Submitted Electronically

October 31, 2018

Mr. Nicholas Swanson
Sector Policies and Program Division (D205-01)
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711

RE: CALIFORNIA AIR RESOURCES BOARD'S COMMENTS ON PROPOSED AFFORDABLE CLEAN ENERGY RULE
DOCKET NO. EPA-HQ-OAR-2017-0355

Dear Mr. Swanson:

The California Air Resources Board (CARB) submits this comment letter, including the attached technical comments and exhibits, to the United States Environmental Protection Agency (EPA) on the Proposed Rule entitled "Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program", 83 Fed. Reg. 44746 (Aug. 31, 2018), which EPA euphemistically calls the Affordable Clean Energy Rule or ACE Rule (hereinafter, Proposed Rule or ACE Rule).[1]

The Proposed Rule would weaken critically needed climate change measures, violate the law, and endanger public health, leading to an additional 1,400 premature deaths by EPA's own estimate. While the Clean Power Plan (CPP) is an appropriate, necessary and long overdue response to EPA's Clean Air Act obligation to regulate power plant greenhouse gas emissions, the Proposed Rule, which would replace the CPP with a rule that may not reduce emissions at all (and may even *increase* emissions), ignores EPA's statutory obligations and threatens the health and welfare of millions of people affected by climate change. These threats are very concrete in California: The largest forest fire in California history occurred this past summer; the wildfire season effectively lasts the entire calendar year in parts of the State; and, surface temperatures have increased more in California than the global average. The U.S. government's own reports show pressing threats across the country. A do-nothing replacement of the CPP is unacceptable.

[1] We note that these comments were developed in partnership with the staff of the California Energy Commission and the California Public Utilities Commission.

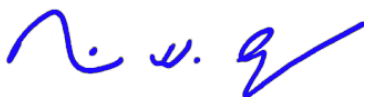
It is past time to move forward with the protective framework of the CPP. It has been nine years since this process began. Over that time, the climate crisis has steadily worsened. Fortunately, the availability and affordability of renewable power and energy efficiency has steadily improved, lowering power bills and providing solutions that also improve public health and create jobs. Indeed, in California, utilities are expected to achieve compliance with a 50% renewable portfolio standard by 2020 – a decade ahead of schedule. The CPP helped to drive progress on these crucial efforts, even in its developmental phases, by sending a regulatory signal; it will also support future progress if EPA concludes current litigation and moves forward to implement the CPP.

Unfortunately, the ACE Rule goes in the opposite direction, piling up illegal, irrational, and more costly choices. To summarize CARB's attached technical comments: EPA is obligated under section 111(d) of the Clean Air Act to regulate greenhouse gas emissions from existing electric generating units (EGUs); EPA's duty in this regard is clearly established. Yet, EPA's proposed best system of emission reduction (BSER) is unlawful: The proposed BSER, founded on an inaccurate reading of the law and willful disregard of the evidence, does not reduce emissions and may actually lead to increases in emissions. Further, the proposed emission guidelines for certain coal-fired EGUs do not even require their weak emission standards to actually be binding on coal-fired power plants, which is also illegal. These emissions increases are so egregious that EPA has proposed New Source Review (NSR) rule amendments to allow them, but those amendments are also unlawful because they reflect an incorrect interpretation of the term "modification" in the Act; furthermore, EPA's proposed rationale for the NSR amendments reflects the fact that the ACE Rule could *increase* emissions from coal-fired EGUs, which underscores the illegality of EPA's BSER.

EPA's efforts to further shield this proposal by amending the section 111(d) implementing regulations are unsupported; those amendments are arbitrary and capricious, primarily for failing to include a presumptive emission standard that would actually result in reductions. Additionally, the Proposed Rule's Regulatory Impact Analysis for all these steps is insufficient and unreasonable. Moreover, the emission guidelines for EGUs are arbitrary for failing to cover other types of coal- and natural gas-fired EGUs, which are significant sources of greenhouse gas emissions. EPA also seeks to bar emission trading *generally* in state plans; this is inconsistent with EPA's own professed support for cooperative federalism and regulatory flexibility. Finally, the ACE Rule is inconsistent with EPA's environmental justice, Endangered Species Act, and National Historic Preservation Act obligations. Rather than finalize this deeply flawed proposal, EPA should instead withdraw the Proposed Rule, conclude the ongoing CPP litigation, and implement the CPP.

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

cc: Drew Bohan, Executive Director, California Energy Commission
Alice Stebbins, Executive Director, California Public Utilities Commission

Attachment: Technical Comments of the California Air Resources Board on the Proposed Affordable Clean Energy Rule (with exhibits)

Technical Comments of the California Air Resources Board

on the Proposed Affordable Clean Energy Rule – October 31, 2018

The California Air Resources Board's (CARB) comments below detail its concerns with the Proposed Affordable Clean Energy Rule (Proposed Rule or ACE Rule). The Proposed Rule is flawed at every step – it is, essentially, a proposal to only allow states to *increase* the efficiency, and hence the use, of coal-fired power plants, while removing any meaningful federal oversight. The result, per United States Environmental Protection Agency's (EPA) rulemaking documents, is at least 1,400 more premature deaths. It is hard to conceive of a more perverse response to the pressing climate crisis.

CARB incorporates by reference and attaches here its previous comments on (1) 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 CPP Repeal Rule)[1] and (2) the Advance Notice of Proposed Rulemaking regarding "State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units", 82 Fed. Reg. 61507 (Dec. 28, 2017) (hereinafter, ANPRM).[2]

I. Greenhouse Gas Emissions From Existing Power Plants Must Be Regulated Under Clean Air Act Section 111(d)

It has been nine years since EPA concluded that greenhouse gas (GHG) emissions were a pressing threat to the public. Since that time, the threats posed by climate change have only become more apparent, but EPA has failed to act on power plant emissions, which are among the largest sources of climate pollution. This failure to act, and to take appropriate action in response to a pressing public health crisis, is contrary to the Clean Air Act.

The Clean Air Act (CAA or the Act) is designed to trigger action in response to an endangerment finding. Indeed, section 111(b) requires EPA to list "categories of stationary sources" that "in [EPA's] judgment ... caus[e], or contribut[e] significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare."[3] Once EPA lists a category, it must establish standards of performance for emissions of

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[1] *See* CARB Comments on Proposal to Repeal the Clean Power Plan, Docket No. EPA-HQ-OAR-2017-0355 (April 26, 2018). Attached as Exhibit 1.

[2] *See* CARB Comments on State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units, Docket No. EPA-HQ-OAR-2017-0545 (Feb. 26, 2018). Attached as Exhibit 2.

