

April 26, 2018

Mr. Peter Tsirigotis
Sector Policies and Program Division (D205-01)
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711

Submitted Electronically

RE: PROPOSAL TO REPEAL THE CLEAN POWER PLAN
DOCKET NO. EPA-HQ-OAR-2017-0355

Dear Mr. Tsirigotis:

The California Air Resources Board (CARB) submits this comment letter, including the attached technical comments, to the United States Environmental Protection Agency (U.S. EPA) on the Proposed Rule entitled “Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units”, 82 Fed. Reg. 48035 (Oct. 15, 2017) (hereinafter, Repeal Rule or Proposed Clean Power Plan Repeal Rule).¹

The Clean Power Plan (CPP) is an appropriate, necessary and long overdue response to U.S. EPA’s Clean Air Act obligation to regulate power plant greenhouse gas (GHG) emissions. The Repeal Rule, which would repeal the CPP without an effective replacement, ignores U.S. EPA’s statutory obligations and in doing so threatens the health and welfare of millions of people affected by climate change. In California in this past year, devastating climate-linked disasters have incinerated forests and homes, threatened our citizens with mudslides and floods, eroded the coastline and cost billions of dollars in damages and infrastructure adaptation needs. Repeal of the CPP under these circumstances is unacceptable.

It is past time to move forward with the protective framework of the CPP. It has been more than a decade since this process began. Over that time, the climate crisis has steadily worsened. Fortunately, the availability and affordability of renewable power and energy efficiency has steadily improved, providing solutions that also improve public health and create jobs. The CPP helped to drive progress on these crucial efforts, even

¹ We note that these comments were developed in partnership with the staff of the California Energy Commission and the California Public Utilities Commission, and we thank them for their assistance.

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in its developmental phases, by sending a regulatory signal; it will also support future progress if U.S. EPA aids in concluding current litigation and moving forward to implement the program.

The most basic responsibility of U.S. EPA is to protect the public. U.S. EPA needs to focus on this fundamental duty, and move forward with air pollution controls for the power sector to address climate change. As we discuss in the attached technical comments, U.S. EPA's Repeal Rule fails to fulfill the agency's obligations. It is legally unfounded, procedurally deficient, and factually unsupported. It must be abandoned. U.S. EPA should instead act rapidly to conclude ongoing CPP litigation and put the program into force.

Please feel free to contact me at (916) 322-7077 or richard.corey@arb.ca.gov to discuss any of these issues. Thank you for your consideration.

Sincerely,



Richard W. Corey
Executive Officer
California Air Resources Board

Comments of the California Air Resources Board

I. The Repeal Rule Is Inconsistent with U.S. EPA's Duties under the Federal Clean Air Act

More than a decade ago, the U.S. Supreme Court held that U.S. EPA was required to determine whether GHGs cause or contribute to climate change. Thereafter, U.S. EPA issued the Endangerment Finding, wherein U.S. EPA found that GHG emissions may reasonably be anticipated to endanger public health and welfare. Since the 2009 Endangerment Finding, the scientific consensus around climate change has only deepened, underlining the dire need for immediate action to address this existential threat to the United States and the rest of the world.

This pressing environmental crisis threatens us all, and must inform U.S. EPA's understanding of its legal authorities, because the federal Clean Air Act charges the agency with protecting the public from threats to health and welfare. The Act's core purpose 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...."² The whole structure of the statute is directed at this purpose, including Congress's decision that an endangerment finding with regard to a particular pollutant would trigger a wide array of remedial duties throughout the statute – notably, including stationary source regulation.^{3,4}

As U.S. EPA is well aware, "[i]n the interpretation of statutes, the function of the courts is easily stated. It is to construe the language so as to give effect to the intent of Congress."⁵ Thus, "[w]hen the legislature enacts legislation to effectuate a clearly stated purpose, [an agency] would shirk its responsibility if it were to ignore that purpose in construing the statute's particular terms," and agencies must be particularly assiduous to effectuate the purposes of broad remedial statutes, like the Clean Air Act.^{6,7}

As sea levels rise, stronger hurricanes devastate coastal cities, and California skies fill with smoke, it is wholly improper for U.S. EPA to shirk its core remedial duties with the spurious arguments it advances in the Repeal Rule. U.S. EPA's proposal would not

² 42 U.S.C. § 7401(b)(1).

³ *Id.* § 7411(b)(1)(B).

⁴ *Coalition for Responsible Regulation v. U.S. EPA*, 684 F.3d 102, 129-32 (D.C. Cir. 2012) (discussing some of these mechanisms).

⁵ *U.S. v. American Trucking Ass'ns*, 310 U.S. 534, 542 (1940).

⁶ *Chesapeake & Potomac Telephone Co. of VA v. Peck Iron & Metal Co.*, 814 F. Supp. 1281, 1284 (E.D. Va. 1993).

⁷ *Belland v. Pension Benefit Corp.*, 726 F.2d 839, 850 fn. 6 (D.C. Cir. 1984) (Wald, J., dissenting) ("the reasonableness of an agency's statutory interpretation, and of its rejection of another more generous and fully plausible interpretation, must be evaluated in light of the statute's broad remedial purpose.")).

only lead to the abandonment of the CPP, but could also make it quite difficult to design a replacement rule that would sufficiently address power plant pollution at such a reasonable cost⁸ and in a realistic timeframe.⁹ U.S. EPA's proposal is in substantial tension with the structure of the statute and Congress's remedial intent. It cannot be adopted because, as U.S. EPA's extensive prior legal analyses demonstrate, the CPP is well supported by the CAA and fulfills the Act's broad remedial purpose.

To put the matter plainly, "the arbitrary and capricious test applie[s] to rescissions of prior agency regulations,"^{10,11} which means that U.S. EPA's actions must be consistent with statutory structure and intent, and grounded in the evidence. Here, they cannot be. U.S. EPA has "entirely failed to consider an important aspect of the problem"—indeed, as we demonstrate below, essentially *all* major aspects of the issue—and "offered an explanation for its decision that runs counter to the evidence before the agency" and which is plainly contrary to law.¹² U.S. EPA's position is untenable.

We demonstrate this point at length below. We first explain that the Endangerment Finding underlying U.S. EPA's duties remains robust, and therefore actuates U.S. EPA's duties to properly interpret the Clean Air Act to support emissions controls. We then explain U.S. EPA's duties to regulate power plant emissions, that such controls are readily available, and why U.S. EPA's proposal to the contrary is improper. Next, we explain how U.S. EPA's proposed repeal shirks its obligations to protect vulnerable populations, is unsupported by the evidence, and has failed even basic analytic obligations imposed on the agency. As a result of the substantive and procedural deficiencies of the Repeal Rule, U.S. EPA must change course.

II. U.S. EPA Has an Urgent Duty to Address Climate Change, and that Duty Reinforces U.S. EPA's Obligation to Withdraw the Repeal Rule

The core purpose of the Clean Air Act (CAA or Act) 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...."¹³ The entire structure of the Act is directed at this purpose, including Congress's decision that U.S. EPA account for pollution's effect on public health and welfare, including effects on "climate" and "weather."¹⁴ In particular, section 202 of the Act states that U.S. EPA "shall by regulation prescribe ... standards applicable to the emission of any air pollutant from any class or classes of

⁸ See Section IV.a *infra* regarding how, in the particular context of regulating CO₂ pollution from the power sector, the "best" system of emission reduction is the one that U.S. EPA employed in the CPP because the CPP achieves meaningful emissions reductions at reasonable cost.

⁹ See Section V.b *infra* regarding the difficulty of achieving sufficient within-sector CO₂ emissions reductions, absent the CPP, with any additional delay in promulgating a power sector GHG regulation.

¹⁰ *Motor Vehicles Mfrs. Ass'n v. State Farm Mut. Ins. Co.*, 463 U.S. 29, 44 (1983).

¹¹ 5 U.S.C. § 706; 42 U.S.C. § 7607(b).

¹² *Motor Vehicles Mfrs. Ass'n*, 463 U.S. at 43.

¹³ 42 U.S.C. § 7401(b)(1).

¹⁴ *Id.* § 7602(h).

new motor vehicles or new motor vehicle engines, which in [U.S. EPA's] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.”¹⁵

More than a decade ago, the U.S. Supreme Court held that GHG emissions are unambiguously air pollutants and that U.S. EPA therefore must decide whether GHG emissions cause or contribute to climate change pursuant to CAA section 202.¹⁶ In response to *Massachusetts v. EPA*, U.S. EPA issued the Endangerment Finding, which states that “[p]ursuant to CAA Section 202(a), [U.S. EPA] finds that greenhouse gases in the atmosphere may reasonably be anticipated both to endanger public health and to endanger public welfare.”¹⁷

In the Endangerment Finding, U.S. EPA states that it “has determined that the body of scientific evidence compellingly supports this finding.”¹⁸ Specifically, U.S. EPA considered how elevated concentrations of GHG emissions affect public health by evaluating the evidence of the risks associated with changes in air quality, increases in temperatures, changes in extreme weather events, increases in food- and water-borne pathogens, and changes in allergens.¹⁹ Additionally, U.S. EPA considered how elevated concentrations of GHG emissions affect public welfare by evaluating the evidence of the risks to food production and agriculture, forestry, water resources, sea level rise and coastal areas, energy, infrastructure, and settlements, and ecosystems and wildlife.²⁰ Significantly, the Endangerment Finding notes that “the Supreme Court did not establish a specific deadline for EPA to act”; but, “EPA has a responsibility to respond to the Supreme Court’s decision and to fulfill its obligations under current law, and there is good reason to act now given the urgency of the threat of climate change and the compelling scientific evidence.”²¹

¹⁵ *Id.* § 7521(a)(1).

¹⁶ *Massachusetts v. EPA*, 549 U.S. 497, 528-35 (2007).

¹⁷ Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act; Final Rule, 74 Fed. Reg. 66496, 66497 (Dec. 15, 2009) (hereinafter, Endangerment Finding).

¹⁸ *Id.*

¹⁹ *Id.* at 66497 (stating “[t]he evidence concerning adverse air quality impacts provides strong and clear support for an endangerment finding. Increases in ambient ozone are expected to occur over broad areas of the country, and they are expected to increase serious adverse health effects in large population areas that are and may continue to be in nonattainment. The evaluation of the potential risks associated with increases in ozone in attainment areas also supports such a finding. The impact on mortality and morbidity associated with increases in average temperatures, which increase the likelihood of heat waves, also provides support for a public health endangerment finding. There are uncertainties over the net health impacts of a temperature increase due to decreases in cold-related mortality, but some recent evidence suggests that the net impact on mortality is more likely to be adverse, in a context where heat is already the leading cause of weather-related deaths in the United States. The evidence concerning how human-induced climate change may alter extreme weather events also clearly supports a finding of endangerment, given the serious adverse impacts that can result from such events and the increase in risk, even if small, of the occurrence and intensity of events such as hurricanes and floods.”).

²⁰ *Id.* at 66498.

²¹ *Id.* at 66500.

The D.C. Circuit upheld the Endangerment Finding, holding that “[r]elying again upon substantial scientific evidence, U.S. EPA determined that anthropogenically induced climate change threatens both public health and public welfare.”²² The Court also held that substantial evidence supported U.S. EPA’s determination that motor-vehicle GHG emissions contribute to climate change and thus to the endangerment of public health and welfare.²³ Therefore, the Endangerment Finding has been dispositively approved by the courts and is unimpeachable as a factual and legal matter.

Since the 2009 Endangerment Finding, the scientific consensus around climate change has only deepened and new records continue to be set for a number of climate change indicators. In the Endangerment Finding, U.S. EPA states that “[t]he major assessments by the U.S. Global Climate Research Program (USGCRP), the Intergovernmental Panel on Climate Change (IPCC), and the National Research Council (NRC) serve as the primary scientific basis supporting [U.S. EPA’s] endangerment finding.”^{24,25} Since 2009, these bodies have produced revised assessments that reveal in even starker contrast the severity of current and projected climate change.²⁶

²² *Coal. for Responsible Regulation, Inc. v. EPA*, 684 F.3d 102, 121 (D.C. Cir. 2012), *aff’d in part, rev’d in part sub nom. Util. Air Regulatory Grp. v. EPA*, 134 S. Ct. 2427 (2014).

²³ *Id.*

²⁴ Endangerment Finding at 66497.

²⁵ *Id.* at 66511 (stating “[i]t is EPA’s view that the scientific assessments of the IPCC, USGRCP, and the NRC represent the best reference materials for determining the general state of knowledge on the scientific and technical issues before the agency in making an endangerment decision. No other source of information provides such a comprehensive and in-depth analysis across such a large body of scientific studies, adheres to such a high and exacting standard of peer review, and synthesizes the resulting consensus view of a large body of scientific experts across the world. For these reasons, [U.S. EPA] is placing primary and significant weight on these assessment reports in making [its] decision on endangerment.”).

²⁶ Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units; Final Rule, 80 Fed. Reg. 64510, 64517-18 (Oct. 23, 2015) (hereinafter, New Source Rule) (stating “[s]ince the administrative record concerning the Endangerment Finding closed following the EPA’s 2010 Reconsideration Denial, the climate has continued to change, with new records being set for a number of climate indicators such as global average surface temperatures, Arctic sea ice retreat, CO₂ concentrations, and sea level rise. Additionally, a number of major scientific assessments have been released that improve understanding of the climate system and strengthen the case that GHGs endanger public health and welfare both for current and future generations...The EPA has carefully reviewed these recent assessments in keeping with the same approach outlined in [] the 2009 Endangerment Finding, which was to rely primarily upon the major assessments by the USGCRP, the IPCC, and the NRC of the National Academies to provide the technical and scientific information to inform [EPA’s] judgment regarding the question of whether GHGs endanger public health and welfare. These assessments addressed the scientific issues that the EPA was required to examine, were comprehensive in their coverage of the GHG and climate change issues, and underwent rigorous and exacting peer review by the expert community, as well as rigorous levels of U.S. government review. The findings of the recent scientific assessments confirm and strengthen the conclusion that GHGs endanger public health, now and in the future.”).

Namely, on November 3, 2017, USGCRP released Volume 1 of the Fourth National Climate Assessment (Fourth Assessment). This assessment, which has been peer reviewed, finds that “[t]he last few years have also seen record-breaking, climate-related weather extremes, and the last three years have been the warmest years on record for the globe. These trends are expected to continue over climate timescales.”²⁷ Specifically, the Fourth Assessment states that “[t]he global atmospheric carbon dioxide (CO₂) concentration has now passed 400 parts per million (ppm), a level that last occurred about 3 million years ago, when both global average temperature and sea level were significantly higher than today.”²⁸ The Fourth Assessment also finds the following:

- “Since the last National Climate Assessment was published [in 2014], 2014 became the warmest year on record globally; 2015 surpassed 2014 by a wide margin; and 2016 surpassed 2015.”²⁹
- “Recent droughts and associated heat waves have reached record intensity in some regions of the United States.”³⁰
- “The frequency and intensity of extreme high temperature events are virtually certain to increase in the future as global temperature increases (high confidence).”³¹
- “The incidence of large forest fires in the western United States and Alaska has increased since the early 1980s (high confidence) and is projected to further increase in those regions as the climate warms, with profound changes to certain ecosystems (medium confidence).”³²
- “Assuming storm characteristics do not change, sea level rise will increase the frequency and extent of extreme flooding associated with coastal storms, such as hurricanes and nor’easters (very high confidence).”³³
- “With significant reductions in the emissions of greenhouse gases, the global annually averaged temperature rise could be limited to 3.6 °F (2 °C) or less. Without major reductions in these emissions, the increase in annual average global temperatures relative to preindustrial times could reach 9 °F (5 °C) or more by the end of this century (high confidence).”³⁴
- “Stabilizing global mean temperature to less than 3.6 °F (2 °C) above preindustrial levels requires substantial reductions in net global CO₂ emissions

²⁷ USGCRP, 2017: Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)], at 1. Attached as Exhibit 1.

²⁸ *Id.* at 133.

²⁹ *Id.* at 4.

³⁰ *Id.* at 12.

³¹ *Id.*

³² *Id.* at 231.

³³ *Id.* at 18.

³⁴ *Id.* at 35.

prior to 2040 relative to present-day values and likely requires net emissions to become zero or possibly negative later in the century.”³⁵

Additionally, IPCC produced its Fifth Assessment Report in 2014, which found that “[w]arming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen.”³⁶ IPCC found that “[d]elaying additional mitigation to 2030 will substantially increase the challenges associated with limiting warming over the 21st century to below 2 °C relative to pre-industrial levels.”³⁷

Finally, other recent studies show that climate change will have significant adverse impacts, including on California and the greater west:

- With continued increases in GHG emissions, there will be significant reductions in runoff water in California, resulting in major threats to the State’s water system.³⁸
- Climate change-induced increases in wildfires are projected to result in up to a 74 percent increase in California burn areas, with the northern part of the State possibly doubling its risk by the end of the century, if GHG emissions are not abated.³⁹
- Heat waves have become more frequent in the U.S., particularly in the west; tree-ring data for this region suggest that drought during the past decade is the driest it has been in 800 years.^{40, 41}

³⁵ *Id.* at 393.

