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EPA Docket Center
U.S. EPA, Mail Code 28221T
120 Pennsylvania Ave, NW
Washington DC 20460
Attn: Docket No. ID EPA-HQ-OAR-2017-0355

Re: [REVISED] 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," 82 Fed. Reg. 48,035 (Oct. 16, 2017), **Comments Specific to the *"Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal"* (October 2017).**

Administrator Pruitt:

The undersigned 12 environmental and public health organizations hereby submit comments on the Regulatory Impact Analysis accompanying the Proposed Repeal of the Clean Power Plan. Our comments cite to documents included in the Joint Appendix of Environmental and Public Health Organizations, and States Regarding the Proposed Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, submitted in this docket (Joint App.).

As we describe in our joint comments, and as many of our organizations also describe in comments we submit separately, it is our strong view that the "Proposed Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units," 82 Fed. Reg. 48,035 (Oct. 16, 2017) (Repeal Proposal) is unlawful because it fails adequately to consider, as required by Clean Air Act section 111, the potential costs and benefits of the Proposed Repeal, and of the "system of emission reduction" available under the Administrator's new interpretation and EPA's prior interpretation. Section 111 requires that EPA identify the level of emission reduction that can be achieved "through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated."[1] The requirement that EPA identify the "best system of emission reduction" and that it "tak[e] into account the cost of achieving such reduction" mean that EPA must, as part of its decision, consider the costs of the air pollution reductions and the magnitude and benefits of those possible reductions – including both direct benefits and ancillary or co-benefits of reducing power plant emissions.[2] As the Court held in *Michigan v. EPA*, "[c]onsideration of cost reflects the understanding that reasonable regulation

[1] 42 U.S.C. §7411(a)(1).

[2] *See Sierra Club v. Costle*, 657 F.2d 298, 326 (D.C. Cir. 1981)(quantity of emission reductions is an important factor in determining "best" system of emissions reduction.

ordinarily requires paying attention to the advantages *and* the disadvantages of agency decisions."[3]

No such analysis appears in the Proposed Repeal. While, as discussed in the enclosed Comments Specific to the *"Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal"* (October 2017), EPA did perform a partial analysis under Executive Orders 12,866, and 13,563[4] that analysis itself is significantly flawed and arbitrary. And, nothing in your Proposed Repeal connects even that flawed Regulatory Impact Analysis to or with the decision-making on the Proposed Repeal as required under Clean Air Act section 111. Yet the Administrator must conduct and take comment on that analysis before finalizing any change to the Clean Power Plan. 42 U.S.C. §§7607(d)(3), (d)(6).

The Administrator has not proposed to treat the Regulatory Impact Analysis as fulfilling his duties under the Clean Air Act to consider the costs and benefits of the proposed repeal. Even if the Administrator were to seek to rely on the Regulatory Impact Analysis for its final decision, that reliance would violate notice requirements and, without far more analysis and public comment opportunity than EPA has provided to date, would constitute arbitrary and capricious decision making.

Respectfully submitted,

/s/ Ann Brewster Weeks
Clean Air Task Force
114 State Street, 6th floor
Boston, MA 02109
aweeks@catf.us
617-359-4077

On behalf of:

Appalachian Mountain Club
Center for Biological Diversity
Clean Air Council
Clean Air Task Force
Earthjustice
Environmental Defense Fund
Environmental Law and Policy Center of the Midwest
Minnesota Center for Environmental Advocacy
National Parks Conservation Association
Natural Resources Defense Council
Sierra Club
Union of Concerned Scientists

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[3] *Michigan v. EPA*, 135 S. Ct. 2699, 2707 (2015).

[4] 82 Fed. Reg. at 48,043-47.

[REVISED] 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," 82 Fed. Reg. 48,035 (Oct. 16, 2017), Docket ID No. EPA-HQ-OAR-2017-0355

Comments Specific to the "*Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal*" (October 2017)

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Comments of:

Appalachian Mountain Club

Center for Biological Diversity

Clean Air Council

Clean Air Task Force

Earthjustice

Environmental Defense Fund

Environmental Law and Policy Center of the Midwest

Minnesota Center for Environmental Advocacy

National Parks Conservation Association

Natural Resources Defense Council

Sierra Club

Union of Concerned Scientists

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Introduction

Our 12 regional and national environmental and public health organizations express our strong concerns about the Regulatory Impact Analysis[1] (2017 RIA) accompanying the proposed repeal of the Clean Power Plan (Repeal Proposal). The assessments of costs and benefits that accompany major federal rules are to be made consistent with the legal basis for the rule, including the underlying statutory requirements and purpose animating the rulemaking, and using the best available tools for the job.[2] The 2017 RIA, however, fails to accurately calculate the costs and benefits of the proposed action, abandoning the "best available science" and the "best available techniques" in service of its proposed repeal of a duly promulgated rule. As such, the 2017 RIA does not comply with the directives in the Executive Order 12,866 (as modified by Executive Order 13,563),[3] and also demonstrates the arbitrary and capricious nature of EPA's Repeal Proposal more generally.

The Repeal Proposal is, as it must be, a new rulemaking.[4] Yet, instead of an analysis of the costs and benefits of EPA's Repeal Proposal, the 2017 RIA includes a partial recalculation of the benefits and costs of the Clean Power Plan as analyzed in 2015. These partial recalculations are arbitrary in several ways: (A) they fail to consider relevant developments in the power sector since the Clean Power Plan was finalized; (B) they inflate the cost of the Clean Power Plan by adding fictional generation costs that are unsupported in the record; (C) they abandon the "best available science" by proposing to ignore the vast body of scientific evidence showing the significant health benefits of the particulate matter reductions that are an ancillary benefit of the Clean Power Plan, while providing no new scientific basis or any other adequate explanation for this omission;[5] and (D) they arbitrarily – without any reasoned explanation

[1] U.S. Environmental Protection Agency, *Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal* (Oct. 2017) (2017 RIA). Our organizations are: Appalachian Mountain Club, Center for Biological Diversity, Clean Air Council, Clean Air Task Force, Earthjustice, Environmental Defense Fund, Environmental Law and Policy Center of the Midwest, Minnesota Center for Environmental Advocacy, National Parks Conservation Association, Natural Resources Defense Council, Sierra Club, Union of Concerned Scientists.

[2] *See* Exec. Order No. 13,563, "Improving Regulation and Regulatory Review," 76 Fed. Reg. 3,821 (Jan. 21, 2011) & Exec. Order No. 12,866, "Regulatory Planning and Review," 58 Fed. Reg. 51,735 (Oct. 4, 1993) (requiring the preparation of Regulatory Impacts Analyses for certain federal rules).

[3] Executive Order 13,563 expanded on and clarified Executive Order 12,866.

[4] *Nat'l Family Planning & Reprod. Health Ass'n, Inc. v. Sullivan*, 979 F.2d 227, 234 (D.C. Cir. 1992).

[5] This aspect of the 2017 RIA is of particular concern, in that it evinces EPA's recent moves away from rational and reasonable science-based analysis, and therefore reflects a much larger problem with the Administrator's decision making. *See, e.g.*, Emily Atkin, The War on Science is Over, the Republicans Won, New Republic (Apr. 5, 2018), *available at* https://newrepublic.com/article/147729/war-science-over-republicans-won (reporting on the Administration's attempts to disqualify current, well understood, and peer-reviewed science on the assessment of

based on the science of climate change – reduce the estimate of the benefits achieved by avoiding carbon pollution. The Administrator's decision to issue such an analysis, which fails to meet the requirements of the Office of Management and Budget guidelines for consideration of costs and benefits,[6] is arbitrary and capricious. Reliance on such analysis to finalize the repeal would violate the requirements of the Clean Air Act, as would reliance on any different analysis in the final rule that was not made available for public notice and comment.

A. EPA's Failure to Take Intervening Industry, Policy, and Market Developments into Account in Its Cost-Benefit Analysis Is Arbitrary and Capricious.

When EPA finalized the Clean Power Plan in 2015, it established emission guidelines based "in large part on already clearly emerging growth in clean energy innovation, development, and deployment."[7] Since 2015, these trends have continued, making the achievement of the Clean Power Plan's emission targets even less costly than originally contemplated. In fact, in 2017, power sector carbon dioxide (CO_2) emissions were at 1,753 million metric tons, or 27 percent below 2005 levels – more than 85 percent of the way towards attaining EPA's emission reduction target of 32 percent below 2005 levels by 2030.[8] These developments show that the Clean Power Plan sets conservative, eminently achievable objectives while providing certainty regarding future emission reductions that market trends alone cannot deliver. Contrary to EPA's conclusion, the rapid progress toward emission

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health impacts due to the burning of fossil fuels and associated exposures to fine particulates, as well as the move away from reliance on objective science experts for advice); Justin Worland, Scientists Worry Scott Pruitt's New EPA Change Will Harm Life-Saving Research, Time (Mar. 30, 2018), *available at:* http://time.com/5220315/scott-pruitt-epa-transparency/ (reporting on an interview Administrator Pruitt gave to the conservative *Daily Caller*); Gina McCarthy and Janet G. McCabe, Scott Pruitt's Attack on Science Would Paralyze the E.P.A., New York Times Op. Ed. (Mar. 26, 2018), *available at* https://www.nytimes.com/2018/03/26/opinion/pruitt-attack-science-epa.html (same, comments of former EPA Administrator McCarthy and Assistant Administrator McCabe); Robin Bravender, Pruitt Expected to Limit Science Used to Make EPA Pollution Rules, Scientific American (Mar.16, 2018), *available at* https://www.scientificamerican.com/article/pruitt-expected-to-limit-science-used-to-make-epa-pollution-rules/ (first published in E&E News) (describing Administrator Pruitt's promise to the Heritage Foundation to revisit how the Agency uses established peer-reviewed science in decision making, particularly science based on confidential human health data). *See also*, Sean Reilly and Kevin Bogardus, EPA unveils new industry-friendlier science advisory boards, Science (Nov. 3, 2017), *available at* http://www.sciencemag.org/news/2017/11/epa-unveils-new-industry-friendlier-science-advisory-boards (first published in E&E News) (describing Administrator Pruitt's previous decision to eject any scientist receiving EPA grants from EPA's science advisory boards, leaving only privately funded scientists to offer advice to the Agency on regulatory matters).

[6] *See* Circular A-4 (Sept. 2003), *available at*: https://obamawhitehouse.archives.gov/omb/circulars_a004_a-4/#a. Circular A-4, first issued in 2003, is still in use as a manual of standardized procedure for evaluating costs and benefits of agency actions, describes indirect benefits as any "favorable impact[s]…secondary to the statutory purpose of the rulemaking."); *see also* Exec. Order No. 13,563 §1 (quantitative and qualitative benefits and costs to be considered), Exec. Order No. 12,866 at §§1(a), 6 (all costs and benefits to be assessed).

[7] Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,663 (Oct. 23, 2015).

[8] U.S. Energy Information Administration, *Monthly Energy Review* (Mar. 2018), *available at:* https://www.eia.gov/totalenergy/data/monthly/archive/00351803.pdf.

reductions indicates the need to *strengthen* the Clean Power Plan, not repeal it; indeed, its national regulatory framework is ready-made to enable "target ratcheting as energy prices, technology costs and baseline emissions projections change[]."[9]

In its January 2017 Reconsideration Denial, EPA recognized that market trends in the power sector have continued to drive CO_2 emission reductions after the Clean Power Plan was finalized.[10] These trends include declining coal generation and increased renewable energy and natural gas generation – driven in large part by improving wind and solar economics, the renewable energy tax credit extensions, and low natural gas prices – in addition to increased demand-side energy efficiency.[11] EPA concluded that those power sector trends "allow states and sources to implement the Clean Power Plan and achieve its goals more readily than originally projected" and "at very low costs."[12] In light of these continued trends, higher-emitting resources such as coal are simply becoming less and less economic to operate.

It is arbitrary and capricious for EPA to base its RIA for the Repeal Proposal on its 2015 analysis *without* taking into account these intervening industry, policy, and market developments. Indeed, as part of the RIA for the Repeal Proposal, EPA acknowledges EIA's Annual Energy Outlook (AEO) trends from 2015 through 2017, and admits that the projected cost of complying with the Clean Power Plan would be even lower than was estimated in 2015:

> Together, these factors contribute to an expectation that updated EPA analysis would project fewer CO_2 emissions in the absence of the CPP [Clean Power Plan] than was projected in the 2015 RIA. It follows that, on average, compliance with CPP mass-based emissions targets would be less costly since fewer reductions would be required. The CO_2 emissions projections in the Annual Energy Outlooks demonstrate that, relative to the AEO2015 Reference (no CPP) case, 46 percent of the 2030 CO_2 emissions reductions projected to occur in the AEO2017 Reference (CPP) case are observed in the AEO2017 No CPP case (Figure 7-19); in other words, almost half of the CO_2 reductions AEO2015 projected the CPP to obtain are now projected to occur in AEO2017 without the CPP.[13]

Remarkably, despite these observations in the 2017 RIA, EPA does not provide a current cost analysis and provides *no* update in or with the Repeal Proposal to the agency's

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[9] John Larsen and Whitney Herndon, Rhodium Group, *What the CPP Would Have Done* (Oct. 2017) (Joint App. J35).

[10] U.S. Environmental Protection Agency, *Basis for Denial of Petitions to Reconsider and Petitions to Stay the CAA section 111(d) Emission Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units, Appendix 2 – Power Sector Trends* (Jan. 2017), https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OAR-2013-0602-37338&attachmentNumber=2&contentType=pdf (2017 Basis for Reconsideration Denial) (Joint App. F4).

[11] *Id.*

[12] *Id.* at 42.

