



August 13, 2018

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Andrew Wheeler  
Acting Administrator  
United States Environmental Protection Agency

Dear Acting Administrator Wheeler:

Thank you for the opportunity to comment on the Environmental Protection Agency's (EPA) Advanced Notice of Proposed Rulemaking on "Increasing Consistency and Transparency in Considering Costs and Benefits in the Rulemaking Process" (RIN: 2010-AA12) [hereinafter "ANPR"]. We the undersigned are legal scholars with expertise in environmental and administrative law and regulatory policy. Collectively, we have spent the last several decades studying and writing on the topic of cost-benefit analysis and its application to environmental regulation in the form of dozens of books, journal articles, reports, op-eds, and speeches, testimony, and other public presentations.

As we explain in these comments, we have several concerns regarding the potential policy and legal issues the ANPR might raise – particularly, if EPA uses this rulemaking to institute something akin to a "formal" cost-benefit analysis "supermandate" to govern its decision-making across its various statutory authorities. At best, this ANPR would amount to a waste of resources that would be better spent addressing the threats to public health and the environment that our nation still faces; at worst, it would be illegal. In light of these concerns, we urge the EPA to withdraw this rulemaking at once and to instead dedicate the agency's limited resources toward actions that will affirmatively advance protections of the public health and the environment.

As we document below, EPA's regulations have generated enormous benefits for public health and the environment. Congress has recognized that a multitude of factors must go into setting environmental standards, not simply a single quantified metric. To the extent EPA intends to use this rulemaking to create a cost-benefit straightjacket for future rulemakings, it risks not only creating bad public policy but running roughshod over the careful delineations of regulatory standards provided by Congress.

## EPA's Regulations Have Historically Generated Enormous Environmental and Public Health Benefits, But Many of These Benefits are Difficult to Quantify, Which Makes Them Vulnerable to being Crowded Out by Easy-to-Quantify Costs in Cost-Benefit Analyses

Over the past four decades, EPA achieved remarkable success in establishing safeguards that protect people and the environment against unreasonable risks. During the 1960s and 1970s, rivers caught fire, millions of children were afflicted with high levels of lead blood poisoning from environmental sources, and chemical haze settled over the industrial zones of the nation's cities and towns. But today, the most visible manifestations of these threats are under control, millions of people have been protected from death and debilitating injury, and environmental degradation has been slowed and even reversed in some cases. In short, the United States is much better off because of EPA regulations adopted over the past 40 years.

To gauge the positive impact of EPA regulations on American lives, consider the following:

- Between 1970 and 2011, aggregate emissions of air pollutants dropped 68 percent.<sup>1</sup>
- In a 2011 report, the agency estimated that Clean Air Act rules saved 164,300 adult lives in 2010 and will save 237,000 lives annually by 2020. Those rules also saved an estimated 13 million days of lost work and 3.2 million days of missed school in 2010, and by 2020, these numbers are estimated to increase to 17 million and 5.4 million days, respectively.<sup>2</sup>
- Since EPA began regulating lead as a criteria pollutant under the CAA, the median concentration of lead in the blood of children between 1 and 5 years old has decreased 93 percent as of 2011-12.<sup>3</sup>
- EPA regulations phasing out lead in gasoline have prevented millions of children from suffering severe cognitive impairment.<sup>4</sup>

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<sup>1</sup> Env'tl. Protection Agency, *The Clean Air Act and the Economy*, [https://www.epa.gov/clean-air-act-overview/clean-air-act-and-economy#\\_ednref6](https://www.epa.gov/clean-air-act-overview/clean-air-act-and-economy#_ednref6) (last visited July 24, 2018).

<sup>2</sup> ENVTL. PROTECTION AGENCY, THE BENEFITS AND COSTS OF THE CLEAN AIR ACT FROM 1990 TO 2020, 7-9 (Mar. 2011), available at [https://www.epa.gov/sites/production/files/2015-07/documents/fullreport\\_rev\\_a.pdf](https://www.epa.gov/sites/production/files/2015-07/documents/fullreport_rev_a.pdf).

<sup>3</sup> *Id.* at A216.

<sup>4</sup> This regulation helped reduce the average blood lead level in U.S. children aged one to five from 14.9 micrograms of lead per deciliter ( $\mu\text{g}/\text{dL}$ ) of blood during the years 1976 to 1980 to 2.7  $\mu\text{g}/\text{dL}$  during the years 1991 to 1994. Because of its harmful effect on children's brain development and health, the Centers for Disease Control and Prevention (CDC) considers blood lead levels of 10  $\mu\text{g}/\text{dL}$  or greater to be dangerous to children (though the agency notes that there is no "safe" level of lead in the bloodstream). According to CDC estimates based on a sample of the U.S. population, during the years 1976 to 1980, 88 percent of U.S. children aged one to five had blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$ ; during the years 1991 to 1994, the CDC estimated that only 4.4 percent of children in this age range had blood lead levels at or in excess of 10  $\mu\text{g}/\text{dL}$ . The most recent CDC population sample data, covering the years 2007 to 2010, reveals even more progress – only an estimated 0.8 percent of U.S. children aged one to five had blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$ . Env'tl. Protection Agency, *Learn About Lead*, <https://www.epa.gov/lead/learn-about-lead> (last visited July 24, 2018); Rena Steinzor et. al., *A Return to Common Sense: Protecting Health, Safety, and the Environment Through "Pragmatic Regulatory Impact Analysis"* 17-18 (Ctr. for Progressive Reform, White Paper 909, 2009), available at [http://www.progressivereform.org/articles/PRIA\\_909.pdf](http://www.progressivereform.org/articles/PRIA_909.pdf); U.S. Ctrs. for Disease Control & Prevention, *Blood Lead Levels in Children Aged 1–5 Years — United States, 1999–2010*, 62 MORBIDITY & MORTALITY WEEKLY REPORT (MMWR) 245, 245-48 (2013), <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6213a3.htm> (last visited July 24, 2018). Critically, given that these estimates are based on population samples, they may not accurately

- A study published in the proceedings of the National Academies of Sciences found the cumulative benefits to the economy of Clean Air Act hazardous air pollution regulations by 2050 to be over \$104 billion.<sup>5</sup>

Importantly, EPA implementation of these safeguards has coincided with significant economic growth and job creation. Between 1970 and 2011, the U.S. Gross Domestic Product (GDP) increased 212 percent and the number of private sector jobs increased by 88 percent.<sup>6</sup> Similarly, retrospective evaluations of more than two dozen EPA regulations have found that the regulations were still necessary and that they did not produce significant job losses or have adverse economic impacts for affected industries, including small businesses.<sup>7</sup>