³⁶ IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)], at 2 (IPCC Fifth Assessment Report). Attached as Exhibit 2.

³⁷ *Id.* at 24.

³⁸ G. Garfin, A. Jardine, R. Merideth, M. Black, and S. LeRoy, Eds., *Assessment of Climate Change in the Southwest United States*, Island Press, ch. 6, Cayan, D., K. Kunkel, C. Castro, A. Gershunov, J. Barsugli, A. Ray, J. Overpeck, M. Anderson, J. Russell, R. B., R. I., and P. Duffy, pp. 153-196 (2013), available at <http://www.swcarr.arizona.edu/sites/all/themes/files/SW-NCA-color-FINALweb.pdf>. Attached as Exhibit 3.

³⁹ Westerling, A. L., B. P. Bryant, H. K. Preisler, T. P. Holmes, H. G. Hidalgo, T. Das, and S. R. Shrestha, 2011: *Climate change and growth scenarios for California wildfire*. *Climatic Change*, 109, 445-463, doi:10.1007/s10584-011-0329. Attached as Exhibit 4.

⁴⁰ Karl, T. R., J. T. Melillo, and T. C. Peterson, Eds., 2009: *Global Climate Change Impacts in the United States*. *Cambridge University Press*, p. 189, available at <http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf>. Attached as Exhibit 5.

⁴¹ Schwalm, C. R., C. A. Williams, K. Schaefer, D. Baldocchi, T. A. Black, A. H. Goldstein, B. E. Law, W. C. Oechel, K. T. Paw, and R. L. Scott, 2012: *Reduction in carbon uptake during turn of the century drought in western North America*. *Nature Geoscience*, 5, 551-556, doi:10.1038/ngeo1529, available at <http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/33148/LawBeverlyForestryReductionCarbonUptake.pdf?sequence=1>. Attached as Exhibit 6.

- Models of sea level rise predict increases of between about 2 feet to as much as 6 feet by 2100.^{42, 43, 44, 45}

The ever-growing volume of climate change scientific research underlines the conclusions U.S. EPA reached nearly a decade ago: the Clean Air Act requires the agency to act to control greenhouse gases.

III. Power Plant GHG Emissions Must Be Regulated under the CAA, and the CPP is a Proper Means To Do So

The Repeal Rule appropriately does not attempt to reopen the Endangerment Finding⁴⁶, or question the fundamental climate science that underlies U.S. EPA's duties. However, the Repeal Rule equivocates on the need for a rule to effectively regulate power plant GHG emissions, and would repeal the CPP itself in the meantime based upon a poorly

⁴² Grinsted, A., J. C. Moore, and S. Jevrejeva, 2010: *Reconstructing sea level from paleo and projected temperatures 200 to 2100 AD*. *Climate Dynamics*, 34, 461-472, doi:10.1007/s00382-008-0507-2, available at <https://www.glaciology.net/pdf/grinsted-climdyn09-sealevel200to2100ad.pdf>. Attached as Exhibit 7.

⁴³ Jevrejeva, S., J. C. Moore, and A. Grinsted, 2012: *Sea level projections to AD2500 with a new generation of climate change scenarios*. *Global and Planetary Change*, pp. 80-81, 14-20, doi:10.1016/j.gloplacha.2011.09.006, available at <https://www.sciencedirect.com/science/article/pii/S0921818111001469>. Attached as Exhibit 8.

⁴⁴ Rahmstorf, S., G. Foster, and A. Cazenave, 2012: *Comparing climate projections to observations up to 2011*. *Environmental Research Letters*, 7, 044035, doi:10.1088/1748-9326/7/4/044035, available at http://iopscience.iop.org/1748-9326/7/4/044035/pdf/1748-9326_7_4_044035.pdf. Attached as Exhibit 9.

⁴⁵ Vermeer, M., and S. Rahmstorf, 2009: *Global sea level linked to global temperature*. *Proceedings of the National Academy of Sciences*, 106, 21527-21532, doi:10.1073/pnas.0907765106. *Id.* at 116. Attached as Exhibit 10.

⁴⁶ The Repeal Rule briefly discusses the Endangerment Finding and, in so doing, notes that “[t]he substance of the 2009 Endangerment Finding is not at issue in this Repeal Rulemaking, and we are not soliciting comment on the U.S. EPA’s assessment of the impacts of GHGs with this proposal.” Repeal Rule at 48037, note 3. Additionally, neither the Supreme Court’s decision in *Massachusetts v. EPA* nor the D.C. Circuit’s decision in *Coalition for Responsible Regulation* is mentioned at all in the Proposed CPP Repeal Rule. Therefore, the Endangerment Finding is unassailable, as U.S. EPA appropriately concedes.

Additionally, The New Source Rule states, with respect to endangerment vis-à-vis fossil-fired power plants, that “[f]irst, because the EPA is not listing a new source category in this rule, the EPA is not required to make a new endangerment finding with regard to affected EGUs in order to establish standards of performance for the CO₂ emissions from those sources. Under the plain language of CAA Section 111(b)(1)(A), an endangerment finding is required only to list a source category. Further, though the endangerment finding is based on determinations as to the health or welfare impacts of the pollution to which the source category’s pollutants contribute, and as to the significance of the amount of such contribution, the statute is clear that the endangerment finding is made with respect to the source category; Section 111(b)(1)(A) does not provide that an endangerment finding is made as to specific pollutants. This contrasts with other CAA provisions that do require U.S. EPA to make endangerment findings for each particular pollutant that the EPA regulates under those provisions.” New Source Rule at 64529-30. The Proposed CPP Repeal Rule appropriately does not challenge U.S. EPA’s earlier analysis, contained in the New Source Rule, on this point.

explained, unduly narrow, erroneous legal theory. Both of these failings are contrary to law.

Because a new source rule is established under Section 111(b)⁴⁷ for power plant GHG emissions, as the Act requires, U.S. EPA is obligated to establish and maintain an existing source rule for power plant GHG emissions under Section 111(d).⁴⁸ It may not now repeal this program based on the incorrect legal grounds it proposes, and, even if legitimate grounds existed, it may not repeal the CPP until a rule is in place that is sufficient to address the escalating endangerment caused by GHG emissions.

a. The Clean Air Act Creates Legal Duties To Act on Both Section 111(b) and 111(d) Sources When They Emit Endangerment Pollutants

As the Repeal Rule properly states, “CAA section 111(d) *requires* the U.S. EPA to promulgate emission guidelines for existing sources that reflect the ‘best system of emission reduction’ (BSER) under certain circumstances.”⁴⁹ Indeed, Section 111(b) requires U.S. EPA to list “categories of stationary sources” that “in [her] judgment ... caus[e], or contribut[e] significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.”⁵⁰ Once U.S. EPA lists a category, it must establish standards of performance for emissions of pollutants from new or modified sources within that category.⁵¹ As the Supreme Court stated, “§ 7411(d) then requires regulation of existing sources within the same category.”⁵²

As U.S. EPA stated in promulgating the New Source Rule, “EPA has a rational basis for concluding that emissions of CO₂ from fossil fuel-fired power plants, which are the major U.S. source of GHG air pollution, merit regulation under CAA section 111.”⁵³ After reciting the Endangerment Finding and the D.C. Circuit’s decision in *Coalition for Responsible Regulation* upholding the Endangerment Finding, the New Source Rule states that “current and evolving science [...] is confirming and enhancing our understanding of the near- and longer term impacts emissions of CO₂ are having on Earth’s climate and the adverse public health, welfare, and economic consequences that are occurring and are projected to occur as a result.”⁵⁴ The New Source Rule continued: “the high level of GHG emissions from fossil fuel-fired EGUs [i.e., electricity generating units] makes clear that it is rational for the U.S. EPA to regulate GHG emissions from this sector.”⁵⁵ The New Source Rule is currently in effect.

⁴⁷ 42 U.S.C. § 7411(b).

⁴⁸ *Id.* § 7411(d).

⁴⁹ Repeal Rule, at 48036-37 (emphasis added).

⁵⁰ 42 U.S.C. § 7411(b)(1)(A).

⁵¹ *Id.* § 7411(b)(1)(B).

⁵² *Am. Elec. Power Co. v. Connecticut*, 564 U.S. 410, 424 (2011).

⁵³ New Source Rule at 64530.

⁵⁴ *Id.*

⁵⁵ *Id.*

b. Because The New Source Rule Is in Force, U.S. EPA Must Retain the CPP or Timely Issue Another Section 111(d) Rule

The Proposed CPP Repeal Rule states that “[t]he EPA has not determined the scope of any potential rule under CAA section 111(d) to regulate greenhouse gas (GHG) emissions from existing EGUs, and, *if it will issue such a rule*, when it will do so and what form that rule will take.”⁵⁶ The Repeal Rule also states that “...EPA continues to consider *whether it should issue* another CAA section 111(d) rule addressing GHG emissions from existing EGUs and, if so, what would be the appropriate form and scope of that rule.”⁵⁷ U.S. EPA’s statements in the Repeal Rule suggest that U.S. EPA may not issue a replacement rule for the CPP if U.S. EPA finalizes the Repeal Rule.

The Repeal Rule’s equivocation on whether to issue a replacement rule to the CPP suggests that U.S. EPA believes it has discretion either to issue a Section 111(d) rule, or to allow a gap in coverage. It does not. Once U.S. EPA promulgates a new source rule for a source category, it “shall prescribe regulations” for existing sources of the same source category.⁵⁸ As the Supreme Court stated, “EPA may not decline to regulate carbon-dioxide emissions from power plants if refusal to act would be ‘arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.’”⁵⁹ In this case, given that the New Source Rule is in force—and must continue to be in force—U.S. EPA may not now refuse to regulate GHG emissions from existing fossil fuel-fired power plants.

Indeed, the statute’s implementing regulations include clear direction to U.S. EPA to promulgate Section 111(d) rules “concurrently upon or after *proposal*” of new source standards,⁶⁰ emphasizing that the Section 111(d) rules are, in fact, to be developed prior even to *finalization* of new source rules. The regulations provide no authority for withdrawal of Section 111(d) rules, and especially not so when new source rules remain on the books. This is not an empty formalism: Section 111, as a whole, is intended to control dangerous air pollution, from both new and existing sources. As members of the public, and the atmosphere, cannot distinguish whether pollution is from a new or existing source, Congress naturally required continuous coverage. U.S. EPA may not disrupt this coverage and expose the public to the effects of dangerous air pollution.

Indeed, a comprehensive pollution control regulatory regime is particularly important in the power plant pollution context. As U.S. EPA explained in the final CPP, “each EGU’s function is interdependent with the function of other EGUs” in a connected power grid.⁶¹ Accordingly, if new EGUs are regulated but existing EGUs are not (or vice versa),

⁵⁶ Repeal Rule at 48036 (emphasis supplied).

⁵⁷ *Id.* at 48038 (emphasis supplied).

⁵⁸ 42 U.S.C. § 7411(d)(1).

⁵⁹ *Am. Elec. Power Co. v. Connecticut*, 564 U.S. at 427 (citing 42 U.S.C. § 7607(d)(9)(A)).

⁶⁰ 40 C.F.R. § 60.22(a) (emphasis added).

⁶¹ Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, Final Rule, 80 Fed. Reg. 64662, 64717 (Oct. 23, 2015) (hereinafter, CPP).

emissions “leakage” (in which pollution shifts to lesser-regulated or unregulated sources) can undermine the standards and endanger the public. U.S. EPA therefore required states to design compliance plans that worked by “minimizing the difference in incentives provided to affected EGUs and new sources” to preserve emissions benefits that would otherwise be lost.⁶² U.S. EPA included leakage mitigation as a core element of the state plan design.⁶³ It also designed its proposed federal compliance plan to address leakage between new and existing plans *and* across state lines.⁶⁴ In sum, U.S. EPA has repeatedly recognized, in accordance with the record and its extensive modeling, that emissions leakage must be managed to ensure that the section 111 rules achieve the results Congress required.

Yet, the Repeal Rule makes no mention of this critical issue, and fails to explain how eliminating *all* GHG emissions standards for the existing power fleet will not result in potentially serious emissions leakage. Indeed, by maintaining standards for new plants, but lifting standards for existing – generally older, dirtier, and less efficient – facilities, U.S. EPA is incentivizing a particularly pernicious form of grandfathering, under which older units are likely to operate longer. Not only does this design risk violating other Clean Air Act requirements, such as the need to close or control units that are complicating compliance with air quality standards, it is likely to have a disparate and unacceptable negative effects on poor and minority communities, in which many existing power plants are located.

c. U.S. EPA May Not Continue to Unreasonably and Illegally Delay Pollution Controls

U.S. EPA’s efforts to further delay regulation of existing sources are also wholly inappropriate in light of the history of this matter and the urgent climate crisis. More than 10 years have passed since U.S. EPA was sued for failing to include CO₂ emissions performance standards when it promulgated new performance standards for criteria pollutants for EGUs.⁶⁵ After the *Massachusetts v. EPA* decision, U.S. EPA entered into a settlement agreement with states and environmental organizations requiring U.S. EPA to propose and take final action on establishing new source and existing source rules for GHG emissions from EGUs.⁶⁶ Therefore, repealing the CPP without promulgating a replacement rule sets the U.S. back more than 10 years in addressing GHG emissions from existing power plants. This is patently unreasonable in

⁶² *Id.* at 64823.

⁶³ 40 C.F.R. § 60.5790(b)(5).

⁶⁴ Proposed Rule, Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations, 80 Fed. Reg. 64966, 64977-78 (Oct. 23, 2015).

⁶⁵ New Source Rule at 64528 (citing *State of New York, et al. v. EPA*, No. 06-1322).

⁶⁶ Proposed Rule, Standards of Performance for Greenhouse Gas Emissions From New Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 1430, 1444 (Jan. 8, 2014).

light of the long-lived nature of GHG emissions. Any additional delay in regulation locks in climate change impacts that will last centuries, underlining the need to act now.

While U.S. EPA has released an advance notice of proposed rulemaking (ANPRM) regarding a potential replacement rule to regulate existing power plants under Section 111(d), that ANPRM does not constitute a proposed rule or a commitment on U.S. EPA's behalf to regulate GHG emissions from existing power plants.⁶⁷ On the contrary, the ANPRM echoes the spurious legal theories proposed in the Repeal Rule, and appears to seek to essentially restart much of the regulatory process, rehashing settled issues despite the ongoing climate crisis and the years of work and consultation that have already taken place.

IV. U.S. EPA's Recently Advanced Legal Theory in Support of the Repeal Rule Is Fundamentally Flawed

Until recently, U.S. EPA recognized that the broad structure and text of the Clean Air Act, Congress's clear emphasis on public health and welfare, multiple Supreme Court and appellate court rulings, and the particular interconnected nature of the power grid amply justified the CPP. U.S. EPA's prior reasoning, including its thorough legal memo appended to the CPP, explains the solid legal foundation for the CPP. CARB incorporates by reference here the discussion of these issues in the briefs it has filed in the D.C. Circuit Court of Appeals⁶⁸ and the extensive comments of the California Attorney General's Office filed in this rulemaking docket. We offer a few additional points of emphasis.

As an initial matter, the precise contours of U.S. EPA's view of the Clean Air Act, and of the CPP, are unclear. At points, U.S. EPA maintains that it is adhering to a traditional or long-established view of the law; at other points, U.S. EPA suggests that it is proposing a new interpretation of the Act; at still other points, U.S. EPA appears to be recharacterizing only the CPP itself. U.S. EPA must, at a minimum, articulate whether it is setting out a new view and, if so, what that interpretation is. As we describe at length, to the extent U.S. EPA is making a new interpretation that would limit BSER to preclude the CPP, that interpretation is flatly inconsistent with the Act. To the extent U.S. EPA insists that it has instead newly discovered the CPP is inconsistent with a traditional view of the Act, the Proposed Rule does not support this view. It would be arbitrary to repeal the CPP without even giving the public fair notice, and an opportunity to comment, upon U.S. EPA's legal views, clearly stated. Nonetheless, CARB discusses U.S. EPA's arguments below and none support repeal.

The Proposed CPP Repeal Rule asserts that Section 111 regulations must be based on emissions reductions that can be "applied to or at an individual stationary source" and

⁶⁷ U.S. EPA, Advance Notice of Proposed Rulemaking: State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units, EPA-HQ-OAR-2017-0545 (Dec. 18, 2017).

⁶⁸ www.edf.org/climate/clean-power-plan-case-resources. Attached as Exhibit 11.

that, because the CPP's required state-level emissions targets are calculated in part on the basis of "generation shifting" to cleaner fossil and renewable plants, the CPP is improper.⁶⁹ In reaching this conclusion, U.S. EPA adds words to the statute – which does not contain this source restriction in its text – and downplays that the Clean Air Act in fact speaks of the best "system" of emissions reduction, a sweeping term. U.S. EPA is also at pains to ignore that, in the 1990 Clean Air Act Amendments, Congress underlined the breadth of available "systems" by striking a prior limitation to "technological systems of emissions reduction." The result of U.S. EPA's unfounded interpretive effort is its conclusion that a Section 111(d) rule for power plants must be based only on emissions reductions applied "to or at" the source and not on the actions of the source's owner or operator "on behalf of the source at another location" – actions which U.S. EPA claims include generation shifting.⁷⁰ Based on this conclusion, U.S. EPA insists that the CPP must be repealed for looking too broadly at potentially effective and well-demonstrated emissions control measures that support source-level reductions.