[3] 42 U.S.C. § 7411(b)(1)(A).

pollutants from new or modified sources within that category.[4] In turn, as the Supreme Court has stated, "§ 7411(d) then requires regulation of existing sources within the same category."[5] As the Repeal Rule properly states, "CAA section 111(d) *requires* the EPA to promulgate emission guidelines for existing sources that reflect the 'best system of emission reduction' (BSER) under certain circumstances."[6]

When EPA promulgated the section 111(b) rule to control GHG emissions from new EGUs (i.e., the New Source Rule), it stated "EPA has a rational basis for concluding that emissions of CO_2 from fossil fuel-fired power plants, which are the major U.S. source of GHG air pollution, merit regulation under CAA section 111."[7] The New Source Rule cited the 2009 Endangerment Finding[8] and the United States Court of Appeals, District of Columbia Circuit's (D.C. Circuit) decision in *Coalition for Responsible Regulation, Inc. v. EPA*, 684 F.3d 102 (D.C. Cir. 2012)[9] as demonstrating the validity of the underlying science analyzed in the Endangerment Finding, while indicating that "[n]o information that commenters have presented or that the EPA has reviewed provides a basis for reaching a different conclusion."[10] The New Source Rule continued, "the high level of GHG emissions from fossil fuel-fired EGUs makes clear that it is rational for the EPA to

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[4] *Id.* § 7411(b)(1)(B).

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

[6] Repeal Rule, at 48036-37 (emphasis added).

[7] Final Rule, Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64510, 64530 (Oct. 23, 2015) (hereinafter, New Source Rule).

[8] *See* Final Rule, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66496 (Dec. 15, 2009) (hereinafter, Endangerment Finding or 2009 Endangerment Finding). The U.S. Supreme Court held that GHG emissions are unambiguously air pollutants and that EPA therefore must decide whether GHG emissions cause or contribute to climate change pursuant to CAA section 202. *See Massachusetts v. EPA*, 549 U.S. 497, 528-35 (2007). In response to *Massachusetts v. EPA*, EPA issued the Endangerment Finding, which states that "[p]ursuant to CAA Section 202(a), [EPA] finds that greenhouse gases in the atmosphere may reasonably be anticipated both to endanger public health and to endanger public welfare." Endangerment Finding, at 66497.

[9] The D.C. Circuit in *Coal. for Responsible Regulation* upheld the Endangerment Finding, holding that "[r]elying again upon substantial scientific evidence, EPA determined that anthropogenically induced climate change threatens both public health and public welfare." *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). The Court also held that substantial evidence supported EPA's determination that motor-vehicle GHG emissions contribute to climate change and thus to the endangerment of public health and welfare. *Id.* Therefore, the Endangerment Finding has been dispositively approved by the courts and is unimpeachable as a factual and legal matter.

[10] New Source Rule, at 64530.

regulate GHG emissions from this sector."[11] The New Source Rule also stated: "Likewise, if the EPA were required to make a cause-or-contribute-significantly finding for CO_2 emissions from the fossil fuel-fired EGUs as a prerequisite to regulating such emissions under CAA section 111, the same facts that support our rational basis determination would support such a finding."[12]

The ACE Rule concedes that a section 111(d) rule is required here. As EPA states, "[t]hat CAA section 111(b) rulemaking [i.e., the New Source Rule] remains on the books, although EPA is currently considering revising it. Accordingly, it continues to provide the requisite predicate for applicability of CAA section 111(d)."[13] Significantly, without discussing the 2009 Endangerment Finding by name, the ACE Rule does not dispute that the Endangerment Finding is valid and in effect, or question the fundamental climate science that underlies EPA's duties. Therefore, the 2009 Endangerment Finding and EPA's analysis of its authority and duty to regulate GHG emissions from fossil fuel-fired EGUs in the New Source Rule stands.

Indeed, more recent scientific reports have underscored the profound urgency required of EPA. CARB has discussed many of these reports in its comments on the Repeal Rule[14]; uniformly, they depict the climate system hurtling into dangerous territory, and emphasize the need to control emissions immediately.[15] More recently, the Intergovernmental Panel on Climate Change (IPCC) has concluded that it is critically important to constrain warming to 1.5 degrees Celsius, which requires steep emissions cuts by 2030.[16] Millions of lives are at stake if we fail to act.

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[11] *Id.*

[12] *Id.* at 64531.

[13] ACE Rule, at 44751.

[14] Exhibit 1, Section II.

[15] California is particularly vulnerable to the climate crisis. *See* Office of Environmental Health Hazard Assessment, California Environmental Protection Agency (2018). Indicators of Climate Change in California, available at: https://oehha.ca.gov/media/downloads/climate-change/report/2018caindicatorsreportmay2018.pdf. Attached as Exhibit 3. This report indicates that, in California, "[e]xtremely hot days and nights — that is, when temperatures are at or above the highest 2 percent of maximum and minimum daily temperatures, respectively — have become more frequent since 1950. Both extreme heat days and nights have increased at a faster rate in the past 30 years." *Id.* at S-5.

[16] IPCC, Summary for Policymakers, *Global Warming of 1.5 °C* (2018), available at: http://www.ipcc.ch/report/sr15/ (hereinafter, IPCC 1.5 °C Report). Attached as Exhibit 4. The IPCC 1.5 °C Report finds that "[i]n model pathways with no or limited overshoot of 1.5°C, global net anthropogenic CO_2 emissions decline by about 45% from 2010 levels by 2030 (40–60% interquartile range), reaching net zero around 2050 (2045–2055 interquartile range)." *Id.* at SPM-15.

Action is past due. Because the New Source Rule is in place, legally valid, and based on an unchallenged determination that CO_2 emissions from fossil fuel-fired power plants merit regulation under section 111, EPA is required to regulate the GHG emissions from existing EGUs under section 111(d).

II. The ACE Rule's BSER Is Unlawful

In the face of this crisis, power sector emissions—which now constitute the second largest source of GHG emissions in the U.S.—are particularly important to control. Power sector emissions are novel because power plants operate in a linked power grid, operating (or "dispatching") more or less depending on each other's behavior and the demand for power on the grid. Accordingly, well-designed systems of emission reduction must account for these dynamics. In the CPP, EPA did so, noting that deeper reductions at individual highly-polluting facilities were available and economic in part because the grid automatically compensated for these reductions by dispatching cleaner facilities. In contrast, EPA noted in the CPP that a rule that only made dirtier facilities somewhat more efficient, without accounting for grid dynamics, would be inappropriate, as this could result in increased use of these facilities, and hence greater pollution. Therefore, the grid's real-world operations are a critical factor in appropriately designing a section 111(d) rule for power plants.

