

**TESTIMONY OF EMILY HAMMOND
GLEN EARL WESTON RESEARCH PROFESSOR OF LAW
THE GEORGE WASHINGTON UNIVERSITY LAW SCHOOL**

**BEFORE THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE ON CLEAN AIR AND NUCLEAR SAFETY
LEGISLATIVE HEARING ON S. 1857, S. 203, S. 839, AND S. 1934**

November 14, 2017

Thank you, Chairman Capito, Ranking Member Whitehouse, and distinguished Members of the Subcommittee, for the opportunity to testify today about the Clean Air Act (CAA) and the following bills: S. 1857;¹ S. 203;² S. 839;³ and S. 1934.⁴

I am the Glen Earl Weston Research Professor of Law at the George Washington University Law School, a member-scholar of the not-for-profit regulatory think-tank, the Center for Progressive Reform, and past-Chair of the Administrative Law Section of the Association of American Law Schools. I am testifying today, however, on the basis of my expertise and not as a partisan or representative of any organization. As a professor and scholar of environmental law, energy law, and administrative law, I specialize in the role of these laws in society. My work is published both internationally and in this country's top scholarly journals, and I am a co-author of textbooks on both environmental law and energy law. Early in my career, I practiced environmental engineering; that experience and training inform my assessment of the role of environmental law in bettering our society.

In my testimony today, I will begin by discussing the CAA, including the many health, environmental, and economic benefits it provides. Next, I will put the bills you are considering

¹ S. 1857, 115th Cong. (2017) – A bill to establish a compliance deadline of May 15, 2023, for step 2 emissions standards for new residential wood heaters, new residential hydronic heaters, and forced air furnaces.

² RPM Act of 2017, S. 203, 115th Cong. (2017).

³ Blocking Regulatory Interference from Closing Kilns Act of 2017, S. 839 (115th Cong. 2017).

⁴ Alaska Remote Generator Reliability and Protection Act, S. 1984, 115th Cong. (2017).

today in context by sounding an alarm: the very air we breathe, and the climate we depend on, are under assault. In the executive branch, the Environmental Protection Agency (EPA) is abdicating its responsibilities under the CAA. Several features of the bills under consideration today would further undermine our clean air protections—increasing premature deaths, imposing significant costs on our economy, and creating even more regulatory uncertainty for businesses.

I. The Benefits of Clean-Air Protections

In its wisdom, this institution passed the CAA as a foundational means of protecting human health and the environment while ensuring a thriving economy. As a result of these protections, between 1970 and 2011, air pollution dropped 68% while Gross Domestic Product (GDP) increased 212%.⁵ Private sector jobs increased by 88% during that same time period. Our population grew, our industries innovated, and our infrastructure expanded. There is still much to be done—a point to which I will return in a moment. But over and over again, studies demonstrate that cleaner air is an economic good.⁶

It is helpful to make these numbers concrete by examining air pollution in more detail. Air pollutants have considerable adverse health and environmental effects. Ozone, for instance, is linked to respiratory illnesses, heart attacks, premature death, and negative effects on forests

⁵ ENVTL. PROTECTION AGENCY, THE CLEAN AIR ACT AND THE ECONOMY, at https://www.epa.gov/clean-air-act-overview/clean-air-act-and-economy#_ednref6 (last visited Nov. 11, 2017).

⁶ See generally Sidney A. Shapiro et al., *Saving Lives, Preserving the Environment, Growing the Economy: The Truth About Regulation*, CTR. FOR PROGRESSIVE REFORM WHITE PAPER #1109 (July 2011), at http://www.progressivereform.org/articles/RegBenefits_1109.pdf; see also Stephen M. Meyer, *Environmentalism and Economic Prosperity: Testing the Environmental Impact Hypothesis*, MIT PROJECT ON ENVIRONMENTAL POLITICS AND POLICY iv (Oct. 5, 1992) (measuring economic performance of all fifty states as compared to state environmental rank, and concluding that “states with stronger environmental policies did not experience inferior rates of economic growth.”).