[13] 2017 RIA at 118.

power sector modeling to incorporate these highly significant market and policy developments. Although EPA claims that it "plans to do updated modeling using the Integrated Planning Model (IPM), which will be made available for public comment before any action that relates to the Clean Power Plan is finalized,"[14] EPA clearly has not even begun that exercise as of the date of proposal, but is proposing to repeal the Clean Power Plan anyway, all the while averring that the Clean Power Plan has unacceptable impacts to electricity costs and the nation's resource mix. At best those claims are based on out of date information, as the Agency itself admits.[15] This course of action does not comport with section 307(d) of the Clean Air Act, which requires that the public must have notice of and an opportunity to comment on data and analysis underlying a rulemaking.[16]

Recent analysis by the Rhodium Group also projects significantly lower power sector CO_2 emissions in 2030. According to the Rhodium Group, even without the Clean Power Plan, power sector emissions are expected to be at least 27 percent below 2005 levels in 2030, if not more depending on market factors such as natural gas prices and renewable energy costs.[17]

Similarly, a recent report by the Institute for Policy Integrity highlights the declines in power sector CO_2 emissions and the concomitant decreases in Clean Power Plan compliance costs.[18] The report presents several recent economic analyses conducted by independent, non-governmental entities that estimate substantially lower compliance costs than EPA projected in 2015. For instance, a June 2016 analysis by M.J. Bradley & Associates, using the same electric sector model as EPA but updating several inputs to account for recent developments, found that compliance would cost up to 84 percent less than EPA originally estimated.[19] Another analysis by the American Petroleum Institute – also using the same electric sector model as EPA – projected that one compliance scenario would impose no costs in 2030, while another would cost 40 percent less than EPA's 2015 estimate.[20]

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[14] *Id.* at 3.

[15] *Id.*

[16] 42 U.S.C. §7607(d)(3) requires that EPA provide notice in the Proposed Repeal of 'the factual data on which the proposed rule is based," the "methodology use in obtaining the data and in analyzing the data," and the "major … policy considerations underlying the proposed rule." All these data and documents are to be included in the docket on the date of proposal. 42 U.S.C. §7607(d)(6)(C) provides that a regulation "may not be based (in part or whole) on any information or data which has not been placed in the docket as of the date of … promulgation." Therefore, to the extent that EPA repeals the Clean Power Plan based in whole or in part on the new analysis it admits it must conduct, and without providing the opportunity to review that analysis and provide public comment on it, EPA will be in violation of these provisions.

[17] Larsen and Herndon, *supra* n. 9.

[18] Denise A. Grab and Jack Lienke, Institute for Policy Integrity New York University School of Law, *The Falling Cost of Clean Power Plan Compliance* (Oct. 2017)(Joint App. J11).

[19] *Id.*; *see also* M.J. Bradley & Associates, *EPA's Clean Power Plan: Summary of IPM Modeling Results with ITC/PTC Extension* (June 2016)(Joint App. J40).

[20] Grab and Lienke, *supra* n. 18. *See also* American Petroleum Institute, Natural Gas Solutions: Power Generation, *EPA Clean Power Plan Compliance Pathways – Modeled Generation, Capacity and Costs* (2016)(Joint App. J2).

These analyses all indicate that the gap between projected emissions with and without the Clean Power Plan has narrowed substantially since 2015 and the costs of compliance are much lower than previously anticipated. No matter how small the gap between business-as-usual emissions and the Clean Power Plan targets becomes, however, the Clean Power Plan provides certainty regarding sector-wide emission reductions that market trends by themselves do not.

EPA discusses many of these very studies as part of its January 2017 Reconsideration Denial.[21] Yet in the 2017 RIA for the Repeal Proposal, EPA treats them as representing *uncertainty* associated with different implementation scenarios and assumptions about future economic conditions, rather than projections of greatly decreased costs and accelerated emission reduction trajectories based on current facts.[22] These findings *support* rather than argue against continued retention of the Clean Power Plan as assurance against changes to the current trends that could result in unexpectedly higher greenhouse gas emissions, and as a regulatory framework that facilitates updated emission guidelines. They are additional evidence that the Clean Power Plan could have been *stronger*, and that EPA should fortify the Clean Power Plan with more ambitious emission reduction targets, not repeal it.

B. EPA Grossly Inflates the Clean Power Plan's Costs by Adding the Fictional Expenses of Energy Generation Made Redundant by Energy Efficiency Measures and Using an Inappropriately High Discount Rate

EPA originally anticipated that entities would comply with the Clean Power Plan partly through investments in demand-side energy efficiency, a highly cost-effective means for reducing CO_2 emissions from the power sector. Indeed, most states and many utilities have urged EPA to allow energy efficiency as an acceptable compliance approach to existing source CO_2 standards, arguing energy efficiency's utility for this purpose, and illustrating industry's interest in this compliance option.[23]

Demand-side energy efficiency measures help consumers save electricity, resulting in lower electric bills, less pollution, and a more reliable electric grid. Investments in energy efficiency are largely offset by the resulting electricity savings. Indeed, states and consumers have continued to invest in energy efficiency programs in recent years, decreasing electric demand and contributing to the recent decline in power sector emissions. In 2015, state energy efficiency programs saved more than 26 million megawatt hours—almost twice the amount

[21] 2017 Basis for Reconsideration Denial, *supra* n. 10, at Appendix 2 – Power Sector Trends.

[22] 2017 RIA at 6-10, 79-98.

[23] *See, e.g.*, Letter from Environmental Council of the States, Docket ID No. EPA-HQ-OAR-2015-0199 at 2 (Jan. 21, 2016), *available at:* https://www.ecos.org/wp-content/uploads/2016/02/Final-ECOS-Comments-on-Federal-Plan-and-Model-Rules-1_21_16.pdf.

saved in 2010.[24] Those savings were equivalent to almost one percent of total U.S. electric demand for 2015.[25]

In its 2015 RIA for the Clean Power Plan,[26] when estimating the costs of the rule, EPA compared electric power generation costs with and without the Clean Power Plan. In the former scenario, EPA anticipated that entities would invest in energy efficiency and included the costs of those investments in its cost estimate. Those cost estimates also reflected that, with more energy efficiency, less electricity would need to be generated, offsetting much of the cost increase. The net outcome was a modest increase in costs.

In the 2017 RIA for the Repeal Proposal, however, EPA engages in bogus accounting, whereby it adds the investments in energy efficiency to the costs of the Clean Power Plan *without* deducting the electricity savings those investments yield. This creates the false impression that the power sector is paying for both energy efficiency and the electricity that it no longer needs to produce. As a result, EPA's faulty accounting includes billions of dollars of imaginary electricity costs – for electricity that will never be generated or purchased – thereby making the Repeal Proposal seem more economically beneficial than it actually would be. After inflating costs with imaginary electricity, EPA then adds those costs to its estimate of Clean Power Plan benefits – to represent the "benefit" of not having to purchase electricity that was never produced in the first place. When comparing costs and benefits, this imaginary electricity is a net wash – but it enables EPA to inflate its estimate of the Clean Power Plan's costs by up to $19.3 billion in 2030.

The 2017 RIA also inappropriately inflates costs (making them seem disproportionately high relative to the total benefits of the Clean Power Plan) by increasing the discount rate applied to future energy efficiency savings. Whereas the 2015 RIA relied primarily on a 3 percent discount rate for energy efficiency savings, EPA's new RIA accompanying the proposed Clean Power Plan repeal discounts future energy efficiency savings at a higher discount rate of 7 percent, without providing any meaningful justification. Using a 7 percent discount rate for energy efficiency savings yields a levelized cost of saved energy of roughly ten (10) cents per kilowatt-hour (2011$) in 2030, a value that's even higher than EPA's original conservative estimate of eight (8) cents per kilowatt-hour (2011$) in 2030 based on a 3 percent discount rate in the RIA for the Clean Power Plan.[27] By contrast, in 2015 Lawrence Berkeley National Laboratory analyzed the total cost of saved energy based on data from its Demand-Side Management Program Database and found a national average total levelized cost of saved energy of 4.6 cents per kilowatt-hour.[28] Even though that figure is reported in the 2017 RIA,

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[24] Grab and Lienke, *supra* n. 18.

[25] *Id.*

[26] U.S. Environmental Protection Agency, *Regulatory Impact Analysis for the Clean Power Plan Final Rule* (Aug. 2015) (2015 RIA)(Joint App. F23).

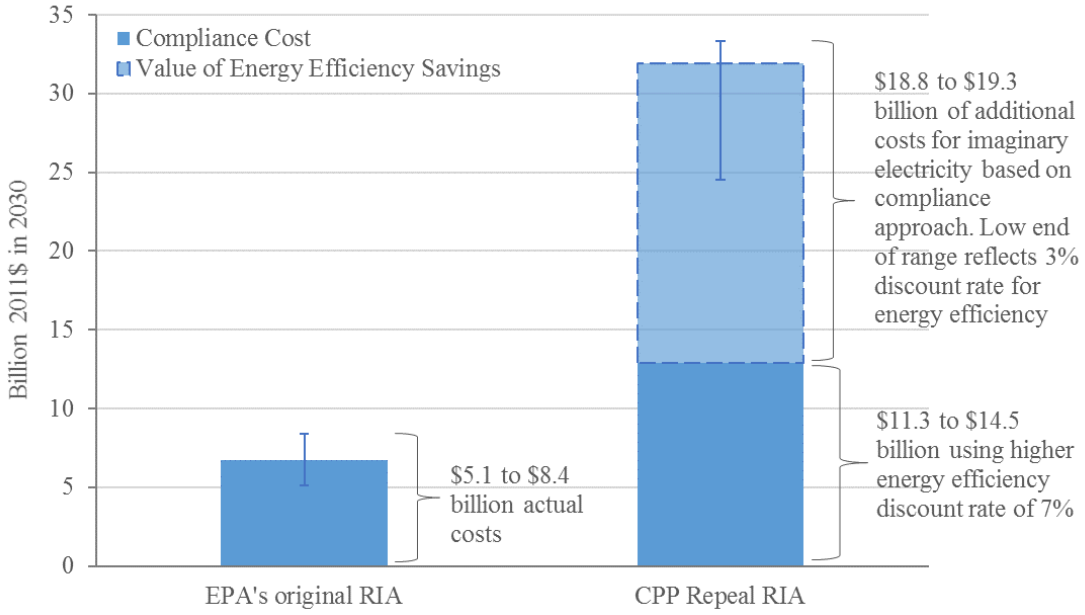
[27] *See* U.S. Environmental Protection Agency, *Clean Power Plan Demand-Side Energy Efficiency Technical Support Document* (Aug. 2015)(Joint App. F10).

[28] *See* 2017 RIA at 84.

EPA chooses (without justification) the 10 cents per kilowatt-hour cost, thereby inflating the Clean Power Plan's costs. Using a higher levelized cost of saved energy leads to higher annualized total energy efficiency costs, further inflating the Clean Power Plan's estimated costs by $6.2 billion.

In sum, the cumulative effects of adding the cost of imaginary electricity and using a higher discount rate falsely inflates costs of the Clean Power Plan by up to $25.5 billion in 2030. A final Clean Power Plan repeal based in whole or in part on these false numbers would be arbitrary and capricious.

Figure 1: RIA Clean Power Plan Costs[29]



Ranges reflect different compliance approaches (rate- or mass-based) and discount rates

C. EPA's Assessment of the Lost Climate and Air Quality Health Benefits Is Seriously Flawed and Unreasonable.

i. EPA Must Assess All Costs and Benefits.

Circular A-4, the longstanding Office of Management of Budget (OMB) guidance to agencies on how to perform rigorous regulatory analysis, explains that *all* costs and benefits – those that can be monetized and those that cannot, those that are the direct result or target of the

[29] Figure A-1 Source: Environmental Defense Fund (prepared using data from the 2015 RIA for the Clean Power Plan and the 2017 RIA). The comparison is across the same projected amount of energy savings due to energy efficiency installments. For a more in depth discussion, *see:* *http://blogs.edf.org/climate411/2017/10/09/underhanded-maneuvers-to-repeal-the-clean-power-plan-put-americans-lives-and-health-at-risk/*.

agency action and those benefits that are ancillary (or "indirect" or "co-benefits"), are to be analyzed.[30] An agency "cannot put a thumb on the scale by undervaluing the benefits and overvaluing the costs…" of a regulation. *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1198 (9th Cir. 2008); *cf. Am. Trucking Ass'ns v. EPA*, 175 F.3d 1027, 1052 (D.C. Cir. 1999), *rev'd in part on other grounds*, 531 U.S. 457 (2001) (noting that it would be unreasonable not to evaluate *all* effects on human health under a statute intended to improve human health). And where an agency proposes an about-face, the previously-identified benefits are among the important aspects of the original rule that must be considered in order to justify repeal. *Motor Veh. Mfrs. Ass'n v. State Farm Ins.*, 463 U.S. 29, 43 (1983). Nor may EPA simply disregard public health or environmental benefits (or costs) because they are allegedly "uncertain." *Pub. Citizen v. Fed. Motor Safety Admin.*, 374 F.3d 1209, 1219 (D.C. Cir. 2004).

The Executive Orders requiring assessment of the costs and benefits of regulation reflect these basic themes – explicitly stating that both direct and indirect benefits, as well as costs, are to be estimated.[31] Benefits, including indirect benefits – whether or not they can be quantified or monetized – all must be evaluated in assessing the costs and benefits of rules.[32]

The Repeal Proposal violates these directives as described in more detail below. Having done no assessment of the expected climate and air quality outcomes of its new legal interpretation, EPA instead takes a stab at a partial reassessment, using a new baseline, unsupported assumptions about which ancillary benefits should be counted, and which Americans are most likely to continue to be harmed in the absence of those pollution reductions. At the same time, EPA acknowledges that it has not even started, let alone finished many pieces of this new assessment,[33] but seeks repeal of the Clean Power Plan anyway. Proposing an action while at the same time admitting a failure to assess critical aspects of that action is *per se* unreasonable, fails to meet the Clean Air Act's requirements for a proposal, and is thus unlawful.[34] And EPA may not base a final rule on analyses of critical issues for the rule for which information was unavailable during the comment period.[35]

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[30] Circular A-4, *supra* n. 6, at §§ A, E.

