

“BENEFITS” OF THE CLEAN POWER PLAN

Executive Order 12866 requires agencies to “assess both the costs and the benefits” of major regulations and adopt regulations “only upon a reasoned determination that the benefits of the intended regulation justify its costs.” Not surprisingly, EPA concluded that the benefits of the Clean Power Plan exceed its costs because of (1) a presumed reduction in climate change impacts and (2) health co-benefits from reducing conventional air pollutants, especially fine particulate matter (“fine particles” or “PM_{2.5}”) and ozone. By 2030, EPA claims that the benefits of the Clean Power Plan exceed its costs by almost \$43 billion (Table 2 below). However, some 60% of the benefits EPA claims in 2030 for the Clean Power Plan are based on reducing conventional air pollutants, not on reducing potential climate change impacts.

EPA’s approach to calculating the benefits of its rules has been the subject of extensive criticism.¹ The purpose of this paper is to illustrate what happens to the benefits of the Clean Power Plan when only two of these criticisms are taken into account.

SOCIAL COST OF CARBON The climate change effects resulting from the Clean Power Plan are meaningless. For example, the Clean Power Plan will reduce global sea level rise by the thickness of two sheets of paper.² In 2012, EPA stopped projecting changes in atmospheric CO₂ concentrations, temperature, and sea level rise because the changes were so tiny. Instead, EPA now uses a theoretical “social cost of carbon” to project climate change benefits.³

One criticism of the social cost of carbon is that it is based on the benefits to all 196 countries in the world. The U.S. pays the entire cost of complying with the Clean Power Plan and suffers all of the economic harm, while other countries receive free benefits. Basically, 195 other countries *pay nothing* but receive as much as 93% of the alleged benefits.⁴ This criticism can be rectified by

calculating the U.S.-only benefits and comparing those to the U.S.-only costs, which we do in Tables 1 and 2 below.⁵

Another problem is that EPA incorrectly compares the social cost of carbon, which is the value of climate benefits summed over almost 300 years, to the cost of the Clean Power Plan for a single year.⁶ (Assuming for the sake of argument that climate models are accurate, the total climate benefits summed over a period of three centuries are virtually guaranteed to exceed the costs for a single year.) Correcting for this timing mismatch would reduce EPA's climate benefits by as much as 99%.⁷ There are many other problems with the social cost of carbon and its use by EPA that are too numerous to mention in this paper.

CO-BENEFITS EPA often estimates not only the benefits of reducing the specific pollutant targeted by a regulation, but also the benefits of accidental reductions in other emissions that result from the regulation ("co-benefits"). One criticism of EPA's regulatory impact analyses is that EPA often includes large PM_{2.5} co-benefits to justify rules that are not intended to reduce PM_{2.5}. For example, between 1997 and 2011, EPA pointed to PM_{2.5} co-benefits to support 21 of 26 major air rulemakings.⁸

In 2012, EPA promulgated the Mercury and Air Toxics Standards rule (MATS). Even though the explicit purpose of MATS is to reduce mercury and other toxic air pollutants, EPA estimated that reductions in PM_{2.5} were responsible for virtually all — 99.99% to be precise — of the total benefits of MATS.⁹ In recent oral arguments before the U.S. Supreme Court on MATS, Chief Justice Roberts criticized EPA's reliance on co-benefits:

*EPA's use of co-benefits to "get additional regulation of the criteria pollutants ... [is] an end run" that raises a "red flag... [EPA] ought to consider only the benefits of regulating [mercury]. You shouldn't consider the bootstrapped benefits that should be addressed through the other [program, referring to the ambient air quality standards program for PM_{2.5}]."*¹⁰

Another major criticism of these EPA analyses is that EPA assumes public health is not being protected in areas that comply with the agency's national ambient

air quality standards. For example, 97% of the PM_{2.5} exposures used to calculate EPA’s co-benefits for the Clean Power Plan are in areas where air quality complies with EPA’s air quality standards that are set to protect the public from adverse health effects due to PM_{2.5}.¹¹ In other words, EPA assumes that its own health-protecting standards are not really protecting health when the agency estimates co-benefits.¹²

ADJUSTED BENEFITS When only two adjustments are made to the social cost of carbon and to EPA’s co-benefits, the estimated benefits of the Clean Power Plan are reduced by at least 95%. The tables below illustrate that the costs of the Clean Power Plan are at least six to 13 times greater than its benefits. In 2020, the Clean Power Plan costs \$2.5 billion (according to EPA) but provides less than \$200 million in benefits. In 2030, the Clean Power Plan costs \$8.4 billion (according to EPA) but provides only \$1.4 billion in benefits. For illustrative purposes, we assume that the social cost of carbon is valid, provided it is adjusted to reflect U.S.-only benefits.