This purportedly new view misreads the statute, ignores or improperly neglects the significance the U.S. EPA's own prior actions, and misconstrues the CPP itself. In fact, even if U.S. EPA's views were to be accepted at face value, they do not require repeal of the CPP and, therefore, cannot serve as the basis for CPP repeal. Instead, the CPP itself is limited to measures that can be implemented by regulated sources themselves. We elaborate on each point below.

a. U.S. EPA's Proposed View is Wrong

U.S. EPA does not appear to be contending that its purportedly new interpretation is the only required interpretation of Section 111; to the contrary, it describes its proposed view as "the best construction" of the statute.⁷¹ The statute does not explicitly contain the limitations that U.S. EPA asserts, as U.S. EPA must concede.⁷² The agency's effort to abandon years of its careful prior work to now engraft extra-textual limits into the statute to limit the federal Clean Air Act's efficacy is unconvincing.

U.S. EPA's effort appears to turn on two fragments of the statute. The agency observes that the definition of "standard of performance" means a "standard for emissions ... which reflects the degree of emission limitation achievable through the application of the best system of emission reduction",⁷³ and that Section 111(d) standards are to be set

⁶⁹ Repeal Rule at 48039.

⁷⁰ *See id.*

⁷¹ *Id.*

⁷² Specifically, the "term 'standard of performance' means a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated." 42 U.S.C. § 7411(a)(1).

⁷³ 42 U.S.C. § 7411(a)(1).

“for any existing source.”⁷⁴ These phrases, read fairly, stand only for the unremarkable proposition that Section 111 rules are to reduce emissions from existing sources via a system of emissions reductions. This broad language contains no textual limits on the system to be applied, consistent with the statute’s capacious remedial purposes and direction (in the context of Section 111(d)) to state regulators to develop their own mechanisms of compliance with emissions guidelines.⁷⁵

Yet, U.S. EPA now purports to read a series of narrow limitations into this broad language. It insists that the “system of emission reduction” must operate only at the source, and therefore measures underlying the best system of emissions reduction (BSER) determination must be “based on a physical or operational change” to the source.⁷⁶ To support its view, it makes dubious inferences from equivocal legislative history to insist that Congress (despite explicitly saying the opposite as we note below) implicitly favored such a limitation. U.S. EPA also unconvincingly insists that its “prior agency practice” features no contradictory rules.⁷⁷

These arguments are unpersuasive for the reasons already articulated at length in prior briefs and in U.S. EPA’s own prior legal analyses. In 1990, Congress explicitly amended the Clean Air Act to strike a prior reference to “technological” limits on the systems that may be employed to reduce emissions; so, not only do none of the limitations U.S. EPA now insists are crucial actually appear in the statute’s text, but they have been disapproved by Congress. The Clean Air Act, instead, means what it says – that any appropriate “system of emission” reduction may be used to reduce source emissions. The actual limitations on those systems provided in statute – primarily, that they be adequately demonstrated and achievable – do not contain any site-specific requirement. So long as the system results in reductions at the source, and is otherwise properly justified (as the CPP’s underlying building blocks are), it must be considered, and employed to set required emissions reductions if it is the “best” such system.

These flexibilities make considerable sense in the context of the statutory scheme, under which U.S. EPA is to set broad, industrial-category-level standards for sources. And such flexibilities are naturally at their greatest in the section 111(d) *existing* source context, in which the statute explicitly directs U.S. EPA to set emissions reductions levels, but leave it to the states to ensure these reductions occur within the complex and varied population of existing sources. Standards of performance, after all, apply to a source “category” as well as individual sources, and Section 111(d) measures, in particular, are to be implemented via state plans, adding another measure of

⁷⁴ *Id.* § 7411(d)(1).

⁷⁵ *See id.*

⁷⁶ Repeal Rule at 48039.

⁷⁷ *Id.* at 48040-41.

flexibility.^{78,79} Given that the Act focuses on category-wide reductions, trading and averaging among sources in the category is appropriate for GHGs, for which global (rather than local) levels matter most, and are emitted by a set of electric power plants that operate as integrated parts of a cohesive power grid.^{80,81} U.S. EPA's general section 111(d) rules, which have long been in effect, affirmatively allow for trading and averaging programs, in which the obligations imposed by the trading system fall squarely on each individual source. U.S. EPA is proposing to repeal the CPP even as it continues, appropriately, to allow the trading systems for general 111(d) compliance. Its sharp departure from existing law solely in the CPP context is arbitrary.⁸²

Additionally, as U.S. EPA's prior CPP Legal Memorandum discusses, there is an extensive history of U.S. EPA programs that recognize that source-level reductions may be supported in part through measures that affect and react to the behavior of particular sources, and that these measures may be translated into source obligations via trading systems and other similar approaches. These past U.S. EPA measures include, for instance, the incorporation of power grid-level measures (such as energy efficiency) in state planning under Section 110 of the Clean Air Act; U.S. EPA's extensive use of trading-based measures to support reductions across industrial categories, including under Section 111 of the Clean Air Act, as well as via the Cross State Air Pollution Rule and the Clean Air Interstate Rule, and the earlier NO_x SIP Call; and a long-standing practice of limitations on potential to emit from electrical power plants justified by the ability of the power grid to compensate for operational changes.⁸³ They also include U.S. EPA's own Clean Air Mercury Rule in which the agency developed a trading system for emissions from power plants under Section 111(d) of the Clean Air Act.⁸⁴

Thus, U.S. EPA's assertion that previously issued Section 111 "rules limited their BSER to physical or operational measures taken at and applicable to individual sources, with only one exception..."⁸⁵ is wrong on multiple fronts. Not only does the "exception", the trading-based mercury rule, demonstrate the breadth of U.S. EPA's actual Section

⁷⁸ 42 U.S.C. § 7411(d)(1).

⁷⁹ 80 Fed. Reg. at 64832 *et seq.* (discussing wide array of state plan designs).

⁸⁰ *E.g.*, U.S. EPA, Legal Memorandum Accompanying Clean Power Plan for Certain Issues, EPA-HQ-OAR-2013-0602-36872, at 7-9 (2015) (hereinafter, CPP Legal Memorandum) (describing integrated grid operations). Attached as Exhibit 12.

⁸¹ Megan Ceronsky & Tomas Carbonell, Section 111(d) of the Clean Air Act: The Legal Foundation, at 11-14 (2014) Available at https://www.edf.org/sites/default/files/section-111-d-of-the-clean-air-act_the-legal-foundation-for-strong-flexible-cost-effective-carbon-pollution-standards-for-existing-power-plants.pdf. Attached as Exhibit 13.

⁸² 40 C.F.R. § 60.22b(d)(2).

⁸³ CPP Legal Memorandum, at 62-81 (collecting page after page of examples).

⁸⁴ Clean Air Mercury Rule documents are archived at <https://archive.epa.gov/mercuryrule/web/html/rule.html>. To be sure, that rule had serious *substantive* flaws, as it was dangerous and improper to allow trading of a locally-depositing neurotoxin. But the legal framework for the rule is similar to that of potential CPP trading programs, and the rule also recognized the role of the power grid in supporting emissions reductions at power plants.

⁸⁵ Repeal Rule at 48041.

111(d) authority, the agency's practice of allowing for trading and source-specific emissions reductions supported by the power grid stretches back decades. That is to say, U.S. EPA has previously both premised the *amount* of required emissions reductions, and the *mechanism* by which sources may (but not must) comply with those reductions upon the legal framework it now deprecates. So, the agency's argument from history is simply wrong.

Moreover, this ahistorical approach is especially improper with regard to power plants. It is arbitrary and capricious to simply ignore the real world operations of the power grid. As U.S. EPA has explained repeatedly in its prior work, power plants operate as *linked* sources.⁸⁶ This is a physical fact of the power grid and a legal reality in our system of power regulation. Accordingly, there is no Section 111(d) rule that could be promulgated that would not both have effects on the power grid and depend upon some changes in grid operation to account for changes in source behavior; the sources are inextricably linked. It strains credulity, accordingly, for U.S. EPA to draw arbitrary lines around certain kinds of pollution restriction measures to declare them "in bounds" while the facts on the ground are that all measures affecting power plants inherently affect the grid, and vice versa. The Act commands use of the best system of emission reduction in the context of the source category at hand, and this source category operates in an integrated manner.

U.S. EPA itself has aptly described the reasoned basis for the CPP: "Interpreting the term 'system of emission reduction broadly'" to include consideration of how the power grid may support source-by-source emissions reductions is "consistent with the purposes of the CAA."⁸⁷ Those purposes, after all, "include protecting public health and welfare by comprehensively addressing air pollution, and, particularly, protecting against urgent and severe threats. In addition, these purposes include promoting pollution prevention measures..."⁸⁸ It is rational when confronted with climate change, which U.S. EPA has called the "nation's most important environmental problem," to recognize that we are at a "critical juncture" to address emissions from these sources, which are "by far the largest source of stationary source emissions."⁸⁹ Interpreting Section 111 as the CPP does is the proper reading to effectuate the statute's text and purposes as well as the will of Congress.

⁸⁶ See *e.g.*, CPP at 64725 (stating "we reiterate and emphasize that the utility power sector is unique in the extent to which it must balance supply and demand on a real-time basis, with limited electricity storage capacity to act as a buffer. In turn, the need for real-time synchronization across each interconnection has led to a uniquely high degree of coordination and interdependence in both planning and real-time system operation among the owners and operators of the facilities comprised within each of the three large electrical interconnections covering the contiguous 48 states. Given these unique characteristics, it is not surprising that the North American power system has been characterized as a 'complex machine.'").

⁸⁷ *Id.* at 64773.

⁸⁸ *Id.*

⁸⁹ *Id.*

b. The Agency’s Prior Reasoning Remains Persuasive

The nature of the problem before U.S. EPA demands action akin to the CPP. Contrary to the procedural requirements applicable to this rulemaking, U.S. EPA has opted to ignore the problem before it.

As U.S. EPA discussed in the CPP Legal Memorandum, “[w]e have not previously regulated CO₂ pollution from the utility power sector, and the combination of the unique characteristics of that air pollutant with the unique characteristics of that sector have led us to include building blocks 2 and 3 in the BSER.”⁹⁰ The unique characteristics of CO₂ pollution are “the global nature of CO₂, which makes the specific location of emission reductions unimportant; the enormous quantities of CO₂ emitted by the utility power sector, coupled with the fact that CO₂ is relatively unreactive, which make CO₂ much more difficult to mitigate by measures or technologies that are typically utilized within an existing power plant; the need to make large reductions of CO₂ in order to protect human health and the environment; and the fact that the utility power sector is the single largest source category by a considerable margin.”⁹¹ The unique characteristics of the power sector include the interconnected nature of the electricity grid; i.e., “[g]eneration from one generating unit can be and routinely is substituted for generation from another generating unit in order to keep the complex machine operating while observing the machine’s technical, environmental, and other constraints and managing its costs.”⁹²

In the specific context of regulating CO₂ pollution from the power sector, the “*best*” system of emission reduction is the one that U.S. EPA employed in the CPP. As the CPP notes, “emission guidelines promulgated by the Administrator must include emission limitations that are ‘achievable’ by the source category by application of a ‘system of emission reduction’ that is ‘adequately demonstrated’ and that the EPA determines to be the ‘best,’ ‘taking into account’ the factors of ‘cost . . . [and] nonair quality health and environmental impact and energy requirements.”⁹³ Additionally, “in determining whether a ‘system of emission reduction’ is the ‘best,’ the EPA must consider the amount of emission reductions that the system would yield.”⁹⁴ U.S. EPA found that the combination of the three building blocks in the CPP is the “*best*” system that is “adequately demonstrated” because it “is technically feasible” and “capable of achieving meaningful reductions in CO₂ emissions from affected EGUs at a reasonable cost.”⁹⁵

Further, as a practical matter, U.S. EPA has demonstrated, via its CPP final rule, that state plan designs are available that assure enforceable emissions reductions at

⁹⁰ CPP Legal Memorandum, at 5.

⁹¹ CPP at 64725.

⁹² *Id.*

⁹³ *Id.* at 64719-64720.

⁹⁴ *Id.* at 64721.

⁹⁵ *Id.* at 64748.

existing sources via a wide range of measures.⁹⁶ These state plan design options include a wide array of measures that could be selected to drive emissions reductions, including simple permit limits for each source limiting generation or setting retirement times, trading-based systems (by rate or mass), and reliance on other state measures that yield reductions from the covered sources.⁹⁷ So, there is no substantive warrant showing that there is anything wrong with the CPP and its compliance measures. The rules as they stand properly effect the will of Congress.

In sum, unlike U.S. EPA's exhaustive legal analysis regarding BSER in the CPP and supporting documentation, U.S. EPA's insufficiently explained proposed reading arbitrarily and capriciously reads non-existent restrictions into the text that frustrate the CAA's operations at this "critical juncture."⁹⁸ As the U.S. EPA aptly stated in the CPP, "[i]mposing such a restrictive interpretation [e.g., building block 1 only]—one which is not called for by the statute—would be inconsistent with CAA Section 111's specific requirement that standards be based on the 'best' system of emission reduction and [] would be inconsistent with Congressional design that the CAA be comprehensive and address the major environmental issues."⁹⁹ U.S. EPA has entirely failed to reckon with the problem before it, or to consider its own prior reasoning, the evidence in the record, or the structure and purpose of the Act. Per the Supreme Court, "we cannot interpret federal statutes to negate their own stated purposes."¹⁰⁰ U.S. EPA must abandon this repeal effort.

c. Even if U.S. EPA's Proposed View Was Correct, It Cannot Serve as a Basis for CPP Repeal

Though U.S. EPA's proposed legal view is wrong, it would not require repeal of the CPP even if the apparent core of that view—that BSER must be something that can be applied to or at the source—were to be accepted. Because U.S. EPA's purportedly new interpretation of Section 111 does not, in fact, foreclose the CPP and appears to rest on a mischaracterization of the CPP, EPA's interpretation cannot serve as a basis to repeal the CPP.

The Repeal Rule states that BSER must "be applied to or at the source"¹⁰¹ "and not something that the source's owner or operator can implement *on behalf of* the source at another location."¹⁰² U.S. EPA asserts—with no underlying analysis—that generation shifting "fails to comply with this limitation."¹⁰³ Significantly, the Repeal Rule's

⁹⁶ See e.g., *id.* at 64832-43.

⁹⁷ 40 C.F.R. § 60.33b(d)(2).

⁹⁸ CPP at 64773.

⁹⁹ *Id.* at 64769.

¹⁰⁰ *King v. Burwell*, 135 S.Ct. 2480, 2492 (2015).

¹⁰¹ Repeal Rule at 48037.

¹⁰² *Id.* at 48039 (emphasis in original).

¹⁰³ *Id.* at 48042.

“proposed interpretation” of section 111 is the sole basis for the proposed repeal of the CPP.¹⁰⁴

U.S. EPA is incorrect in asserting that its purported “limitation” precludes the CPP and serves as the basis for repealing the CPP. Notably, the Repeal Rule concedes that the CPP itself recognized that BSER “carries important limitations.”¹⁰⁵ The Repeal Rule then directly quotes the CPP preamble, in which U.S. EPA “reasoned that ‘because the “degree of emission limitation” must be “*achievable* through the *application* of the best system of emission reduction” (emphasis added), the “system of emission reduction” must be limited to a set of measures that work together to reduce emissions that are *implementable by the sources themselves*.”¹⁰⁶ The CPP elsewhere “clarified that the components of the BSER must be *implementable by the affected EGUs*” and “show[ed] that all the components of the BSER have been demonstrated to be achievable on that basis.”¹⁰⁷ Therefore, the Repeal Rule’s assertion that the CPP fails to comply with its purportedly new interpretation of the CAA misunderstands the CPP: The CPP, in fact, requires that BSER be implementable by affected sources *themselves*.

Additionally, it is unclear how the part of U.S. EPA’s purportedly new “limitation” that BSER is “not something that the source’s owner or operator can implement *on behalf of* the source at another location” would preclude the CPP. The Repeal Rule struggles to square this purported limitation with off-site precombustion cleaning or treatment of fuels, which is permitted under section 111. U.S. EPA attempts to reconcile this contradiction by indicating that BSER *can include* steps that occur off-site—so long as a step in the BSER involves “a measure applicable to and performed at the level of, and at or within, the bounds of an individual source.”¹⁰⁸

The BSER underlying the CPP involves “a measure applicable to and performed at the level of, and at or within, the bounds of” affected EGUs. Indeed, in an interconnected power grid, generation shifting from high-emitting EGUs to low or zero-emitting EGUs is accomplished at affected EGUs that are decreasing or increasing electricity production. U.S. EPA fails to explain how its purportedly new legal interpretation forecloses generation shifting and requires CPP repeal.