[31] Exec. Order No. 13,563 §1, 76 Fed. Reg. 3821 (Jan. 21, 2011); Exec. Order No. 12,866 § 6(a)(3)(C), 58 Fed. Reg. 51,735, 51,741 (Oct. 4, 1993).

[32] Exec. Order No. 13,563 §1, Exec. Order No. 12,866 § 1.

[33] 82 Fed. Reg. at 48,043 & n.22, 48,044, 48,047 (acknowledging that, without more analysis, the Repeal Proposal is only "preliminary" (n.22), and announcing the intention to undertake further analysis of the costs and benefits of the Clean Power Plan and the Repeal Proposal, and to subject the results to comment). Just as for the promulgation of a rule, the EPA must follow accepted peer-review procedures and provide any underlying scientific information for their work to the public. Gina McCarthy and Janet McCabe, Forward, 41 HARV. ENVTL. L. REV. 321, 325 & n.16 (2017), *available at:* http://harvardelr.com/wp-content/uploads/2017/08/McCarthy_final.pdf (citing Environmental Protection Agency, *Peer Review Handbook* (4th ed. 2015), https://perma.cc/A2S5-KL3Z).

[34] 42 U.S.C. §7607(d)(3) requires that a "notice of proposed rulemaking…shall be accompanied by a statement of its basis and purpose…[which] shall include a summary of – [*inter alia*] (A) the factual data on which the proposed rule is based; (B) the methodology used in obtaining the data and in analyzing the data…."

[35] *Id.; see supra* discussion at 5, n.16.

Tellingly, the Repeal Proposal spends very few words describing the many kinds of public health benefits that will be lost if the Clean Power Plan is repealed, or explaining who will be most harmed by repeal.[36] While dollar figures are presented for lost monetizable benefits, the preamble to the proposal does not even mention the highly significant though non-monetizable health benefits that will be lost with the repeal of the Clean Power Plan.[37] EPA briefly notes that the monetizable benefits lost represent premature deaths associated with exposure to particulate matter emissions.[38] But little more is said in the proposal itself. And in the 2017 RIA, EPA engages in a series of statistical and factual manipulations in order to downplay the devastating effect of a Clean Power Plan repeal on Americans' health, as described below, and relegates the discussion of the many non-monetizable benefits of the Clean Power Plan to a table in an appendix.

ii. Using AEO 2017 utility sector projections obscures the significance of the damage that would result from the repeal of the Clean Power Plan.

While, as noted in part A. above, EPA has not fully examined the effects of its Repeal Proposal, it has undertaken a partial assessment of the Repeal. Unfortunately, that effort is insufficient to the task, and seems intended to obfuscate rather than to add "transparency" as the Agency suggests. EPA relies on the U.S. Energy Information Administration's 2017 AEO data on the U.S. energy generating system. That *could be* a worthy start to a new analysis of the rule as it reflects market shifts to less carbon-intensive energy systems that are already occurring in the sector in which the regulated plants are an integral part. But EPA does not actually undertake such an analysis. Instead, for example, the preamble states that EPA applied benefit-per-ton estimates based on an emissions reductions scenario from the 2014 Clean Power Plan proposal, but to the new 2017 foregone emissions reductions figures.[39]

EPA asserts that its shift to using the 2017 Annual Energy Outlook (AEO) assumptions is done in order to bring the Clean Power Plan analysis up to date. And, in fact, even starting with a baseline that includes fewer coal and oil plants, EPA continues to project massive annual tonnage reductions in CO_2 (the "regulated pollutant") and also in the other health-damaging air pollutants that are necessarily reduced when the Clean Power Plan is implemented – the indirect benefits of the rule, per Circular A-4.[40]

Faced with the reality that even using the new baseline, the lost benefits of the Repeal Proposal are highly significant, EPA then chooses to obscure that truth by adopting an entirely new view concerning "uncertainties" underlying the projections, and concerning the public health effects of air pollution, abandoning decades of reliance on significant peer-reviewed

[36] *See generally* 82 Fed. Reg. 48,035.

[37] *Id.*

[38] *Id.* at 48,044-48,047 (Tables 1-5 and accompanying text).

[39] *Id*. at 48,044.

[40] *See* 2017 RIA at 122, Table 7-2 (by 2030, reductions in CO_2 of 384 million tons/year; in SO_2 of 423,000 tons/year; in NOx of 255,000 tons/year).

science without providing any support for doing so. While admitting it needs more work to support this enormous step away from public health protections – and promising it at some indeterminate point in the future[41] – EPA goes ahead and proposes to repeal the Clean Power Plan now.

Why would EPA engage in an exercise muddying the analytic waters? Undoubtedly so that, as the Agency itself reports in the preamble: "[T]he 2015 [Clean Power Plan] RIA-based and AEO2017-based benefit and cost estimates cannot be directly compared with each other."[42] In other words, EPA declines to provide a full analysis of the Repeal Proposal, and the work it does provide *intentionally obfuscates the assessment of the costs of repeal to public health*. Even more indirect costs might now be reported in a truly robust assessment, as new research on the deleterious effects of $PM_{2.5}$ exposure, for example, continues to be released.[43] Moreover, EPA does not, in 2017, report the important reductions in air toxics emissions (mercury, for example)[44] associated with the Clean Power Plan, although those were reported in 2015, and their health effects discussed.[45]

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[41] *See* 82 Fed. Reg. at 48,043 n.22; 2017 RIA at 26, 49.

[42] *Id.* at 48,043.

[43] New research results on the linkage between particulate matter exposure and health are being released all the time. *See, e.g.*, Qian Di, *et al.*, "Association of Short-term Exposure to Air Pollution with Mortality in Older Adults," 318 J. Am. Med. Ass'n 2446 (Dec. 26, 2017); *available at:* http://www.scientificintegrityinstitute.org/JAMADi122617.pdf; J. Zhang, "Low-Level Air Pollution Associated with Death – Policy and Clinical Implications, 318 J Am. Med. Ass'n 2431 (Dec. 26, 2017), *available at:* https://jamanetwork.com/journals/jama/article-abstract/2667043?redirect=true (linking particle exposures below the NAAQS to mortality); M. Yang & S. Chou, "Impact of Environmental Regulation on Fetal Health: Evidence from the Shutdown of a Coal-Fired Power Plant Located Upwind of New Jersey," *forthcoming in* J. Envt'l Econ. & Mgt., *see:* https://doi.org/10.1016/j.jeem.2017.11.005; D. Prada, *et al.*, "Association of air particulate pollution with bone loss over time and bone fracture risk: analysis of data from two independent studies," 1 The Lancet Planetary Health e337, e343, e346 (Nov. 2017); *available at:* http://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(17)30136-5/fulltext (linking $PM_{2.5}$ air pollution exposures at levels of exposure below the U.S. $PM_{2.5}$ NAAQS to lowered bone density and frailness in middle-aged and older persons, particularly in lower-income communities)(Joint App. K13); MJ Friedrich, "Air Pollution is the Greatest Environmental Threat to Health, 309 J. Am Med. Ass'n 1085 (Mar. 20, 2018), *available at:* https://jamanetwork.com/journals/jama/article-abstract/2675562?widget=personalizedcontent&previousarticle=2667069&redirect=true; Benjamin Horne, *et al.*, "Short-term Elevation of Fine Particulate Matter and Acute Lower Respiratory Infection," Am. J. Respiratory Critical Care Med., *available online at:* https://doi.org/10.1164/rccm.201709-1883OC (Apr. 13, 2018).

[44] In 2015, the Clean Power Plan was estimated to yield a 15-17% reduction in mercury emissions per year by 2030, as compared with the base case. 2015 RIA at 3-20, Table 3-7. The EPA did not assess the impact of repealing the Clean Power Plan on mercury emissions in the 2017 RIA.

[45] Nor does EPA assess any climate-related air quality changes that may occur in the absence of the Clean Power Plan, for example increased ambient ozone due to higher temperatures, and longer summers. If those were included, the damages due to repeal would likely be higher.

iii. EPA fails to discuss, let alone analyze, the urgent need to reduce climate pollution from this largest domestic industrial source of CO_2.

Despite the overwhelming scientific evidence of the devastating impacts caused by rising CO_2 levels included in the Clean Power Plan record and other EPA rulemakings, discussed at length in our organizations' Joint Comments Specific to Climate Change, filed today,[46] the Repeal Proposal and the accompanying 2017 RIA is deafeningly silent on the lost benefits associated with acting more quickly to lower climate pollution from the largest domestic industrial emitter of CO_2.[47]

This new perspective represents an abrupt about-face from the 2015 Clean Power Plan record and from the Agency's position expressed as recently as January 2017 in the update to climate science accompanying the denial of reconsideration of the Clean Power Plan. In 2015, the Agency expressed again and again the urgency of emissions reductions, noting that the time-sensitive nature of this need was supported by new scientific assessments since 2009 that confirmed and strengthened the need to act quickly,[48] and that it is consistent with the Clean Air Act's purposes to protect against such urgent and severe threats to public health and welfare.[49]. And in January 2017, the Agency reiterated that because CO_2 is very long-lived in the climate system (some fraction remaining in the environment and causing damage for up to 1000 years), it is the cumulative emissions that matter to the world's ability to stay within a healthy range of CO_2 concentrations in the atmosphere.[50] Failing to begin now to achieve those reductions means much more and deeper reductions must be made later – at much higher cost. EPA notes specifically that "every additional 1000 gigatons of CO_2 emissions translates to a best estimate of 1.75 degrees more warming," and 10 gigatons of CO_2 are emitted annually from global industrial sources.[51]

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[46] 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, Docket ID No. EPA-HQ-OAR-2017-0355 (Apr. 26, 2018).

[47] *See generally*, 82 Fed. Reg. 48,035-48,043 (including no discussion about the need for quick action to reduce emissions of this long-lived, climate damaging air pollutant); 2017 RIA at 5, 19, 36-37, 42-46 (same, noting only that CO_2 emissions in 2030 are projected to be 413-415 million tons per year higher with the repeal using 2015 assumptions, or 384 million tons per year higher with the repeal using AEO2017 assumptions, than they would have been if the Clean Power Plan had been implemented, and that EPA has chosen a domestic benefits-only metric and an inappropriate discount rate to evaluate the costs associated with those emissions).

[48] *See e.g.*, 82 Fed. Reg. at 64,675, 64,677, 64,684, 64,686.

[49] *Id.* at 64,733.

[50] Basis for Reconsideration Denial, *supra* n. 10, at Appendix 4 at 5. EPA there relies, *inter alia*, on several National Research Council/National Academy of Science reports, on the IPCC 5th Assessment Report, and on the US Global Change Research Program (USGCRP) work done in 2016 (Joint App. K30).

[51] *Id.* at 6, citing the National Academy of Sciences, Engineering, and Medicine, *Attribution of Extreme Weather Events in the Context of Climate Change*. The National Academies Press (2016) (doi: 10.17226/21852)(Joint App. K24).

Both in 2015 in the final Clean Power Plan and in the January 2017 decision denying reconsideration, EPA was very clear that without some urgency in achieving CO_2 emissions reductions, future changes, including serious public health and environmental outcomes, will occur with more intensity, exceeding those that have already occurred.[52] Rising temperatures will lead to an increase in heat-related deaths and illnesses, for example, and vector-borne disease. Increased warming will also exacerbate the harms from emissions of other air pollutants due to the repeal – higher temperatures will "make it harder for any given regulatory approach to reduce ground-level ozone," among other effects.[53]

EPA's current *failure even to discuss the need for urgent action* completely ignores a fundamental point relevant to the underlying basis for the rule. It is emblematic of the arbitrary and capricious nature of the Repeal Proposal.[54] And asserting that the projected foregone emissions reductions or the lost benefits associated with them are not precisely quantifiable is no justification for disregarding their effect entirely, *Pub. Citizen v. Fed'l Motor Safety Admin.*, 374 F.3d 1209, 1219 (D.C. Cir. 2004), but instead impermissibly places a heavy "thumb on the scale" in favor of repeal. *Ctr. for Biological Diversity*, 538 F.3d at 1198.

iv. EPA's proposal abandons the significant peer-reviewed science demonstrating health benefits stemming from reductions of other pollutants that result from likely techniques to reduce greenhouse gas emissions at existing power plants under the Clean Power Plan.

EPA's 2017 RIA proposes to abandon the "best available science" and peer-reviewed scientific understanding of the health benefits of particulate matter reductions.[55] This rejection of modern knowledge and well-understood scientific methods arbitrarily undercuts the benefits of the Clean Power Plan and is a radical departure from decades of EPA assessments of the health effects of air pollution generally.[56] This aspect of the Repeal Proposal is shocking and dangerous, particularly because the Agency provides no substantive or science-based support for its about-face, and because it is occurring as part of the larger move by the Pruitt EPA away

[52] *Id.* at 3.

[53] *Id.* at 4 (quoting the US Global Change Research Program report edited by Crimmins, *et al*., *The impacts of Climate Change on Human Health in the United States: A Scientific Assessment* (USGCRP 2016), *available at*: http://dx.doi.org/10.7930/J0R49NQX (Joint App. K30).

[54] *State Farm*, 463 U.S. at 43 (action is arbitrary and capricious if it "entirely failed to consider an important aspect of the problem").

[55] 2017 RIA at 93-97, 123-126.