Various efforts to compare the quantified and monetized benefits and costs of EPA's regulations have consistently shown that they produce significant net benefits, making the United States much better off on balance. Year after year, the Office of Management and Budget (OMB) submits reports to Congress showing the quantified and monetized benefits of EPA regulation that literally dwarf the costs. In its most recent draft report, for example, OMB found that from Fiscal Year 2007 through Fiscal Year 2016, the benefits of all of EPA's major rules exceeded the costs by a ratio of as much as 13 to 1.<sup>8</sup> For its part, EPA estimated in a 2011 report that by 2020 the regulatory benefits of the Clean Air Act will exceed its costs by a 30-to-1 ratio.<sup>9</sup>

But these OMB reports and EPA's 2011 report only show the bare numbers – those impacts that the agency is able to quantify and monetize. Entire categories of crucial benefits are simply left out, either because they involve values like dignity or equality that simply cannot be measured in dollar terms, or because we simply lack the data or models necessary to quantify the relevant public health and environmental risks. Thus, the real benefits of EPA regulations are almost certainly larger than the OMB and EPA numbers reflect – and significantly so. Indeed, a recent study shows that in over three-quarters of the cost-benefit analyses prepared by EPA for significant rules over a 13-year period, the monetized benefits estimate excluded categories of benefits that the agency itself described as either actually or potentially “important,” “significant,” or “substantial” because these benefits were unquantifiable due to data limitations.<sup>10</sup>

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capture certain segments of the population that are disproportionately burdened by lead poisoning, including people of color and the urban poor. To the extent that this is the case, these estimates, particularly the most recent ones, may undercount the number of children aged one to five with blood lead levels that are greater than or equal to 10 µg/dL. It is also critical to reemphasize that most public health officials do not recognize a blood lead level of 10 µg/dL to be “safe” and that many public health officials agree that there is no “safe” blood lead level.

<sup>5</sup> Amanda Giang & Noelle E. Selin, *Benefits of Mercury Controls for the United States*, 113 PNAS 286 (2016).

<sup>6</sup> Env'tl. Protection Agency, *supra* note 1.

<sup>7</sup> Sid Shapiro et al., *Saving Lives, Preserving the Environment, Growing the Economy: The Truth About Regulation* 10, 20-27 (Ctr. for Progressive Reform, White Paper 1109, 2011), available at [http://www.progressivereform.org/articles/RegBenefits\\_1109.pdf](http://www.progressivereform.org/articles/RegBenefits_1109.pdf).

<sup>8</sup> OFFICE OF MGMT. & BUDGET, EXECUTIVE OFFICE OF THE PRESIDENT, 2017 DRAFT REPORT TO CONGRESS ON THE BENEFITS AND COSTS OF FEDERAL REGULATIONS AND AGENCY COMPLIANCE WITH THE UNFUNDED MANDATES REFORM ACT 10, available at [https://www.whitehouse.gov/wp-content/uploads/2017/12/draft\\_2017\\_cost\\_benefit\\_report.pdf](https://www.whitehouse.gov/wp-content/uploads/2017/12/draft_2017_cost_benefit_report.pdf).

<sup>9</sup> ENVTL. PROTECTION AGENCY, *supra* note 2.

<sup>10</sup> Amy Sinden, *The Problem of Unquantified Benefits*, 49 ENVTL. L. — (forthcoming 2019).

Countless experts, including the late Justice Antonin Scalia,<sup>11</sup> have expressed concern about the difficulty of fully quantifying the benefits of environmental regulation and the concomitant concern that benefits will get short-shrift in comparison with costs, which are so much more amenable to quantification.<sup>12</sup> Indeed, on the basis of this and other deeper theoretical difficulties, a number of commentators have argued for decades that cost-benefit analysis should not be used to set environmental standards.<sup>13</sup> Indeed, even some stalwart defenders of the use of cost-benefit analysis in regulatory decision makers have come out against its use with respect to particular environmental problems, like climate disruption and the endangered species, for which benefits estimation is particularly difficult.<sup>14</sup>

In light of all these recognized difficulties, it is surprising to see how little explicit attention this set of issues receives in EPA's ANPR. At the one point in the notice where EPA makes note of the extent to which assessments of impacts are "limited by the state of scientific and economic modeling, quantification methods and available data," it emphasizes the difficulties these factors pose for cost estimation, identifying "benefits" only in parentheses. The ANPR makes no mention of the wide-spread consensus in the academic and policy

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<sup>11</sup> Justice Scalia authored the Supreme Court's opinion in *Whitman v. American Trucking*, 531 U.S. 457 (2001) – a case conspicuously omitted from the ANPR – which found that the Clean Air Act prohibited EPA from balancing costs against benefits in setting the National Ambient Air Quality Standards. While he grounded that holding primarily in a classic, Scalia-style close reading of the statute, he also expressed a broader concern about the danger that in a cost-benefit accounting, environmental values will get crowded out by dollars and cents, worrying that "[c]ost is . . . so full of potential for canceling the conclusions drawn from direct health effects." Scalia had expressed skepticism about formal cost-benefit analysis in his academic writings, *see, e.g.*, Antonin Scalia, *Responsibilities of Regulatory Agencies Under Environmental Laws*, 24 *Hous. L. Rev.* 97 (1987), as well as in his opinions for the Court, *see, e.g.*, *Michigan v. EPA*, 135 S. Ct. 2699 (2015); and *Entergy v. Riverkeeper*, 556 U.S. 208 (2009).