As EPA knows, "the arbitrary and capricious test applie[s] to rescissions of prior agency regulations,"[17] which means that EPA's actions must be consistent with statutory structure and intent, and grounded in the evidence. Yet, in the ACE Rule, EPA arbitrarily ignores its own prior factual and legal findings, and offers a rule that makes precisely the error EPA previously rejected in the CPP: It attempts to push upgrades of aging coal-fired facilities, without regard to rebound effects on the power grid. Accordingly, the ACE Rule proposes to identify ''heat rate improvements'' (HRIs) alone as the BSER for existing steam generating fossil fuel-fired EGUs.[18] The result, as EPA acknowledges, may well be *increased* emissions, and certainly not emissions decreases sufficient to address the risks indicated in the Endangerment Finding or be considered the best system of emission reduction. EPA's accompanying proposals to weaken rules constraining emissions increases implicitly acknowledges this fatal flaw, and highlights the arbitrariness of the rule.

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

[18] As EPA explains, "[h]eat rate is a measure of efficiency that is commonly used in the power sector. The heat rate is the amount of energy input, measured in British thermal units (Btu), required to generate one kilowatt-hour (kWh) of electricity. The lower an EGU's heat rate, the more efficiently it operates. As a result, an EGU with a lower heat rate will consume less fuel per kWh generated and emit lower amounts of CO2 and other air pollutants per kWh generated as compared to a less efficient unit." ACE Rule, at 44755.

Perhaps in an effort to weaken the blow, EPA calls this BSER "guidance"; EPA does not propose a presumptively approvable emission rate as part of its BSER. States may consider the BSER, but ultimately reject it for a number of reasons under EPA's proposal. For the reasons described below, the ACE Rule's proposed informational and ineffective BSER does not satisfy the Clean Air Act.

a. Minimal Guidance on Heat Rate Improvements Alone Cannot Constitute BSER

Only considering HRIs as BSER is unlawful on multiple grounds. Initially, EPA has not offered substantial evidence or legal reasoning warranting the abandonment of its prior identification of the CPP measures as BSER. Moreover, EPA's efforts to offer what it claims to be a new legal interpretation foreclosing the CPP are unavailing because EPA's proposed legal interpretation of section 111 does not actually foreclose more cost-effective emission reduction measures (e.g., generation shifting) as the appropriate "system" in this context. On a fair reading of the facts and the law, HRIs, which produce vanishingly small emissions improvements and can actually encourage the use of dirtier facilities, are not the "best" system of emission reduction. Additionally, EPA's proposed BSER will not likely reduce emissions for EGUs, which is the bare minimum of what a BSER must achieve. Finally, the Proposed BSER—which achieves at most 1-2% reductions in GHG emissions by EPA's estimate and may not reduce GHG emissions at all—is wholly inadequate in light of the Endangerment Finding.

In sum, while EPA must establish the "best system of emission reduction" for existing EGUs, the ACE Rule is not the "best" EPA can propose; it is not an appropriate "system" in the context of the power grid; and, it may not result in any "reduction". All that is left after EPA's contorted attempt at a section 111(d) rule is "emission[s]". The ACE Rule does not satisfy the bare minimum for a permissible BSER.

CARB explains these concerns below.

i. The Repeal Rule's interpretation of Section 111 remains invalid and cannot serve as a basis to foreclose cost-effective emissions reduction measures

The ACE Rule proposes to determine the BSER for existing EGUs based on minimal HRI measures that "can be applied at an affected source."[19] In so doing, EPA relies on the legal interpretation of section 111 presented–but notably not finalized–in the Proposed Repeal Rule.

[19] *Id.* at 44748.

The Repeal Rule's apparent legal interpretation of section 111 is invalid, as described in CARB's comments on the Repeal Rule.[20] To summarize, 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 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.[21] In reaching this conclusion, the Repeal Rule adds words to the statute – which does not contain this source-based restriction in its text – and downplays that the Clean Air Act in fact speaks of the best "system" of emissions reduction, a term which supported EPA's approach in the CPP. Based on this conclusion, EPA insists that the CPP must be repealed and replaced by the ACE Rule in effect because the CPP looks too clearly at potentially effective and well-demonstrated emissions control measures that support source-level reductions. EPA insists, wrongly, that it is required to ignore the existence of the power grid, and the linked nature of power plants, in devising a system of emissions reductions that will operate on the power grid.

The Repeal Rule (and, by extension, the ACE Rule) misreads the Act, ignores or improperly neglects the significance the EPA's own prior actions, and misconstrues the CPP itself. There is nothing in the statute that requires EPA's hyper-source-focused reading. In fact, even if 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 the ACE Rule.

The BSER underlying the CPP involves "a measure applicable to and performed at the level of, and at or within, the bounds of"[22] affected EGUs because it ultimately was implemented by operators reducing the use of their plants in appropriate circumstances (including in response to incentives created by emissions trading systems). The fact that operators' decisions necessarily were supported by the operation of a power grid in which they are legally and physically required to participate does not affect the source-based nature of the ultimate reductions. 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. EPA fails to explain how its proposed legal interpretation forecloses generation shifting and requires CPP repeal. Therefore, because EPA's proposed legal interpretation does not actually foreclose generation shifting, the ACE Rule could not possibly constitute BSER because, by the ACE Rule's own admission, the CPP is more cost effective and achieves deeper emissions reductions than the ACE Rule. The ACE Rule BSER

[20] *See* Exhibit 1, Section IV.

[21] Repeal Rule, at 48039.

[22] *Id.* at 48040, note 13.

cannot reflect the "best" system of emission reduction if it achieves fewer reductions at higher cost, for no apparent legal reason.

ii. BSER must, at a minimum, reduce emissions, which the ACE Rule Proposed BSER does not do

Even if EPA's legal rationale for a differently designed rule had abstract merit, the ACE Rule, in particular, does not conform to the Clean Air Act because it does not reliably reduce emissions, and certainly does not do so in the "best" way, or in a way consistent with the gravity of climate change.

The section 111(d) process requires EPA to develop emission guidelines consistent with BSER. The D.C. Circuit has held that emissions reductions are the core consideration for this process. As EPA correctly identified, "[t]he fact that the purpose of a 'system of emission reduction' is to reduce emissions, and that the term itself explicitly incorporates the concept of reducing emissions, supports the Court's view that 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."[23] Yet, here, EPA has failed to secure meaningful emissions reductions.

