the rulemaking process. Unfortunately, through its recent actions the EPA suggests that it shares no such concern, and in fact is working under separate cover to institutionalize the biased, misleading, and counter-to-statute approach that it practices in this RIA.⁵³ UCS has previously called out the EPA for these actions, and does again so here, to bring attention to—and urge the correction of—an approach that repeatedly tips perceptions, but not fact, in favor of a select polluting few.⁵⁴

Specifically, the EPA is working to establish and normalize a cost-benefit methodology that would include the full costs of compliance but only report on the benefits from the “target pollutant” related to the primary intent of the rulemaking. The trouble with this approach is that it excises the very real, and often very valuable, additional benefits that accrue alongside those pollutant reductions. EPA distinguishes these benefits as “targeted pollutant benefits” and “ancillary benefits” or “co-benefits.” The agency proceeds to present tables that compare all costs and only partial benefits, leading to some calculations and displays of findings that confusingly show “net” results related to limited values, including in the very first table of the RIA.⁵⁵

This is bad rulemaking practice and bad economics, failing both logically and productively. First, the fallacy of the approach is apparent within the EPA’s own attempted justification: “We refer to the climate benefits as ‘targeted pollutant benefits’ as they reflect the direct benefits of reducing CO₂ and to the ancillary health benefits as ‘co-benefits’ as they are not benefits from reducing the targeted pollutant.”⁵⁶ In fact, the co-benefits resulting from this proposed rule are a *direct* result of reducing the targeted pollutant. And, because reductions in these co-pollutants can provide such significant benefits for public health, understanding how different formulations of a proposed rule could shift their magnitude and distribution should indeed be of utmost consideration to the rulemaking process.

⁵¹ U.S. Environmental Protection Agency. 2018. *Regulatory Impact Analysis for the Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program*. Online at www.epa.gov/sites/production/files/2018-08/documents/utilities_ria_proposed_ace_2018-08.pdf. (“RIA”), p. 4-20.

⁵² Union of Concerned Scientists. 2018. *Strengthening Transparency in Regulatory Science*. Docket ID: EPA-HQ-OA-2018-0259-6144. Online at <https://www.regulations.gov/document?D=EPA-HQ-OA-2018-0259-6144>.

⁵³ U.S. Environmental Protection Agency. 2018. *Increasing Consistency and Transparency in Considering Costs and Benefits in the Rulemaking Process*. Online at www.epa.gov/environmental-economics/increasing-consistency-and-transparency-considering-costs-and-benefits-0.

⁵⁴ Union of Concerned Scientists. 2018. *Technical comments on the Environmental Protection Agency (EPA) Advance Notice of Proposed Rulemaking: Increasing Consistency and Transparency in Considering Costs and Benefits in Rulemaking Process*. Cambridge, MA. Online at www.regulations.gov/document?D=EPA-HQ-OA-2018-0107-1243, accessed October 22, 2018.

⁵⁵ RIA, p. ES-5.

⁵⁶ ACE Proposal, p. 44,792.

As a result, presenting tables that exclude these integrated co-benefits from calculated “net benefits” is confusing at best and deliberately misleading at worst. Given our understanding of the EPA’s parallel efforts to exclude the consideration of co-benefits altogether via the Advanced Notice of Proposed Rulemaking deceptively titled ‘*Increasing Consistency and Transparency in Considering Costs and Benefits in the Rulemaking Process*,’ we take the second option deeply seriously, particularly because by limiting the consideration of co-benefits, the value of a rule appears uniformly worse, and deregulatory actions better. The fact that the EPA is again forcing the inclusion of such an approach—even though it has not been formalized in any manner but *has* been widely rejected by economists and policymakers alike—is troubling.⁵⁷

Within this hamstrung assessment of benefits, the EPA has further curtailed the incentive for action by severely limiting what it considers “climate benefits.” Below we call out the main flaws in the EPA’s approach to estimating climate benefits. We also offer a fuller consideration of the agency’s (mis)use of the social cost of carbon in coalition comments specifically focused on this issue under the leadership of the Institute for Policy Integrity at New York University.⁵⁸