[56] *Cf.*, Kimberly Castle and Richard L. Revesz, "Environmental Standards, Thresholds, and the Next Battleground of Climate Change Regulations," *forthcoming in* 103 Minn. L. Rev. (Apr. 2018); NYU School of Law, Public Law Research Paper No. 18-22; NYU Law and Economics Research Paper No. 18-12; *available at* SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3154669 (collecting and analyzing "the robust support for valuing particulate matter benefits. … and longstanding agency practices under administrations of both major political parties, and judicial precedent….").

from science-based decision making.[57] Science-based decision making is the hallmark of complex regulatory action in a modern democratic society.

EPA's 2015 health effects assessment used the scientifically validated, and well-accepted, state of the art approach to assessing the indirect benefits of implementing the Clean Power Plan. First, based on two possible implementation scenarios, EPA projected pollutant tonnage reductions for SO_2 and NO_x and translated that to projections of lowered $PM_{2.5}$ and ozone ambient concentrations.[58] Then EPA, also following the state of the art protocol for this kind of analysis, applied a benefit-per-ton of pollution reduction analysis to evaluate the benefits to be achieved under the Clean Power Plan in various modeled years.[59] The benefit-per-ton ratios are derived based on the best available methods for translating pollution exposures to anticipated health benefits endpoints (including damage functions developed from multiple peer-reviewed studies showing the effects of pollutant exposures on human health).[60] The peer-reviewed literature supporting this analysis is substantial; for $PM_{2.5}$ alone it includes "thousands of epidemiology, toxicology, and clinical studies."[61] EPA has used this approach many times before in evaluating the health benefits of air pollution reductions, as EPA notes in the 2017 RIA.[62]

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[57] *See supra* n.5.

[58] 2015 RIA 4-11 to 4-42.

[59] *Id.* at Appendix 4-A.

[60] *Id.* at 4-13 to 4-34.

[61] *Id.* at 4-16 (citing U.S. Environmental Protection Agency, *Integrated Science Assessment for Particulate Matter*, (2009)(PM ISA)(Joint App. F15). The PM ISA was reviewed twice by the Clean Air Scientific Advisory Board of EPA's Science Advisory Board.

[62] 2017 RIA at 50 n. 33 (citing, U.S. EPA, Office of Air Quality Planning and Standards, *Regulatory Impact Analysis: Portland Cement Manufacturing NESHAP* 147 Health and Environmental Impacts Division (June 2009), *available at:* http://www.epa.gov/ttnecas1/regdata/RIAs/refineries_nsps_ja_final_ria.pdf; U.S. Environmental Protection Agency, *Technical Support Document: Summary of Expert Opinions on the Existence of a Threshold in the Concentration-Response Function for PM2.5-related Mortality*. Research Triangle Park, NC (June 2010), *available at:* http://www.epa.gov/ttn/ecas/regdata/Benefits/thresholdstsd.pdf (Joint App. K29); U.S. Environmental Protection Agency, *Re-analysis of the Benefits of Attaining Alternative Ozone Standards to Incorporate Current Methods* (2010), *available at:* https://www3.epa.gov/ttnecas1/regdata/RIAs/s3-supplemental_analysis-updated_benefits11-5.09.pdf; U.S. Environmental Protection Agency, *Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards.* EPA-452/R-11-011 (Dec. 2011), *available at:* http://www.epa.gov/ttn/ecas/regdata/RIAs/matsriafinal.pdf; U.S. Environmental Protection Agency, Office of Air and Radiation, Washington, DC, *The Benefits and Costs of the Clean Air Act from 1990 to 2020* (Mar. 2011), *available at:* http://www.epa.gov/cleanairactbenefits/feb11/fullreport_rev_a.pdf; U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Health and Environmental Impacts Division, Research Triangle Park, NC, *Regulatory Impact Analysis for the Final Revisions to the National Ambient Air Quality Standards for Particulate Matter.* EPA-452/R-12-003. (Dec. 2012) *available at:* http://www.epa.gov/ttnecas1/regdata/RIAs/finalria.pdf (2012 NAAQS RIA)(Joint App. F24); U.S. Environmental Protection Agency, *Technical Guidance for Assessing Environmental Justice in Regulatory Analysis* (June, 2016) *available at:* https://www.epa.gov/sites/production/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf).

The health effects of both long- and short-term exposure to $PM_{2.5}$ include a causal relationship with premature mortality, as well as a variety of serious respiratory and cardiovascular harms.[63] Long-standing and robust scientific assessments of the evidence also strongly support the view that there is no threshold ambient $PM_{2.5}$ concentration below which exposure does not cause deleterious health effects.[64] While there is some uncertainty about the *precise* human response function to $PM_{2.5}$ air pollution exposure, the two studies EPA relies on to bound the range of likely results (Krewski, *et al*., 2009 and Lepeule *et al*., 2012, *see* n. 63) provide an accounting for the uncertainty in the response function used in the benefits-per-ton approach. That was the method used by EPA in 2015, along with reliance on other studies describing the probabilistic distribution of mortality reductions in the U.S. due to air quality improvements.[65] Similarly, EPA's assessment of mortality reductions associated with lower levels of ozone also accounted for statistical uncertainty in concentration-response prediction.[66]

In 2017, however, the Agency changes its position, repeatedly asserting that the uncertainties inherent in every step of the assessment of health benefits makes those benefits questionable.[67] EPA does not discuss the fact that those uncertainties are already addressed in

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[63] 2015 RIA at 4-16 -4-17 (citing Krewski, *et al*., "Extended Follow-Up and Spatial Analysis of the American Cancer Society Study Linking Particulate Air Pollution and Mortality," HEI Research Report 140, Health Effects Institute, Boston, MA (2009), *available at*: https://www.healtheffects.org/publication/extended-follow-and-spatial-analysis-american-cancer-society-study-linking-particulate; Lepeule *et al.*, "Chronic Exposure to Fine Particles and Mortality: An Extended Follow-Up of the Harvard Six Cities Study from 1974 to 2009," 120 Envtl. Health Persps. 965 (2012)(Joint App. K17). The cited studies use the original data sets, released to independent scientists, and were performed to revisit and confirm earlier work based on confidential health information, which had been questioned by industry advocates. The earlier work, Dockery, *et al.*, "An Association between Air Pollution and Mortality in Six U.S. Cities," 329 New Eng. J. Med. 1753 (1993) (Joint App. K8), and C. Arden Pope III, *et al.*, "Particulate Air Pollution as a Predictor of Mortality in a Prospective Study of U.S. Adults," 151 Am. J. Respiratory Critical Care Med. 669 (1995)(Joint App. K3), were ground-breaking studies based on analyses of actual (confidential) patient data and responses to exposures to various concentrations of small particulates in the ambient air.

[64] *See e.g.*, Julian D. Marshall, *et al*., "Blue Skies Bluer?," 49 Environ. Sci. & Tech. 13929, 13933 (2015)(Joint App. K20)(noting that "there is no threshold below which exposure to $PM_{2.5}$ is not harmful," and that recent evidence suggests that even larger benefits than EPA has previously projected can be had by reducing $PM_{2.5}$ below the levels of the current NAAQS).

[65] 2015 RIA at 4-17.

[66] *Id.* 4-17 to 4-18 (noting that Jonathan Levy, *et al*., "Ozone Exposure and Mortality: An Empiric Bayes Metaregression Analysis," 16 Epidemiology 458 (2005), *available at:* https://www.jstor.org/stable/20486081?seq=1#page_scan_tab_contents; and others provide bounding to account for uncertainty in ozone exposure-mortality predictions).

[67] *See, e.g.*, 82 Fed. Reg. at 48,043-48,048; 2017 RIA at 2, 6-7, 42, 49 (raising the "uncertainties" associated with health benefits assessment, among other uncertainties, and the question about whether there is a threshold below which benefits remain). *But see*, Testimony of E. Scott Pruitt before the House Committee on Energy and Commerce, Subcommittee on Environment (Dec. 7, 2017), dialogue with Congressman Dr. Raul Ruiz of California (Admin. Pruitt agreeing that fine particle pollution is a non-threshold pollutant).

its own analysis to evaluate the range of likely health benefit response to lowered air emissions, even though EPA continues to use that method in the 2017 RIA.[68]

Another alleged 'uncertainty' now claimed by EPA is newly expressed doubt about the health effects of exposure to low levels of $PM_{2.5}$ and ozone. In particular, EPA asserts that there *may* be some threshold level of $PM_{2.5}$ exposure below which no harms occur, or below which they are trivial – whether that threshold is at the level of the 2012 NAAQS (12.5 $\mu g/m^3$) or at the Lowest Measured Level (LML) in the epidemiological studies used to develop the concentration-response function.[69] The only discussion provided as support for this new view, is a statement that only a small percentage of individuals live in areas with $PM_{2.5}$ concentrations below the NAAQS, or the LML, and so they claim the health effects experienced below those cut off points are not significant enough to count.[70]

EPA further attempts to downplay the effect of the Clean Power Plan repeal by noting that most areas of the country "must" be in attainment with the 2012 PM NAAQS by the end of the Clean Power Plan analysis period anyway; therefore, it claims the 2015 co-benefit health effects assessment was overstated to the extent that it counts $PM_{2.5}$ reductions from the NAAQS levels. In other words, EPA simply assumes that the states will have to find another way to achieve the NAAQS, and then the lower $PM_{2.5}$ levels associated with the Clean Power Plan, if the states want to achieve these levels.[71] But in a result directly at odds with this point of view, EPA proposes to "count" only the avoided, monetizable, premature mortality associated with reductions in $PM_{2.5}$ ambient levels to the level of the NAAQS or the LML. That is, EPA presents in the Repeal Proposal an assessment of benefits that *does* count the benefits of reducing $PM_{2.5}$ ambient levels to the NAAQS (or LML) – after asserting that it represents an over assessment of benefit – but proposes to assume that there are no health benefits whatsoever at concentrations below those thresholds.[72]

Even if EPA were correct that there is uncertainty about the question of $PM_{2.5}$ public health effects at low ambient concentrations, the Supreme Court has recognized that claims of uncertainty are not sufficient to support a decision to avoid regulatory action: "the Clean Air Act 'and common sense…demand regulatory action to prevent harm, even if the regulator is less than certain that harm is otherwise inevitable.'" *Massachusetts v. EPA*, 549 U.S. 497, 506 & n. 7 (2007) (citing *Ethyl Corp. v. EPA*, 541 F.2d 1, 25 (D.C. Cir. 1976)). The Court

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[68] *See, e.g.*, 2017 RIA at 9-10 Tables 1-3 & 1-4; 14-15 (Table 1-7)(describing in the table notes how the analysis is typically bounded, and uncertainties addressed, although that aspect of the question is questioned in the text of the RIA).

[69] 82 Fed. Reg. 48,044, *see also* 2017 RIA at 92-97.

[70] 2017 RIA at 94-97 (asserting, inter alia, that the 2015 benefits "may have been overestimated" because they counted these effects).

[71] *Id.* at 94 & 96.

[72] See 82 Fed. Reg. 48,045-47, Tables 3-5 (assessing monetized benefits only for reductions to the NAAQS or LML for $PM_{2.5}$).

concluded that "residual uncertainty…is irrelevant. The statutory question is whether sufficient information exists." *Id*. at 534.

Congress has recognized that public health and welfare can be harmed by pollution at levels that comply with the NAAQS, and has expressed its intention to prevent such harm directly in the Clean Air Act. 42 U.S.C §7470(1).[73] Clean Air Act section 111 standards are a key tool for implementing that intent.[74] Moreover, tracking the precautionary language of section 160(1), which expresses intent to protect against harms to public health or welfare that "may reasonably be anticipate[d]," section 111(b)(1)(A) uses that same precautionary phrase.[75] Given this clearly expressed Congressional intent, it would be unlawful and arbitrary for EPA's decision making under section 111 to refuse to analyze – or deny protection from – effects at levels below NAAQS.

Sound and sufficient information to demonstrate the significant public health effects of exposure to ambient low levels of $PM_{2.5}$ exists, and that information was included in the Clean Power Plan record. EPA completely fails to rebut that record, or to explain its turn away from its own longstanding reliance on the scientific consensus about particulate matter health effects and health effects assessment,[76] resulting from decades of peer-reviewed science. That science

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[73] *See also* H.R. Rep. 95-294, at 105-128 (May 12, 1977), 1977 Legislative History at 2572-95 (describing Congressional intent on this point).

[74] *See* 42 U.S.C. §§7479(3), 7475(a)(4).

[75] *Compare* 42 U.S.C. §7470(1) *with* 42 U.S.C. §7411(b)(1)(A); *see* Pub. L. 95-95, 91 Stat. 790-91 (1977 Amendments added similar precautionary language to several CAA provisions); H.R. Rep. 95-294, at 43-51 (May 12, 1977), 1977 Legislative History at 2510-18 (explaining Congress' precautionary approach, which "used a standardized basis for future rulemaking to protect the public health"); *Massachusetts*, 549 U.S. at 506 n.7 (emphasizing the precautionary nature of the "may reasonably be anticipated" language).