Under section 111(d) of the Act, EPA must "prescribe regulations which establish a procedure similar to that provided by [CAA section 110][24] under which each State shall submit to [EPA] a plan which (A) establishes standards of performance for any existing source [subject to regulation under section 111(d)] and (B) provides for the implementation and enforcement of such standards of performance."[25] In turn, a "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 non-air quality health and environmental impact and energy requirements) [EPA] determines has been adequately demonstrated."[26]

The section 111(d) planning process proceeds with EPA's issuance of a guideline document for states to use in developing state plans for regulating existing sources.[27] Guideline documents provide information for the development of state plans, including:

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[23] *Id.*

[24] Section 110 pertains to the States' formulation of State Implementation Plans (SIPs) to attain or maintain the National Ambient Air Quality Standards (NAAQS).

[25] 42 U.S.C. § 7411(d)(1).

[26] *Id.* § 7411(a)(1). This is referred to as the "BSER" standard herein.

[27] 40 C.F.R. § 60.22(a).

"[a]n emission guideline[28] that reflects the application of the best system of emission reduction (considering the cost of such reduction) that has been adequately demonstrated for designated facilities[29], and the time within which compliance with emission standards of equivalent stringency can be achieved..."[30] Essentially, the emission guideline establishes (1) the applicable standard of performance and (2) the deadline for compliance with the standard of performance.

While EPA is proposing changes to the section 111(d) implementing regulations that would permit EPA to *not* provide a presumptive numerical standard as part of its emission guidelines (a subject CARB addresses later in this comment letter), the ACE Rule nevertheless recognizes that each emission guideline must reflect "the degree of emission limitation achievable by the BSER."[31] In turn, the definition of "standard of performance" indicates that BSER is determined by EPA. Therefore, EPA cannot avoid the central relevance of the BSER standard: *The proposed emission guideline for power plants must reflect what is achievable by BSER, which EPA alone determines*.

The law requires EPA to consider the amount of emissions reductions to be achieved in determining the BSER. The CPP stated that "although the definition of 'standard of performance' does not by its terms identify the amount of emissions from the category of sources or the amount of emission reductions achieved as factors the EPA must consider in determining the 'best system of emission reduction,' the D.C. Circuit has stated that the EPA must do so."[32] Given the purpose of section 111 to achieve "emission reduction", the ACE Rule's focus on improving the efficiency of dirty coal-fired power plants, enabling them to emit *more* and operate *longer* is entirely improper; rather, the ACE Rule must meaningfully reduce emissions consistent with BSER to fulfill the requirements of section 111 and the Act generally.

The ACE Rule does not satisfy BSER. It is highly uncertain whether the ACE Rule, if finalized, would reduce emissions *at all* and EPA even admits that the rule will increase emissions in certain scenarios. In the CPP, EPA correctly found that, in finalizing the CPP, building block 1 measures (i.e., heat rate improvements at coal-fired EGUs) could

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[28] The definition of emission guideline is substantially similar to the definition of standard of performance: "Emission guideline means a guideline set forth in subpart C of this part, or in a final guideline document published under § 60.22(a), which reflects the degree of emission reduction achievable through the application of the best system of emission reduction which (taking into account the cost of such reduction) [EPA] has determined has been adequately demonstrated for designated facilities." *Id.* § 60.21(e).

[29] Designated facilities are existing facility to which section 111(d) applies. *Id.* § 60.21(b).

[30] *Id.* § 60.22(b)(5).

[31] ACE Rule, at 44771.

[32] CPP, at 64721 (citing *Sierra Club* v. *Costle,* 657 F.2d 298, 326 (D.C. Cir. 1981)).

not by themselves constitute the BSER because of a potential "rebound effect".[33] As EPA described then, "it is critical to recognize that affected coal-fired EGUs operate in the context of the integrated electricity system. Because of this reality, applying building block 1 in isolation can result in a 'rebound effect' that undermines the emissions reductions otherwise achieved by heat rate improvements."[34] EPA continued: building block 1 measures "*cannot by themselves constitute the BSER because the quantity of emission reductions achieved*—which is a factor that the courts have required EPA to consider in determining the BSER—*would be of insufficient magnitude in the context of this pollutant and this industry*. The potential rebound effect, if it occurred, would exacerbate the insufficiency of the emission reductions."[35] EPA does not dispute the sufficiency or veracity of this conclusion in the Proposed ACE Rule. The grid-based nature of the power sector, unaccounted for in any proper way in the ACE Rule, undermines the sufficiency of the Proposed Rule.

Indeed, the rebound effect is borne out in EPA's own analysis in the ACE Rule. The ACE Rule Regulatory Impact Analysis (RIA) shows that generation at coal-fired EGUs increases in *all scenarios in all snapshot years* (i.e., 2025, 2030, and 2035) compared to the Base Case Scenario (i.e., CPP) and a "No CPP Alternative Baseline" (i.e., CPP repeal with no replacement rule).[36] If the sources that undertake HRIs operate more—as EPA projects—and avoid NSR requirements—as EPA proposes and internally assumes in its RIA—then the increased generation from these sources could increase total emissions if the increase in generation outstrips the decrease in emissions intensity. Significantly, the ACE Rule cites a 2014 report that projected that up to 80% of existing coal-fired EGUs have sulfur oxide (SOx) and nitrogen oxide (NOx) emissions above the level of control that would be required by NSR.[37] Therefore, it is wholly reasonable to anticipate increased emissions resulting from the ACE Rule and EPA does not adequately explain why it is not projecting such emissions increases in *all* RIA scenarios.[38]

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[33] *Id.* at 64787.

[34] *Id.*

[35] *Id.* (emphasis added).

[36] Regulatory Impact Analysis for the Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program (Aug. 2018), at Table 3-17 (hereinafter, RIA).

[37] ACE Rule, at 44775-76, note 49. *See* Sarah K. Adair, David C. Hoppock, Jonas J. Monast, ''New Source Review and coal plant efficiency gains: How new and forthcoming air regulations affect outcomes'', 70 Energy Policy 183–192 (2014). Attached as Exhibit 5.

[38] The ACE Rule states that "[w]hile the RIA shows that, under certain assumptions, sources that adopt HRI may increase generation, due to their improved efficiency and relatively

Nevertheless, the ACE Rule's RIA itself recognizes that, in certain scenarios, emissions increase as a result of ACE, as compared to both the Base Case and the No CPP Alternative Baseline. The RIA projects that CO_2 emissions *increase* for coal-fired EGUs that are greater than 25 MW relative to the No CPP Baseline in 2035 with a "4.5% HRI at $50/kW" scenario.[39] The RIA also projects that SO_2 emissions *increase* in 2025 with a "4.5% HRI at $50/kW" scenario, compared to the No CPP Baseline.[40] Finally, EPA's own modeling shows that the ACE Rule could increase GHG emissions in as many as 17 states by 2030 compared to a no CPP baseline.[41] In sum, EPA itself concedes that the ACE Rule may do more harm than *no section 111(d) rule at all* in terms of dangerous climate and criteria pollutants.