Furthermore, as U.S. EPA’s Legal Memorandum correctly observes, it is a commonplace in federal and state pollution permitting for sources to accept limits on their own potential to emit to comply with pollution requirements.¹⁰⁹ It is also ordinary for pollution permits to include limits on “fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques” for pollution control.¹¹⁰ Section 111(d) explicitly

¹⁰⁴ *Id.* at 48038.

¹⁰⁵ *Id.* at 48039 (citing CPP at 64762).

¹⁰⁶ *Id.* (citing CPP at 64762) (final emphasis added).

¹⁰⁷ CPP at 64736 (emphasis added).

¹⁰⁸ Repeal Rule at 48040, note 13.

¹⁰⁹ CPP Legal Memorandum at 62-70 and table following.

¹¹⁰ 42 U.S.C. § 7479(3).

directs consideration of the “remaining useful life” of facilities in determining pollution control requirements.¹¹¹ Each of these methods might well be used at a source covered by the CPP to reduce emissions at the source itself. For instance, a source might switch from coal to gas, or to cleaner-burning coals, improve its efficiency, replace equipment, operate for a more limited duration, or retire – as is appropriate for many of the super-annuated and economically inefficient coal-fired power plants in the nation’s portfolio.¹¹² The courts have upheld such mechanisms, as appropriate, for decades.^{113,114}

It is critical, in this regard, that even in its Repeal Rule, U.S. EPA does not deny that the CPP ultimately requires emissions reductions at the existing power plant sources covered by the rule. When power plants operate less, or operate in cleaner modes, they emit less. All the CPP requires is that emissions from these existing facilities be reduced consistent with BSER. To determine BSER, U.S. EPA considered reductions consistent with appropriate operations of the grid of which existing facilities are an integral part. If the remaining power grid compensates for these operational changes by operating differently, this does not somehow render requirements for the initial emissions reductions at any particular source improper. Nor, for that matter, is any plant operator required to cause or rely upon any particular mechanism beyond the facility footprint. Reduced operation, fuel-switching, and even closure of noneconomic units are all options. Likewise, emissions trading programs, that allow for sources within an industrial category to efficiently reduce emissions across the category, plainly “apply” to the covered sources and place an emission reduction obligation upon them.

In considering how to limit electricity sector emissions, an obvious strategy that is manifestly “adequately demonstrated” is to limit the use of high-emitting coal-fired power plants. Coal is an archaic fuel that is properly being phased out as cheaper and less polluting power systems rapidly enter the market, as the U.S. Department of Energy Electricity Market Report cited herein discusses in detail.¹¹⁵ As U.S. EPA considers how best to limit pollution from the power sector, it is appropriate to consider how to limit or eliminate use of this fuel where possible. Such limits – undertaken consistent with

¹¹¹ *Id.* § 7411(d)(1).

¹¹² On this last point, the U.S. Department of Energy has recently released a useful report demonstrating that coal-fired power plants are retiring in large numbers in response to market trends that have, largely, rendered these facilities economically inefficient to continue to operate. See DOE, Staff Report to the Secretary on Electricity Markets and Reliability (Aug. 2017), available at https://energy.gov/sites/prod/files/2017/08/f36/Staff%20Report%20on%20Electricity%20Markets%20and%20Reliability_0.pdf. Attached as Exhibit 14. U.S. EPA must properly consider this trend in its thinking, as it illustrates that one adequately demonstrated and available control method to limit electricity sector emissions is simply to retire coal-fired power plants.

¹¹³ *E.g., Kennecott Copper Corp. v. Train*, 526 F.2d 1149 (9th Cir. 1976).

¹¹⁴ See Dan Farber & Kirsten Engel, Letter re: Request for Comment on Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (October 16, 2017), EPA-HQ-OAR-2017-0355, available at <https://www.law.berkeley.edu/wp-content/uploads/2018/01/PPP-Rulemaking-Comment-Farber-Engel.pdf>. Attached as Exhibit 15.

¹¹⁵ DOE, Staff Report to the Secretary on Electricity Markets and Reliability (Aug. 2017).

Congress's direction to address the overwhelming social harms caused by fossil fuel combustion and the resulting air pollution – are consistent with the Clean Air Act's core purposes, as we have discussed. The courts, moreover, have repeatedly approved Section 111 standards that advance the state of industrial categories, even if some dirtier individual plants must significantly alter or cease operations.¹¹⁶ Nothing in the CAA compels U.S. EPA to allow the most polluting facilities in the source category to continue operating at full pitch indefinitely, regardless of the consequences.

A wholesale repeal is therefore not required even if the Repeal Rule's purported legal interpretation is finalized. At most, U.S. EPA might consider appropriate changes to the structure of compliance obligations or other focused amendments. Full repeal would be arbitrary and capricious, and contrary to Congress's intent, because it would expose the public to dangerous air pollution contrary to law. Leaving the rule in place – especially during the ongoing litigation stay – does no conceivable harm, and the rule's operation outside the litigation stay would benefit the public, as the RIA for the rule demonstrates. If U.S. EPA determined some change to the emissions guidelines was necessary, the proper course is to leave the current protections in place, and propose any limited necessary amendments for public review.

V. Power Sector Emissions Reductions Are Needed and Highly Achievable

U.S. EPA also offers an array of concerns about its purported intrusion on the energy sector. In fact, the Clean Air Act authorizes and requires U.S. EPA to regulate GHG emissions from power plants, as in any other industrial category. The Repeal Rule's suggestion that the CPP is outside the bounds of lawful environmental regulation because it falls into an unenunciated class of "energy" regulation is incorrect. Power sector GHG emissions are a large share of total U.S. GHG emissions and must be reduced to help avert catastrophic climate change. The CPP is properly designed to do so, consistent with governing law. Finally, while power sector emissions are rapidly decreasing, the CPP is necessary to lock in emissions reductions and ensure a clear regulatory signal.

¹¹⁶ See e.g., *Lignite Energy Council v. U.S. EPA*, 198 F.3d 930, 933-34 (D.C. Cir. 1999) (NOx controls for boilers appropriate even though not yet fully tested); *Nat'l Asphalt Pavement Ass'n v. Train*, 539 F.3d 775, 785-86 (D.C. Cir. 1975) (achievable standards "need not necessarily be routinely achieved within the industry prior to" adoption); *Essex Chem. Corp. v. Ruckelshaus*, 486 F.2d 427 (D.C. Cir. 1973) (approving ambitious standards for various source categories); *Nat'l Lime Ass'n v. EPA*, 627 F.2d 416, 433-34 (D.C. Cir. 1980) (U.S. EPA need not run "tests on every plant operating within its regulatory jurisdiction" before setting industry-wide compliance standards); *Sierra Club v. Costle*, 657 F.2d 298 (D.C. Cir. 1981) (approving sweeping pollution control requirements for power plants even though standards would force major economic shifts within the system).

a. The CPP Does Not Constitute Improper Energy Regulation

The Repeal Rule states that, "...while the U.S. EPA is authorized to regulate emissions from sources in the power sector and to consider the impact of its standards on the generation mix in setting standards to avoid negative energy impacts, regulation of the nation's generation mix itself is not within the Agency's authority."¹¹⁷ The Repeal Rule continues by stating that "[r]egulation of the energy sector qua energy sector is generally undertaken by the Federal Energy Regulatory Commission (FERC) and states, depending on which markets are being regulated."¹¹⁸ Therefore, the Repeal Rule "solicits comment on whether the CPP exceeded the U.S. EPA's proper role and authority in this regard and whether the Agency's proposed reading in this notice, which limits the BSER to measures that can be applied to or at individual sources, would ensure that CAA Section 111 has not been construed in a way that supersedes or limits the authorities and responsibilities of the FERC or that infringes upon the roles of the states."¹¹⁹

U.S. EPA did not exceed its proper role and authority in promulgating the CPP. The CPP is a regulation to reduce GHG emissions, pure and simple. GHG emissions regulation is indisputably within the purview of U.S. EPA, and is separate and apart from the electricity market regulation undertaken by FERC and the states. As U.S. EPA appropriately stated in defending the CPP, "[a]s is the case with *any* pollution limitations for power plants[...], the [CPP] will entail compliance costs that will necessarily indirectly affect energy markets."¹²⁰ However, "state regulators will continue to decide rates, and can elect whether or not to reflect CO₂-control costs in those rates."¹²¹ The same is true for FERC regulation of wholesale energy rates.¹²² Therefore, the CPP does not exceed U.S. EPA's authority.

b. Power Sector Emissions Are a Large Share of Total U.S. Emissions, and Need To Be Reduced To Meet GHG Reduction Targets

The CPP correctly states that "[f]ossil fuel-fired [EGUs] are by far the largest emitters of GHGs among stationary sources in the U.S., primarily in the form of CO₂, and among fossil fuel-fired EGUs, coal-fired units are by far the largest emitters."¹²³ In turn, "[t]otal fossil energy-related CO₂ emissions (including both stationary and mobile sources) are the largest contributor to total U.S. GHG emissions, representing 77.3 percent of total 2013 GHG emissions."¹²⁴ Finally, the CPP notes that, "[i]n 2013, fossil fuel combustion by the utility power sector—entities that burn fossil fuel and whose primary business is

¹¹⁷ Repeal Rule at 48042.

¹¹⁸ *Id.*

¹¹⁹ *Id.*

¹²⁰ Respondent U.S. EPA's Initial Brief, *West Virginia v. EPA*, D.C. Cir. No. 15-1363, at 55-56 (2016).

¹²¹ *Id.* at 57.

¹²² *Id.* at 59.

¹²³ CPP at 64688.

¹²⁴ *Id.*

the generation of electricity—accounted for 38.3 percent of all energy-related CO₂ emissions.”¹²⁵ Therefore, GHG emissions from fossil fuel-fired power plants are a significant part of total U.S. emissions.

Given the significance of GHG emissions from the power sector, the U.S. must reduce GHG emissions from fossil fuel-fired EGUs to help avert the worst consequences of climate change. The IPCC has stated that, in order to maintain warming below 2 °C relative to pre-industrial levels, global anthropogenic GHG emissions must be reduced by 40 to 70 percent by 2050 compared to 2010 levels, and near zero net emissions or below by 2100.¹²⁶ Both the IPCC and USGCRP have found that reducing emissions in the near-term is necessary to stabilize global temperatures and prevent more than 2°C of warming.^{127,128} One study found that it will not be possible to achieve within-sector CO₂ emissions reductions of this magnitude in the U.S. unless efforts beyond those already in place begin by 2023-26 for the electric sector.¹²⁹ The CPP, which is currently stayed and was not assumed to be part of the business-as-usual scenario in this study, requires CO₂ reductions of 32 percent below then-projected 2005 levels in 2030, and required updates to the CPP post-2030, would almost certainly require further reductions. If U.S. EPA finalizes the Repeal Rule, it will be exceedingly difficult to attain the emissions reductions necessary to prevent catastrophic warming.

c. The Power Sector Is Decarbonizing, But The CPP Is Needed To Ensure that Emissions Reductions Are Maintained and Extended

When U.S. EPA finalized the CPP in 2015, it noted that “[f]rom 2007 to 2014, use of lower- and zero-carbon energy sources such as wind and solar grew, while other major energy sources such as coal and petroleum generally experienced declines.”¹³⁰ These trends have only deepened since 2015. Earlier this year, U.S. EPA found that “35 states are already demonstrating achievement of the proportional interim [CPP] targets

¹²⁵ *Id.* at 64688-69.

¹²⁶ IPCC Fifth Assessment Report at 20.

¹²⁷ *Id.* at 24 (“Delaying additional mitigation to 2030 will substantially increase the challenges associated with limiting warming over the 21st century to below 2 °C relative to pre-industrial levels”).

¹²⁸ USGCRP, Fourth Assessment at 393 (“Stabilizing global mean temperature to less than 3.6 °F (2 °C) above preindustrial levels requires substantial reductions in net global CO₂ emissions prior to 2040 relative to present-day values”).

¹²⁹ Sarang D. Supekar, Steven J. Skerlos. Analysis of Costs and Time Frame for Reducing CO₂ Emissions by 70% in the U.S. Auto and Energy Sectors by 2050. Environmental Science & Technology, 2017; 51 (19): 10932 DOI: 10.1021/acs.est.7b01295, at 10939 (stating further that “[d]elaying aggressive climate action does not reduce private technological CO₂ abatement costs even under the most optimistic trajectories for improvements in fuel efficiencies, demand, and technology costs. In fact, the abatement cost increases sharply with every year of delay beyond 2020.”). Attached as Exhibit 16.

¹³⁰ CPP at 64694.

in 2022 by 2016” and 40 states are “on track to meet their 2030 CPP goals based on their current emission trajectory and on-the-books policies and commitments.”¹³¹

In line with U.S. EPA’s recent findings, the Institute for Policy Integrity found that, “[i]f EPA were to revisit its 2015 CPP modeling with updated assumptions reflecting these recent changes in the electric power system, it would find that the costs of compliance are significantly lower than previously anticipated”, due to market trends that are reducing electric sector emissions as well as lower renewable energy and natural gas prices.¹³² Additionally, the Bipartisan Policy Center “found that many states were already on track to meet CPP targets in the initial years of the program (i.e., beginning in 2022) without any incremental compliance expenditures, given the low price of natural gas, the extension of [] tax credits, and state-specific policies (e.g., renewable portfolio standards).”¹³³ Similarly, the Institute for Energy Economics and Financial Analysis has explained that “[c]oal’s value as an investment will remain clouded... by market competition from natural gas, wind and solar, and gains in energy efficiency.”¹³⁴

While these market changes are encouraging from a GHG emissions reduction perspective, the CPP is still a necessary regulatory lever to ensure that the decarbonization of the electric sector is maintained and extended to 2030. All electric sector models are based on assumptions (e.g., renewable energy prices) that can rapidly change. For instance, if natural gas prices increase significantly, there could be a rebound in electricity production from coal-fired power plants absent the CPP. Creating a federal minimum requirement for emissions reductions also minimizes leakage between states. Therefore, it is essential that the CPP create a clear regulatory signal, so that state goals ensure that emissions reductions are achieved, regardless of underlying market dynamics in the future.

Indeed, the U.S. Energy Information Administration’s (U.S. EIA) Energy Outlook 2017, which provides the Department of Energy’s core projections for policy and planning, forecasts that generation from coal-fired power plants would essentially flat-line at current levels and then potentially increase without the CPP.¹³⁵ Natural gas emissions

¹³¹ U.S. EPA, Basis of 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 1: States’ Progress and Trends, at 10-11 (Jan. 2017). Attached as Exhibit 17.

¹³² Institute for Policy Integrity, The Falling Cost of Clean Power Plan Compliance, at 8-9 (Oct. 2017), available at http://policyintegrity.org/files/publications/Falling_Cost_of_CPP_Compliance.pdf. Attached as Exhibit 18.

¹³³ Bipartisan Policy Center, Modeling the Evolving Power Sector and Impacts of the Final Clean Power Plan, at 5 (June 2016), available at <https://bipartisanpolicy.org/wp-content/uploads/2016/06/BPC-Energy-Clean-Power-Plan-Modeling.pdf>. Attached as Exhibit 19.

¹³⁴ IEEFA, Tom Sanzillo & David Schlissel, IEEFA 2017 U.S. Coal Outlook: Short-Term Gains Will be Muted by Prevailing Weaknesses in Fundamentals (Jan. 2017), available at http://ieefa.org/wp-content/uploads/2017/01/IEEFA-2017-US-Coal-Outlook-ShortTerm-Gains-Will-Be-Muted-by-Prevailing-Weaknesses-in-Fundamentals_JAN-2017.pdf. Attached as Exhibit 20.

¹³⁵ EIA, Annual Energy Outlook 2017, at 70, available at <https://www.eia.gov/outlooks/aeo/>. Attached as Exhibit 21.

also continue to climb in this scenario, at a greater rate than without the CPP.¹³⁶ U.S. EIA projects that coal consumption hovers near 800 million short tons annually without the CPP; with the CPP, consumption falls to around 500 million short tons by 2040.¹³⁷ In other words, without the CPP, though renewable energy and other cleaner power sources will continue to increase, the government's own figures project a massive, and unnecessary over-reliance on coal-fired power.

d. The California Compliance Plan and GHG Emissions Reductions History Further Demonstrate that CPP Targets are Conservative and Achievable

California is among many states throughout the country that are rapidly increasing the penetration of renewable power and energy efficiency into their power systems. California has shifted its power consumption sharply away from coal. States that are more coal-reliant are also often choosing not to allow further ratepayer-supported investment in these aging and costly facilities.¹³⁸

California's progress provides a strong and positive example of how states can develop very clean power grids, further underlining the achievability of the CPP's comparably far more modest goals. California has, for decades, emphasized energy efficiency, and has enacted a series of steadily more ambitious renewable portfolio standards, while, more recently, developing a Cap-and-Trade Program that includes the electricity sector. These are all measures that could support CPP compliance in other states. The net result is that California has one of the lowest-emission power sectors in the country.