[76] *See* studies cited *supra* nn. 43, 56, 63, 64; *see also, e.g*., C. Driscoll, *et al.*, "US power plant carbon standards and clean air and health co-benefits," 5 Nature Climate Change 535 (2015) (Joint App. K6); *available at:* http://www.researchgate.net/publication/276455989_US_power_plant_carbon_standards_and_clean_air_and_health_co-benefits; J. Buonocore *et al.*, "Using the Community Multiscale Air Quality (CMAQ) model to estimate public health impacts of $PM_{2.5}$ from individual power plants," 68 Env't Int. 200 (2014) (Joint App. K16); A. Correia, *et al.*,"Effect of air pollution control on life expectancy in the United States: an analysis of 545 U.S. Counties for the period from 2000 to 2007," 24 Epidemiology 23 (2013) (Joint App. K1); G. Hoek, *et al.*, "Long-term air pollution exposure and cardio-respiratory mortality: a review," 12 Envtl. Health 43 (2013) (Joint App. K15); N. Fann , *et al.*, "Estimating the national public health burden associated with exposure to ambient $PM_{2.5}$ and ozone," 32 Risk Anal. 81 (2012) (Joint App. K22); A. Pope, *et al.*, "Fine-Particulate Air Pollution and Life Expectancy in the United States," 360 New Eng. J. Med. 376 (2009) (Joint App. K2); F. Laden, *et al.*, "Reduction in Fine Particulate and Mortality: Extended follow-up of the Harvard Six Cities Study," 173 Am. J. Respiratory & Critical Care Med. 667 (2006) (Joint App. K14); D. Rich, *et al.*, "Increased risk of paroxsysmal atrial fibrillation episodes associated with acute increases in ambient air pollution," 114 Envtl. Health Persps. 120 (2006) (Joint App. K12); D. Rich, *et al.*, "Association of short-term ambient air pollution concentrations and ventricular arrhythmias," 161 Am J. Epidemiology 1123 (2005) (Joint App. K11); L. Clancy, *et al.*, "Effect of air-pollution control on death rates in Dublin, Ireland: an intervention study," 360 The Lancet 1210 (2002) (Joint App. K21); J. Spengler, "Modeling the benefits of power plant emission controls in Massachusetts," 52 J. Air Waste Mgmt. Ass'n, 5 (2002) (Joint App. K18); D. Dockery, "Epidemiologic evidence of cardiovascular effects of particulate air pollution," 109 Envtl. Health Persps. (Supp 4), 483 (2001) (Joint App. K8); Samet, *et al.*, "National Morbidity, Mortality, and Air Pollution Study, Part II National Morbidity, Mortality, and Air Pollution in the U.S.," 94 Health Effects Inst. Rep. 1

underpins not only the 2015 Clean Power Plan analysis, but the health benefits assessments accompanying other recent air pollution rules. EPA cites no new science to support its views expressed in the Repeal Proposal (and indeed acknowledges that it still has not even started its own promised new analysis of the $PM_{2.5}$ health effects threshold issue).[77] EPA's new statements also directly contradict the agency's 2012 PM NAAQS standard-setting, in which the agency found significant health benefits could be achieved at levels below the final $PM_{2.5}$ standard. Specifically, EPA analyzed that by choosing a 12 µg/m3 standard level rather than an 11 µg/m3 standard level for $PM_{2.5}$, between $6.7 and $20 *billion* dollars in monetizable health benefits would not be attained.[78] So, the agency's own analysis shows that it is simply inaccurate to say that there is no significant health benefit to be achieved by rules that result in $PM_{2.5}$ levels below the NAAQS. If an agency relies "on data…roundly criticized by its own experts, [it] fail[s] to fulfill [its] duty" to exercise its discretion in a reasoned manner. *Pub. Employees v. Hopper*, 827 F.3d 1077, 1083 (D.C. Cir. 2016).

The 2017 RIA's suggested new approach presumes that exposure to $PM_{2.5}$ does not harm people below the levels observed in two specific studies. This is contrary to EPA's established approach,[79] which reflects benefits from reducing $PM_{2.5}$ even at low levels because of the total lack of evidence for a "safe" concentration of $PM_{2.5}$ – a fact reinforced by EPA as recently as April of 2016[80] as well as by the World Health Organization[81] and the American

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(2000) (Joint App. K27); D. Dockery, *et al*., "Effects of inhalable particles on respiratory health of children," 139 Am. Rev. Respiratory Disease 587 (1989) (Joint App. K10).

[77] 82 Fed. Reg. at 48,043, n. 22.

[78] 2012 PM NAAQS RIA, *supra* n. 62 at ES-14.

[79] *Id*. at 5-80 to 5-82, stating that: "Our review of the current body of scientific literature indicates that a log-linear no-threshold model provides the best estimate of PM-related long-term mortality. The PM [Integrated Science Assessment] (U.S. EPA, 2009b), which was twice reviewed by the EPA's Clean Air Scientific Advisory Committee (U.S. EPA-SAB, 2009a, 2009b), concluded that the evidence supports the use of a no-threshold log-linear model while also recognizing potential uncertainty about the exact shape of the concentration-response function. Consistent with this finding, we estimate benefits associated with the full range of $PM_{2.5}$ exposure in conjunction with sensitivity analyses to recognize the potential uncertainty at lower concentrations. … Our confidence in the estimated number of premature deaths avoided (but not in the existence of a causal relationship between PM and premature mortality) diminishes as we estimate these impacts in locations where $PM_{2.5}$ levels are below the LML. … However, there are uncertainties inherent in identifying any particular point at which our confidence in reported associations becomes appreciably less, and the scientific evidence provides no clear dividing line. … *It is important to emphasize that "less confidence" does not mean "no confidence." In addition, while we may have less confidence in the magnitude of the risk, we still have high confidence that PM2.5 is causally associated with risk at those lower air quality concentrations.*" (emphasis added).

[80] "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, 24,440 (Apr. 25, 2016) (expressing "[t]he recognition that there is 'no population threshold, below which it can be concluded with confidence that PM2.5-related effects do not occur (78 Fed. Reg. 3098), and that 'there is no evidence of a threshold' (78 Fed. Reg. 3119, 3138) is consistent throughout the 2012 PM NAAQS rulemaking process, including in the assumptions for quantifying the mortality and morbidity health risks in the peer-reviewed risk assessment supporting the rulemaking.").

[81] World Health Organization, Ambient air pollution: A global assessment of exposure and burden of disease (2016) at 20(Joint App. K31). *See also* World Health Organization Air Quality Guidelines (2005), at 9, *available*

Heart Association.[82] EPA's Scientific Advisory Board in 2010 explicitly supported EPA's previous, science-based approach.[83]

While EPA states its intention to perform new modeling supporting its new concentration cut-off point assessment prior to finalizing "any action related to the CPP," and to make such analyses "available for peer review within six months [of the Repeal Proposal],"[84] any new supporting modeling must accompany (not follow) the new benefits analysis underlying a *valid* repeal proposal.[85] The public must have a reasonable opportunity to assess the basis for this U-turn by the agency. But no new study or other support is provided in the Repeal Proposal for the new benefits assessment method. Not only the 2017 RIA, but the development of the Repeal Proposal itself requires record support – such a distinct change from agency precedent requires robust record support and a full explanation and analysis of the change, at least as detailed as the original proposal. *See FERC v. Elec. Power Supply Ass'n*, 136 S. Ct. 760, 784 (2016) (agency must demonstrate that it "selected a [solution] with adequate support in the record, and intelligibly explained the reasons for making that choice."). EPA has

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at: http://www.who.int/phe/health_topics/outdoorair/outdoorair_aqg/en/ (stating that "[t]he risk for various outcomes has been shown to increase with exposure and there is little evidence to suggest a threshold below which no adverse health effects would be anticipated. In fact, the low end of the range of concentrations at which adverse health effects has been demonstrated is not greatly above the background concentration, which for particles smaller than 2.5 µm ($PM_{2.5}$) has been estimated to be 3–5 µg/m3 in both the United States and western Europe.").

[82] R. Brook, *et al.*, on behalf of the American Heart Association Council on Epidemiology and Prevention, Council on the Kidney in Cardiovascular Disease, and Council on Nutrition, Physical Activity and Metabolism, "Particulate matter air pollution and cardiovascular disease: an update to the scientific statement from the American Heart Association" 121 Circulation 2331 (2010)(Joint App. K5)("The $PM_{2.5}$ concentration– cardiovascular risk relationships for both short- and long-term exposures appear to be monotonic, extending below 15 µg/m3 (the 2006 annual NAAQS level) without a discernable "safe" threshold."). *See also*, Joel Schwartz, *et al.*,"The Effect of Dose and Timing of Dose on the Association between Airborne Particles and Survival," 116 Envtl. Health Persps. 64, 67-68 (2008) (Joint App. K28) ("A key finding of this study is that there is little evidence for a threshold in the association between exposure to fine particles and the risk of death on follow-up, which continues well below the U.S. EPA standard of 15 ug/m3…. Air pollution standards that focus solely on reducing particle concentrations to an arbitrary standard will expose large populations to unnecessary risks in cities that meet the standard, but could reduce exposure further. … In conclusion, penalized spline smoothing and model averaging represent reasonable, feasible approaches to addressing questions of the shape of the exposure-response curve, and can provide valuable information to decision makers. In this example, both approaches are consistent, and suggest that the association of particles with mortality has no threshold down to close to background levels.").

[83] U.S. Environmental Protection Agency - Science Advisory Board (U.S. EPA-SAB, Review of EPA's DRAFT Health Benefits of the Second Section 812 Prospective Study of the Clean Air Act. EPA-COUNCIL-10-001(June 2010) (Joint App. F28) (stating that "The HES [Health Effects Subcommittee of the Scientific Advisory Board] fully supports EPA's decision to use a no-threshold model to estimate mortality reductions. This decision is supported by the data, which are quite consistent in showing effects down to the lowest measured levels. Analyses of cohorts using data from more recent years, during which time PM concentrations have fallen, continue to report strong associations with mortality. Therefore, there is no evidence to support a truncation of the CRF."); *see also* U.S. Environmental Protection Agency, Summary of Expert Opinions on the Existence of a Threshold in the Concentration-Response Function for $PM_{2.5}$-related Mortality, Technical Support Document (June 2010) (Joint App. K29).

[84] 82 Fed. Reg. at 48,047. As of the date of this submission, it has been more than six months since the Agency made this promise, and no such modeling has been made available for public comment or peer review.

[85] 42 U.S.C. §7607(d)(3).

provided nothing new at all, in the Repeal Proposal or in the 2017 RIA, instead impermissibly rejecting relevant information because it believes that it may be updated at some uncertain future time. *Chlorine Chem. Council v. EPA*, 206 F.3d 1286, 1290-91 (D.C. Cir. 2000). Even if EPA were to supply some new analysis with a final repeal rule, moreover, it would fail to cure this notice-and-comment defect.

Moreover, it is clear from the interagency communication documented in the Repeal Proposal record that the unsupported new $PM_{2.5}$ ambient concentration cut-point for benefits assessment is intended to, and will, affect not only the analyses performed for this rule, but also is expected to form the basis for future air quality rulemakings generally.[86] The OMB also notes that public comment is required on the new analyses. As no new analyses supporting the $PM_{2.5}$ concentration cut-off point method are put forward for comment in and with the Repeal Proposal, the repeal cannot reasonably or properly be supported on the basis of the new approach.[87]

v. Foregone pollution reductions – in small particulates, ozone, sulfur dioxide and nitrogen oxide – due to Clean Power Plan repeal will cause significant public health damages.

Even EPA's own AEO 2017 analysis of foregone conventional pollutant and HAP emissions reductions shows that repealing the Clean Power Plan will have very significant associated public health impacts.[88] While not presenting these figures in the preamble to the rule,[89] EPA reports in the 2017 RIA, using its AEO 2017 approach, that repealing the rule will

[86] *See* Oct. 13, 2017 email from Culligan, Kevin, U.S. EPA to Nicholas Swanson, U.S. EPA, and forwarding an email from Aaron Szabo of the Office of Management and Budget entitled "Summary of Interagency Comments on Review of Clean Power Plan," (Oct. 6, 2017) (noting an OMB request to the EPA to treat the new analysis "like a Highly Influential Scientific Assessment (HISA) because it has the potential to have significant implications for how benefits are quantified for most of EPA's air regulations."), Docket ID. No. EPA-HQ-OAR-2017-0355-0150.

[87] EPA also asserts that because there are other regulatory requirements demanding $PM_{2.5}$ reductions to the level of the NAAQS, *see* 82 Fed. Reg. at 48,048, that could excuse any assessment of ancillary $PM_{2.5}$ benefits due to the Clean Power Plan, or harms due to the Repeal Proposal. That line of argument ignores both the science demonstrating, and EPA's own statements acknowledging that significant health benefits can be achieved by reaching $PM_{2.5}$ levels below the NAAQS or the LML. As to effects at levels above the NAAQS, ignoring such effects cannot be reconciled with EPA's obligation to consider both the advantages and disadvantages of its decisions, *Michigan v. EPA,* 135 S. Ct. 2699, 2707 (2015), and also does not address how the uncertainty and longer time frame for achieving compliance with the NAAQS will harm public health – particularly as a repeal of the Clean Power Plan would increase air pollution levels.

[88] These are additional to the public health impacts due to the failure to immediately begin reducing CO_2 emissions from this sector. Neither the indirect benefits projected by EPA in 2015 to occur due to Clean Power Plan implementation, nor the 2017 damages expected from repeal reflect the additional impact of warmer temperatures on public health damage occurring from exposures to $PM_{2.5}$ or ozone. That is not because increased damage will not occur, but because it is not quantifiable at this time.

[89] Neither the tons of pollution that would be emitted if the Clean Power Plan is repealed, nor the numbers of premature deaths or other health costs (hospitalizations, additional respiratory disease incidences, etc.) are reported in the preamble of the Repeal Proposal. The 2015 assessment of the full range of health damages associated with repeal is discussed in Appendix B to the 2017 RIA. However, only the monetizable costs to the economy associated with premature $PM_{2.5}$ and ozone-related deaths are reported in the preamble.

result in 1900-4500 premature deaths annually in the United States in 2030 due to $PM_{2.5}$ and ozone exposures that would not occur if the Clean Power Plan were implemented.[90]

Additionally, EPA attaches as Appendix B, the 2015 table listing non-quantifiable and non-monetizable health benefits of the Clean Power Plan which it says will now be lost.[91] Among the health effects expected under the Repeal Proposal are those associated with $PM_{2.5}$ and ozone exposure related morbidity (illnesses) as well as mortality (premature deaths). EPA does not even bother to reassess any of the morbidity effects of the higher $PM_{2.5}$ and ozone concentrations resulting from the Repeal Proposal, under the new 2017AEO assumptions. However, EPA in 2015 projected that approximately 2000 cases of acute bronchitis in children ages 8-12 would be avoided each year by 2030, and that there would be between 130,000 and 160,000 avoided lost work days due to pollution improvements by 2030 under the Clean Power Plan.[92] Those children's bronchitis cases and lost work days, by contrast, would occur in the absence of the air pollution reductions associated with the Clean Power Plan.