The ACE Rule also concedes—in qualitative terms—that the proposal could result in increased emissions via the rebound effect. As the ACE Rule states, "EGUs that operate at lower costs are generally preferred in the dispatch order by the system operator over units that have higher operational costs, and EPA's regulatory impact analysis (RIA) for this action [] shows that improving an EGU's heat rate will lead to increased generation due to its improved efficiency and relative economics."[42] EPA continues: "As the EGU increases its generation, to the extent the EGU operates beyond its historical levels by a meaningful amount, *it could result in an increase in*

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improved economic competitiveness, they also generally reduce emissions (as a group) because they can generate higher levels of electricity with a lower overall emission rate. Hence, EPA analysis indicates that the system-wide emission decreases due to reduced heat rate are likely to be larger than any system-wide increases due to increased operation. EPA solicits comment on this conclusion (Comment C–9)." ACE Rule, at 44761.

This conclusion is questionable given that independent analysis indicates that 80% of existing coal-fired EGUs have SOx and NOx emissions above the level of control that would be required by NSR. Additionally, as described in this comment letter, EPA itself admits to emissions increases in certain scenarios. Furthermore, EPA admits its analysis is "highly illustrative", which means that EPA is producing rough estimates of projected emissions changes rather than rigorous and reliable quantifiable results. Finally, more efficient coal-fired EGUs would not be displacing higher-emitting EGUs in the loading order when they generate more: These are the highest emitting units. In light of the rebound effect, the sources that are currently on the grid, and EPA's proposed NSR amendments, it is reasonable to anticipate emissions increases from the ACE Rule.

[39] RIA, Table 3-13.

[40] *Id.* Table ES-7.

[41] This result is demonstrated by comparing the "no CPP" scenario to the ACE Rule's "4.5% HRI at $50/kW" scenario in year 2030. EPA's "state emissions" spreadsheet—which demonstrates that emissions will actually increase in 17 states as a result of the ACE Rule in 2030 (compared to no policy at all)—for this illustrative scenario is available at: https://www.epa.gov/airmarkets/analysis-proposed-ace-rule.

[42] ACE Rule, at 44775.

emissions on an annual basis, as calculated pursuant to the current NSR regulations."[43] The ACE Rule must admit the salience of the rebound effect because, if it did not, then EPA's proposed NSR amendments would be wholly unnecessary, as described in further detail below.

Recent independent analysis confirms EPA's qualitative assessment. Resources for the Future (RFF) analyzed emissions impacts of a so-called "at-the-source" scenario (i.e., 4 percent HRI with minor allowance for co-firing natural gas) to a "no-policy" reference scenario. RFF found that "the at-the-source scenario could lead to increased CO_2 emissions at many facilities, and even an increase in total CO_2 emissions in some states. Indeed, eight states—Arizona, Florida, Idaho, Mississippi, New Jersey, Nevada, Oregon and Washington—show an increase in estimated CO_2 emissions, ranging from two thousand to 1.5 million tons."[44] This analysis is instructive—although not dispositive—because the RFF's "at-the-source" scenario is similar to the ACE Rule's proposed BSER.

In the scenarios where EPA does not model emissions increases or describe in a narrative fashion the likelihood of emissions increases, it projects that the ACE Rule will result in *no* emissions changes or very minor decreases in emissions. The RIA projects that CO_2 emissions do not decrease *at all* compared to CPP repeal in 2035 in a "4.5% HRI at $50/kW" scenario.[45] EPA otherwise projects only a 1-2% decrease in CO_2 emissions for *all* ACE scenarios relative to the No CPP Alternative Baseline.[46]

EPA's projected emissions decreases are so small, and the underlying assumptions driving the RIA's projections are so variable, that the ACE Rule could realistically increase emissions in all scenarios.[47] As the RIA states, "the HRI potential can vary significantly from unit to unit. EPA does not have sufficient information to assess HRI potential on a unit-by-unit basis."[48] Additionally, the RIA states that "CAA 111(d) also provides States with the responsibility to establish standards of performance and

[43] *Id.* (emphasis added).

[44] RFF Working Paper, Carbon Standards Examined: A Comparison of At-the-Source and Beyond-the-Source Power Plant Carbon Standards, at 6 (Aug. 2018). Attached as Exhibit 6.

[45] RIA, Table ES-6.

[46] *Id.*

[47] EPA projects that emissions increase in all ACE scenarios relative to the CPP. *See* ACE Rule, Table 6.

[48] RIA at 1-7.

provides considerable flexibility in applying those emission standards."[49] EPA concludes, "[t]herefore, any analysis of the proposed rule must be highly illustrative."[5051]

The "highly illustrative" nature of the RIA reveals that EPA is essentially guessing when it comes to estimating emissions impacts stemming from the ACE Rule. However, even the ACE Rule's self-serving analysis projects emissions increases in certain scenarios compared to no rule at all, as described above. Additionally, the logic of the rebound effect and the rationale for EPA's proposed NSR amendments suggest that even greater emissions increases are likely.

Moreover, even if emissions from individual units do not increase in all scenarios, EPA's failure to consider the real world operations of the power grid further undermines its BSER analysis. By making coal-fired power plants more efficient, it is functionally increasing the likelihood of dispatch for these facilities, and encouraging further public and private investments in them to capture efficiency improvements. These efforts to make uneconomic units somewhat more economic will extend their lives and so extend their emissions in time and quantity, distorting the outcome an efficient power market

[49] *Id.*

[50] *Id.*

[51] Relatedly, EPA argues that exogenous trends in the power sector that are reducing emissions justifies a lax BSER. As EPA states, "establishing a BSER on assumptions for generation by various sources that accounts for the continuation of these trends into the future would create significant work for both states and sources that may or may not result in emission reductions from ACE if the actual trends once again prove to be stronger than projected." ACE Rule, at 44754. However, if ACE does not reduce emissions as a result of these trends, that is only additional evidence that the ACE Rule does not satisfy BSER because a section 111(d) emission guideline must reflect the best system of *emission reduction*. As such, EPA's argument actually supports the opposite conclusion: In light of existing power sector trends, the ACE Rule should be more stringent, not less stringent.