California's submitted CPP Compliance Plan describes California's power sector performance to date, and its projected power sector emissions under various scenarios going forward. As the Compliance Plan explains, even without strengthening California's carbon emissions targets (which have subsequently been modified to direct a 40 percent emissions reduction by 2030) or strengthening renewable portfolio standards, California would be on track to meet the CPP.¹³⁹ Indeed, CARB met its CPP targets for 2030 in 2014, and continues to be CPP compliant more than 15 years early through the entirety of the compliance period even under a conservative "stress" case that forecasted high power demand and increased use of fossil fuel-fired facilities.¹⁴⁰

¹³⁶ See *id.*

¹³⁷ *Id.* at 84.

¹³⁸ See e.g., the Georgetown Climate Center's State Energy Analysis Tool, <http://www.georgetownclimate.org/clean-energy/state-energy-profiles-and-data-maps.html>, which records notable declines in power sector emissions in many states.

¹³⁹ CARB, California's Compliance Plan for the Federal Clean Power Plan (July 27, 2017), available at <https://www.arb.ca.gov/cc/powerplants/meetings/07272017/final-proposed-plan.pdf>. Attached as Exhibit 22.

¹⁴⁰ See *id.* at 47-48, Tables 9 & 10.

California continues to be on track to achieve further emissions reductions. The California Public Utilities Commission, for instance, recently reported that the state's three largest investor-owned utilities are on track to reach a 33 percent Renewable Portfolio Standard by 2020.¹⁴¹ Indeed, all the utilities are well on their way to more ambitious levels, with one of the companies already at 43.2 percent renewable procurement, with 50 percent renewable procurement by 2020 likely for all of the largest utilities, putting them a decade ahead of schedule.¹⁴²

Accompanying integrated resource planning (IRP) processes, intended in part to require electric utilities to meet GHG emissions targets for each company consistent with State goals, are also underway. CARB's 2017 Climate Change Scoping Plan identifies, on the basis of extensive economic modeling, a wide array of cost-effective energy sector activities, including these RPS requirements and IRP processes, that will deepen progress going forward, and which could readily be replicated in other jurisdictions.¹⁴³

In sum, the California example readily demonstrates that the goals of the CPP – which are far less ambitious, but build upon efforts in California and other states – are achievable and conservative. U.S. EPA has no substantive warrant to repeal the plan.

VI. The Repeal Rule is Inconsistent with Environmental Justice Obligations

According to U.S. EPA, “[c]limate change is an environmental justice issue because certain groups of people... are disproportionately affected by climate change and are less able than others to adapt to or recover from climate change impacts.”¹⁴⁴ Power plant pollution is thus an environmental justice (EJ) issue in at least two regards, as EJ communities are also disproportionately exposed to coal-fired power plant toxic and criteria pollutant emissions.¹⁴⁵

U.S. EPA properly concluded in the CPP that “communities of color... may be uniquely vulnerable to climate change health impacts” and that therefore these communities “will benefit from this final rulemaking because this action directly addresses the impacts of climate change.”¹⁴⁶ These benefits also accrued because the CPP “would reduce other

¹⁴¹ California Public Utilities Commission, Renewables Portfolios Standard Annual Report (Nov. 2017), available at http://www.cpuc.ca.gov/uploadedFiles/CPUC_Website/Content/Utilities_and_Industries/Energy/Reports_and_White_Papers/Nov%202017%20-%20RPS%20Annual%20Report.pdf. Attached as Exhibit 23.

¹⁴² *Id.* at 10.

¹⁴³ CARB, California's 2017 Climate Change Scoping Plan (Nov. 2017), available at https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Attached as Exhibit 24.

¹⁴⁴ U.S. EPA, Climate Change, Health, and Environmental Justice, available at <https://archive.epa.gov/epa/sites/production/files/2016-06/documents/ej-health-climate-change.pdf>. Attached as Exhibit 25.

¹⁴⁵ *E.g.*, NAACP, Coal-Blooded: Putting Profits Before People (2016), available at <https://www.naacp.org/wp-content/uploads/2016/04/CoalBlooded.pdf> (research report, extensively documenting disproportionate exposure risks to minority communities). Attached as Exhibit 26.

¹⁴⁶ CPP at 64940-41.

emissions from affected EGUs” including criteria and toxic pollutants, including particulate matter.¹⁴⁷ U.S. EPA has “identified low-income populations as being a vulnerable population for experiencing adverse health effects” to particulate matter, in particular.¹⁴⁸

The Repeal Rule nonetheless posits that it is “unlikely” that disparate impacts will occur.¹⁴⁹ U.S. EPA’s primary justification is that it believes lower electricity prices will result from the proposal, providing some benefit to disadvantaged communities.¹⁵⁰ This is not a legal justification because disproportionate impact is not analyzed through a balancing test, in which deadly pollution is somehow out-weighted by some separate set of economic benefits. The agency’s analysis is arbitrary from the outset to the degree it relies on an illegal and unjust balancing test, under which minority group suffering can be cancelled out by nominally lower electricity rates.

Even under U.S. EPA’s logic, there is no indication that economic benefits will result from the Repeal Rule, and even U.S. EPA acknowledges it is “uncertain” that claimed economic benefits will have an impact on EJ communities. California’s experience demonstrates that the opposite is the case. California has more than satisfied the CPP goals, and has among the *lowest* electricity costs in the nation.¹⁵¹ If the CPP were in force, other states would be incentivized to use energy efficiency measures as a compliance tool, which would help keep compliance costs and electricity rates low. Ultimately, there is no substantial evidence that *increasing* reliance on expensive and aging coal-fired power will benefit the poor. U.S. EPA provides no contrary evidence for its dubious proposition. Further, the agency certainly has not monetized the health costs that would also occur in these communities and likely swamp out any purported economic benefit.

U.S. EPA also offers that the CPP may avoid some job losses in fossil fuel sectors, and so, perhaps, benefit disadvantaged communities.¹⁵² Again, no evidence is offered for this view, and it is unpersuasive. Relatively few people work in these facilities, while thousands breathe their pollution, so U.S. EPA’s premise is fundamentally faulty. As the Washington Post has observed, the entire coal mining industry employs fewer people than Arby’s¹⁵³; meanwhile, renewable and energy efficiency job markets are booming. The U.S. Department on Energy reports that the solar industry alone employs

¹⁴⁷ *Id.*

¹⁴⁸ *Id.*

¹⁴⁹ Repeal Rule at 48048.

¹⁵⁰ *Id.*

¹⁵¹ EIA, 2016 Average Monthly Electricity Bill, Residential (2016), available at https://www.eia.gov/electricity/sales_revenue_price/pdf/table5_a.pdf. Attached as Exhibit 27.

¹⁵² Repeal Rule at 48049.

¹⁵³ https://www.washingtonpost.com/news/wonk/wp/2017/03/31/8-surprisingly-small-industries-that-employ-more-people-than-coal/?utm_term=.f6251edb65c8. Attached as Exhibit 28.

vastly more people than the coal industry,^{154,155} and CNN reports that solar jobs are growing 17 times faster than the economy as a whole.¹⁵⁶ So, there is no substantial evidence for U.S. EPA's jobs claim.

Nor does U.S. EPA acknowledge the substantial costs in foregone health benefits from the CPP, nor the foregone benefits from climate change amelioration. The agency offers only a vague acknowledgement that there may be "foregone benefits" but insists that the particular "distribution" of suffering may vary. To state the obvious, simply announcing that U.S. EPA does not know precisely which people will sicken and die as a result of its failure to address climate change is no comfort to the communities which will be disproportionately affected.¹⁵⁷ For the foregoing reasons, the Repeal Rule is inconsistent with U.S. EPA's environmental justice obligations.¹⁵⁸

VII. U.S. EPA's Economic, Reliability, and Public Health Analyses are Arbitrary and Capricious

U.S. EPA also attempts to justify its illegal proposal via the Repeal Rule's Regulatory Impact Assessment (RIA or 2017 Repeal Rule RIA). U.S. EPA requests comments on "avoided compliance costs, foregone benefits, modeling assumptions, [and] uncertainties" related to its RIA.¹⁵⁹ The RIA is riddled with errors, and many of the RIA's analyses are inadequate and do not reflect the economic or scientific consensus. Any reliance on it to justify repeal would be arbitrary and capricious.

a. U.S. EPA's RIA Violates Office of Management and Budget Guidance and Cannot be Used as a Basis for Repeal

In the 2017 Repeal Rule RIA, U.S. EPA has changed the the accounting of benefits and costs from the method used in the 2015 CPP RIA, especially for energy efficiency. The changes introduce unnecessary complexities and makes direct comparison of the 2015 CPP RIA and 2017 Repeal Rule RIA difficult, if not impossible. U.S. EPA claims that this accounting change is consistent with Office of Management and Budget (OMB)

¹⁵⁴https://energy.gov/sites/prod/files/2017/01/f34/2017%20US%20Energy%20and%20Jobs%20Report_0.pdf. Attached as Exhibit 29.

¹⁵⁵ <https://www.nytimes.com/interactive/2017/04/25/climate/todays-energy-jobs-are-in-solar-not-coal.html?smid=pl-share>. Attached as Exhibit 30

¹⁵⁶ <http://money.cnn.com/2017/05/24/news/economy/solar-jobs-us-coal/index.html>. Attached as Exhibit 31.

¹⁵⁷ In fact, U.S. EPA has already concluded that power plants are disproportionately located in disadvantaged communities. U.S. EPA, EJ Screening Report for the Clean Power Plan (2015), available at <https://archive.epa.gov/epa/cleanpowerplan/ej-screening-report-clean-power-plan.html>. Attached as Exhibit 32.

¹⁵⁸ U.S. EPA must consider the implications of the Repeal Rule with respect to its obligations under Title VI of the Civil Rights Act and Executive Order 12898.

¹⁵⁹ Repeal Rule, at 48043.

guidance, which “states that accounting for “savings, such as fuel savings associated with energy efficiency investments, as benefits is a common accounting convention followed” by OMB.¹⁶⁰ However, other OMB guidance contradicts this approach. OMB Circular A-4 states that “a good analysis is transparent. It should be possible for a qualified third party reading the report to see clearly how you arrived at your estimates and conclusions.”¹⁶¹ This RIA is in direct violation of this OMB guidance.

The transparency of the RIA is also hindered by the inconsistent updating of cost estimates using AEO 2017 information. U.S. EPA was unable to approximate the value of energy cost savings from demand-side energy efficiency using AEO2017 information. Therefore, the 2015 CPP RIA and AEO2017-based benefits in the RIA cannot be compared. This inconsistent updating violates OMB Circular A-4 with regard to transparency and ability to clearly compare alternatives.

In addition, the RIA states that more recent AEO 2017 trends would suggest that “the projected cost of complying with the CPP would be lower than was estimated by EPA in 2015.”¹⁶² The RIA also notes that “neither the avoided compliance costs nor foregone benefits presented are directly comparable to those based on the 2015 RIA results.”¹⁶³ The RIA also updates avoided compliance costs from repealing CPP using AEO 2017, but is unable to estimate “because of data limitations” concerning the value of reduced electricity demand from demand-side energy efficiency. U.S. EPA does not detail the data limitations that result in this understatement of the benefits of demand-side energy efficiency. Both of these shortfalls are in clear violation of OMB Circular A-4.

b. U.S. EIA Cost Estimates Used in RIA Overstate the Costs and Understate the Benefits of Energy Efficiency

The CPP delivers significant economic benefits, but U.S. EPA masks some of these benefits through an improper assessment of energy efficiency (EE) benefits.

Initially, the RIA changes the accounting of demand-side energy efficiency from a negative cost to generators to a cost to generators associated with a reduction in revenue. This accounting is deceptive and contradicts the OMB guidance for EO 13771 that the RIA purports required the change in accounting. EO 13771 states, “where there is ambiguity in the categorization of impacts, agencies should conform to the accounting conventions they have followed in past analyses”.¹⁶⁴ U.S. EPA clearly violated this requirement by changing its accounting convention for generator costs. In addition, the OMB guidance states that cost savings that historically are counted as

¹⁶⁰ 2017 Repeal Rule RIA, at 38.

¹⁶¹ https://obamawhitehouse.archives.gov/omb/circulars_a004_a-4/. Attached as Exhibit 33.

¹⁶² 2017 Repeal Rule RIA at 116.

¹⁶³ *Id.* at 17.

¹⁶⁴ <https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2017/M-17-21-OMB.pdf>. Attached as Exhibit 34.

benefits should not be estimated as ‘negative cost savings’ when repealing a regulation. Analyses of the CPP found that, “[i]ncluding energy efficiency in states’ plans will lower their compliance costs”.¹⁶⁵ This further supports the standard accounting of energy efficiency as a reduction in cost.

The change in accounting of energy efficiency from a cost saving to a benefit contradicts OMB guidance and undermines the U.S. EPA mandate to regulate GHGs under Section 202 of the Clean Air Act.¹⁶⁶ The change in accounting for energy efficiency also contradicts the 2015 Demand-Side Energy Efficiency Technical Support Document which states, “[energy efficiency] policies currently in place are generally considered by states to be cost-effective strategies”.¹⁶⁷ The energy efficiency accounting outlined in the RIA does not promote its use as a GHG reduction strategy and will lead to increased reliance on less cost-effective regulatory actions.

Further, U.S. EPA must include current information on the high cost-effectiveness of energy efficiency to ratepayers. California has extensive experience with these programs, and the California Public Utilities Commission has carefully evaluated the programs. The most recent evaluated energy efficiency portfolio shows that the total benefits of the statewide energy efficiency programs, includes investor-owned utilities and regional energy networks, collectively outweigh the costs. These values represent savings achievements, benefits, and costs from the Energy Efficiency Program tracking data for the period of 2013 through 2015. This analysis shows that, for every dollar of ratepayer investment in energy efficiency, Californians receive \$1.89 in benefits. This does not include codes and standards savings or exogenous benefits such as employment, quality of life, and gross domestic product.

Electric and Gas Lifetime Savings and Benefits 2013-2015 (Evaluated, excluding Codes and Standards)							
	Lifecycle Gross kWh - Electricity	Lifecycle Gross Therms - Natural Gas	Electric Benefits	Gas Benefits	Total Benefits	Total Expenditure	Benefit/ Cost Ratio

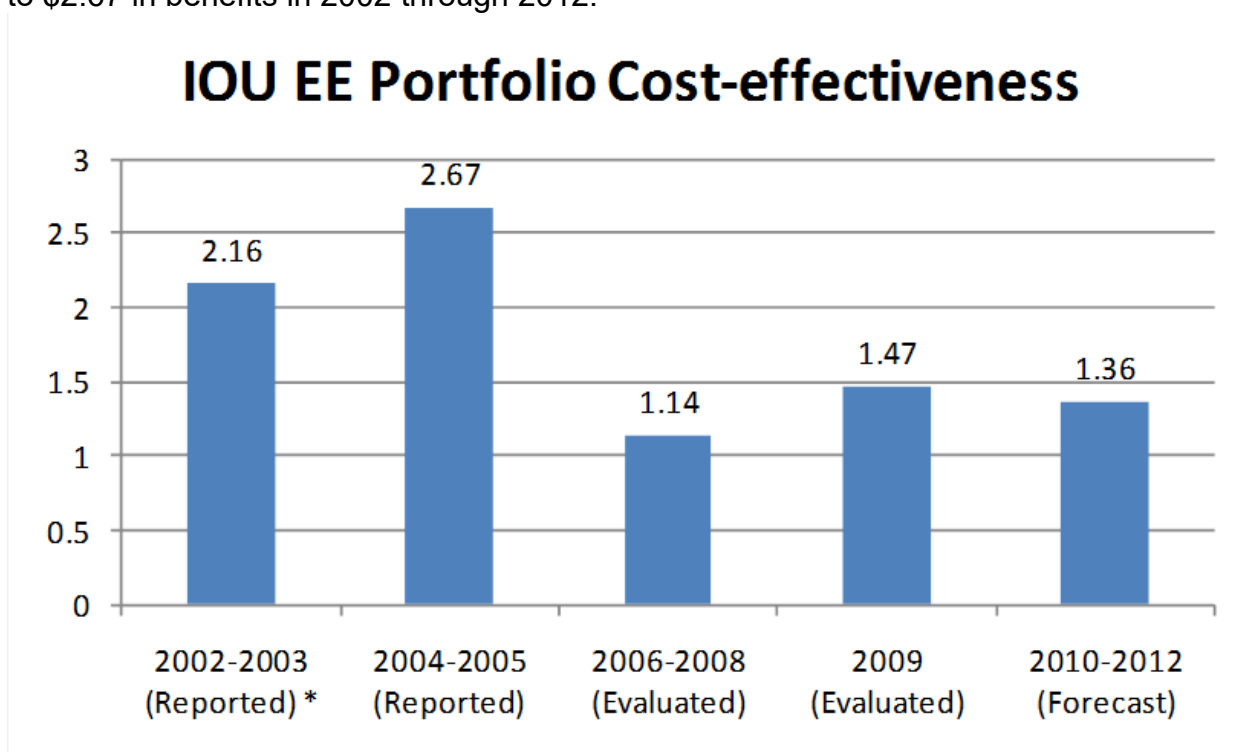
¹⁶⁵ <https://aceee.org/sites/default/files/ee-lowers-cost-cpp-0316.pdf>. Attached as Exhibit 35.