As discussed *supra*, EPA lawfully cannot simply disregard these significant lost public health benefits, either on the basis of an unsupported change in position, or because they cannot be monetized, even under the 2003 Circular A-4 approach that is re-emphasized by this Administration. Accounting for the very real public health ancillary benefits of a regulatory action is entirely consistent with the broad purposes of the Clean Air Act, to "protect and enhance the nation's air quality so as to promote the public health and welfare." 42 U.S.C. § 7401(b)(1); *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 625 (D.C. Cir. 2016). Indeed, where an agency proposes an about-face, the previously identified benefits are among the important aspects of the original rule that must be considered in attempting to support a repeal. *State Farm*, 463 U.S. at 43. The Repeal Proposal and its RIA do not begin to meet any of these requirements.

vi. Emphasizing only the monetized value of the monetizable health benefits lost to repeal vastly understates the true health consequences of EPA's proposal.

A significant portion of the Clean Power Plan-related public health benefits can be measured only qualitatively, not financially valued. That does not mean they do not exist, or that they will not be lost in the event of Clean Power Plan repeal.[93] In 2017, EPA mentions

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[90] 2017 RIA at 123, Table 7-4. *See also,* Chris Mooney, "Even Trump's EPA Says Obama's climate plan would save thousands of lives each year," Wash. Post (Nov. 1, 2017) (Joint App. H3)(comparing the 2017 assessment of up to 4500 additional premature deaths a year in 2030 if the Clean Power Plan is repealed, with the 2015 Clean Power Plan assessment of up to 3600 avoided premature deaths a year by 2030 if the Clean Power Plan were implemented).

[91] 2017 RIA at 156-161, Tables B-1 to B-4 (reproducing the 2015 analysis results of benefits which will be lost with repeal).

[92] *Id.* at 161, Table B-4.

[93] Indeed, EPA recognizes this in a brief statement in the 2017 RIA at 42: "Furthermore, we were unable to quantify or monetize all of the climate benefits and health and environmental co-benefits associated with the final Clean Power Plan, including reductions in directly emitted $PM_{2.5}$, reduced exposure to SO_2, NO_X, and hazardous air

these lost benefits only in passing, makes no attempt to reassess them, and does not discuss the health effects associated with the additional tons of mercury that would result from repeal.[94]

It should be noted, however, that even given EPA's unsupported new view of benefits assessment, as described above, the Repeal Proposal does report total monetized "foregone public health benefits" due to the repeal by 2030 valued in a range between 16.4 and 38.5 billion dollars (2011) per year, depending on the discount rate assumed. Again, EPA's analysis reflects (albeit inaccurately, as discussed elsewhere in these comments) only the monetized premature adult and infant mortality due to increases in ozone and $PM_{2.5}$ resulting from the Clean Power Plan repeal.[95] Just as was the case with the Clean Power Plan assessments of monetized benefits, that financial range represents just a fraction of the actual health benefits that will be lost if the Clean Power Plan is repealed.

vii. EPA's failure to properly account for environmental justice concerns is arbitrary and capricious.

a. EPA has completely abandoned, with no support, its Clean Power Plan environmental justice findings.

Communities of color and low-income communities bear a heightened risk from climate change. Climate change is a global phenomenon, but its impacts—storms, floods, droughts, heat waves—disproportionately affect these "frontline" communities of color and low-income communities with weak infrastructure owing to poverty and historic disinvestment.[96] The same facilities that contribute to climate change by burning fossil fuels and emitting heat-trapping gases such as carbon dioxide (CO_2) also emit sulfur dioxide (SO_2), particulate matter (PM), nitrogen oxides (NOx), and mercury. SO_2 causes the formation of fine particle pollution ($PM_{2.5}$), and NOx is an ozone precursor. These dangerous air pollutants increase the risk of premature death, the severity of asthma, and of heart attacks, among other harmful health effects.[97]

The preamble to the Repeal Proposal and the 2017 RIA also walk away from EPA's previous well-supported view that air pollution emitted by the power sector disproportionately harms those living near the coal-, oil-, and gas fired power plants that emit it – a population that

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pollutants (e.g., mercury), as well as ecosystem effects and visibility improvement. The omission of these endpoints from the monetized results should not imply that the impacts are small or unimportant. Table B-1 in Appendix B provides the list of the forgone quantified and unquantified health and environmental benefits in this analysis."

[94] *Compare* 2015 RIA at 4-48 to 4-51 & 3-20 Table 3-7 (discussing mercury health effects and projecting mercury emissions reductions associated with the Clean Power Plan) *with* 2017 RIA at 42 (passing reference to the 2015 Tables reprinted in Appendix B and unmonetizable benefits lost), 122, Table 7-2 (presenting no information about mercury or other HAPs).

[95] 2017 RIA at 125, Table 7-6.

[96] *See* 80 Fed. Reg. at 64,914.

[97] *See* Clean Air Task Force, *The Toll from Coal, An Updated Assessment of Death and Disease from America's Dirtiest Energy Source* (Sept. 2010) (Joint App. K7).

tends to be more skewed towards lower income and minority individuals and families than the U.S. population generally. In the Repeal Proposal, EPA simply states that it "believes that this proposed action is unlikely to have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations and/or indigenous peoples as specified in Executive Order 12,898."[98] The agency provides no basis for its changed position, or its new "beliefs."

Executive Order 12,898 directs federal agencies to identify and address disproportionate adverse health or environmental effects of agency programs, policies, and activities on communities of color and low-income populations within the United States and its territories. In its 2016 final EJ 2020 Action Agenda, EPA prioritized climate change as an environmental justice issue, highlighting the importance of mitigation and adaptation policies intended to benefit communities of color and low-income communities.[99] One of the key mitigation strategies contemplated under the Action Agenda is the Clean Power Plan.

Pursuant to Executive Order 12,898 and in light of comments from environmental justice leaders from around the country, in the final Clean Power Plan EPA conducted a "proximity analysis" that summarizes demographic and environmental data on the communities located within a 3-mile radius of the power plants covered under the rule. EPA's proximity analysis compares this information in "EJ indexes" to identify potential exposure to air and water pollution and other environmental risks in those 3-mile areas. The analysis concluded that a higher percentage of low-income communities and communities of color lives near power plants when compared to the national averages.[100] EPA's proximity analysis findings were confirmed by the USGCRP assessment in 2016 that, "'[w]hile all Americans are at risk, some populations are disproportionately vulnerable, including those with low income, some communities of color, immigrant groups (including those with limited English proficiency), Indigenous peoples, children and pregnant women, older adults, vulnerable occupational groups, persons with disabilities, and persons with preexisting or chronic medical conditions.'"[101] In addition, in its 2015 RIA, EPA incorporated its own findings in the final rule

[98] 82 Fed. Reg. at 48,048.

[99] EJ2020 Action Agenda, The U.S. EPA's Environmental Justice Strategic Plan for 2016-2020 (2016), at 12, *available at:* https://www.epa.gov/sites/production/files/2016-05/documents/052216_ej_2020_strategic_plan_final_0.pdf (Joint App. F12).

[100] 80 Fed. Reg. at 64,915; U.S. Environmental Protection Agency, *EJ Screening Report for the Clean Power Plan* (2015) (Joint App. F13). For another example that analyzes state-level demographic information, including information not available in EPA's EJSCREEN (such as health insurance rate, income level and disability prevalence), *see* NextGen Climate America and PSE Healthy Energy, *Our Air: Health and Equity Impacts of Pennsylvania's Power Plants* (July 2016) (Joint App. K25); PSE Healthy Energy, *The Clean Power Plan in Pennsylvania. Analyzing Power Generation for Health and Equity*, Study Prepared for NextGen Climate America (July 2016) (Joint App. K26).

[101] 2017 Basis for Denial of Reconsideration, *supra* n.10, at Appendix 4 – Climate Science Update at 4, quoting USGCRP, "Impacts of Climate change on Human Health in the United States: A Scientific Assessment" (2016) (Joint App. K30).

that revised the $PM_{2.5}$ NAAQS, where the agency identified low-income communities as a population vulnerable to adverse effects of PM exposures.[102]

Based on these findings, in the final Clean Power Plan EPA stated that communities of color and low-income communities would benefit from the implementation of the rule, both because the rule directly addresses the impacts of climate change and because there will be areas where the rule will result in reduced exposure to $PM_{2.5}$, ozone, and methylmercury.[103] In the Repeal Proposal, EPA mentions its prior proximity analysis and even acknowledges that "[t]hese communities may experience forgone benefits as a result of this Action."[104] Nevertheless, it has now abandoned these findings, asserting without any support that its earlier conclusions are uncertain, and therefore dismissable.[105] An agency's conclusory statements are entitled to no deference, because they are not in fact exercises of judgment – they have no underlying support – to which a court can properly defer.[106]

In the preamble and the 2017 RIA, EPA also makes unsupported and discredited assertions that air pollution from coal-fired units tends to be dispersed widely due to stack heights, atmospheric chemistry, and meteorological conditions and that, therefore, the distribution of foregone benefits is "highly uncertain."[107] While it is certainly true that air pollution travels, and $PM_{2.5}$ and ozone have been shown to be transported far from the emitting source,[108] that does not mean that experts – and the agency itself – cannot determine the spatial distribution of benefits of environmental regulations. Nor does it call into question the localized public health benefits of pollution reductions near polluting sources. Indeed, such communities not only are exposed to transported pollution from sources upwind, but they have the added burden of being disproportionately exposed to pollution from nearby emitters.

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[102] 2015 RIA at 7-20.

[103] *Id.*

[104] 82 Fed. Reg. at 48,049.

[105] *Id.*; 2017 RIA at 64.

[106] *Keyspan-Ravenswood v. FERC*, 474 F.3d 804, 812 (D.C. Cir. 2007); *see also Chem. Mfrs. Ass'n v. EPA*, 28 F.3d 1259, 1265 (D.C. Cir. 1994) (conclusory statements imply that the agency is committed to a path regardless of the facts).

[107] *Id.*

[108] For example, a 2015 analysis from NextGen Climate America, *supra* n.100 at 7, found that Cleveland, Ohio is disproportionately affected by the PM pollution from nearby coal plants, such as Avon Lake, but the city is also affected by the pollution from coal plants located on the opposite side of the state. In fact, in 2015, PM pollution from Ohio power plants was responsible for hundreds of deaths in Pennsylvania, New York, Virginia, New Jersey, Michigan, and other areas in the country. *See also* The Clean Power Plan in Ohio. Analyzing Power Generation for Health and Equity, Prepared for NextGen Climate America (July 2016), *available at:* https://www.psehealthyenergy.org/our-work/publications/archive/our-air-health-and-equity-impacts-of-ohios-power-plants/.

In fact, EPA has readily available models, such as BenMAP, that can calculate air impacts and map air pollution and air quality management scenarios.[109] EPA also can analyze the effect of upwind emissions on downwind communities by using models such as CAMx, which estimates ozone and $PM_{2.5}$ air quality over seasonal and annual time periods, and then convert those estimates to benefits using BenMAP.[110] Using BenMAP, a 2016 study of a policy that resembles the Clean Power Plan examined the spatial distribution of co-benefits and costs of the modeled carbon policy, finding that all counties in the continental United States would receive annual co-benefits in 2020 under the policy scenario analyzed. The study also found that the greatest health co-benefits would occur in areas with historically large amounts of electricity generation from coal, which are characterized by poor air quality prior to 2020 and would therefore receive large improvements in air quality.[111] Aside from BenMap, there exist a variety of geographic information system (GIS) tools to map the communities affected by air pollution and regulatory interventions.

The effects of coal-fired plants on communities of color is well-known. In 2012, the National Association for the Advancement of Colored People (NAACP), the Little Village Environmental Justice Organization (LVEJO), and the Indigenous Environmental Network analyzed SO_2 and NOx emissions from 378 coal plants, concluding that many of them had a disproportionate impact on the health of low-income communities and communities of color located in close proximity to those plants.[112] A 2010 report by the Clean Air Task Force estimated that fine particle pollution from existing coal plants would cause nearly 13,200 deaths in 2010, as well as 9,700 hospitalizations and more than 20,000 heart attacks per year, particularly in frontline communities and among people living downwind from those plants.[113] An April 2018 study completed by the Pruitt EPA's National Center for Environmental Assessment further underscores the disparities in the distribution of emission sources. The study found that individuals living in poverty had 1.35 times higher burden from fine particulates than the overall population and non-Whites had 1.28 times higher burden.[114] The study found that Black Americans had 1.54 times higher burden than the overall population and that "[d]isparities for Blacks are more pronounced than are disparities on the basis of poverty status. Strictly socioeconomic considerations may be insufficient to reduce PM burdens equitably

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[109] BenMAP, Environmental Benefits Mapping and Analysis Program--Community Edition, Users Manual, *available at:* https://www.epa.gov/sites/production/files/2015-04/documents/benmap-ce_user_manual_march_2015.pdf.

[110] EPA, Regulatory Impact Analysis of the Cross-State Air Pollution Rule (CSAPR) Update for the 2008 National Ambient Air Quality Standards for Ground-Level Ozone, EPA-452/R-16-004, Chapter 3 (Sept. 2016), *available at:* https://www3.epa.gov/ttnecas1/docs/ria/transport_ria_final-csapr-update_2016-09.pdf.