Further, the ACE Rule's claim that reliability would be threatened if BSER were more stringent continues to be unbelievable. As EPA states, the shift from coal-fired generation to other technologies "is creating tremendous strain on the power infrastructure even without the added pressures of an EPA mandate to further shift away from additional coal-fired generation." *Id.* at 44754. However, the Federal Energy Regulatory Commission (FERC) recently rejected the Secretary of Energy's proposal to provide price supports to coal-fired power plants due to purported concerns about grid reliability. *See* Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures, 162 FERC ¶ 61,012 (Jan. 8, 2018). Attached Exhibit 7. 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.

would otherwise create. This artificial subsidy for coal-fired power plants unduly picks winners in the market, to the public's detriment.[52]

Therefore, EPA is proposing a BSER which violates section 111. EPA's emission guideline must reflect the "best system of emission reduction"; yet, EPA's BSER actually *increases emissions* in certain cases, as EPA concedes. The BSER may also be anticipated to increase emissions in other cases, in light of the rebound effect and EPA's proposed NSR amendments. Whatever discretion EPA has, it must establish a section 111(d) rule and that rule must reduce emissions given the text and structure of section 111. The ACE Rule fails this basic test. Additionally, given the entire purpose of the Act—to reduce emissions and support air quality—EPA's BSER is arbitrary and capricious because it will not reduce emissions, and may increase emissions.

iii. BSER must be read in light of the Endangerment Finding

The ACE Rule is particularly inappropriate when the Act's emissions reduction requirements are read in light of EPA's factual findings regarding greenhouse gases. The facts in this case are reflected in EPA's 2009 Endangerment Finding and subsequent climate science. In the Endangerment Finding, EPA states that it "has determined that the body of scientific evidence compellingly supports this finding."[53] Specifically, EPA considered how elevated concentrations of anthropogenic 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.[54]

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[52] It is clear that coal is becoming increasingly uncompetitive in the power market absent special treatment by regulators. *See* 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 8 (explaining 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."). The Energy Information Administration (EIA) projects continued decreases in coal-fired generation in its reference case (i.e., absent the CPP). *See* EIA, Annual Energy Outlook 2018, at 102, available at: https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf (hereinafter, EIA AEO 2018). Attached as Exhibit 9. The 2018 Annual Energy Outlook states that "[b]y 2030, most of the additional planned coal unit retirements have occurred, and in the absence of the CPP, projected CO_2 emissions stabilize in the Reference case at about 1.71 billion metric tons, which is 143 million metric tons (8%) below the AEO2017 Reference case without the CPP for that year."

[53] Endangerment Finding, at 66497 (Dec. 15, 2009).

[54] *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

Additionally, 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.[55] 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."[56]

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, 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 [EPA's] endangerment finding."[57] [58] Since 2009, these bodies have produced revised assessments that reveal in even starker contrast the severity of current and projected climate change.[59]

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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.").

[55] *Id.* at 66498.

[56] *Id.* at 66500.

[57] *Id.* at 66497.

[58] *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, [EPA] is placing primary and significant weight on these assessment reports in making [its] decision on endangerment.").

[59] *See* New Source Rule, at 64517-18 (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, CO_2 concentrations, and sea level

Projected climate change is likely to become even worse, as EPA acknowledges. The recently proposed Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule assumes that CO_2 concentrations will be approximately 789 ppm by 2100[60] and the draft environmental impact statement for the SAFE Rule indicates that this concentration corresponds with warming of 3.5°C by 2100. [61] The ACE Rule does not suggest that other temperature change and CO_2 concentration figures should apply in the ACE Rule context, so CARB assumes that these are the working assumptions of EPA.

Allowing CO_2 concentrations to reach 789 ppm—and global temperatures to increase by 3.5°C—by 2100 would spell disaster for the U.S. and the world. The USGCRP Fourth National Climate Assessment (USGCRP Fourth Assessment) indicates that, during the last period when CO_2 concentrations were at this level (35 to 55 million years ago), there were no permanent land-based ice sheets[62] and sea level rise of up to 8 feet by 2100 is a possibility in such higher temperature scenarios.[63] The IPCC finds that the "risks associated with temperatures at or above 4°C include substantial species extinction, global and regional food insecurity, consequential constraints on common human activities and limited potential for adaptation in some cases."[64]

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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.").

[60] Proposed Rule, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks, 83 Fed. Reg. 42986, 42996 (Aug. 24, 2018).

[61] Draft Environmental Impact Statement, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021–2026 Passenger Cars and Light Trucks, at 5-31 (July 2018), available at: https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/ld_cafe_my2021-26_deis_0.pdf.

[62] USGCRP, 2017: Climate Science Special Report: Fourth National Climate Assessment, Volume I, at 141 [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. Attached as Exhibit 10.

[63] *Id.* at 333.

[64] *See, e.g.,* 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 19 (IPCC Fifth Assessment Report). Attached as Exhibit 11.

By late-century (2070-2100), California's Fourth Climate Change Assessment (California Fourth Assessment) projects temperature increases of 4 to 6 °C in the state.[65] Snowpack—a vital resource for drinking water and the State's agricultural industry—is projected to decline to less than half the historical median under one emissions scenario and less than one-third under another emissions scenario.[66] More of California's forests will burn[67], and rising seas will wipe out southern California beaches and coastal properties[68], with unabated climate change.

In short, the 2009 Endangerment Finding remains in place and the climate science since then has underlined the urgency of the climate crisis. The USGCRP found earlier this year that "[s]tabilizing global mean temperature to less than [2 °C] above preindustrial levels requires substantial reductions in net global CO_2 emissions prior to 2040 relative to present-day values and likely requires net emissions to become zero or possibly negative later in the century."[69] The IPCC recently found that, in order to limit warming to below 2 °C, global net anthropogenic CO_2 emissions would need to decline by about 20% from 2010 levels by 2030 and reach net zero by 2075.[70] The emissions reductions required to limit warming to 1.5 °C—which would still entail significant negative effects on public health and welfare[71]—are much more ambitious.[72] Yet, EPA seems to have no plan for reducing emissions consistent with these expert climate science assessments.

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[65] California Fourth Climate Change Assessment, Statewide Summary Report, at 23 (2018). Attached as Exhibit 12.

[66] *Id.* at 27.

[67] *Id.* at 30.

[68] *Id.* at 31-33.

[69] USGCRP Fourth Assessment, at 393.

[70] IPCC 1.5 °C Report, at SPM-15.

[71] *Id.* at SPM-11 (stating "Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C.").

[72] *Id.* (stating that emissions would need to decline to 45% below 2010 levels by 2030 and be net zero by 2045 to prevent warming from exceeding 1.5 °C). As the IPCC states, "[p]athways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems… These systems transitions are unprecedented in terms of scale, but not necessarily in terms of speed, and imply deep emissions reductions in all sectors, a wide portfolio of mitigation options and a significant upscaling of investments in those options." *Id.* at SPM-21.