<sup>12</sup> Cass R. Sunstein, *The Limits of Quantification*, 102 *CALIF. L. REV.* 1369 (2014) (focusing on the problem of benefits that can't be quantified "simply because we lack relevant information"); Richard L. Revesz, *Quantifying Regulatory Benefits*, 102 *CALIF. L. REV.* 1369, at 1376 (2014); Daniel A. Farber, *Breaking Bad? The Uneasy Case for Regulatory Breakeven Analysis*, 102 *CALIF. L. REV.* 1469 (2014); Lisa Heinzerling, *Quality Control: A Reply to Professor Sunstein*, 102 *CALIF. L. REV.* 1457 (2014); Jonathan Masur & Eric Posner, *Unquantified Benefits and the Problem of Regulation under Uncertainty*, 102 *CORNELL L. REV.* 87 (2016) (reporting results of empirical study of CBAs of federal regulations in which for over 74% of the regulations the agency "could not quantify all of the relevant benefits or costs because of empirical uncertainty—missing data, modeling difficulties, or other related effects."); THOMAS O. MCGARITY, *REINVENTING RATIONALITY: THE ROLE OF REGULATORY ANALYSIS IN THE FEDERAL BUREAUCRACY* 134 (1991) ("Inadequate data, inaccurate models, and the infirmities of quantitative analysis all combine to leave regulatory analysis swimming in a sea of uncertainties."); Al McGartland, Richard Revesz, et al., *Estimating the Health Benefits of Environmental Regulations: Changes Needed for Complete Benefits Assessment*, 357 *SCIENCE* 457 (Aug. 4, 2017); Ronnie Levin, *Lead in Drinking Water*, in RICHARD D. MORGENSTERN, *ECONOMIC ANALYSES AT EPA: ASSESSING REGULATORY IMPACT* 230 (1997) ("Serious gaps in data and methodology constrain the utility of [cost-benefit analysis]. Typically, only a few potential health or other benefits can be quantified, and even fewer can be valued monetarily. Consequently, when the sum of the limited subset of benefits that can be quantified and monetized is shown to be less than the estimated costs, it is often impossible to conclude anything about the relative magnitude of the full benefits."); David Driesen, *Is Cost-Benefit Analysis Neutral?*, 77 *U. Colo. L. Rev.* 335, 371-77 (2006) (in empirical study of OIRA review of 25 rules, finding numerous instances in which significant benefits were left unquantified).

<sup>13</sup> *See, e.g.*, FRANK ACKERMAN & LISA HEINZERLING, *PRICELESS: ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING* (2005).

<sup>14</sup> Jonathan Masur & Eric Posner, *Climate Regulation and the Limits of Cost-Benefit Analysis*, 99 *CAL. L. REV.* 1557 (2011); Susan Rose-Ackerman, *Putting Cost-Benefit Analysis in Its Place: Rethinking Regulatory Review*, 65 *U. MIAMI L. REV.* 335 (2011); Martin Weitzman, *On Modeling and Interpreting the Economics of Catastrophic Climate Change*, 91 *REV. ECON & STAT* 1 (2009); CASS R. SUNSTEIN, *THE COST-BENEFIT STATE: THE FUTURE OF REGULATORY PROTECTION* 68-69 (2002) (suggesting that where regulation is aimed at the preservation of endangered species, which may be "best taken as rooted in a theory of rights," or "designed to ensure against irreversible damage" cost-benefit analysis may be inappropriate).

literature that the undercounting of benefits is a far bigger problem than the undercounting of costs.<sup>15</sup>

The distorted perspective on measuring regulatory impacts is perhaps the result of EPA's selective consideration of the public input it has received to inform the ANPR. For instance, a paragraph in the ANPR summarizes the public comments EPA has received over the years by focusing exclusively on concerns raised by industry relating to purported undercounting of costs and over-counting of benefits. This creates the striking misimpression that concerns about under-counting of benefits have never been raised in public comments by environmental and other public interest organizations.<sup>16</sup> EPA missed another opportunity to hear this perspective when it cancelled a meeting that had been requested by the Natural Resources Defense Council (NRDC) with agency staff and the White House Office of Information and Regulatory Affairs (OIRA) while the ANPR was undergoing OIRA's centralized review process.<sup>17</sup> If EPA had made a better effort to solicit the views of members of the public other than industry, it might have, for example, been aware of the methodological issues that lead to overestimates of regulatory costs and the myriad retrospective studies that have found that *ex ante* cost estimates have routinely been overstated.<sup>18</sup>

## **EPA Lacks the Legal Authority to Establish a “Supermandate” that Would Require the Use of “Formal Cost-Benefit Analysis” as the Decision-Making Standard for Implementing Rules Pursuant to Its Various Enabling Acts**

### **In Exercising its Rulemaking Authority, EPA Must Confine Itself within the Strictures Set by Congress in Its Enabling Statutes**

Congress sought to address the increasingly complex economic and social issues that our modern society faces by enacting laws that create federal agencies and task them with implementing myriad programs that aim to promote the public welfare in various ways, including through the protection of public health and the environment. Through these laws, Congress specifies the various factors that agencies must consider, may consider, or are prohibited from considering when implementing regulatory programs or issuing regulations.

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<sup>15</sup> See Thomas O. McGarity & Ruth Ruttenberg, *Counting the Cost of Health, Safety, and Environmental Regulation*, 80 TEX. L. REV. 1997, 2011, 2044-50 (2002).

<sup>16</sup> *But see* Letter from Ctr. for Progressive Reform to Samantha Dravis, Assoc. Admin., Office of Pol’y, Env’tl. Protection Admin., on Comments for Docket ID No. EPA-HQ-OA-2017-0190 (re implementation of Exec. Orders 13771 & 13777) (May 15, 2017), available at [http://progressivereform.org/articles/CPR\\_Comments\\_on\\_EPA\\_Regulatory\\_Review\\_051517.pdf](http://progressivereform.org/articles/CPR_Comments_on_EPA_Regulatory_Review_051517.pdf) (outlining concerns that EPA will not carefully regulatory benefits as part of its regulatory review process and urging the agency to identify opportunities where strengthening regulatory stringency could generate greater net benefits).

<sup>17</sup> Maxine Joselow, *White House Approves Regulatory Overhaul, Shuts Out NRDC*, E&E NEWS PM, June 6, 2018, <https://www.eenews.net/eenewspm/2018/06/06/stories/1060083691> (last visited July 24, 2018).

<sup>18</sup> See PUTNAM, HAYES, & BARTLETT INC., COMPARISONS OF ESTIMATED AND ACTUAL POLLUTION EXPENDITURES FOR SELECTED INDUSTRIES (Report prepared for the Office of Planning & Evaluation, Env’tl. Protection Agency, 1980); OFFICE OF TECHNOLOGY ASSESSMENT, GAUGING CONTROL TECHNOLOGY AND REGULATORY IMPACTS IN OCCUPATIONAL SAFETY AND HEALTH: AN APPRAISAL OF OSHA’S ANALYTICAL APPROACH 58 (1995); Eban Goodstein & Hart Hodges, *Polluted Data: Overestimating Environmental Costs*, 8 AM. PROSPECT 64 (Nov./Dec. 1997); Winston Harrington, Richard D. Morgenstern, & Peter Nelson, *On the Accuracy of Regulatory Cost Estimates* 14-15 (Resources for the Future, Discussion Paper 99-18, 1999), available at <http://www.rff.org/documents/RFF-DP-99-18.pdf>.

What's more, Congress also uses the laws to specify how agencies must consider the permissible and required factors that are supposed to inform its decision-making. For its part, the federal judiciary plays a key role in ensuring that these legislative instructions are followed. If a court finds any failures on the part of the agency, it has grounds to reject the agency action.