¹⁶⁶ <https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean> Attached as Exhibit 36.

¹⁶⁷ <https://www.epa.gov/sites/production/files/2015-11/documents/tsd-cpp-demand-side-ee.pdf> Attached as Exhibit 37.

State wide total	48.8 billion	1.04 billion	\$ 4.36 billion	\$ 753 million	\$ 5.11 billion	\$ 2.7 billion	1.891
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Further underlining these figures, the table below shows the cost-effectiveness ratio for IOU EE programs for three-year program cycles from 2002 through 2012. For every dollar of ratepayer investment in energy efficiency, Californians received between \$1.14 to \$2.67 in benefits in 2002 through 2012.



Furthermore, we note that U.S. EPA’s analysis has several additional procedural irregularities. One example of this would be how the analysis points to several “non-government” assessments of impacts by various research centers. The assessments, which are not peer-reviewed, do not form the basis of any findings in the analysis, and there is no clear rationale for the inclusion of the three, non-peer reviewed studies. Two of the studies do not use the same Integrated Planning Model (IPM) as U.S. EPA, further distorting the comparison with these assessments. In fact, the RIA states that “EPA does not consider these studies to represent a reasonable range of potential avoided costs and foregone benefits.”¹⁶⁸ The inclusion of the non-government assessments reduces the transparency of the RIA and provides the false appearance of an additional sensitivity analysis which is inappropriate and without justification.

¹⁶⁸ RIA, at 117.

Finally, the RIA states that “EPA 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 CPP is finalized.”¹⁶⁹ Any change in the valuation of costs and benefits identified in the 2015 CPP RIA should not be predicated on interim modeling results. It is unclear why U.S. EPA would utilize IPM results that may require an additional public comment period. CARB does not support the use of these interim IPM results as part of sound economic or regulatory process.

c. The Use of Interim Domestic Social Cost of Carbon Values is Unsupported

The RIA improperly modifies critical assumptions in the economic analysis that result in unjustified reductions in social benefits of the CPP relative to the 2015 RIA. Changes to the social cost of carbon (SCC) calculation are inconsistent with supported economic theory and with U.S. EPA’s own economic guidelines. Under the auspices of Executive Order 13783, federal agencies have discarded values for the social costs of GHGs that were developed over years, through robust scientific and peer-reviewed analyses, and which have been developed, via public process, by the federal Interagency Working Group (IWG). For the revised RIA, U.S. EPA is employing – without appropriate justification or explanation – a much lower “interim domestic” social cost of carbon value. The effect of this swap is to significantly reduce the estimated benefits of the CPP, rendering them lower than largely unchanged compliance costs without reasoned justification or amendment to the record. As such, U.S. EPA’s replacement of its well-reasoned use of the IWG social cost of methane value with an unvetted and outcome-driving “interim domestic” value is arbitrary and capricious, and therefore unlawful.

i. Flawed Discount Rate

The social cost of carbon is year-specific and highly sensitive to the discount rate. Higher discount rates decrease the value today of future environmental damages. Since 2008, federal agencies have relied on a range of discount rates from 2.5 percent to 5 percent, as endorsed by the IWG, in estimating climate damages through SCC. The RIA relies on a 7 percent discount rate in quantifying the future benefits of the CPP as estimated using the SCC. Using the 7 percent discount rate to estimate the SCC is inconsistent with OMB Circular A-4, which states that, while the 7 percent discount rate can be utilized in cost-benefit analysis, it represents the before-tax rate of return to private capital; when regulations result in changes in consumer prices, a lower discount rate (“the social rate of time preference”) is appropriate. OMB Circular A-4 states that, “[o]ver the last thirty years this rate has averaged around 3 percent.”¹⁷⁰

The use of the 7 percent discount rate is also outside the range of discount rates utilized by the researchers whose models underlie the SCC. The Dynamic Integrated Climate

¹⁶⁹ RIA, at 3.

¹⁷⁰ https://www.whitehouse.gov/omb/circulars_a004_a-4.

and Economy (DICE) model, the Climate Framework for Uncertainty, Negotiation, and Distribution (FUND) model, and the Policy Analysis of the Greenhouse Gas Effect (PAGE) model were analyzed using discount rates between 2.5 and 5 percent. Further, in a January 2017 brief, the Council of Economic Advisors found evidence that the 3 to 7 percent range in discount rates was too high and “that the lower discount rate should be at most 2 percent while the upper discount rate should also likely be reduced.”¹⁷¹

The RIA’s reliance on a 7 percent discount rate in estimating the SCC is also inconsistent with recent findings made by the National Academies of Sciences, Engineering, and Medicine (NAS). In an January 2017 report, NAS recommended using a range of discount rates in estimating the SCC, stating “note that our recommendation for three rates in no way endorses the targeting of a near-term 7 percent discount rate as the high rate.”¹⁷²

The 7 percent discount rate is outside the range of discount rates used since 2008 to estimate the SCC in federal regulatory actions subject to Executive Order 12866, which directs agencies to “assess both the costs and benefits of the intended regulation...”¹⁷³ and requires decisions based on the best reasonably obtainable scientific, technical, and economic information. Because the 7 percent discount rate is not supported by leading economic experts, scientists, or federal RIAs, it is inconsistent with Executive Order 13783, which requires the “consideration of appropriate discount rates”.¹⁷⁴

ii. *Improper “Domestic” SCC*

Contrary to the 2015 CPP, the revised RIA relies on an interim domestic SCC, meaning that only climatic damages directly impacting the United States are considered. This directly contrasts with IWG, which endorses calculating global damages when estimating SCC. This recommendation is included in the January 2017 NAS report, which states that, “due to the global nature of the impacts that result from CO₂ emissions regardless of where they originate, efforts to estimate the SCC by both the scientific community and the IWG have focused on total global damages.”¹⁷⁵ Restricting the SCC to include only domestic impacts ignores global interactions, including international economic trade, spillover effects, global migration, and global atmospheric conditions, which unreasonably reduces SCC estimates. The NAS report also states that, while estimating the domestic SCC is feasible, the existing integrated assessment models focus on global impacts and therefore are not suited to domestic estimates.

¹⁷¹https://obamawhitehouse.archives.gov/sites/default/files/page/files/201701_cea_discounting_issue_brief.pdf. Attached as Exhibit 38.

¹⁷² <https://www.nap.edu/catalog/24651/valuing-climate-damages-updating-estimation-of-the-social-cost-of>. Attached as Exhibit 39.

¹⁷³ https://www.reginfo.gov/public/jsp/Utilities/EO_12866.pdf Attached as Exhibit 40.

¹⁷⁴ <https://www.whitehouse.gov/the-press-office/2017/03/28/presidential-executive-order-promoting-energy-independence-and-economy-1>.

¹⁷⁵ <https://www.nap.edu/catalog/24651/valuing-climate-damages-updating-estimation-of-the-social-cost-of>

By utilizing a hastily constructed interim domestic SCC in the RIA, U.S. EPA is moving away from other nations in estimating the impacts of carbon emissions. The IWG SCC estimates are used by the federal Canadian government in the assessment of regulatory costs and benefits.¹⁷⁶ The North American Climate, Energy, and Environment Partnership, announced by the United States, Canada, and Mexico also uses these principles.¹⁷⁷ Within the partnership, the nations agreed to share best practices on social cost valuation and to use similar methodologies to estimate the social cost of carbon. The RIA is inconsistent with this established international partnership.

Relying on a domestic SCC also presents challenges in incorporating global pollutant feedback into climate policy. The January 2017 NAS report states, “[i]t is important to consider what constitutes a domestic impact in the case of a global pollutant that could have international implications that impact the United States.” Put another way, if a domestic SCC leads to greater carbon emissions globally, that could directly impact the United States. Economists have relied on this strategic argument for utilizing a global SCC. In 2016, Dr. Matthew Kotchen, for instance, developed a ‘strategic SCC’ that demonstrated the cumulative value of nations using a global SCC value rather than a lower domestic SCC.¹⁷⁸ U.S. EPA must consider these global connections, because – simply put – the United States is embedded in a global economy and shares an atmosphere and a climate system with the rest of the world. The cost of climate pollution cannot be cut off at our borders.

Related research also demonstrates the value in uniform global values related to carbon pricing and climate damages as estimated using the SCC.^{179,180,181} The global SCC is also utilized in decision making by international corporations and financial institutions including The World Bank Group.¹⁸² The use of an “interim” value for the SCC also does not allow for the transparent comparison of benefits across regulatory alternatives. This is in violation of OMB Circular A-4 and does not allow for the comparison of benefits across the 2015 and 2017 RIAs.

¹⁷⁶ <http://ec.gc.ca/cc/default.asp?lang=En&n=BE705779-1#SCC-Sec4>. Attached as Exhibit 41.

¹⁷⁷ <https://obamawhitehouse.archives.gov/the-press-office/2016/06/29/north-american-climate-clean-energy-and-environment-partnership-action>.

¹⁷⁸ <http://www.nber.org/papers/w22246.pdf>. Attached as Exhibit 42.

¹⁷⁹

<https://dash.harvard.edu/bitstream/handle/1/22808338/Aldy%20Pizer%20REEP%20150804.pdf?sequence=1>. Attached as Exhibit 43.

¹⁸⁰ <https://scholar.harvard.edu/files/jaldy/files/socialcostofcarbon.pdf>. Attached as Exhibit 44.

¹⁸¹ <http://www.nber.org/papers/w19644>. Attached as Exhibit 45.

¹⁸² <https://openknowledge.worldbank.org/bitstream/handle/10986/24451/K8860.pdf?sequence=2>. Attached as Exhibit 46.

d. Failing to Utilize the Social Cost of Methane Results in an Underestimation of Environmental Damages

The RIA identifies methane emissions from coal production as a non-monetized foregone benefit. The social cost of methane (SCM), as developed consistent with the IWG SCC and utilized in federal RIAs, provides a monetized estimate of the damages related to methane emissions.¹⁸³ While Executive Order 13783 withdrew federal support of the IWG SCM values, revised values have been utilized recently in a U.S. Bureau of Land Management (U.S. BLM) rule entitled Waste Prevention, Production Subject to Royalties, and Resource Conservation.¹⁸⁴ CARB does not support the modified SCM utilized in the U.S. BLM rule and has submitted comments on the appropriateness of relying on the peer-reviewed, established IWG SCM values. The omission of any consideration of the SCM is inappropriate and violates Executive Order 12866 which requires agencies to “the fullest extent” assess both the costs and benefits of the intended regulation.¹⁸⁵

e. The Public Health Analysis – Using a PM_{2.5} NAAQS Threshold to Cap Co-benefit Costs – is Contrary to Fundamental Science and U.S. EPA’s Past Practice

In the RIA,¹⁸⁶ a health co-benefits analysis is performed to estimate the reduction of health benefits as a result of the repeal of the CPP. The main analysis estimates the health benefits of fine particulate matter (PM_{2.5}) reductions using a no-threshold model. The methodology used in the RIA is the same as that used in the 2015 RIA.¹⁸⁷ However, the RIA also includes a sensitivity analysis for the estimated health co-benefits that was not part of the 2015 CPP RIA.

This sensitivity analysis employs two additional analyses, each with their own PM_{2.5} concentration cut point, below which any improvements in air quality were deemed to have no health benefits. These cut points were set at the current annual average fine particulate matter National Ambient Air Quality Standard (PM_{2.5} NAAQS) of 12 µg/m³ and at the lowest measured level of PM_{2.5} seen in the two main epidemiological studies (5.8 and 8 µg/m³) used in the health analysis in both the 2017 and 2015 Clean Power

¹⁸³

https://obamawhitehouse.archives.gov/sites/default/files/omb/inforeg/august_2016_sc_ch4_sc_n2o_addendum_final_8_26_16.pdf. Attached as Exhibit 47.

¹⁸⁴ <https://www.federalregister.gov/documents/2016/11/18/2016-27637/waste-prevention-production-subject-to-royalties-and-resource-conservation>. Attached as Exhibit 48.

¹⁸⁵ https://www.reginfo.gov/public/jsp/Utilities/EO_12866.pdf.

¹⁸⁶ Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal, U.S. Environmental Protection Agency, Washington, DC, EPA-452/R-17-004, October 2017.

¹⁸⁷ Regulatory Impact Analysis for the Clean Power Plan Final Rule, U.S. Environmental Protection Agency, Washington, DC, EPA-452/R-15-003, August 2015.

Plan Documents.^{188,189} U.S. EPA's rationale for including this sensitivity analysis in the RIA is that there is greater uncertainty of health effects below the PM_{2.5} NAAQS, more uncertainty of the effect estimates at lower concentrations as well as below the lowest measured concentration levels in population studies, and that these sensitivity analyses provide information to aid the public in understanding the distribution of PM_{2.5}-related health benefits.

This rationale for the use of the PM_{2.5} NAAQS threshold does not reflect the results seen in recent studies that reinforce the use of a no-threshold model in health analyses and that also identify PM_{2.5}-related health impacts at levels substantially below PM_{2.5} NAAQS. Moreover, the use of the PM_{2.5} NAAQS as a threshold for health impacts is arbitrary, as NAAQSs are not defined by the U.S. EPA as exposure levels resulting in zero risk.¹⁹⁰ Indeed, U.S. EPA has indicated that some risk is expected at and below the level of PM_{2.5} NAAQS and considers these to be legitimate components of the total benefits estimate.¹⁹¹

Additionally, a specific and well-grounded argument against using thresholds is presented in the 2015 CPP RIA.¹⁹² The 2015 CPP RIA states that without rule-specific air quality modeling, it is not possible to quantify the shift in exposure anticipated by implementation of the CPP. Currently, the RIA does not take into account this spatial uncertainty regarding where specific PM_{2.5} reductions will take place, making it difficult for the reader to interpret the use and utility of the alternative cut point sensitivity analyses. For these reasons, discussion of such thresholds in chapters 1, 3, 5, and 7 of the RIA should be revised to reflect the current state of the science, and the PM_{2.5} NAAQS threshold of 12 µg/m³ to cap co-benefit costs should be eliminated.

i. Recent Scientific Literature on PM_{2.5} impacts

There is strong scientific agreement supporting the use of a no-threshold model to estimate mortality reductions. The data prior to and after publication of the 2015 CPP consistently show PM_{2.5}-related health effects down to the lowest measured levels in

¹⁸⁸ Krewski D., M. Jerrett, R.T. Burnett, R. Ma, E. Hughes, Y. Shi, et al. 2009. 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. Attached as Exhibit 49.

¹⁸⁹ Lepeule, J., F. Laden, D. Dockery, and J. Schwartz. 2012. "Chronic Exposure to Fine Particles and Mortality: An Extended Follow-Up of the Harvard Six Cities Study from 1974 to 2009." *Environmental Health Perspectives*, 120(7): 965-70. Attached as Exhibit 50.

¹⁹⁰ Policy Assessment for the Review of the Particulate Matter National Ambient Air Quality Standards. U.S. Environmental Protection Agency, Washington, DC, EPA 452/R-11-003. April 2011. Chapter 1.2.1, page 1-3. Attached as Exhibit 51.

¹⁹¹ Regulatory Impact Analysis for the Final Revisions to the National Ambient Air Quality Standards for Particulate Matter. U.S. Environmental Protection Agency, Washington, DC, EPA-452/R-12-005, 2013. Chapter 5.7.5, page 5-89. Attached as Exhibit 52.

¹⁹² Regulatory Impact Analysis for the Clean Power Plan Final Rule, U.S. Environmental Protection Agency, Washington, DC, EPA-452/R-15-003, August 2015. Chapter 4.3.6, page 4-40. Attached as Exhibit 53.

epidemiological studies, at levels much lower than the current PM_{2.5} NAAQS. This includes the two main studies whose effect estimates were selected for use in both the 2015 CPP RIA and the 2017 Repeal Rule RIA. These studies by Krewski and Lepuele were used because of their high quality design and analysis of two well-defined cohorts, the American Cancer Society Study and Harvard Six-City Study. None of these studies suggested the existence of a threshold below which PM_{2.5}-related health benefits would not accrue. Both of the Krewski and Lepeule studies showed a dose-response association down to the lowest measured levels of 5.8 and 8 µg/m³, respectively, with no evidence of a threshold.

Although there is less certainty in effect estimates at concentrations further away from the mean values observed in studies, multiple recent high-quality epidemiological studies described below have identified health impacts with average measured PM_{2.5} levels down to almost half of the current PM_{2.5} NAAQS. None of these studies dispute the no-threshold assumption currently employed in health modeling.