After a "searching and careful inquiry" into the facts,[73] Courts will find EPA's actions arbitrary and capricious if the agency has failed to "examine the relevant data and articulate a satisfactory explanation for its action, including a rational connection between the facts found and the choice made,"[74] or has reached a conclusion unsupported by substantial evidence.[75]

In this case, there is no rational connection between the facts found and the choice made. It is wholly unreasonable for EPA to propose a section 111(d) rule for one of the largest sources of GHG emissions that essentially does nothing to reduce emissions and address the threat of climate change. The ACE Rule RIA states that "[a]s compared to the standards of performance that it replaces (i.e., the 2015 Clean Power Plan), implementing the proposed rule is expected to increase emissions of carbon dioxide (CO_2) and increase the level of emissions of certain pollutants in the atmosphere that adversely affect human health."[76] As explained above, the ACE Rule may even increase emissions compared to a scenario with no section 111(d) rule at all. In sum, EPA has failed to articulate a rational connection between the facts found (i.e., climate change is caused by GHG emissions and affects public health and welfare, per the Endangerment Finding) and the choice made (i.e., The ACE Rule's proposed BSER). Therefore, the ACE Rule is arbitrary and capricious.

b. BACT Guidance on "Redefining the Source" Does Not Limit the Scope of BSER

The ACE Rule purports to offer "additional legal rationale to support its determination that heat-rate improvements constitute the BSER."[77] On this point, EPA analogizes its policy on "redefining the source" in the Best Available Control Technology (BACT)/ Prevention of Significant Deterioration (PSD) context and proposes "to recognize that the BSER analysis need not include options that would 'fundamentally redefine the source,' irrespective of the application of that policy under PSD."[78] As a result of this cross-application of EPA's BACT policy, EPA "did not consider natural gas repowering (i.e., converting from a coal-fired boiler to a gas-fired turbine) or refueling (i.e.,

[73] *Am. Trucking Ass'n v. EPA,* 283 F.3d 355, 362 (D.C. Cir. 2002).

[74] *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.,* 463 U.S. 29, 43 (1983) (internal quotation marks and citation omitted).

[75] *Ass'n of Data Processing Serv. Orgs., Inc. v. Bd. of Governors of the Fed. Reserve Sys.,* 745 F.2d 677, 683–84 (D.C. Cir.1984).

[76] RIA, at 4-1.

[77] ACE at 44752. This section is responsive to Comment C-2.

[78] *Id.* at 44753.

converting from a coal-fired boiler to a natural gas-fired boiler) as a system of emission reduction for coal-fired steam generating units."[79]

The Proposed ACE Rule's assertion that the BACT "redefining the source" policy should apply in the BSER context is contrary to the Clean Air Act. As EPA stated in the CPP response to comments document, ''EPA's policies under CAA section 165 regarding the construction of individual sources are not controlling for purposes of establishing category-wide standards for existing sources under CAA section 111(d)."[80]

Such policies certainly do not take precedence over the relevant statutory language, under which EPA is required to develop the best systems of emission reduction for entire source categories – an inquiry that does not bear upon the nature of any particular source. In contrast to section 111, section 165 specifically addresses preconstruction permitting for new major stationary sources and major modifications to existing stationary sources. The BACT analysis for such permitting is necessarily source-specific and prescriptive.

On the other hand, EPA must establish BSER for all sources in a source category under section 111(d). In light of the category-wide nature of section 111(d) standards and the interconnected function of the electric grid, there is no reason for section 111(d) standards for power plants to be limited by the BACT "redefining the source" policy. On the contrary, section 111's system-level inquiry into an entire source category (here, the entire cohort of fossil fuel-fired power plants) directs a category-level consideration. The individual compliance strategies of individual sources is not germane to that question, and does not obviate the required statutory effort to reduce source category emissions as a whole. Moreover, the BACT policy is particularly inapt in the context of section 111(d) emission guidelines, in which EPA is setting emissions limits for states to implement. Merely considering the possibility of fuel switching for the purposes of guideline setting does not require any particular state or source to opt for this compliance approach to meet the guideline emission level.

Indeed, as the Proposed ACE Rule's many failings amply demonstrate, such a constraint is inappropriate. Power plants operate in a grid system, and emissions policies at any one facility affect the system as a whole. The question is how best to reduce pollution across this system. Fuel-switching may not be a preferred BSER relative to cheaper options – which EPA is now improperly ignoring – but it is not an improper measure to consider for purposes of determining BSER.

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[79] *Id.*

[80] *See* EPA, CPP Responses to Comments Document, Chapter 1A, at 172. Attached as Exhibit 13.

The CPP, for instance, indicated that fuel switching from coal to natural gas—and co-firing natural gas in a steam EGU—were considered in the proposed CPP rule. The CPP stated that "[t]he primary reason for not considering this measure part of the BSER, both at proposal and in this final rule, is that it is more expensive than the BSER measures."[81] In turn, the BSER measures in the CPP were conservatively estimated at $30 per ton of CO_2 weighted-average cost.

However, given that the ACE Rule proposes to limit BSER to exclude generation shifting, EPA will necessarily have to consider other options, at a potentially higher cost, to achieve adequate emission reductions. Indeed, in the CPP, EPA explicitly found that a range of these measures, including "co-firing and [carbon capture and sequestration] are technically feasible and within price ranges that the EPA found to be cost-effective in the context of other GHG rules, that a segment of the source category may implement those measures, and that the resulting emission reductions could be potentially significant."[82] Therefore, the ACE Rule must explicitly consider whether fuel switching from coal to natural gas and natural gas co-firing should be part of BSER, and EPA's BACT guidance does not obviate EPA's duty to consider such measures as part of BSER.

III. EPA's Proposed Emission Guidelines Are Ungovernable And Unlawful

The ACE Rule, in sum, relies on an unlawfully lax emissions reduction program. But that is not the end of the proposal's illegality; EPA is also proposing a set of requirements for plan development, review, and approval that functionally vitiate even its very weak rule. As a result of this set of proposals, the proposed emission guidelines are effectively non-binding and, therefore, cannot reflect the "degree of emission limitation achievable" even if they meaningfully set out emission reduction requirements. The emission guidelines also establish no discernable standard for EPA to approve (or disapprove) a state plan. It is also unclear how EPA would establish a federal plan, if necessary. For these reasons, the emission guidelines are also illegal because they do not fulfill even the most basic requirements of section 111(d). Finally, the emission guidelines introduce a significant opportunity for states to "race to the bottom", which, in turn, generates emissions leakage.

a. The Proposed Guidelines Cannot Reflect "The Degree Of Emission Limitation Achievable" Because They Are Not Binding

The ACE Rule ultimately requires states only to evaluate EPA's HRI approaches, rather than implement them. Thus, it cannot reflect the degree of emission limitation

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[81] CPP at 64756.