Through this court supervision of agency implementation of regulatory programs, it has become one of the foundational principles of administrative law that agencies can only carry out actions that are consistent with the grants of authority provided to them by Congress.<sup>19</sup> Agencies must faithfully adhere to any strictures that their enabling acts place on their regulatory authority, because the Constitution does not endow them with any inherent powers to issue regulations with the force of law.<sup>20</sup>

As outlined below, the proposed rule contemplated in the ANPR risks contravening this principle. Over the course of several enabling acts, Congress has specified various decision-making tools for EPA to employ when deciding whether and how to regulate. Each of these standards embodies a variety of factors EPA must consider, may consider, or is prohibited from considering as part of its decision-making. Further, these standards impart to the agency clear instructions on how it must account for the required and permissible factors. Significantly, this diversity of decision-making tools reflects the considered judgment of Congress about how best to address a particular public health or environmental problem, accounting for the unique nuances and context-specific issues, values, or uncertainties each particular public health or environmental problem might implicate. Unlike quantified cost-benefit analysis, these congressional instructions are careful to leave room for less easily quantified benefits and costs.

To the extent that the ANPR seeks to graft formal cost-benefit analysis as the new decision-making standard on all of the rulemaking authorizations in these various enabling acts, it would clearly exceed EPA's authority. Formal cost-benefit analysis requires a very narrow approach to considering decision-making factors, which have been prohibited or at least apparently disfavored in nearly every grant of rulemaking authority that Congress has ever provided to EPA. Therefore, EPA cannot use this ANPR to override those grants of authority.

### **Almost Invariably Congress Directed EPA to Use Alternatives to Formal Cost-Benefit Analysis**

Congress recognized the difficulties inherent in quantifying environmental values and the danger that those values will get crowded out by costs. As a result, in the vast majority of our federal environmental statutes, Congress actually rejected formal cost-benefit analysis as a standard-setting tool.<sup>21</sup>

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<sup>19</sup> *Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *DIRECTV, Inc. v. FCC*, 110 F.3d 816, 826 (D.C. Cir. 1997).

<sup>20</sup> *See Chrysler Corp. v. Brown*, 441 U.S. 281, 304 (1979); *Liberty Mut. Ins. Co. v. Friedman*, 639 F.2d 164, 171-72 (4th Cir. 1981); *Batterton v. Marshall*, 648 F.2d 694, 701 (D.C. Cir. 1980).

<sup>21</sup> Amy Sinden, *Formality and Informality in Cost-Benefit Analysis*, 2015 UTAH L. REV. 93, 129-34; SIDNEY A. SHAPIRO & ROBERT L. GLICKSMAN, *RISK REGULATION AT RISK: RESTORING A PRAGMATIC APPROACH* 32 (2003);

Instead, Congress directed EPA to use a broad variety of other different standard-setting tools – tools that were specifically tailored to the particular problems the authorized regulations were intended to address. These tools include feasibility analysis, open-ended or multi-factor balancing, health-based standards, and informal cost-benefit analysis. While most of these standard-setting tools involve consideration of both the positive and negative impacts of a regulatory decision, they are distinguishable from formal cost-benefit analysis because they do not involve the direct comparison of monetary cost estimates against monetary benefits estimates. As such, they avoid many of the messy and controversial issues associated with formal cost-benefit analysis, including attempts to attach dollar values to regulatory benefits.

### Feasibility Analysis

Feasibility analysis sets standards at the most stringent level that is economically and technologically feasible.<sup>22</sup> Unlike formal cost-benefit analysis, which considers the overall social costs of a regulation and compares them to its overall social benefits, the feasibility principle compares the costs borne by the regulated industry to the financial capacities of that industry. Thus, while it usually involves quantification and monetization of regulatory costs, it does not require monetization of benefits.

Within these broad outlines, the precise formulation varies considerably. The Clean Water Act, for example, requires the limits on discharges into waterways that “require application of the best available technology economically achievable” for particular categories of industrial polluters.<sup>23</sup> The Clean Air Act requires standards for the emission of hazardous air pollutants to be no less stringent than the level of “the average emission limitation achieved by the best performing 12 percent of the existing sources” in a particular category.<sup>24</sup>

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Thomas O. McGarity, *Media-Quality, Technology, and Cost-Benefit Balancing Strategies for Health and Environmental Regulation*, 46 LAW & CONTEMP. PROBS. 159, 160–61 (1983); Lynn E. Blais, *Beyond Cost/Benefit: The Maturation of Economic Analysis of the Law and its Consequences for Environmental Policymaking*, 2000 U. ILL. L. REV. 237, 238–40; *Federal Regulation and Regulatory Reform: Report by the Subcommittee on Oversight and Investigations of the Committee on Interstate and Foreign Commerce, House of Representatives*, H. REP 75-931, 94th Cong. 2d Sess. 510 - 11, 515 (1976) (“[t]he limitations on the usefulness of benefit/cost analysis in the context of health, safety, and environmental regulatory decision-making are so severe that they militate against its use altogether.”); *Study on Federal Regulation, vol. VI, Committee on Governmental Affairs, U.S. Senate*, 96th Cong., 1st Sess. xxiv (1978)(noting that because it is extremely difficult to quantify [the] benefits [of health, safety and environmental regulation] there are serious limitations to the use of economic impact analysis in the health and safety area.”).

<sup>22</sup> David M. Driesen, *Distributing the Costs of Environmental, Health, and Safety Protection*, 32 B.C. ENVTL. AFF. L. REV. 1, 9 (2005); Jason R. Bent, *Health Theft*, 48 CONN. L. REV. 637, 646 (2016); *American Textile Mfrs. Inst., Inc. v. Donovan*, 452 U.S. 490, 495 (1981). One court of appeals has held that a standard is technologically feasible where “modern technology has at least conceived some industrial strategies or devices which are likely to be capable of meeting the [standard] and which the industries are generally capable of adopting.” *American Fed’n of Labor-Cong. of Indus. Orgs. v. Occupational Safety & Health Admin.*, 965 F.2d 962, 980 (11th Cir. 1992).

<sup>23</sup> 33 U.S.C. §1311(b)(2)(A). Significantly, several courts have held that EPA implementation of the Clean Water Act’s “best available technology” (BAT) standard does not require the use of cost-benefit analysis. See *EPA v. Nat’l Crushed Stone Ass’n*, 449 U.S. 64, 71 (1980) (finding that BAT limits do not require comparison of cost to effluent reduction benefits); *Am. Petroleum Inst. v. EPA*, 858 F.2d 261, 265–66 (5th Cir. 1988) (holding that EPA need not correlate costs and benefits, since economic and technological feasibility is the test for BAT limits under the Clean Water Act); *Rybachek v. EPA*, 904 F.2d 1276, 1290-91 (9th Cir. 1990) (finding that, in setting BAT limitations, EPA need not compare costs to benefits).