- In a regulation specifically motivated to tackle the existential threat of climate change, EPA has bounded its view of a necessarily global problem to only that which occurs domestically. This is a nonsensical approach and suggests a far lower benefit of action than that which truly exists. In the case of a global pollutant like carbon dioxide a global perspective is both required under principles of rational decision-making and consistent with the standards of OMB Circular A-4. In *Zero Zone Inc. v. Department of Energy*, the court specifically rejected petitioner’s challenge to the DOE’s use of a global (rather than domestic) social cost of carbon, holding that Department had reasonably identified carbon pollution as “a global externality” and appropriately concluded that, because “national energy conservation has global effects, . . . those global effects are an appropriate consideration when looking at a national policy.”⁵⁹
- Further, the EPA’s focus is even narrower, only taking into account impacts on the conterminous US states. According to the agency: “The SC-CO2 estimates used in this RIA account for the direct impacts of climate change that are anticipated to occur within the contiguous 48 states.”⁶⁰ This effectively ignores climate impacts in Alaska, Hawaii, Puerto Rico, the Northern Mariana Islands, the U.S. Virgin Islands, Guam, American Samoa, other outlying U.S. possessions, military bases located abroad, and large swaths of US maritime territory. As the Climate Science Special Report shows, those impacts are likely to be significant and excluding them in this arbitrary way makes no sense and is not legally justified under the CAA.⁶¹
- The EPA conducts a sensitivity looking at a slightly lower discount rate but does not present those findings in any of its main tables. At the same time, the agency includes as a primary case the use of a seven percent discount rate, widely recognized as far too high for the climate challenge because of the long-lived nature of carbon dioxide in the atmosphere and long time periods over which serious impacts—some of which will be irreversible—will be realized and will fall on future generations. Applying a seven percent discount rate to inter-generational effects is also inconsistent with Circular A-4’s requirements to distinguish social discount rates from rates based on private returns to capital. The agency should also consider the latest economic literature and implement declining discount rates as discussed in Circular A-4 and described in other recent publications.^{62,63}

⁵⁷ See, e.g., Niina Heikkinen, E&E News, 22 Oct. 2018, *EPA’s carbon rule sparks debate over cost-benefit analysis*, www.eenews.net/greenwire/stories/1060103977/.

⁵⁸ Institute for Policy Integrity at New York University School of Law et al. 2018. *Comments on Flawed Estimates of the Social Cost of Carbon in the Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units*. Submitted to Docket ID: EPA-HQ-OAR-2017-0355; October 31, 2018.

⁵⁹ 832 F.3d 654, 677 (7th Cir. 2016).

⁶⁰ RIA, ES-10.

⁶¹ USGCRP, 2017: Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 470 pp, doi: 10.7930/JOJ964J6.

⁶² Circular A-4, at page 36, cites to Weitzman’s chapter in Portney & Weyant, eds. (1999); that chapter, at page 29, recommends a declining discount rate approach: “a sliding-scale social discounting strategy” with the rate at 3-4% through year 25; then around 2% until year 75; then around 1% until year 300; and then 0% after year 300.

⁶³ Kenneth J. Arrow et al., *Determining Benefits and Costs for Future Generations*, 341 SCIENCE 349 (2013); Kenneth J. Arrow et al., *Should Governments Use a Declining Discount Rate in Project Analysis?*, REV ENVIRON ECON POLICY 8 (2014); Maureen L. Cropper et al., *Declining*

- The EPA also fails to address the issue of uncertainty appropriately. In the context of climate change, failure to account for the real risks of high impact extreme events and/or irreversible impacts such as ice sheet loss leads to a faulty underestimate of the costs of rising CO₂ emissions. As the IPCC 1.5 report points out, there are significant reasons for concern about the impacts and risks of climate change on people, economies and ecosystems even at 1.5°C of global average temperature increase, and these impacts rise rapidly as temperatures increase.⁶⁴ The EPA should present the 95th percentile estimate for the social cost of carbon, which serves as a way to capture risk aversion and uncertainties around lower-probability, high-damage, irreversible outcomes that are currently omitted or undercounted by the models.

The EPA should fully implement the social cost of carbon values and recommendations developed by the Interagency Working Group before it was disbanded instead of engaging in an arbitrary attempt to manipulate the social cost of carbon so as to undercount climate benefits from cutting emissions. The EPA's approach does not stand up to legal or economic scrutiny, nor does it serve the public interest.

5.3. UCS finds that the EPA is misleading in its discussion and presentation of a “no CPP world,” and that the RIA is lacking in pertinent and informative sensitivity analyses.

Alongside a “base case” of Clean Power Plan implementation, the EPA presents three scenarios to illustrate possible impacts from the implementation of its proposed rule. In addition, the agency presents another scenario of a “no CPP world,” where the Clean Power Plan has been repealed but not replaced. The agency refers to this option most commonly as an “alternative baseline,” explaining it as what “can be conceptualized as the legal state of affairs as of the date of this proposal, given the Supreme Court stay of the CPP.”⁶⁵ That explanation could not be further from the truth, but it does make clear the biased perspective of the agency's leadership.

In fact, there is no current world in which the Clean Power Plan can be repealed and have nothing implemented to take its place. That is because the EPA has an affirmative statutory obligation to regulate greenhouse gases, and thus in no scenario could this “alternative baseline” enter into effect. Indeed, the “current legal state of affairs” is that the agency has been admonished for its foot-dragging, with judges expressing growing concern at its repeated requests for delay with no sufficient concomitant action.⁶⁶ For this reason, providing the suggestion that such a scenario is at all a plausible reality is outright wrong. It also falsely suggests that comparisons are additive, when the reality is that such a baseline in fact does not exist.