and crop yields.⁷ Particulate matter likewise causes premature death, cardiovascular and respiratory harm, and reproductive and developmental harm; it furthermore is a cause of haze in many of our national parks.⁸ Air toxics, like mercury and arsenic, are even worse:⁹ several are known or probable human carcinogens, and they cause chronic damage to the central nervous system, kidneys, and lungs.¹⁰ Indeed, EPA has estimated that because of air toxics, “all 285 million people in the U.S. have an increased cancer risk of greater than 10 in one million.”¹¹

Given these and many other harms, one can see how clean-air protections save lives. Regulations promulgated under the CAA saved over 164,000 lives in 2010 alone, and are projected to save 237,000 lives in 2020.¹² By contrast, S. 1857 would roll back protections and *impose on our society 300 – 800 premature deaths per year*.¹³ Moreover, when people are sick they are not working; when children are sick, they are not attending school. Those same CAA rules saved 13 million days of lost work, and 3.2 million days of missed school, in 2010. By

⁷ See generally Final Rule, National Ambient Air Quality Standards for Ozone, 80 Fed. Reg. 65,292 (Oct. 26, 2015).

⁸ Final Rule, National Ambient Air Quality Standards for Particulate Matter, 78 Fed. Reg. 3086, 3110 (Jan. 15, 2013). Along with ozone and particulate matter, EPA regulates lead, carbon monoxide, sulfur dioxide, and nitrogen dioxide as criteria pollutants under the National Ambient Air Quality Standards Program. See ROBERT L. GLICKSMAN ET AL., ENVIRONMENTAL PROTECTION: LAW AND POLICY 421-26 (7th ed. 2015) (providing further summaries).

⁹ See generally Supplemental Finding That It Is Appropriate and Necessary to Regulate Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units, 81 Fed. Reg. 24,420 (Apr. 25, 2016) (reaffirming appropriate and necessary finding on remand from *Michigan v. EPA*, 135 S. Ct. 2699 (2015)).

¹⁰ E.g., National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units, 76 Fed. Reg. 24,976, 25,003 – 05 (May 3, 2011).

¹¹ ENVTL. PROTECTION AGENCY, SUMMARY OF RESULTS FOR THE 2011 NATIONAL-SCALE ASSESSMENT, at 4 (2015).

¹² ENVTL. PROTECTION AGENCY, THE BENEFITS AND COSTS OF THE CLEAN AIR ACT FROM 1990 TO 2020, at 7-9 (Mar. 2011).

¹³ See Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters, and Forced-Air Furnaces, 80 Fed. Reg. 13,672, 13,674 (Mar. 16, 2015) (reporting emission standards will avoid 300-800 premature deaths per year).

2020, these numbers will increase to 17 million and 5.4 million days, respectively.¹⁴ Even this brief snapshot helps show the economic benefit of clean-air protections, but there is more: the cumulative *benefit* to society by 2050 of regulating air toxics is over \$104 billion.¹⁵ Overall, the benefits of the 1990 CAA Amendments and implementing regulations exceed costs by a factor of more than 30 to 1.¹⁶ And the Office of Management and Budget reports that the monetized benefits of CAA regulations accounted for 80% of the benefits of all regulations analyzed for its 2015 report to Congress.¹⁷

Despite these many successes, there is still much to do. We must ensure that we continue to strengthen protections against criteria pollutants and air toxics, and further support EPA and the states in their enforcement roles. The bills under consideration today roll back protections developed after rigorous expert analysis, public and industrial input, and cost justification—all in the name of catering to special interests at the expense of our most vulnerable populations. Moreover, as discussed below, we have lost federal leadership on the very most urgent issue of our time: climate change.

II. The Broader Context: An Assault on Our Future

The Trump Administration is failing to carry out Congress's mandate to ensure clean air. For example, it is considering revoking protections from air toxics,¹⁸ and it has illegally attempted to delay the compliance deadlines for environmental protections that are already in

¹⁴ EPA, *supra* note 12, at 5-25 (Tbl. 5-6).

¹⁵ Amanda Giang & Noelle E. Selin, *Benefits of mercury controls for the United States*, 113 PNAS 286 (Jan. 12, 2016).

¹⁶ EPA, *supra* note 12, at 7-1.

¹⁷ OMB, *supra* note 4, at 12.