[111] Jonathan Buonocore, *et al.*, "An Analysis of Costs and Health Co-Benefits for a U.S. Power Plant Carbon Standard," 11 PLoS One e0156308 (published June 7, 2016), *available at*: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4896433/ (Joint App. K19).

[112] NAACP *et al.*, *Coal Blooded: Putting Profits Before People* (Nov. 2012) (Joint App. K23).

[113] Clean Air Task Force, *The Toll from Coal, supra* n. 97.

[114] Ihab Mikati, *et al.*, "Disparities in Distribution of Particulate Matter Emission Sources by Race and Poverty Status," 108 Am. J. Public Health 480 (Apr. 1, 2018), *available through*: https://www.ncbi.nlm.nih.gov/pubmed/29470121.

across populations."[115] The disparity patterns the study's authors observed were consistent within most states and counties. This 2018 EPA study, far from supporting the Repeal Proposal, illustrates its unreasonableness.

Based on the findings of its proximity analysis, and because states have even better information on environmental and health issues affecting their communities, in the final Clean Power Plan EPA encouraged states to conduct environmental justice analyses as they developed their implementation plans, and to evaluate their plans' actual impacts on low-income and minority communities during implementation.[116] The agency recognized that its proximity analysis is a good start to understand the lay of the land, but states can also employ additional methodologies to ensure that compliance measures actually benefit those communities most affected by air pollution. Among other options, EPA recommended states to project likely increases in emissions affecting vulnerable communities by evaluating air quality monitoring data or information from air quality models and gather information about health impacts, such as asthma rates and access to healthcare by those communities.[117] If EPA finalizes its Repeal Proposal, it is also less likely that states with large amounts of fossil fuel-fired generation will perform an environmental justice analysis of state climate policies that would facilitate policy decisions that benefit the communities most affected by air pollution.

b. EPA's claims regarding economic costs for low-income households is incorrect and devoid of any support.

In its Repeal Proposal, EPA states that the Clean Power Plan repeal "may result in lower household energy bills for low-income households."[118] This claim is based on misleading analysis. EPA previously estimated that the Clean Power Plan would encourage significant new investments in energy efficiency programs, which save customers money on their monthly electric bills while also reducing utilities' compliance costs by saving on fuel costs. In its 2015 RIA for the Clean Power Plan, EPA estimated at least an 8.4 percent decrease in electric bills by 2030 as a result of the Clean Power Plan.[119] EPA also found that low-income households would benefit from lower electricity bills because these households typically spend a greater share of their household income on energy.[120] As we discuss *supra*, in the Repeal Proposal EPA still assumes that these energy efficiency savings will occur, but it has also assumed that electricity avoided through efficiency programs will actually be generated and that utilities will not save money on fuel costs. Instead, EPA has shifted those efficiency savings to the other side of the ledger and counted them as benefits, which allows the agency to represent to the public that the Clean Power Plan is far costlier than it actually is.

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[115] *Id*.

[116] 82 Fed. Reg. at 64,916.

[117] *Id*.

[118] *Id*. at 48,049.

[119] 2015 RIA, Table 3-43.

[120] *Id*.

The agency also attempts to inject uncertainty as to the distribution of economic impacts for low-income households from repealing the rule by asserting that "households [may] change their housing location…in response to air quality changes."[121] In other words, EPA assumes that if air quality is important to a household it will simply move away from the dirty air area, making it "difficult to identify the characteristics of populations in those affected areas."[122] EPA cites a study by Seig, *et al*.,[123] but that work, which evaluates how localized air quality improvements are valued in terms of residents' willingness to pay for them, is completely inappropriate for use in assessing the value of public health benefits to low-income households. That is because the lens through which this study assesses the value of public health improvements is the economic effect on housing prices of better air quality – and people's willingness to pay for that – without regard to their income levels. The study's only conclusion about impacts on lower income communities is that cleaner air benefits absentee landlords financially more than renters of the property where the improvements occur (those with lower income, but breathing the cleaner air), because the landlords will be able to charge higher rents to the detriment of those living in the leased housing. EPA's point seems to be (although it is not clearly expressed) that this need to pay higher rent will offset the value of the health benefits of the cleaner air to residents of the areas near existing power plants. But this doesn't speak to what happens under Clean Power Plan repeal at all – in that situation the air is not cleaner, and the health impacts on – and the demographics of – those living near the plants do not change. Nor does EPA assess the demographics of those who will move away because they can afford to prefer cleaner air, or those who move into the housing near the power plants, or consider the effects on local economies if all that housing is simply abandoned outright. Such failure to consider important aspects of a problem is the hallmark of arbitrary and capricious decision making. *State Farm*, 463 U.S. at 43.

c. Repealing the Clean Power Plan would be detrimental to the American job market.

Finally, in its Executive Order 12,898 "analysis" of its Repeal Proposal EPA states that shifts in regional workforces were expected as a result of the Clean Power Plan; that localized impacts of these shifts could have adverse effects on individuals and communities; that weak labor markets could make for extended periods of unemployment and reduced earnings for affected individuals; that involuntary job loss may increase mortality; and that these impacts may be avoided with the repeal of the Clean Power Plan.[124]

While employment impacts are an important consideration, and are part of the agency's regulatory impact analysis, the Repeal Proposal utterly misses a key issue – the Clean Power Plan is expected to reduce dangerous air pollution which causes respiratory and cardiovascular diseases and even mortality, particularly in low-income communities and communities of color.

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[121] *Id.* at 64.

[122] *Id*.

[123] Seig, *et al*.,"Estimating the General Equilibrium Benefits of Large Changes in Spatially Delineated Public Goods," 45 Int'l Econ. Rev. 1047 (2004).

[124] 82 Fed. Reg. at 48,049.

That directly responds to a primary purpose of the Clean Air Act, which is to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population. 42 U.S.C. §7401(b)(1).

EPA's 2017 assessment also ignores EPA's own modeling of the Clean Power Plan, which found that new jobs associated with improving fossil fuel-fired power plant efficiency, construction and operation of new natural gas-fired power plants and renewable energy production and demand-side energy efficiency are expected to far exceed any job losses associated with coal extraction and generation.[125] In particular, increases in demand-side energy efficiency jobs (full-time or part-time) in 2030 could range from 52,000 to 83,000.[126] Studies have also shown that per dollar invested, solar and wind projects generate double the jobs of fossil fuels.[127] Indeed, according to a June 2017 analysis by Environmental Entrepreneurs, the Clean Power Plan could add up to 560,000 jobs and $52 billion in economic value in 2030.[128]

Not only does EPA fail to rebut the Clean Power Plan's robust record on employment and the economy, EPA offers absolutely no evidence of the overall economic effect that it now claims would result from repealing the Clean Power Plan. In fact, the Clean Power Plan would bolster the clean energy economy, which is strong and growing. In early 2016, in expressing their support for the Paris Agreement, over 1,000 U.S.-based companies and investors, representing over $1.2 trillion in revenues, declared that "failure to build a low-carbon economy puts American prosperity at risk."[129] The energy efficiency industry now supports 2.2 million jobs, and there are over 260,000 jobs in the solar industry, as well as over 100,000 jobs in the wind industry.[130] The Bureau of Labor Statistics recently estimated that the employment categories of solar panel installer and wind turbine technician would be the fastest growing jobs in the economy over the next decade.[131]

Studies of recent experiments have also shown that clean energy jobs can be coupled with the right labor policies. For instance, when California raised the state's Renewable Portfolio Standard (RPS) in 2015, the legislation passed due in large part to the support of 22

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[125] *Id.* at 64,881. *See also* J. Bivens, "A Comprehensive Analysis of the Employment Impacts of the EPA's Proposed Clean Power Plan," Economic Policy Institute (2015) (Joint App. I12).

[126] 80 Fed. Reg. at 64,881.

[127] A. Russ, A. and E. Schaefer, *Don't Believe The "Job Killer" Hype: Decades of Economic Research Show that Environmental Regulations are Good for the Economy,* Environmental Integrity Project (2017)(Joint App. I10).

[128] Environmental Entrepreneurs, *Opportunity Lost: How Rolling Back the Clean Power Plan Hurts America's Economy*, (June 2017) (Joint App. J30).

[129] *See* "Business Backs Low-Carbon USA Statement," *available at*: http://lowcarbonusa.org/business.

[130] DOE, *2017 U.S. Energy and Jobs Report*, (Jan. 2017), *available at:* https://energy.gov/sites/prod/files/2017/01/f34/2017%20US%20Energy%20and%20Jobs%20Report_0.pdf.

[131] Bureau of Labor Statistics, "Occupational Outlook Handbook: Fastest Growing Occupations," (last modified Oct. 24, 2017), *available at:* https://www.bls.gov/ooh/fastest-growing.htm.

different local Building Trades Councils.[132] Their support of this policy was made possible because 4,250 megawatts (MW) of utility-scale solar were installed from 2010 to 2014, generating over 10,000 jobs that pay the prevailing wage and provide benefits, with many going to workers in disadvantaged communities.[133] The jobs lost by repealing the Clean Power Plan are just as important to consider as are the jobs EPA now claims would be lost from adhering to it.

The coal industry has been in economic decline and coal miners have been losing their jobs for years, for reasons other than the Clean Power Plan. There is now strong awareness and scientific support for the understanding that this industry has caused – and continues to cause – air and water pollution, unsafe working conditions, respiratory illnesses and premature deaths, as well as scarred landscapes. Coal-fired electricity generation also has become high cost relative to both natural gas and renewable sources of energy production. However, as we move to cleaner and healthier sources of energy, it should be a societal goal also to protect the livelihoods of the workers and communities who have powered our country for over a century. This is a responsibility of policy makers and legislators at all levels of state and federal government, including Congress. And while an individual rulemaking cannot, and should not, be expected to address or redress significant economic trends such as shifts in energy markets, EPA recognized this priority in the Clean Power Plan, suggesting a host of labor-oriented protections that states could consider incorporating in their implementation plans.[134] These would help ensure that those plans can generate good jobs for the benefit of low-income communities, not the opposite as EPA now alleges.

In crafting these recommendations, EPA conducted an extensive and unprecedented outreach before and after it issued the Clean Power Plan, meeting with labor unions, including the United Mine Workers of America; the Sheet Metal, Air, Rail and Transportation Union (SMART); the International Brotherhood of Boilermakers, Iron Shipbuilders, Blacksmiths, Forgers and Helpers (IBB); United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada; the International Brotherhood of Electrical Workers (IBEW); the Utility Workers Union of America; and the American Federation of Labor-Congress of Industrial Organizations (AFL-CIO).[135] The Clean Power Plan grapples with and is responsive to the concerns raised by unions and their partners regarding the potential effects of the rule on workers, their families and communities in coal-producing regions due to the transition to lower- and zero-emitting generation. EPA's Clean Power Plan recommends that states take employment impacts seriously as part of compliance plan development and that they make their best efforts to ensure that those workers and their

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[132] SB 350, *available at:* http://www.energy.ca.gov/sb350/.

[133] Peter Philips, *Environmental and Economic Benefits of Building Solar in California, Quality Careers - Cleaner Lives, Donald Vial Center on Employment in the Green Economy*, Institute for Research on Labor and Employment, University of California, Berkeley (Nov. 10, 2014), *available at:* http://laborcenter.berkeley.edu/pdf/2014/building-solar-ca14.pdf.

[134] 80 Fed. Reg. at 64,881.

[135] *Id*. at 64,707.

communities would benefit from the job and economic growth opportunities expected from the implementation of the rule.[136]

The Clean Power Plan also encourages states to mobilize existing education and training resources, including from community and technical colleges and registered apprenticeship programs, to ensure that both incumbent and new workers gain the skills they will need to perform their jobs in the utility, construction, and related sectors. EPA has suggested that this training should result in validated skill certifications for workers. In particular, a highly qualified workforce will be needed in the renewable energy and energy efficiency sectors to evaluate, measure, and verify (EM&V) energy savings associated with energy efficiency programs or the additional generation from performance improvements at existing renewable energy projects, and in the Clean Power Plan, EPA recognized that these skills will be important to substantiate the CO_2 emission reductions expected from these measures. For this reason, the final rule encourages states to include in their compliance plans a description of how they will ensure that the skills of workers that install renewable energy or energy efficiency projects or perform the associated EM&V are certified by a third party who develops a competency-based program, a job task analysis, and a certification scheme that represent appropriate qualifications, job categories, and experience levels, and whose accreditation is based on consensus-based standards.[137]

EPA can offer to work with states on their plans, and consult with agencies whose purview it is to work on a just transition away from reliance on coal, with or without the Clean Power Plan. EPA can work with other agencies to design productive forward-thinking policies that support labor interests in ways that are not detrimental to environmental improvement. The Clean Power Plan reflects some of that work.

D. EPA's Proposal Arbitrarily Cuts Estimates of the Cost of Carbon with the Goal and Effect of Undercounting the Enormous Risks We Face from Climate Change.

Any attempt to conduct a cost-benefit analysis of the Clean Power Plan must include an assessment of the climate damage prevented by the reduction of emissions from power plants, whether under Executive Order 12,866 or otherwise. The Repeal Proposal RIA, and the proposal itself, however, arbitrarily undervalue the costs that CO_2 pollution places on our children and future generations in two ways. First, it does so by employing an inappropriately high range of discount rates, one rejected by a consensus of leading authorities. Second, the Repeal Proposal employs a so-called "domestic-only" estimate, even though such an approach fails to recognize all the harm caused by CO_2 pollution, has also been rejected by leading economic authorities as methodologically flawed, and is technically inconsistent with the Integrated Assessment Modeling that it uses as a quantitative foundation. As described in detail in the separate comments,[138] EPA has employed a fundamentally flawed methodology to all but

[136] *Id.* at 64,670-71.

[137] *Id.* at 64,881.