<sup>24</sup> 42 U.S.C. §7412(d)(3)(A).

The inquiries at the heart of these varying formulations of feasibility standards all focus on matters related to regulatory costs. To account for regulatory benefits, feasibility standards are typically paired with a threshold finding or “regulatory trigger” that requires the agency to first consider potential regulatory benefits in order to determine whether the harm is one worth regulating to begin with.<sup>25</sup> These thresholds or triggers essentially require the agency to make a preliminary finding of potential regulatory benefit. This does not typically require a comprehensive accounting of benefits, nor does it require monetization in order to make a direct comparison with costs. The point is simply to show that some potential benefit is present in order to obviate the possibility that a regulation might be issued that would “do[] significantly more harm than good.”<sup>26</sup>

For example, the Clean Air Act directs EPA to set standards for air pollution emissions from new stationary sources (factories and other large industrial facilities) using a feasibility analysis. In the language of the statute, the standard must “reflect[] the degree of emission limitation achievable through the application of the best system of emission reduction which . . . has been adequately demonstrated.”<sup>27</sup> But before EPA is authorized to set those standards, it must first make a threshold finding (the “trigger”) that the particular category of sources at issue “causes or contributes significantly to air pollution which may reasonably be anticipated to endanger public health or welfare.”<sup>28</sup>

Congress has had good reason to infuse much of our existing environmental law with feasibility standards. They are credited with bringing about dramatic improvements in air and water quality during the past four decades. Their ability to produce on-the-ground results is attributable in large part to the feasibility principle’s recognition of epistemic limits and ability to work within them. They ground decision-making in the information we have rather than the information we wish we had.

More specifically, feasibility analysis takes advantage of the fact that, in the context of classic environmental regulation, data gaps and the epistemic and analytic challenges posed by complex systems are far greater on the benefits side than the costs side. Accordingly, feasibility analysis focuses in on the costs side, performing a fairly granular and often quantified analysis of the costs and technological feasibility of pollution control technologies. Rather than directly comparing costs to benefits, as formal cost-benefit analysis does, feasibility analysis keeps the focus on costs, gauging their magnitude by comparing them to

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<sup>25</sup> See SHAPIRO & GLICKSMAN, *supra* note 21, at 33–35.

<sup>26</sup> See *Michigan*, 135 at 2707.

<sup>27</sup> 42 U.S.C. §7411(a)(1).

<sup>28</sup> 42 U.S.C. §7411(b)(1)(A). Sometimes in addition to the initial threshold finding that precedes feasibility analysis, Congress calls for a more detailed benefits inquiry on the back-end of the regulatory process. Thus, under the Clean Air Act’s hazardous air pollutants program, regulation is initially triggered by a health-based finding that a particular pollutant and/or source “presents . . . a threat of adverse human health [or environmental] effects.” 42 U.S.C. §7412(b)(2), (c)(3). EPA then initially sets discharge limits via feasibility analysis. Eight years later, however, the Agency reevaluates those standards under a health-based approach. See 42 U.S.C. §7412(d) & (f). The NAAQS/state implementation plan (SIP) process under the Clean Air Act also takes this form. EPA first sets NAAQS under a health-based standard (at the level requisite to protect the public health), see 42 U.S.C. §7409(b)(1), but states subsequently implement those standards through SIPs that set largely feasibility-based discharge limits. See 42 U.S.C. §§7411(a)(1), 7475(a)(4), 7503(a)(2).

the overall financial capacities of the industry. (Note, too, that feasibility analysis defines costs more narrowly than does formal cost-benefit analysis by considering only compliance costs imposed on the regulated industry. Formal cost-benefit analysis, in contrast, involves a quixotic and ultimately irrelevant attempt to count all costs to society as a whole.)

Meanwhile, feasibility analysis looks at regulatory benefits just carefully enough to ensure that there is some harm worth regulating (*i.e.*, that regulation will produce some significant benefit). In this way, it avoids the most problematic and controversial aspects of formal cost-benefit analysis – its requirements that regulatory benefits be first measured, then quantified, and finally translated to monetary terms in order to allow a direct comparison to regulatory costs.

### Open-Ended Balancing

Congress sometimes provides a laundry list of factors for an agency to consider in setting standards. These “open-ended balancing tests” or “multi-factor balancing tests” often include elements that might fall within the general category of costs or benefits. These tests differ from formal cost-benefit analysis in that (1) they do not call for a direct binary comparison of costs against benefits and (2) they do not specify what relative weight the agency should place on each factor.<sup>29</sup> They also differ from formal cost-benefit analysis in that they do not necessarily aspire to a comprehensive accounting of all social costs and all social benefits of a regulatory decision. The list may represent only a partial catalogue of all the social benefits and costs that could be associated with a given regulation and may be intentionally written so as to give more weight to some factors than others. In this way, democratically elected lawmakers are able to ensure that regulatory outcomes advance the principles, values, and policy goals they have determined are most relevant and important for the particular context in which a regulation operates.

The Clean Water Act provides an example of this form of standard-setting tool. It requires discharge limits for various pollutants to be set on the basis of feasibility standards combined with open-ended balancing. One set of these limits is for toxic pollutants, which are to be set at the level “which shall require application of the best available technology economically achievable.”<sup>30</sup> But the statute also goes on to specify that

[f]actors relating to the assessment of best available technology shall take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate.<sup>31</sup>

### Health-Based Standards

Occasionally, Congress has directed EPA to set standards in a cost-blind fashion, based solely on consideration of the benefits to public health or the environment. The most

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<sup>29</sup> See SHAPIRO & GLICKSMAN, *supra* note 21, at 32.

<sup>30</sup> 33 U.S.C. §1311(b)(2)(A).

<sup>31</sup> 33 U.S.C. §1314(b)(2)(B).

prominent example of this is the provision of the Clean Air Act directing EPA to set the National Ambient Air Quality Standards (NAAQS) at the level “requisite to protect the public health.”<sup>32</sup> The Supreme Court unanimously rejected the argument that this statutory language requires or allows cost-benefit analysis in *Whitman v. American Trucking*,<sup>33</sup> a Supreme Court case conspicuously omitted from the ANPR.