¹⁸ *Murray Energy Corporation v. EPA, et al.*, No.16-1127 (D.C. Cir. Apr. 27, 2017) (suspending litigation challenging the Mercury and Air Toxics Standards, given EPA's stated intent to review and revise the rule).

effect.¹⁹ Alarming as these efforts are, even worse is the Administration’s utter failure to exercise leadership on climate change.

Under the CAA, EPA must regulate air pollutants that it finds endanger public health and welfare.²⁰ The term “air pollutants” includes greenhouse gases, and EPA has made a detailed, science-backed finding that greenhouse gases do endanger public health and welfare, and “science overwhelmingly shows greenhouse gas concentrations [are] at unprecedented levels due to human activity.”²¹ (Note that the recent Climate Science Special Report concurs.²²) Given its mandate to regulate in the face of such a finding, EPA has undertaken several efforts to reduce the United States’ contribution to this global problem.²³ These efforts use the social cost of carbon (SCC) in their cost-benefit analyses. The SCC was developed by an interagency working group, subjected to peer review,²⁴ and upheld in federal court.²⁵ Because some of the harshest impacts will occur in the future, the discount rate is an important component of any carbon-based cost-benefit calculation, and federal agencies were directed to evaluate several rates in

¹⁹ *E.g.*, *Clean Air Council v. Pruitt*, No. 17-1145 (D.C. Cir. Jul. 3, 2017) (holding EPA lacked authority to stay rule involving fugitive methane and other greenhouse gas emissions from the oil and gas sector). For a detailed list of many such delays, see Rena Steinzor & Elise Desiderio, *The Trump Administration’s Rulemaking Delays*, CTR. FOR PROGRESSIVE REFORM (Jul. 2017).

²⁰ 42 U.S.C. § 7521(a)(1); *Massachusetts v. EPA*, 549 U.S. 1438 (2007).

²¹ Env’tl. Protection Agency, Press Release, Greenhouse Gases Threaten Public Health and the Environment/Science Overwhelmingly Shows Greenhouse Gas Concentrations at Unprecedented Levels Due to Human Activity (Dec. 7, 2009); Endangerment Finding and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496 (Dec. 15, 2009).

²² Weubbles, D.J. et al., *Climate Science Special Report: Fourth National Climate Assessment*, U.S. Global Change Research Program (Nov. 2017).

²³ *See, e.g.*, *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units*, 80 Fed. Reg. 64,662 (Oct. 23, 2015) [hereinafter the “Clean Power Plan”]; *Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Generating Units*, 79 Fed. Reg. 1430 (Oct. 23, 2015).

²⁴ *See* Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12,866 (May 2013, revised July 2015).

²⁵ *Zero Zone, Inc. v. Dep’t of Energy*, 832 F.3d 654, 677-78 (7th Cir. 2016).

calculating present value. Notably, some studies suggest that the SCC ought to be much higher than reported by the interagency working group.²⁶ Here is a snapshot of the SCC, which EPA used in its cost-benefit analysis of the Clean Power Plan—a foundational rule aimed at greenhouse gas emissions from power plants:

Table 4-2. Social Cost of CO₂, 2015-2050 (in 2011\$ per short ton)*

Year	Discount Rate and Statistic			
	5% Average	3% Average	2.5% Average	3% (95th percentile)
2015	\$11	\$35	\$54	\$100
2020	\$12	\$40	\$60	\$120
2025	\$13	\$44	\$65	\$130
2030	\$15	\$48	\$70	\$150
2035	\$17	\$53	\$75	\$160
2040	\$20	\$58	\$81	\$180
2045	\$22	\$62	\$86	\$190
2050	\$25	\$66	\$91	\$200

* These SC-CO₂ values are stated in \$/short ton and rounded to two significant figures. The SC-CO₂ values have been converted from \$/metric ton to \$/short ton using the conversion factor 0.90718474 metric tons in a short ton for consistency with this rulemaking. This calculation does not change the underlying methodology nor does it change the meaning of the SC-CO₂ estimates. For both metric and short tons denominated SC-CO₂ estimates, the estimates vary depending on the year of CO₂ emissions and are defined in real terms, i.e., adjusted for inflation using the GDP implicit price deflator.