[138] 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

erase the benefits the rulemaking achieves. Its revised social cost of carbon is thus arbitrary and capricious, and EPA must discard it.

II. EPA CANNOT RELY UPON OR BE GUIDED BY EXECUTIVE ORDER 13,771 IN ITS DECISION MAKING PROCESS.

On January 30, 2017, President Trump signed the Presidential Executive Order on Reducing Regulation and Controlling Regulatory Costs ("Executive Order 13,771" or "2-for-1 Order").[139] The OMB subsequently issued a guidance document implementing the 2-for-1 Order.[140] Executive Order 13,771 was designed to reduce the costs associated with regulations on regulated parties. A coalition of public interest organizations later challenged Executive Order 13,771 in the District Court for the District of Columbia,[141] and that litigation is currently ongoing. Executive Order 13,771 places severe burdens upon agencies who wish to issue new regulations, because it requires an offset of the *costs* of a new rule, without regard to the *benefits* of that rule. This puts it in a posture that is directly contrary to established principles of administrative law around reasoned decision making.[142]

In its Repeal Proposal, EPA refers to the 2-for-1 Order, specifically to what it calls "estimated cost savings,"[143] and explains how the agency is calculating the costs imposed on regulated parties in the proposed RIA document.[144] The agency also cites the OMB Guidance document implementing Executive Order 13,771 as support for its decision to treat reduced demand as a result of the Clean Power Plan as a foregone benefit, instead of a repeal cost-saving.[145] EPA does not disclose, however, whether the agency is relying upon the 2-for-1 Executive Order, or discuss how it is affecting the agency's decision making process.[146] If

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Comments Specific to Climate Change, at 16, Docket ID No. EPA-HQ-OAR-2017-0355 (filed Apr. 25, 2018) (Joint Comments Specific to Climate Change).

[139] Exec. Order No. 13,771, "Reducing Regulation and Controlling Regulatory Costs," 82 Fed. Reg. 9,339 (Feb.3, 2017).

[140] U.S. Office of Management and Budget, "Guidance Implementing Executive Order 13771, Titled 'Reducing Regulation and Controlling Regulatory Costs'" (2017), *available at:* https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2017/M-17-21-OMB.pdf.

[141] *See* Second Amended Complaint, *Public Citizen v. Trump*, Case No. 1:17-cv-00253-RDM (D.D.C. Apr. 20, 2018).

[142] As the Supreme Court stated in *Michigan v. EPA*, "reasonable regulation ordinarily requires paying attention to the advantages *and* the disadvantages of agency decisions," 135 S. Ct. at 2707.

[143] 82 Fed. Reg. at 48,047.

[144] *See* 2017 RIA at 99-103.

[145] *Id*. at 33.

[146] The Clean Air Act requires EPA to place in the docket for a proposed rule at the time it is published all data, information and documents on which the proposed rule is based. *See* 42 U.S.C. §7607(d)(3). EPA's failure to

Executive Order 13,771 is in fact playing any role in that process, the agency must at the very least explain the nature of that reliance.[147] Furthermore, under the Clean Air Act, EPA must explain how the policies and procedures in the 2-for-1 Order can possibly be squared with EPA's mandate under the statute.[148]

If EPA is relying upon Executive Order 13,771 at all in this process, or if Executive Order 13,771 is limiting the scope of options that the agency is *considering* in its review of the Clean Power Plan, any subsequent action that the agency takes would be unlawful.[149] Section 111 of the Clean Air Act lays out specific factors that the agency must consider when deciding how to regulate existing sources of air pollution under Clean Air Act section 111(d). If the agency deviates from those statutorily mandated factors, or foregoes selecting the *best* system because of an executive directive such as Executive Order 13,771, its action cannot be upheld.

III. EPA HAS FAILED TO IDENTIFY THE ENVIRONMENTAL, HEALTH, AND SAFETY RISKS OF THE REPEAL PROPOSAL FOR CHILDREN.

Executive Order 13,045 requires federal agencies to "make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children," and to ensure that their actions address those risks.[150] The Order applies to "economically significant" actions under Executive Order 12,866.[151] For each regulation submitted to the OMB's Office of Information and Regulatory Affairs (OIRA) for review, the relevant agency shall provide to OIRA "(a) an evaluation of the environmental health or safety effects of the planned regulation on children; and (b) an explanation of why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the agency."[152] The Repeal Proposal is an economically significant action,[153] and yet, EPA has failed to fulfil its obligations under the Order.

In the Repeal Proposal, EPA has completely failed to assess the environmental, health, and safety risks that repealing the Clean Power Plan would impose on children, a vulnerable

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provide such documents demonstrating how Executive Order 13,771 influenced the Repeal Proposal, and how the agency interpreted and applied it in developing the Repeal Proposal, is inconsistent with these requirements.

[147] *See, e.g., Amerijet Int'l, Inc. v. Pistole*, 753 F.3d 1343, 1350 (D.C. Cir. 2014) ("[A] fundamental requirement of administrative law is that an agency set forth its reasons for decision; an agency's failure to do so constitutes arbitrary and capricious agency action.").

[148] 42 U.S.C. §7607(d)(3).

[149] *See Massachusetts*, 549 U.S. at 532-535 (rejecting the agency's reliance upon factors not enumerated in the statutory text); *id.* at 535 ("EPA must ground its reasons for action or inaction in the statute.").

[150] Exec. Order No. 13,045, §1-101, 62 Fed. Reg. 19,885 (Apr. 23, 1997).

[151] *Id.* § 2-202.

[152] *Id.* § 5-501.

[153] 82 Fed. Reg. at 48,048.

population. As discussed *supra*, EPA has cited the AEO 2017 forecasts in the 2017 RIA to discard the agency's findings from 2015, but has failed to perform any robust analysis on the basis of those numbers, including as part of this assessment required under Executive Order 13,045. With respect to children's health specifically, the agency says that the AEO 2017 forecasts for NOx and SO_2 emissions from the power sector in 2030 are lower than the same forecasts under AEO 2015 and, therefore, the current applicability of the 2015 RIA results, including the assessment of human health benefits, is uncertain.[154]

Further, in the Repeal Proposal EPA notes that this action does not affect the protections required under the NAAQS and other Clean Air Act programs and that, "[t]o the extent that states use other mechanisms in order to comply with the NAAQS, and still achieve the criteria pollution reductions that would have occurred under the Clean Power Plan, this proposed rescission will not have a disproportionate adverse effect on children's health."[155]

EPA's entirely inadequate explanation violates its duty under Executive Order 13,045 to identify the environmental and health risks from *climate change* on children – which the agency does not dispute, as the Endangerment Finding is not open for comment – and to assess how the Clean Power Plan repeal will address (or, in this case, increase) those risks. In light of the scientific evidence of climate impacts on this population, EPA's meager justification does not meet the obligation to provide OIRA with an analysis of how the repeal of the Clean Power Plan would affect children.

In the Clean Power Plan preamble, EPA noted that, in the Endangerment Finding, the agency concluded that certain populations, including children, the elderly, and low-income people are the most vulnerable to climate-related effects.[156] The literature on climate impacts published after 2009 strengthened this conclusion and provided more detailed findings. The agency explained that "children's unique physiological and developmental factors contribute to making them particularly vulnerable to climate change. Impacts to children are expected from heat waves, air pollution, infectious and waterborne illnesses, and mental health effects resulting from extreme weather events. In addition, children are among those especially susceptible to most allergic diseases, as well as health effects associated with heat waves, storms, and floods. Additional health concerns may arise in low income households, especially those with children, if climate change reduces food availability and increases prices, leading to food insecurity within households."[157] Thus, EPA concluded that CO_2 reductions, as well as the attendant reductions in other pollution that will result from implementation of the Clean Power Plan also will improve children's health.[158] The reductions that EPA expected would occur as a result of

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[154] *Id*.

[155] *Id*.

[156] *Id*.

[157] 2015 RIA, at 7-17.

[158] 80 Fed. Reg. at 64,939.

the Clean Power Plan will not occur if EPA repeals the rule and EPA must measure these effects in the 2017 RIA.

In addition, EPA's claim that the Repeal Proposal will not affect children's health because power plants remain bound to comply with the relevant NAAQS ignores that EPA has a separate obligation to protect children's health from the adverse impacts of climate change in light of its mandate to regulate greenhouse gas emissions from power plants and regardless of sources' obligations to reduce criteria air pollutant emissions under the NAAQS. As we discuss in our Joint Environmental and Public Health Organizations Comments Specific to Climate Change, filed in this docket today,[159] heat is the most direct health threat for climate change, particularly for vulnerable populations, including children.[160] EPA must measure the effects of climate-related increases in air pollution and submit this information to OMB for review.

Finally, EPA's claim that the Repeal Proposal will not affect children's health because power plants remain bound to comply with the relevant NAAQS arbitrarily and capriciously fails to grapple with the Repeal Proposal's implications for conventional air pollution increases. First, EPA does not make clear, either in the Repeal Proposal, or the accompanying 2017 RIA, whether it has considered to what extent the conventional pollution reductions anticipated under the Clean Power Plan would have driven pollution levels below NAAQS levels. Such a result brings with it additional health benefits, and EPA also has not assessed the loss of those benefits due to Repeal of the Clean Power Plan. Second, EPA does not address how the uncertainty and longer timeframe for achieving compliance with the NAAQS – particularly when the Proposed Repeal would increase air pollution burdens – will harm children's health. EPA's failure to assess such risks from the Repeal Proposal, and to submit such analysis to OMB, violates Executive Order 13,045, and shows callous disregard for the health of our Nation's children.

[159] Joint Comments Specific to Climate Change, *supra* n. 138, at 10-11.

[160] USGCRP, Impacts of Climate Change on Human Health, *supra* n. 53 at 70.

Appendix of Documents

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," 82 Fed. Reg. 48,035 (Oct. 16, 2017), Docket ID No. EPA-HQ-OAR-2017-0355

[REVISED] Comments Specific to the "*Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal*" (October 2017)

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(*these documents were not included in the Joint Appendix of Organizations and States*)

1. Emily Atkin, "The War on Science is Over, the Republicans Won," New Republic (April 5, 2018).
2. Justin Worland, "Scientists Worry Scott Pruitt's New EPA Change Will Harm Life-Saving Research," Time (Mar. 30, 2018).
3. Gina McCarthy and Janet G. McCabe, "Scott Pruitt's Attack on Science Would Paralyze the E.P.A.," New York Times Op. Ed. (Mar. 26, 2018).
4. Robin Bravender, "Pruitt Expected to Limit Science Used to Make EPA Pollution Rules," Scientific American (Mar.16, 2018).
5. Sean Reilly and Kevin Bogardus, "EPA unveils new industry-friendlier science advisory boards," Science (Nov. 3, 2017).
6. U.S. Energy Information Administration, *Monthly Energy Review* (March 2018)
7. Letter from Environmental Council of the States, Docket ID No. EPA-HQ-OAR-2015-0199 at 2 (January 21, 2016).
8. Rama Zakaria, Ben Levitan: EDF Blog. http://blogs.edf.org/climate411/2017/10/09/underhanded-maneuvers-to-repeal-the-clean-power-plan-put-americans-lives-and-health-at-risk/.
9. Gina McCarthy and Janet McCabe, "Forward," 41 HARV. ENVTL. L. REV. 321 (2017).

10. Qian Di, *et al.*, "Association of Short-term Exposure to Air Pollution with Mortality in Older Adults," 318 J. Am. Med. Ass'n 2446 (Dec. 26, 2017).

11. J. Zhang, "Low-Level Air Pollution Associated with Death – Policy and Clinical Implications," 318 J. Am. Med. Ass'n 2431 (Dec. 26, 2017).

12. MJ Friedrich, "Air Pollution is the Greatest Environmental Threat to Health," 309 J. Am. Med. Ass'n 1085 (Mar. 20, 2018).

13. Benjamin Horne, *et al*., "Short-term Elevation of Fine Particulate Matter and Acute Lower Respiratory Infection," Am. J. Respiratory Critical Care Med. (online) (April 2018).

14. Kimberly Castle and Richard L. Revesz, "Environmental Standards, Thresholds, and the Next Battleground of Climate Change Regulations," *forthcoming in* 103 Minn. L. Rev. (April 2018); NYU School of Law, Public Law Research Paper No. 18-22; NYU Law and Economics Research Paper No. 18-12.

15. Krewski, *et al*., "Extended Follow-Up and Spatial Analysis of the American Cancer Society Study Linking Particulate Air Pollution and Mortality," HEI Research Report 140, Health Effects Institute, Boston, MA (2009).

16. Jonathan Levy, *et al*., "Ozone Exposure and Mortality: An Empiric Bayes Metaregression Analysis," 16 Epidemiology 458 (2005).

17. Excerpt from Testimony of E. Scott Pruitt before the House Committee on Energy and Commerce, Subcommittee on Environment (Dec. 7, 2017) (dialogue with Rep. Dr. Raul Ruiz).

18. PSE Healthy Energy, *The Clean Power Plan in Ohio. Analyzing Power Generation for Health and Equity*, Prepared for NextGen Climate America, (July 2016).

19. Ihab Mikati, *et al.*, "Disparities in Distribution of Particulate Matter Emission Sources by Race and Poverty Status," 108 Am. J. Public Health 480 (April 1, 2018).

20. U.S. Department of Energy, *2017 U.S. Energy and Jobs Report*, (Jan. 2017).

21. Bureau of Labor Statistics, "Occupational Outlook Handbook: Fastest Growing Occupations," (last modified Oct. 24, 2017).

22. Peter Philips, *Environmental and Economic Benefits of Building Solar in California, Quality Careers - Cleaner Lives*, Donald Vial Center on Employment in the Green Economy, Institute for Research on Labor and Employment, University of California, Berkeley (November 10, 2014).