Shi et al. showed that long term exposure was associated with a 7.52 percent increase in mortality per 10 µg/m³ increase in PM_{2.5} among Medicare recipients in New England.¹⁹³ In addition, this increase in premature mortality remained (9.28 percent per 10 µg/m³) when analyses was restricted to participants exposed only to lower levels of PM_{2.5} (less than 10 µg/m³), and the authors concluded that the dose-response relationship was linear for PM_{2.5} concentrations down to 6 µg/m³, which is half of the current PM_{2.5} NAAQS. In addition, a positive concentration-response relationship continued below 6 µg/m³, but at a shallower slope and with greater uncertainty.

Similarly, a 2017 study including the entire Medicare population of the United States showed that an increase of 10 µg/m³ in PM_{2.5} was associated with an all-cause mortality increase of 8.4 percent.¹⁹⁴ Also, when the analysis was restricted to levels below 12 µg/m³, the significant association (13.6 percent increase of risk of death per 10 µg/m³) was still observed. A recent study from Canada reported that each 10 µg/m³ increase in PM_{2.5} was associated with a 26 percent increase in premature mortality.¹⁹⁵ The mean concentration in this study was 6.3 µg/m³, far below the PM_{2.5} NAAQS, and the lowest value was 1 µg/m³, further substantiating the no-threshold model and leading the study authors to conclude that the threshold concentration was 0 µg/m³, with an upper 95 percent confidence limit of 4.5 µg/m³.

¹⁹³ Shi, L., et al. (2016). "Low-Concentration PM_{2.5} and Mortality: Estimating Acute and Chronic Effects in a Population-Based Study." *Environ Health Perspect* 124(1): 46-52. Attached as Exhibit 54.

¹⁹⁴ Di, Q., et al. (2017). "Air Pollution and Mortality in the Medicare Population." *New England Journal of Medicine* 376(26): 2513-2522. Attached as Exhibit 55.

¹⁹⁵ Pinault, L., et al. (2016). "Risk estimates of mortality attributed to low concentrations of ambient fine particulate matter in the Canadian community health survey cohort." *Environ Health* 15(1): 18. Attached as Exhibit 56.

ii. Prior U.S. EPA Reviews

In multiple standard setting-related documents, U.S. EPA and its expert advisory panels have confirmed the use of a no-threshold model when estimating the health impacts of PM_{2.5} levels.^{196,197,198} In 2006, U.S. EPA invited 12 of the world's leading experts as part of an expert judgment elicitation to assess uncertainties such as causality and the existence of a threshold on the concentration-response relationship between PM_{2.5} and mortality.¹⁹⁹ The vast majority of the experts (11 out of 12) cited no evidence of a threshold, and the one expert who specified a threshold described a 50 percent chance of there not being a threshold.²⁰⁰ Overall, no experts thought that there would be any chance of a threshold occurring at levels greater than 10 µg/m³.

During the 2010 review of the health analysis for the Second Prospective Study of the Clean Air Act, a Health Effects Subcommittee (HES) was convened with additional experts to review the U.S. EPA's uncertainty documents supporting the benefits and costs of the Clean Air Act Amendments of 1990.²⁰¹ The HES fully supported U.S. EPA's use of a no-threshold model to estimate mortality reductions associated with PM exposure, re-affirming the conclusion of the 2006 expert elicitation.

iii. Recommendations

In light of U.S. EPA's consistent affirmation and application of a no-threshold model, coupled with the recent research identifying PM_{2.5} and premature mortality associations substantially below the current PM_{2.5} NAAQS level of 12 µg/m³, CARB sees no justification or utility in a sensitivity analysis that ignores health benefits due to reductions to PM_{2.5} levels below the current PM_{2.5} NAAQS. CARB is concerned that the manner in which this threshold sensitivity analysis is presented in the Repeal Rule (i.e., as an equal alternative to the no-threshold model) obscures the extent of the loss of health co-benefits from the repeal of the CPP, which research indicates will cover the full range of PM_{2.5} levels experienced by the population.

¹⁹⁶ U.S. EPA. Integrated Science Assessment (ISA) for Particulate Matter (Final Report, Dec 2009). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-08/139F, 2009. Attached as Exhibit 57.

¹⁹⁷ Regulatory Impact Analysis for the Final Revisions to the National Ambient Air Quality Standards for Particulate Matter. U.S. Environmental Protection Agency, Washington, DC, EPA-452/R-12-005, 2013. Attached as Exhibit 58.

¹⁹⁸ Quantitative Health Risk Assessment for Particulate Matter. U.S. Environmental Protection Agency, Washington, DC, EPA-452/R-10-005, 2010. Attached as Exhibit 59.

¹⁹⁹ Roman, H. A., et al. (2008). Expert judgment assessment of the mortality impact of changes in ambient fine particulate matter in the US, ACS Publications. Attached as Exhibit 60.

²⁰⁰ Expanded Expert Judgment Assessment of the Concentration-Response Relationship Between PM_{2.5} Exposure and Mortality: Expert Interview Summaries (2006). Industrial Economics, Incorporated 2067 Massachusetts Avenue Cambridge, MA 02140. Attached as Exhibit 61.

²⁰¹ Review of EPA's DRAFT Health Benefits of the Second Section 812 Prospective Study of the Clean Air Act, U.S. EPA Advisory Council on the Clean Air Compliance Analysis, Health Effects Subcommittee, June 16, 2010. Attached as Exhibit 62.

CARB recommends removal or a scientifically justified modification of the PM_{2.5} NAAQS-based threshold of 12 µg/m³ in the “Forgone Health Co-Benefits Sensitivity Analysis.” There is scientific consensus that health benefits do accrue substantially below this level, so the use of 12 µg/m³ as the upper bracket in the sensitivity analysis is inappropriate and unreasonable. CARB acknowledges the uncertainty of health impacts due to air pollution levels lower than the observed values in key epidemiological studies, and therefore think that the “Lowest Measured Limit” threshold could be retained, at most, as part of a sensitivity analysis.

f. The RIA Fails to Account for Major Costs Associated with Continued Coal Plant Operation

Repealing the CPP may lead some coal plant operators to continue plant operations longer than they otherwise would have done. The RIA must properly account for the costs such continued operation would have to ratepayers, as well as the public health consequences of continued air and water pollution.²⁰²

The U.S. Department of Energy has explained that many coal-fired power plants are unable to “compete economically” as replacement power from natural gas and renewable power becomes ever cheaper, and energy efficiency flattens electricity demand.²⁰³ Each year that elapses without coal plant retirements, operators seek cost recovery from ratepayers and the electricity markets.²⁰⁴ Repealing the CPP would allow older non-economic and highly-polluting plants to limp along seeking reimbursement without a clear regulatory push to retire. Though public utilities commissions and utilities across the country are working on this issue and moving away from coal,²⁰⁵ removal of a federal incentive for proper planning will only increase costs. U.S. EPA

²⁰² In this regard, U.S. EPA must consider the economic effects of extended heavy metal pollution and other water contamination from coal-fired power plants that would otherwise cease operating with CPP implementation, in light of its recent improper efforts to rollback effluent limitation guidelines for coal-fired power plants. The benefits of air pollution reduction from retirements must also be considered, as they are substantial. The RIA does not account for costs associated with the continued operation of coal fired power plants including costs associated with adverse health outcomes from air pollution. Recent research, for instance, found that shutting down a Pennsylvania coal-fired power plant reduced the probability of preterm birth by about 28 percent. (See Muzhe Yang et al., *The Impact of Environmental Regulation on Fetal Health: Evidence from the Shutdown of a Coal-Fired Power Plant Located Upwind of New Jersey*, *Journal of Environmental Economics and Management* (2017). DOI: [10.1016/j.jeem.2017.11.005](https://doi.org/10.1016/j.jeem.2017.11.005).)

Available at <https://www.sciencedirect.com/science/article/pii/S0095069617306381?via%3Dihub>. Attached as Exhibit 63.

²⁰³ DOE, Staff Report to the Secretary on Electricity Markets and Reliability (Aug. 2017).

²⁰⁴ See e.g., IEEFA 2017 U.S. Coal Outlook; see also Seath Feaster, IEEFA, *Research Brief: U.S. Coal Phase-Out, Blow by Blow* (Apr. 2017), available at <http://ieefa.org/wp-content/uploads/2017/04/Research-Brief-U.S.-Coal-Phase-Out-Blow-by-Blow-April-2017.pdf>. Attached as Exhibit 64.

²⁰⁵ See *id.* (detailing retirements).

must consider and explain these incentive problems – and the resulting potential costs to ratepayers – as it considers repeal.

g. Reliability Concerns Regarding the CPP are Entirely Misplaced

U.S. EPA also cannot justify its proposal on grid reliability or resilience grounds. Recent purported concerns at the federal level about the impact of retiring baseload power plants, particularly coal-fired power plants, on electric system reliability underlie several on-going administrative actions, including the Repeal Rule and U.S. Department of Energy and FERC efforts to provide price supports to coal and nuclear power plants. The Secretary of Energy—ignoring his own staff’s report to the contrary—points to a looming problem in grid reliability and “resilience,” a new term that is neither well defined nor related to the issues the grid faces as coal plants retire and regions move toward additional natural gas and renewable resources. This concern about the need to ensure the reliability and resilience of the electric power grid in the face of coal plant retirements has been tied to recent catastrophic weather events and associated power outages, for example the Polar Vortex weather event in the Northeast. Appropriately, FERC has unanimously rejected the Secretary’s unsupported proposal.²⁰⁶

FERC did so in substantial part because there is no convincing evidence that coal plant retirements are jeopardizing the reliability of the nation’s electric grid or that any response to this trend in the power markets would be appropriate. The notion that coal plants provide more resilience than other generation types is based on the idea that fuel supplies stored on-site increase the ability of utilities to keep the power on. Focusing on fuel supply at large coal plants as a “resilience” measure fails to recognize the predominant sources of power outages, which are on transmission and distribution systems, and are primarily a result of weather affecting equipment, including high winds, lightning, flooding, and other disruptions that cause equipment failures.²⁰⁷ Recent research has suggested that, with increases in the frequency and length of outages due to severe weather events, increased attention should be placed on preparing for and recovering from major events.

Focusing on the role of coal plants, often located long distances from demand centers, does not address the problem, since outages on the transmission and distribution systems prevent the power from reaching customers even when coal plants are able to operate. In addition, as noted by the National Association of Regulatory Utility Commissioners (NARUC) in comments to FERC, during the Polar Vortex, some coal-fired power plants were unable to operate fully due to frozen fuel and equipment

²⁰⁶ See Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures, 162 FERC ¶ 61,012 (Jan. 8, 2018), attached Exhibit 65.

²⁰⁷ Houser, Trevor, et.al., The Real Electricity Reliability Crisis, October 2, 2017, <http://rhg.com/notes/the-real-electricity-reliability-crisis>. Attached as Exhibit 66.

issues.²⁰⁸ NARUC also reinforces that the reliability impacts on the mainland U.S. from the four storms cited in the U.S Department of Energy's Notice of Proposed Rulemaking were due largely, if not entirely, to damaged distribution and transmission equipment.

The Secretary of Energy, in his letter to FERC on grid resilience, states that the North American Electric Reliability Corporation (NERC) has warned that premature retirements of fuel secure generation threaten the reliability and resiliency of the bulk power system.²⁰⁹ However these retirements largely stem from the effectiveness of wholesale energy markets in maintaining reliability at low cost, driving out aging inefficient coal generation in favor of inexpensive natural gas and newer technologies with lower operating costs.²¹⁰ Recent research and on-the-ground experience across the U.S. also demonstrate the ability of the electric sector to modernize and maintain high reliability with multiple types of generation portfolios, including those anticipated under CPP--high penetrations of renewable energy, zero-emission resources, and natural gas.²¹¹ Rather than raising the alarm about dire threats to reliability, NERC's most recent 2017 Long-Term Reliability Assessment concludes that "[t]he electricity sector is undergoing significant and rapid changes that present new challenges for reliability. With appropriate in-sight, careful planning, and continued support, the electricity sector will continue to navigate the associated challenges in a manner that maintains reliability and resilience."²¹² A "challenge" with adequate time and technology to plan and manage hardly constitutes a threat.

Indeed, as FERC found in its Order rejecting the Secretary's proposal, neither the proposal nor the record underlying it "satisfied the threshold statutory requirement demonstrating that" power market tariffs were producing unjust and unreasonable results, or any "planned generator retirements that may be a threat to grid resilience."²¹³ On the contrary, the Commission observed that it has long viewed efforts to keep

²⁰⁸ Comments of the National Association of Regulatory Utility Commissioners in FERC Docket No. RM18-1-000 on Grid Reliability and Resilience, October 23, 2017. Attached as Exhibit 67.

²⁰⁹ September 28, 2017 Letter Re: Secretary of Energy's Direction that the Federal Energy Regulatory Commission Issue Grid Resilience Rule Pursuant to the Secretary's Authority Under Section 403 of the Department of Energy Organization Act. Attached as Exhibit 68.

²¹⁰ See DOE, Staff Report to the Secretary on Electricity Markets and Reliability cited *supra*.

²¹¹ See e.g., PJM's Evolving Resource Mix and System Reliability (March 2017) Available at <http://www.pjm.com/~media/library/reports-notice/special-reports/20170330-pjms-evolving-resource-mix-and-system-reliability.ashx>, Attached as Exhibit 69; National Renewable Energy Lab (NREL), Western Wind and Solar Integration Study, Phases 1, 2 and 3 (2010-2017) Available at <https://www.nrel.gov/docs/fy15osti/62906-ES.pdf>. Attached as Exhibit 70; North American Electric Reliability Corporation (NERC) 2017 Long-Term Reliability Assessment (December 2017). Available at http://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_12132017_Final.pdf, Attached as Exhibit 71.

²¹² North American Electric Reliability Corporation, 2017 Long-Term Reliability Assessment, December 2017, http://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_12132017_Final.pdf.

²¹³ 162 FERC ¶ 61,012 at 8.

individual power plants online as a disfavored “last resort” that distorts the power market.²¹⁴

Commissioner Glick’s concurrence is particularly pointed on these issues. As he correctly notes, U.S. DOE’s “own staff Grid Study concluded that changes in the generation mix, including the retirement of coal and nuclear generators, have not diminished the grid’s reliability or otherwise posed a significant and immediate threat to the resilience of the electric grid.”²¹⁵ Commissioner Glick explains that, instead, “the addition of a diverse array of generation resources, including natural gas, solar, wind, and geothermal, as well as maturing technologies, such as energy storage, distributed generation, and demand response, have in many respects contributed to the resilience of the bulk power system.”²¹⁶

Commissioner Glick points out:

In addition, coal and nuclear generators face resilience challenges of their own. As has been well-documented, many coal and nuclear plants with significant on-site fuel supplies have failed to function during extreme weather events because those fuel supplies froze, flooded, or were otherwise unavailable. In fact, initial reports indicate that coal-fired facilities accounted for nearly half of all forced outages in PJM during last week’s period of extreme temperatures. Similarly, during the same period, the Pilgrim Nuclear Power Station was manually removed from service complicating efforts to serve load within ISO-NE. And, even when fully operational, many coal and nuclear generators are incapable of providing all the NERC-defined essential reliability services. It is perhaps for that reason that the Department’s Grid Study recommended pursuing “wholesale market and product designs that recognize and complement resource diversity by compensating providers for the value of [essential reliability services] on a *technology-neutral* basis.”²¹⁷

It would be arbitrary and capricious for U.S. EPA to point to reliability concerns to justify CPP repeal when the CPP, in fact, supports reliability by allowing an orderly move away from unreliable coal-fired power plants. Moreover, the Repeal Rule suffers from the same flaw that Commissioner Glick saw in U.S. DOE’s rejected proposal: it “would exacerbate the intensity and frequency of... extreme weather events” that threaten transmission grid reliability “by helping to forestall the retirement of coal-fired generators, which emit significant quantities of greenhouse gases that contribute to anthropogenic climate change.”²¹⁸

²¹⁴ *Id.* at 5 fn. 14.

²¹⁵ *Id.* at 2 (Concurrence of Commissioner Glick).

²¹⁶ *Id.*

²¹⁷ *Id.* at 3.

²¹⁸ *Id.* at 4.

i. California's Efforts to Integrate Large Amounts of Renewable Resources Reliably

California has demonstrated an ability to successfully adapt to the changing composition of the grid to include large amounts of renewables. Maintaining the reliability of the electricity system while integrating larger amounts of variable wind and solar generation requires more flexible resources to ramp up and down. The California Independent System Operator (ISO) projected a net load in 2020 as low as 12,000 MW and as much as a 13,000 MW ramping requirement in a three-hour period.²¹⁹ The California ISO has already seen ramping requirements that exceed this expectation. On April 23, 2017, the net load reached a minimum of 9,187 MW, and on December 18, 2016, the maximum three-hour ramp was 12,960 MW, with the peak shifting to later hours in the day. This has been done without jeopardizing the reliability of the bulk power system in California.

NERC notes that the changing resource mix from retirement of coal plants and additions of large amounts of natural gas and renewable generation alters the operating characteristics of the bulk power system. One of the primary recommendations from the NERC 2017 assessment is that FERC should support new market products and/or changes to market rules that support the provision of essential reliability services, which includes frequency response and increased system flexibility.²²⁰ That is exactly what is happening in California as it develops mechanisms to ensure flexible resources to maintain reliability with the influx of large amounts of renewable resources.