## Congress Has Consistently Disfavored the Use of Formal Cost-Benefit Analysis in Standard Setting

### Cost-Benefit Analysis Comes in Many Varieties

As noted above, cost-benefit analysis denotes a wide variety of tools that fall along a spectrum from informal to formal. On one end of the spectrum is an informal, intuitive balancing of qualitatively described pros and cons. This informal style involves (1) a qualitative description of the pros and cons, (2) of a single alternative, and (3) a rough, intuitive, apples-to-oranges weighing of the pros against the cons.

On the formal end of the spectrum is a highly technical process employing mathematical computation and drawing on tenets of welfare economics to identify the level of regulation that maximizes net social benefits, or, said another way, for which marginal social benefits are just equal to marginal social costs. Identifying that efficient level of regulation requires measuring the costs and benefits not just of a single regulation, but of every possible level of regulation at incrementally varying levels of stringency.

Since the goal is to find the point at which marginal costs and marginal benefits are just equal, it is not sufficient to measure costs and benefits in qualitative terms or to do a rough apples-to-oranges comparison. Rather, costs and benefits must be fully, or close to fully, quantified and then converted to a common metric (usually dollars) so that they can be precisely compared. Accordingly, formal cost-benefit analysis involves (1) quantification and monetization of all, or nearly all, costs and benefits to society as a whole, (2) for a full range of incrementally varying alternatives, in order to (3) identify the point of net benefits maximization, where marginal costs are just equal to marginal benefits.

These two contrasting visions of CBA form two ends of a spectrum with more varieties in between.<sup>34</sup>

### The Few Statutes Arguably Calling for ‘Cost-Benefit Analysis’ Direct EPA to Use Informal Varieties

Among the commonly cited exceptions to Congress’ widespread rejection of cost-benefit analysis in environmental legislation are the Toxic Substances Control Act (TSCA) of 1976 and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Yet neither law ever uses the term “cost-benefit analysis,” or even “cost-benefit balancing.” Instead, they simply direct the EPA to apply a “reasonableness” criterion in setting standards.<sup>35</sup> The courts

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<sup>32</sup> 42 U.S.C. §7409(b)(1).

<sup>33</sup> 531 U.S. 457 (2001).

<sup>34</sup> See Sinden, *supra* note 21, at 98-120.

<sup>35</sup> See 15 U.S.C. §2605(a) (2012) (authorizing the EPA to regulate toxic chemicals that “present an unreasonable risk of injury to health or the environment”); *id.* §2605(c)(1)(D) (directing the EPA to assess the economic benefits of the chemical to society and the “economic consequences” of the regulation in order to evaluate the unreasonableness of a

have inferred that determining whether a standard is “reasonable” requires some comparison of costs and benefits, but FIFRA, at least, has not generally been construed as requiring a formal cost-benefit analysis.<sup>36</sup>

In 1991, the Fifth Circuit Court of Appeals construed TSCA as requiring a formal cost-benefit analysis in its controversial decision striking down EPA’s asbestos ban.<sup>37</sup> But, when Congress revisited the issue of toxic chemical regulation, there was widespread consensus across the political spectrum that the Fifth Circuit’s decision had to be overruled. The newly amended TSCA actually prohibits cost consideration in the evaluation of chemical risks, and sharply cabins the role of costs risk management.<sup>38</sup> This recent congressional repudiation of a cost-benefit mandate in one statute counsels strongly against the wisdom of an agency-created “supermandate” across EPA’s many enabling acts, including the revised TSCA.

The furthest Congress has ever moved from the informal end of the spectrum in requiring EPA use of cost-benefit analysis is the Safe Drinking Water Act (SDWA), as amended in 1996. Even there, however, Congress did not appear to contemplate the most formal version of cost-benefit analysis. In setting maximum contaminant levels for sources of drinking water, the SDWA requires the EPA to assess the “[q]uantifiable and nonquantifiable” costs and benefits associated with each alternative being considered.<sup>39</sup> Here, then, unlike the other statutes, Congress made specific reference to costs, benefits, and quantification. The statute also uses language that appears to reference economic theory, specifically giving the EPA authority to “identify valid approaches for the measurement and valuation of benefits . . . including . . . consumer willingness to pay for reductions in health risks from drinking water contaminants.”<sup>40</sup> But the statute stops short of actually requiring the EPA to base its decision on cost-benefit analysis. Indeed, the statute actually directs the EPA to set the maximum contaminant level in the first instance on the basis of a feasibility standard.<sup>41</sup> It then gives the

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risk); 7 U.S.C. §136(bb) (2012) (directing the EPA to deny registration to any pesticide that poses an “unreasonable risk to man or the environment”).

<sup>36</sup> See Sinden, *supra* note 21, at 131-32; Mary Jane Angelo, *Embracing Uncertainty, Complexity, and Change: An Eco-pragmatic Reinvention of a First-Generation Environmental Law*, 33 *ECOLOGY L.Q.* 105, 177 (2006); see also SHAPIRO & GLICKSMAN, *supra* note 21, at 39 (characterizing FIFRA as containing an “open-ended balancing standard”).

<sup>37</sup> See *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201, 1222–23 (5th Cir. 1991).

<sup>38</sup> 15 U.S.C. §2605(b)(4)(A), (c)(2). The legislative hearings leading up to the passage of the Frank R. Lautenberg Chemical Safety for the 21st Century Act involved a great deal of focus on the issue of how costs should be factored into chemical risk evaluations and risk management through the revisions to TSCA. These hearings reveal that lawmakers recognized that, to make TSCA more effective, any review would have to include a new approach to considering costs for toxic chemicals regulations following the *Corrosion Proof Fittings* decision. See *Legislative Hearing on the Frank R. Lautenberg Chemical Safety for the 21st Century Act (S. 697): Hearing Before the S. Comm. on Env't. And Public Works*, 114th Cong. 75-76, 81, 135, 240-250, 251, 251-255 (2015); *H.R. \_\_\_\_, The TSCA Modernization Act of 2015: Hearing Before the Subcomm. on Env't. and the Econ. of the H. Comm. on Energy and Commerce*, 114th Cong. 24-25, 26, 29, 31-32, 66-67, 69, 75 (2015).

<sup>39</sup> 42 U.S.C. §300g-1(b)(3)(C)(i).

<sup>40</sup> *Id.* §300g-1(b)(3)(C)(iii); see also *id.* §300g-1(b)(3)(C)(i)(IV) (requiring the EPA to publish an analysis of “[t]he incremental costs and benefits associated with each alternative maximum contaminant level considered”).