Source: EPA, *Regulatory Impact Analysis for the Clean Power Plan Final Rule*, at 4-8, Tbl. 4-2 (Oct. 23, 2015).

Over and over again, EPA has concluded that the benefits of protecting against greenhouse gas emissions substantially outweigh the costs. For the Clean Power Plan, after subtracting compliance costs, the *net* climate and health benefits were estimated from \$3.9 billion to \$6.7 billion in 2020, with substantial increases in later years.²⁷ Other climate rules are

²⁶ See, e.g., Frances C. Moore & Delavane B. Diaz, *Temperature impacts on economic growth warrant stringent mitigation policy*, 5 NATURE CLIMATE CHANGE 127 (Jan. 2015) (arguing for SCC an order of magnitude higher than used by federal agencies).

²⁷ 2011 dollars, using 3% discount rate and mass-based approach. For further details, see Final Rule, Carbon Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,661, 64,679 (Oct. 23, 2015).

similarly overwhelmingly cost-justified, and as mentioned above, a federal court has upheld use of the SCC.²⁸

Notwithstanding the scientific consensus and the unthinkable costs of climate change, the Trump Administration has taken the destructive, absurd approach of pretending that it does not exist. This utter abnegation of responsibility demands this institution's oversight. A step in the right direction—and within this subcommittee's jurisdiction—would be to call EPA Administrator Scott Pruitt to task. Notably, Administrator Pruitt has not attempted to revoke the endangerment finding; doing so would be arbitrary and capricious in light of the overwhelming scientific record. Yet despite the CAA's clear direction to regulate such emissions following an endangerment finding, EPA is now attempting to do exactly the opposite. Moreover, the proposed rule to rescind the Clean Power Plan is based on accounting sleights-of-hand that make a mockery of the real dangers faced by society due to climate change. For example, in estimating costs and benefits, the agency could not escape the plain fact that regulating greenhouse gas emissions is cost-justified.²⁹ So EPA tinkered with the numbers—changing accepted discount rates and how the harms of climate change are counted—to force the result it wanted.³⁰

Several of the bills before you today would add to these harms. S. 1857 would increase black carbon and greenhouse gas emissions as well as premature deaths due to particulate matter exposure;³¹ S. 839 would increase emissions of hazardous air pollutants like mercury and

²⁸ *Zero Zone*, 832 F.3d at 67-78.

²⁹ See Clean Power Plan Rescission, *supra* note **Error! Bookmark not defined.**, at 48,043 – 47 (summarizing regulatory impact analysis).

³⁰ For further analysis, see Richard L. Revesz & Jack Lienke, *The EPA's Smoke and Mirrors on Climate*, N.Y. TIMES, Oct. 9, 2017.

³¹ See Standards of Performance for New Residential Wood Heaters, New residential Hydronic Heaters, and Forced-Air Furnaces, 80 Fed. Reg. 13,672, 13,674 (Mar. 16, 2015) (documenting benefits of rule including reduced climate effects).

dioxins;³² and S. 203—though innocuous on its face—would increase dangerous motor vehicle emissions by burdening EPA’s enforcement obligation beyond its capabilities.³³

III. Conclusions

Environmental laws were enacted to ameliorate a classic market failure: polluters have every incentive to impose costs that they have created on human health and the environment rather than taking responsibility for those impacts themselves. Years of experience with the CAA and EPA’s implementing regulations demonstrate that clean air is an economic good. But clean-air protections and our global climate are at risk, and I urge you to consider this bigger picture as you take up the bills under consideration today. There is still a great deal more to do, and we cannot afford complacency.

Thank you again for the opportunity to testify today. I look forward to your questions.

³² See NESHAP for Brick and Structural Clay Products Manufacturing; NESHAP for Clay Ceramics Manufacturing, 80 Fed. Reg. 65,470, 65,473 (Oct. 26, 2015) (describing health effects of pollutants emitted by this industry).

³³ EPA already has made clear that it does not enforce section 203(b)(3) of the CAA against motor vehicles used exclusively for racing. Ryan Beene, *EPA drops proposal feared to ban street-to-race car conversions*, AUTOMOTIVE NEWS, Apr. 16, 2016.