As part of these efforts, last year the California ISO introduced a formal flexible ramping product into its market system following FERC approval.²²¹ In addition to efforts at the California ISO, the California Energy Commission and Public Utilities Commission are pursuing numerous initiatives to ensure that renewable resources are integrated into the electricity system while maintaining reliability. Fortunately, California has a variety of tools at its disposal. Efforts to advance the flexibility of renewable and conventional generation, to deploy electricity storage that can compensate for variability, and to retain power plants that provide fast, flexible capacity are all examples of tools to increase the resiliency of the electric grid.

In addition, the ability of renewable resources to provide essential grid reliability services, despite being intermittent in nature, are being identified and demonstrated. For example, extensive testing at a 300 MW photovoltaic power plant in California showed how the development of advanced power controls can leverage photovoltaic value from being simply an intermittent energy resource to providing reliability services

²¹⁹ "Net load" subtracts the hour-by-hour contribution of wind and solar generation and determines the amount of resources that must be available to ramp up or down to satisfy demand. Net load is low during the middle of the day when solar peaks. As solar generation trails off at the end of the day and demand remains high, generating resources must be available to quickly ramp up.

²²⁰ NERC, 2017 Long-Term Reliability Assessment, at 6.

²²¹ FERC, Docket No. ER16-2023-000, September 26, 2016. Available at <https://www.ferc.gov/CalendarFiles/20160926164141-ER16-2023-000.pdf>. Attached as Exhibit 73.

that range from spinning reserves, load following, voltage support, ramping, frequency response, variability smoothing, and frequency regulation to power quality.²²² An earlier study looked at wind power's ability to provide similar active power control that supports grid reliability.²²³

Finally, the California ISO has recently expanded its wholesale energy market to include the Western Energy Imbalance Market, which allows regional participants to buy and sell energy in real time. Expanding the scope of the market is enabling California to reliably integrate high levels of renewable energy by providing access to a greater diversity of renewable resources that reduces the coincidence of production patterns. It also allows access to loads in regions outside the California ISO that can help absorb excess production and generating resources in those regions to assist with upward ramping requirements. Its benefits have grown as more entities join and increase access to more generation and transmission.

To summarize, it is evident that the electricity sector is undergoing significant changes but that reliability can be simultaneously ensured. As described above, California's success in implementing GHG regulations and maintaining reliability is evidence that the two are highly compatible.²²⁴

ii. *California's CPP Compliance Plan Reliability Analysis*

California has demonstrated that any purported reliability concerns do not constrain CPP implementation in the State.²²⁵ As part of California's demonstration that its Compliance Plan can meet CPP targets, a reliability assessment was conducted that indicated that sufficient reserve margins could be maintained over the forecast period. California has a number of operating and planning processes already in place, which are expected to continue to ensure reliability of the bulk power system even as the State continues implement ambitious policies to reduce GHG emissions by doubling the amount of energy efficiency, modernizing its natural gas fleet, retiring aging fossil

²²² Specifically, the tests conducted included various forms of active power controls such as automatic generation control and frequency regulation, droop response, and reactive power/voltage/power factor controls. See California ISO, First Solar and National Renewable Energy Laboratory, *Using Renewables to Operate a Low-Carbon Grid: Demonstration of Advanced Reliability Services from a Utility-Scale Solar PV Plant*, December 18, 2016. Available at <https://www.caiso.com/Documents/UsingRenewablesToOperateLow-CarbonGrid.pdf>. Attached as Exhibit 73.

²²³ *Active Power Control from Wind Power: Bridging the Gaps*, E. Ela, et. al., National Renewable Energy Laboratory, University of Colorado, Electric Power Research Institute, Technical Report, NREL/TP-5D00-60574, January 2014. Attached as Exhibit 74.

²²⁴ California ISO et al., *Using Renewables to Operate a Low-Carbon Grid*, cited *supra*.

²²⁵ The statement of former CARB Assistant Executive Officer Michael Gibbs to FERC's Technical Conference on Environmental Regulations and Electric Reliability, Wholesale Electric Markets, and Energy Infrastructure (February 25, 2015), is available at <http://www.ferc.gov/CalendarFiles/20150220110141-Gibbs,%20CA%20Air%20Resources%20Board.pdf>. Attached as Exhibit 75.

generation, and bringing on-line new low or non-emitting resources such as renewables. As noted in the State's CPP Compliance Plan, California's planning processes have been able to adjust to major transformations to the grid without any degradation in reliability. These grid transformations have included retirement of over 10 GW of once-through cooling gas plants, 2 GW of retired nuclear facilities, and the addition of 17 GW of utility scale renewable resources and 10 GW of small-scale renewables.

In addition, California has a robust reliability framework that has guided California planners, balancing authorities, and load-serving entities through major changes in the electric system. This robust reliability framework will continue to ensure a reliable electric grid. California reliability planning authorities currently have multiple, layered processes in place to ensure reliability on both a short- and long-term basis. There are requirements to meet real-time operational reserves sufficient to correct for the single largest contingency and implement remedial action schemes to ensure short-term reliability. The State has one year-ahead resource adequacy requirements for its investor-owned utilities, and conducts extensive resource planning to maintain adequate reserves. The California Energy Commission, Public Utilities Commission, and ISO have extensive long-term generation and transmission planning processes that ensure that California has adequate electricity resources to serve the needs of a growing clean economy.²²⁶

VIII. U.S. EPA Has Failed to Conduct Required Endangered Species Act and National Historic Preservation Act Reviews

Climate change and air pollution profoundly threaten ecosystems and cultural properties. U.S. EPA must properly consider these harms under the Endangered Species Act (ESA) and National Historic Preservation Act (NHPA) as it proposes to repeal the CPP, which would substantially worsen these harms.

Under the ESA, U.S. EPA must consider the potential impacts of any proposed relaxed standards, and resulting pollution on threatened and endangered species and critical habitats.^{227,228} Consultation with the U.S. Fish and Wildlife Service (U.S. FWS) for terrestrial species and with the National Oceanic and Atmospheric Administration (NOAA) for aquatic species²²⁹ is required to ensure that U.S. EPA's actions are not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat."²³⁰

²²⁶ For an extended discussion of why coal plant operation is not necessary for grid reliability or, to use Secretary Perry's undefined term, "resilience," please see the attached comments of the California Public Utilities Commission. Attached as Exhibit 76.

²²⁷ 5 U.S.C. § 1536.

²²⁸ 50 C.F.R. § 402.10.

²²⁹ *Id.* § 402.02 (defining the "service" with which consultation is required).

²³⁰ 15 U.S.C. § 1536(a)(2).

Because of the importance of endangered species protection assigned by Congress, this process is critical and is to begin “at an early stage in the planning process.”²³¹

Such consultation is especially critical here because the increased pollutant emissions resulting from CPP repeal would exacerbate climate change, ocean acidification, and air pollution impacts that U.S. EPA, per the Endangerment Finding, has already determined to threaten global ecosystems. These impacts are sweeping, critical, and potentially dispositive, as repealing the CPP would significantly exacerbate the climate change risks faced by these species.

With regard to climate change, for instance, U.S. FWS minces no words. It explains, in its core strategic document on climate change, that:

At the dawn of the 21st century, we find our commitment and resolve and our passion and creativity being called upon once again as we face what portends to be the *greatest challenge to fish and wildlife conservation in the history of the Service*: The Earth’s climate is changing at an accelerating rate that has the potential to cause abrupt changes in ecosystems and increase the risk of species extinctions.²³²

The U.S. FWS manual, similarly, explains that “[c]limate change is already affecting lands we manage; the fish, wildlife, and plant populations we are responsible for; and the ecosystems they rely on.”²³³ Accordingly, U.S. FWS explains, “[w]e must evaluate and address the impacts of climate change” in federal decision making.²³⁴ And no wonder: according to a recent paper in *Nature Climate Change* that comprehensively surveyed species records and climate response models, 47 percent of threatened terrestrial mammals and 23.4 percent of threatened birds “may have already been negatively impacted by climate change in at least part of their distribution.”²³⁵ This means, according to the best available science, that “conservation managers, planners and policy makers must take this into account in efforts to safeguard the future of biodiversity.”²³⁶

²³¹ 50 C.F.R. § 402.10(a); 50 C.F.R. § 402.11.

²³² U.S. FWS, *Rising to the Urgent Challenge: Strategic Plan for Responding to Accelerating Climate Change* (2016), available at <https://www.fws.gov/home/climatechange/pdf/CCStrategicPlan.pdf>. Attached as Exhibit 77 (emphasis added).

²³³ 056 FW 1, *Climate Change Adaptation*, available at <https://www.fws.gov/policy/056fw1.html>. Attached as Exhibit 78.

²³⁴ *Id.*

²³⁵ Pacifici et al., *Species’ traits influenced their response to recent climate change*, 7 *Nature Climate Change* 205 (2017). Attached as Exhibit 79.

²³⁶ *Id.*

Likewise, ocean acidification – the result of the absorption of carbon dioxide into the world’s oceans – threatens marine life. As the National Oceanic and Atmospheric Administration (NOAA) explains:

Ocean acidification is occurring because our ocean is absorbing carbon dioxide from the atmosphere, leading to lower pH and greater acidity. This is causing a fundamental change in the chemistry of the ocean from pole to pole.

Since the industrial revolution, the atmospheric concentration of carbon dioxide has increased from 280 to over 400 parts per million due to the burning of fossil fuels such as coal, gas, and oil, along with land use change. Ocean acidification (OA) refers to a change in ocean chemistry in response to the uptake of increasing carbon dioxide (CO₂) in the atmosphere. The world’s surface ocean is tightly linked with the atmosphere and absorbs huge amounts of carbon dioxide each year. This exchange, in part, helps to regulate the planet’s atmospheric CO₂ concentrations, but comes at a cost for the oceans and life within it; from the smallest, single celled algae to the largest whales. Were it not for ocean uptake of CO₂, atmospheric CO₂ levels would be increasing at an even greater rate than they are now.²³⁷

This acidification has dire consequences for marine life. Laboratory and field studies help scientists better understand the implications of modern ocean acidification resulting from human activities. These studies demonstrate that many marine species will likely experience adverse effects on health, growth, reproduction, and survival particularly in early life stages.²³⁸ As one prominent work of scholarship on the matter further explains:

Ocean acidification is known as “the other CO₂ problem,” because it has received less attention than climate change but is similarly caused by rising levels of atmospheric carbon dioxide (“CO₂”). Because the ocean absorbs roughly one-third of the CO₂ that humans release into the atmosphere annually, it is significantly more acidic than it was during the preindustrial era. This more acidic ocean has begun to dissolve the shells and other hard parts of marine organisms and threatens to change fundamentally the marine ecosystems on which a large fraction of the world depends for sustenance, recreation, and a host of other services.²³⁹

²³⁷ NOAA, Ocean Acidification Program, <http://oceanacidification.noaa.gov/OurChangingOcean.aspx>. Attached as Exhibit 80.

²³⁸ NOAA, State of The Science: Ocean Acidification (2013), available at [http://nrc.noaa.gov/sites/nrc/Documents/SoS%20Fact%20Sheets/SoS%20Fact%20Sheet Ocean%20Acidification%2020130306%20Final_v2.pdf](http://nrc.noaa.gov/sites/nrc/Documents/SoS%20Fact%20Sheets/SoS%20Fact%20Sheet%20Ocean%20Acidification%2020130306%20Final_v2.pdf). Attached as Exhibit 81.

²³⁹ Ryan Kelly & Meg Caldwell, *Ten Ways States Can Combat Ocean Acidification (And Why They Should)*, 37 Harvard Environmental Law Review 57 (2013), available at <http://harvardelr.com/wp-content/uploads/2013/05/Kelly-Caldwell.pdf>. Attached as Exhibit 82.

In short, the CPP's repeal would result in increased emissions that threaten protected species on land and in rivers, seas, and lakes. Federal law requires that U.S. EPA consult expert federal agencies regarding these matters, fully disclose them in a formal consultation process, and address any negative consequences. U.S. EPA has not done any of these things. It may not proceed.

U.S. EPA is also required to consider the potential impacts on archaeological sites and other historical resources under the National Historic Preservation Act.²⁴⁰ These resources are, in many instances, profoundly threatened by climate change. "Prior to the approval of any Federal undertaking that may directly and adversely affect any National Historic Landmark, the head of the responsible Federal agency shall to the maximum extent possible undertake such planning and actions as may be necessary to minimize harm to the landmark. The head of the Federal agency shall afford the Council a reasonable opportunity to comment with regard to the undertaking."^{241,242}

This is not a hypothetical concern. The National Park Service (Service) has, for instance, done extensive work on the pressing threat that climate change poses to cultural resources. Former Park Service Director Jonathan Jarvis, after reviewing this research, has described climate change as "the greatest threat to the integrity of our national parks that we have ever experienced."²⁴³ The Service has documented a wide array of threats to these resources, including fires, floods, increased erosion, and sea level rise. All of these would be exacerbated by the repeal of the CPP. Consultation with the Council is, therefore, required – and extensive coordination with all other relevant state and federal cultural resources agencies is appropriate. Yet, once again, U.S. EPA has done nothing. It cannot proceed without the required review and analysis.

IX. U.S. EPA's Federalism Analysis is Improper

The Clean Air Act is an exceptionally successful example of cooperative federalism, and state/federal partnerships are at the core of that success.²⁴⁴ The states rely upon the federal government to set strong standards that avoid pollution leakage between the states and address national and global problems; in turn, states develop innovative plans to meet these standards. Section 111(d) is based upon this model. CPP repeal would profoundly disrupt these statutory structures.

The Repeal Rule, as we have discussed, would leave the states exposed to the risks of climate change and other air pollution from power plants, and intensify the very

²⁴⁰ 42 U.S.C. § 300101 *et seq.*

²⁴¹ 54 U.S.C. § 306107.

²⁴² *Id.*

²⁴³ NPS, *Cultural Resources Climate Change Strategy* (2016), available at https://www.nps.gov/subjects/climatechange/upload/NPS-2016_Cultural-Resoures-Climate-Change-Strategy.pdf. Attached as Exhibit 83.

²⁴⁴ 42 U.S.C. § 7401(a)(3)-(4), (b)(1), (b)(3), (c).

emissions leakage and race-to-the-bottom risks between states in a common power grid that U.S. EPA designed the CPP to avoid. The result is to impose millions of dollars in climate risk upon the states and to impair the development of a cleaner power grid across state borders.

The CPP's original federalism analysis, prepared pursuant to Executive Order 13132, recognized that the CPP helped to secure these benefits.²⁴⁵ It also reflects the extraordinary consultative effort, including dozens of meetings with state regulators that U.S. EPA undertook to ensure that states could properly implement the program. The CPP's final form, including a "state measures" plan design option intended to provide maximum flexibility,²⁴⁶ reflects this collaborative approach. Thus, the CPP is entirely consistent with the federalist structure of the Clean Air Act itself.

U.S. EPA nonetheless now asserts that CPP *repeal* would benefit the states, in a cursory, single paragraph analysis.²⁴⁷ The agency maintains, without analysis, that CPP repeal "will not have substantial negative effects on the states" or upon the relationships between the states and the federal government. This is false. Leaving the states with an undue and unwieldy pollution burden, no federal structure to address it, and no federal grants or assistance to address the matter (as the CPP would otherwise have supported) is an unconscionable dereliction of duty entirely contrary to the Clean Air Act's goals, and to basic responsibilities of the federal government. For this reason, too, the Repeal Rule is improper.

X. Serious Conflicts of Interest and Due Process Violations Mar This Proposal

Finally, CARB joins the California Attorney General, writing on behalf of a dozen states, and several counties and cities, in expressing strong concern that the Repeal Rule is tainted by conflicts of interest and due process violations.²⁴⁸ Up to his appointment in 2017, U.S. EPA Administrator Scott Pruitt himself was a lead architect of litigation directly against the CPP, and appears to be unalterably fixed in his views. There are thus serious questions regarding whether the agency's analysis – which starkly departs from the reasoned conclusions reached after years of study and consultation – could possibly be reasoned or worthy of deference if the Administrator has guided that analysis.

²⁴⁵ CPP at 64937-38.

²⁴⁶ 40 C.F.R. § 60.5780.

²⁴⁷ Repeal Rule at 48048.

²⁴⁸ Letter from Attorney General Xavier Becerra on behalf of the States of California, Delaware, Hawaii, Illinois, Maine, Maryland, New Mexico, New York, Oregon, Vermont, and Washington, the Commonwealth of Massachusetts, the District of Columbia, the County of Broward (Florida), and the Cities of Boulder (Colorado), Chicago (Illinois), New York (New York), Philadelphia (Pennsylvania), and South Miami (Florida) to U.S. EPA (Jan. 9, 2018), attached as exhibit 84.

XI. Conclusion

Repealing the CPP endangers America and the world. It is contrary to law, unjust, and unsupported by the evidence. U.S EPA must abandon this unreasonable proposal.