<sup>41</sup> The statute first directs the EPA to set something called a “maximum contaminant level goal.” *Id.* §300g-1(b)(1)(A). This goal is to be set according to a very stringent health based standard—that is, “at the level at which no known or anticipated adverse effects on the health of persons occur and which allows an adequate margin of safety.” *Id.* §300g-1(b)(4)(A). It then directs the EPA to set the “maximum contaminant level,” which is the limit that drinking water supplies are actually required to meet, “as close to the maximum contaminant level goal as is feasible.” *Id.* §300g-1(b)(4)(B).

EPA the discretion, *if it so chooses*, to override the results of the feasibility analysis and adjust the level on the basis that “the benefits of a maximum contaminant level . . . would not justify the costs . . . .”<sup>42</sup> Thus, while the SDWA arguably authorizes a more formal variety of cost-benefit analysis, it relegates it to the status of a limited backup measure for rare situations in which a maximum contaminant level might be technically feasible but generate costs that are grossly disproportionate to their benefits. Most importantly, this language shows that Congress knows how to impose a mandate (although a limited one) for quantified cost-benefit analysis. It has conspicuously chosen in other language in a multitude of statutes.

### The Supreme Court Has Generally Endorsed the View That EPA’s Enabling Statutes Do Not Require Formal Cost-Benefit Analysis

Over the past two decades, the U.S. Supreme Court has issued a series of decisions interpreting the decision-making standards that EPA is charged with using under various provisions of its enabling acts. In these cases, the Court has made clear that the manner in which EPA evaluates costs and benefits as part of its regulatory decision-making must vary depending on the statute. As noted above, the Court, in an opinion authored by Justice Scalia in *Whitman v. American Trucking*, specifically stated that EPA cannot use cost-benefit analysis to establish National Ambient Air Quality Standards (NAAQS) at the level “requisite to protect the public health” under the Clean Air Act.<sup>43</sup> This bar on the use of cost-benefit analysis was not an outlier. Twenty years earlier, in *American Textile Manufacturers, Inc. v. Donovan*, the Court rejected the contention that a statutory feasibility standard for regulation required the Occupational Safety and Health Administration (OSHA) to conduct a form of cost-benefit analysis. The Court explained that, by adopting a feasibility standard, “Congress itself defined the basic relationship between costs and benefits, by placing the ‘benefit’ of worker health above all other considerations save those making attainment of this ‘benefit’ unachievable.”<sup>44</sup>

In more recent cases, the Supreme Court has concluded that various EPA enabling acts permit or require some form of overall assessment of costs and benefits that will necessarily vary according to the statutory context involved.<sup>45</sup> The Court has not, however,

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<sup>42</sup> *Id.* §300g-1(b)(6)(A). This provision goes on to say that where the costs of the chosen maximum contaminant level do not justify the benefits, EPA “may . . . promulgate a maximum contaminant level . . . that maximizes health risk reduction benefits at a cost that is justified by the benefits.” *Id.* While this language might appear at first glance to be a reference to net benefits maximization (economic efficiency), it actually calls for something quite different and represents a departure from economic theory. It directs the EPA to set the standard at the level at which overall benefits are as high as they can possibly be, as long as they are cost justified. This could well be a point more stringent than the point of net benefits maximization.

The D.C. Circuit also noted in *City of Portland v. EPA*, 507 F.3d 706, 710–11 (D.C. Cir. 2007), that while the SDWA requires EPA to perform a cost-benefit analysis, the use of that cost-benefit analysis to set the maximum contaminant level is discretionary. That case actually involved an exception the statute carves out for cryptosporidium, which prohibits EPA from using the cost-benefit analysis override to set the maximum contaminant level for this contaminant. 42 U.S.C. §300g-1(b)(6)(C). Congress was particularly concerned about cryptosporidium at the time, due to a high profile and disastrous outbreak in Milwaukee three years earlier. *City of Portland*, 507 F.3d at 710–11.

<sup>43</sup> 531 U.S. at 471 (noting that §109 of the Clean Air Act’s health-based standard “unambiguously bars costs considerations from the NAAQS-setting process”).

<sup>44</sup> 452 U.S. at 509.

<sup>45</sup> *Entergy*, 556 U.S. at 223 (addressing implementation of §316(b) of the Clean Water Act and holding that EPA was permitted to rely on cost-benefit analysis to guide its decision-making); *EPA v. EME Homer City Generator, L.P.*, 134 S. Ct. 1584 (2014) (addressing implementation of the Clean Air Act’s “Good Neighbor” provision, 42 U.S.C. §7410(a)(2)(D)(i), and holding that EPA’s consideration of costs was permissible); *Michigan*, 135 S. Ct. at 2711

held in any of these cases that formal, fully-monetized CBA was permitted or required. Indeed, in *Michigan v. EPA*, the majority opinion, authored by Justice Scalia, specifically rejected the proposition that, to determine whether a regulation was “appropriate,” EPA had to “conduct a formal cost-benefit analysis in which each advantage and disadvantage is assigned a monetary value.”<sup>46</sup> Instead, the agency merely needed to consider all of the important advantages and disadvantages of the regulation in some reasonable way as determined by the agency itself. This flexible approach is consistent with the skepticism that the Court has often expressed about the use of formal cost-benefit analysis.<sup>47</sup>

### **A One-Size-Fits-All Approach to Cost-Benefit Analysis Would Run Counter to Congress’s Choice That EPA Employ Different Decision-Making Standards for Different Contexts**

Over the course of several decades, Congress has passed numerous enabling statutes for EPA, and in doing so, it has almost invariably rejected the use of formal cost-benefit analysis as the decision-making standard that EPA should employ to implement those statutes. Instead, Congress chose to employ a wide variety of decision-making standards, which it deemed appropriate for the unique context of the public health or environmental problems that it sought to address through the statutes. The diversity of decision-making standards is clear from a plain reading of the various statutory provisions. Moreover, relevant Supreme Court jurisprudence has consistently affirmed Congress’s choice to establish diverse, context-specific decision-making standards across EPA’s enabling statutes.

A rulemaking that sought to impose a one-size-fits-all approach to the manner in which EPA conducts cost-benefit analysis would contravene congressional intent that the agency use different, context-specific decision-making standards. In reviewing agency implementation of various decision-making standards, the Supreme Court has shared Congress’s skepticism with regard to formal cost-benefit analysis. Given that Congress has generally rejected formal cost-benefit analysis, a rulemaking that adopted that particular decision-making standard for a one-size-fits-all approach would be illegal.