TABLE 1 - 2020

EPA’s compliance costs are \$2.5 billion in 2020 ¹³	EPA	Adjusted
Climate benefits ¹⁴	\$2.8 billion	\$196 million
Co-benefits ¹⁵	\$1.7 billion	zero
TOTAL BENEFITS¹⁶	\$4.5 BILLION	\$196 MILLION

TABLE 2 - 2030

EPA’s compliance costs are \$8.4 billion in 2030	EPA	Adjusted
Climate benefits	\$20 billion	\$1.4 billion
Co-benefits	\$31 billion	zero
TOTAL BENEFITS	\$51 BILLION	\$1.4 BILLION

¹ See, for example, the comments of the U.S. Chamber of Commerce, the American Chemistry Council, the American Coalition for Clean Coal Electricity, and 17 other trade associations on the Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order No. 12866; Docket ID OMB-OMB-2013-0007 (February 26, 2014); Prepared Statement of Susan E. Dudley, Director, GW Regulatory Studies Center, Research Professor, Trachtenberg School of Public Policy and Public Administration, The George Washington University, Hearing on Mercury Pollution's Impact to Public Health and the Environment before the Committee on Environment and Public Works, Subcommittee on Clean Air and Nuclear Safety, United States Senate, April 17, 2012. See also the sources in endnotes 7 and 8.

² ACCCE, "Climate Effects" of EPA's Final Clean Power Plan, August 2015.

³ *Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis - Under Executive Order 12866*, Interagency Working Group on Social Cost of Carbon, United States Government, May 2013, Revised November 2013; as well as *Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis - Under Executive Order 12866*, Interagency Working Group on Social Cost of Carbon, United States Government, May 2013, Revised July 2015.

⁴ See endnote 5 below. The U.S. receives only 7% to 10% of the benefits under the social cost of carbon. Therefore, other countries receive 90% to 93% of the total benefits.

⁵ We reduced EPA's global climate benefits by 93% because in its 2010 report, the Interagency Working Group on the Social Cost of Carbon stated that it "determined that a range of values from 7% to 23% should be used to adjust the global SCC to calculate domestic effects." We chose the lower end of the range because the working group stated that, using a 2.5% to 3% discount rate, the U.S. benefit is about 7% to 10% of the global benefit (the upper end of the range — 23% — represents the U.S. share of world GDP).

⁶ The social cost of carbon is the present value of damages that would be avoided over a period of time extending to the year 2300.

⁷ *Technical Comments on the Regulatory Impact Analysis for the U.S. Environmental Protection Agency's Proposed Carbon Pollution Emissions Guidelines for Existing Power Plants*, Anne E. Smith, Ph.D., NERA Economic Consulting, November 10, 2014. Other major criticisms of the social cost of carbon include whether it should be a negative value to account for the societal benefits of fossil fuels.

⁸ *An Evaluation of the PM_{2.5} Health Benefits Estimates in Regulatory Impact Analyses for Recent Air Regulations*, Anne Smith, Ph. D., NERA, December 2011.

⁹ EPA estimated the total health benefits of MATS to be \$33 billion to \$89 billion per year. Of this total, EPA estimated the health benefits of reducing mercury at only \$500,000 to \$6 million per year.

¹⁰ *Michigan, et. al. v. EPA*, oral argument transcript at page 61, lines 19 – 24; page 60, line 3, and page 62, line 25, March 25, 2015.

¹¹ See page 4-42 of EPA's *Regulatory Impact Analysis for the Clean Power Plan Final Rule* ("RIA").

¹² Any remaining small co-benefits for areas that exceed the NAAQS will be addressed by regulations specifically required by the Clean Air Act to bring those areas into compliance with the NAAQS. See Smith (November 10, 2014).

¹³ RIA, page ES-9. We did not include 2025 because the cost for the rate-based program in that year (\$1.0 billion) appears anomalously low.

¹⁴ RIA, page ES-20. We used the 3% discount rate because it is the central value reported by the Interagency Working Group on the Social Cost of Carbon (2010, updated 2014 and 2015). These are global benefits; that is, benefits to all 196 countries in the world.

¹⁵ *Ibid.* We used the 7% discount rate.

¹⁶ *Ibid.*