In highlighting here the importance of an accurate baseline to guide understanding and interpretation of proposed regulatory action, we also flag the agency's flawed assumptions shaping the primary Clean Power Plan baseline. Across multiple assumptions, the EPA selected options that make the Clean Power Plan appear to be more expensive and less effective to implement, and thus better to repeal and replace. For example, the EPA did not include inter-state trading, did not address emissions leakage to new sources, and did not allow energy efficiency to be deployed as a compliance mechanism. In reality, energy efficiency has been repeatedly shown to be the cheapest electron of all. Indeed, when the agency did include higher levels of energy efficiency in a sensitivity analysis, the results were stunning, even while the agency relied upon conservative energy-efficiency assumptions. However, instead of highlighting the clear opportunity that exists to make significant emissions reductions in the power sector at very low cost, the EPA opted to dismiss the sensitivity as something that should not be compared against any other scenarios and then did not engage with it again.⁶⁷

UCS separately urges the EPA to conduct a sensitivity analysis for natural gas price projections, given the significant impact that this specific assumption can have on the nation's electricity generating mix. In particular, natural

Discount Rates, AMERICAN ECONOMIC REVIEW: PAPERS AND PROCEEDINGS (2014); Christian Gollier & Martin L. Weitzman, *How Should the Distant Future Be Discounted When Discount Rates Are Uncertain?* 107 ECONOMICS LETTERS 3 (2010).

⁶⁴ Intergovernmental Panel on Climate Change (IPCC). 2018. *Global warming of 1.5°C, an IPCC Special Report on the impacts of global warming of 1.5°C above pre-Industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. Online at www.ipcc.ch/report/sr15/.

⁶⁵ ACE Proposal, p. 44,783.

⁶⁶ United States Court of Appeals for the District of Columbia Circuit. Filed on June 26, 2018. *State of West Virginia, et al., v. Environmental Protection Agency and E. Scott Pruitt, Administrator, United States Environmental Protection Agency*.

⁶⁷ RIA, p. 3-39.

gas prices can drive whether coal or natural gas plants runs more, with higher natural gas prices resulting in more coal generation, and lower natural gas prices resulting in less. Because these swings could potentially result in larger emissions changes than the ACE proposed rule itself, it is critical that the EPA understand this central sensitivity. At minimum, the EPA should model higher gas prices than its base assumption given the relatively low price projections it assumed, such as from the reference and the low oil and gas resource technology cases from the U.S. Energy Information Administration's Annual Energy Outlook 2018.⁶⁸

5.4. UCS objects to the EPA's inadequate analysis of the distributional impacts of its proposal and finds the agency's pledge to complete them for the final rule insufficient, voiding the public's ability to comment in a fully informed manner.

The regulations the EPA has promulgated over time have been a boon to public health, with myriad benefits accruing across the public at large. However, these benefits do not all accrue equally, and nor do the costs. The agency has an obligation to conduct an assessment of the distribution of these effects, including regarding environmental justice in minority and low-income populations under Executive Order 12,898. In this proposed rule, it has not yet substantively done so. The EPA states that it intends to conduct a fuller environmental justice analysis for the final rule; however, these insights are critical to better understanding the potential impacts of a rule, and thus further informing the implications of how it gets shaped.

An analysis coming after the public has had a chance to weigh-in denies them the ability to meaningfully engage with these critically important issues. So too does the agency's limiting of public involvement more broadly, including through an exceedingly short comment window, the allowance of just a single public hearing, and an overall lack of proactive stakeholder engagement.

6. Conclusion

With this proposed rule, the EPA has further eroded public confidence in the agency's ability—and desire—to do its job. At every turn, the agency has acted counter to mission, science, and statute. The ACE proposed rule is an audacious rendering of targeted support for a select polluting few, advanced under the guise of a regulation that the people of America so desperately need. This proposed rule would do nothing to take on the challenge it was ostensibly drafted to overcome, and in fact threatens to make the issue *worse*—at great economic, health, and environmental cost. Nowhere within the proposal does the EPA provide evidence of reasoned decision-making for its abandonment of a robust, flexible, cost-effective solution in the form of the Clean Power Plan in favor of a stunningly flawed replacement that requires multiple statutory interventions just to hang together at all.

We urge the EPA to abandon this effort and return its attention to advancing and strengthening the Clean Power Plan. For an agency with such a long record of achievements undertaken on behalf of the public through careful analysis, rigorous science, and robust and engaged rulemaking, this proposal marks a deeply disappointing turn. The EPA should not be investing its time and resources in developing ways to mislead the public about the harm caused by its proposed actions in order to support a select polluting few. Instead, it should be doing everything it can to protect the needs and interests and wellbeing of the many—the many it was created to protect.

⁶⁸ U.S. Energy Information Administration. 2018. *Annual Energy Outlook 2018*. Online at www.eia.gov/outlooks/aeo/.