Congress intended to create different standards by carefully structuring statutory standards to particular regulatory decisions. It would be unreasonable – and also arbitrary and

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(addressing implementation of the Clean Air Act’s provision for regulating hazardous pollutants from power plants, 42 U.S.C. §7412(n)(1)(A), and holding that EPA had erred in not considering costs when determining whether such regulations were “appropriate and necessary,” while also noting that “It will be up to the agency to decide (as always, within the limits of reasonable interpretation) how to account for cost.”).

<sup>46</sup> *Michigan*, 135 S. Ct. at 2711 (“We need not and do not hold that the law unambiguously required the Agency, when making this preliminary estimate, to conduct a formal cost-benefit analysis in which each advantage and disadvantage is assigned a monetary value.”).

<sup>47</sup> See *Entergy*, 556 U.S. at 235 (Breyer, J., concurring) (“The EPA’s reading of the statute would seem to permit it to describe environmental benefits in non-monetized terms and to evaluate both costs and benefits in accordance with its expert judgment and scientific knowledge. *The Agency can thereby avoid lengthy formal cost-benefit proceedings and futile attempts at comprehensive monetization*; take account of Congress’ technology-forcing objectives; and still prevent results that are absurd or unreasonable in light of extreme disparities between costs and benefits.” (emphasis added)); *Michigan*, 135 S. Ct. at 2717 (Kagan, J., dissenting) (“As the Court notes, [the pro-cost presumption] does not require an agency to conduct a formal cost-benefit analysis of every administrative action.”). For a detailed analysis of the Supreme Court’s consistent and long-standing skepticism of the use of formal cost-benefit analysis in EPA’s regulatory decision-making, see generally Amy Sinden, *A ‘Cost-Benefit State’? Reports of Its Birth Have Been Greatly Exaggerated*, 46 ENVTL. L. REP. 10933 (2016).

capricious – for an agency to steamroll through this complex statutory landscape with a single, unvarying decision standard.

### Congress Had Good Reasons to Eschew the Use of Formal Cost-Benefit Analysis as a Decision-Making Standard: It Doesn't Work

When used as the ultimate standard controlling regulatory decisions, formal cost-benefit analysis raises a host of unresolved theoretical difficulties that have been catalogued in a vast and long-standing literature: It flattens the variety of human experience into a monetary metric;<sup>48</sup> undercounts the preferences of the poor vis-à-vis the rich;<sup>49</sup> devalues the lives of our children and grandchildren;<sup>50</sup> ignores distributional inequities;<sup>51</sup> fails to account for low-probability catastrophic outcomes;<sup>52</sup> and rests on a vision of human nature and behavior that has been shown to have many empirical flaws.<sup>53</sup>

Even putting aside the myriad theoretical difficulties, it is simply unworkable as a standard for decision given the current state of scientific knowledge. Most of the time, cost-benefit analysis leaves significant categories of benefits out of the equation entirely because we simply do not have the data and/or scientific understanding to quantify the consequences of environmental degradation to human and ecological health. A recent empirical study found that 76 percent of EPA's cost-benefit analyses (35 out of 46 analyzed) had excluded categories of benefits that the agency itself described as "important," "significant," or "substantial" because they were unquantifiable due to data limitations.<sup>54</sup> Since these large amounts of unquantified benefits make it impossible for EPA to meaningfully calculate net benefits for a given regulatory alternative, the agency is thus unable to perform a formal cost-benefit analysis and identify the "optimal" level of regulatory stringency (in a welfare economics sense). Indeed, without fully quantified benefits, it is impossible to use cost-benefit analysis as a decision-making tool at all. At best, cost-benefit analysis can be used as a "secondary" filter or check on decisions made using other tools. Specifically, it can provide an imprecise check on whether the (incomplete) benefits estimate of a regulatory alternative exceeds the (complete) costs estimate.

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<sup>48</sup> ELIZABETH ANDERSON, VALUE IN ETHICS AND ECONOMICS 55-59 (1993); MARK SAGOFF, THE ECONOMY OF THE EARTH: PHILOSOPHY, LAW, AND THE ENVIRONMENT 1-7 (1988); Cass R. Sunstein, *Incommensurability and Valuation in Law*, 92 MICH. L. REV. 779, 841-42 (1994).

<sup>49</sup> RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 13 (5th ed. 1998); C. Edwin Baker, *The Ideology of the Economic Analysis of Law*, 5 PHIL. & PUB. AFF. 3, 6 (1975); Duncan Kennedy, *Cost-Benefit Analysis of Entitlement Problems: A Critique*, 33 STAN. L. REV. 387, 422-44 (1981); Arthur A. Leff, *Economic Analysis of Law: Some Realism About Nominalism*, 60 VA. L. REV. 451, 478-79 (1974).

<sup>50</sup> Lisa Heinzerling, *Discounting Our Future*, 34 LAND & WATER L. REV. 39, 40-41 (1999); Douglas A. Kysar, *Discounting . . . on Stilts*, 74 U. CHI. L. REV. 119, 119-20 (2007); Richard L. Revesz, *Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives*, 99 COLUM. L. REV. 941, 955-86 (1999).

<sup>51</sup> Amy Sinden, *Cost-Benefit Analysis*, in EDWARD ELGAR ENCYCLOPEDIA OF ENVIRONMENTAL LAW, VOL II, ENVIRONMENTAL DECISION MAKING (Glicksman & Paddock eds.).

<sup>52</sup> Daniel A. Farber, *Uncertainty*, 99 GEO. L.J. 901 (2011); Martin L. Weitzman, *On Modeling and Interpreting the Economics of Catastrophic Climate Change*, 91 REV. ECON. & STAT. 1 (2009).

<sup>53</sup> DANIEL KAHNEMAN & AMOS TVERSKY, CHOICES, VALUES, AND FRAMES (2000); Amartya Sen, *The Possibility of Social Choice*, 89 AM. ECON. ASS'N 349 (1999); Tuba Tuncel & James K. Hammitt, *A New Meta-Analysis on the WTP/WTA Disparity*, 68 J. ENVTL. ECON. & MGMT. 175 (2014).

<sup>54</sup> Sinden, *supra* note 10.

## Conclusion

For the reasons discussed above, any substantial rule developed on the basis of this ANPR will likely exceed the EPA's legal authority. The continued pursuit of this unnecessary and likely illegal regulatory action would represent a grievous waste of EPA's dwindling budgetary resources, particularly at a time when the agency faces so many critical challenges implicating its mission. Accordingly, we conclude that EPA should withdraw this fundamentally misguided rulemaking immediately. Given the many statutory deadlines facing EPA and the critical environmental problems facing our country, this rulemaking promises to be a diversion from EPA's core mission.

We appreciate your attention to these comments.

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