[82] *Id.* at 64727.

achievable even on its own terms. Specifically, while EPA is proposing changes to the Part 60 implementing regulations that would permit EPA to *not* provide a presumptive numerical standard as part of its emission guidelines, the ACE Rule nevertheless recognizes that each emission guideline must reflect "the degree of emission limitation achievable by the BSER."[83] EPA's emission guidelines are unlawful because the BSER is non-binding and, therefore, the guidelines *per se* cannot reflect the degree of emission limitation achievable by such BSER.

The ACE Rule states that "EPA has identified a list of the 'most impactful' HRI measures that we are proposing to serve as technologies, equipment upgrades and best operating and maintenance practices that form the list of 'candidate technologies' constituting the BSER."[84] In turn, "States *are expected to evaluate* each of the BSER HRI measures in the candidate technologies in establishing a standard of performance for any particular source."[85] As EPA states, "the ranges of HRIs are provided as *guidance for states* to use in evaluating the efficacy of implementing each measure identified as part of the BSER candidate technologies at each affected EGU."[86] The ACE Rule states the matter bluntly: "EPA is *not proposing a specific methodology* or formula for establishing standards of performance for existing sources in this action."[87]

EPA continues: "Once a state evaluates the HRIs identified as part of the BSER in establishing a standard of performance for a particular affected EGU, it is within the state's discretion to take certain factors concerning that source, such as remaining useful life, into consideration when determining how the standard of performance should be applied."[88] As such, the proposed BSER may "*potentially apply* to existing sources as appropriate based upon the specific characteristics of those units", but not necessarily.[89] The ACE Rule states, therefore, that "the criteria may result in determining that no measures in the candidate technologies are applicable."[90]

As the italicized words above indicate, EPA's BSER may not be binding at all. States are merely "expected to" evaluate EPA's HRI measures. Indeed, EPA refers to the BSER as only "guidance" that may "potentially apply" to existing EGUs. States can

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[83] ACE Rule, at 44771.

[84] *Id.* at 44756.

[85] *Id.* (emphasis added).

[86] *Id.* at 44763 (emphasis added).

[87] *Id.* at 44764 (emphasis added).

[88] *Id.*

[89] *Id.* at 44763 (emphasis added).

[90] *Id.* At 44766.

review EPA's BSER and decline to institute *any* of the candidate technologies (e.g., based on remaining useful life (RUL) for a unit), which makes the emission guidelines meaningless.

As EPA recognizes, each emission guideline must reflect "the degree of emission limitation achievable by the BSER."[91] However, because the ACE Rule has failed to establish a binding BSER (e.g., a presumptively approvable emission limit), the guidelines *per se* cannot reflect the degree of emission limitation achievable by such BSER: Even the emission limitation achievable by the ACE Rule's HRIs are not truly reflected in the emission guidelines because states can consider—and ignore—such HRIs. Therefore, the ACE Rule is unlawful for failing to reflect the degree of emission limitation achievable by the BSER.

For the same reason, the emission guidelines cannot satisfy either the general section 111(d) framework regulations, or even EPA's own proposed weakened amendments to those rules (which are discussed in more detail below). Proposed section 60.24a states that "standards of performance shall be *no less stringent* than the corresponding emission guideline(s) specified in subpart C of this part..."[92] However, in this case, the emission guidelines have no binding BSER and, therefore, it is infeasible for a state to ensure that a standard of performance is no less stringent than the ACE guidelines.

b. There Is No Standard For EPA To Determine The Approvability Of A State Plan

EPA's failure to require binding emission standards for the ACE Rule makes the state plan approval process ungovernable. Congress clearly expected EPA to have a core role under section 111(d) in setting minimum requirements and approving state plans, and imposing federal plans as needed, just as EPA does in the analogous process under section 110 for criteria pollutant state implementation plans. Yet, EPA improperly takes itself out of this process entirely in its ACE Rule proposal.
To wit, EPA's proposed emission guidelines only require that states "provide a standard of performance for each affected EGU" and, in establishing such a standard of performance, "the state must evaluate all of the heat rate improvements described in § 60.5740a."[93] In turn, Section 60.5740a(a) lists the requirements of state plans, including that each affected EGU's standard of performance must be quantifiable and its anticipated CO_2 emissions must be provided. Additionally, states "must include a summary of how you determined each standard of performance for each affected EGU according to § 60.5755a(a)", which must include "an evaluation of the applicability of

[91] *Id.* at 44771.

[92] Proposed 40 C.F.R. § 60.24a(c).

[93] Proposed 40 C.F.R. § 60.5735a(a)(2).

each of the [] heat rate improvements to each affected EGU."[94] In turn, section 60.5755a(a) requires that (1) the standard of performance be an emission rate (e.g., pounds of CO_2 per MWh); (2) states consider EPA's BSER (i.e., the list of candidate technologies); and, if applicable, (3) states must include a demonstration for how they considered source-specific factors (e.g., RUL), if applicable in establishing the standard of performance for any affected EGU.

As an initial matter, it is entirely unclear how EPA will determine if a state has satisfied the standard to "evaluate" EPA's list of candidate technologies. State are only required to summarize the evaluation of the applicability of each HRI to each affected EGU and, if applicable, indicate how they considered source-specific factors. Therefore, a state could apparently present a cursory summary that it evaluated all candidate technologies and decided to not require *any of them* based on source-specific factors (e.g., cost of control). Because the emission guidelines reflect only a subjective evaluation requirement without any presumptively approvable emission limit, it is entirely unclear how EPA will determine the sufficiency of the state plan submittal.

Additionally, there is no explicit requirement that the state plan require emissions reductions from each EGU (on either a rate or mass basis) *at all*. While each affected EGU's standard of performance must be quantifiable and be in an emission rate form, there is no requirement that the standard of performance actually reduce emissions compared to the status quo ante. The way the emission guidelines are written, if a state establishes *any* emission performance rate for an affected EGU, then the state plan could be approvable, even if the performance rate is *not* more stringent than the EGU's current operating profile. Therefore, the emission guidelines are ungovernable because a state could require no emissions reductions from affected EGUs and the emission guidelines do not provide an explicit basis for EPA to disapprove of such a state plan.

c. It Is Unclear How A Federal Plan Would Include A Standard Of Performance Of The "Same Stringency" As The Emission Guidelines

EPA's proposed implementing regulations would require EPA to propose a federal plan if a state fails to submit a satisfactory state plan.[95] In turn, a federal plan must "prescribe standards of performance *of the same stringency* as the corresponding emission guideline(s) specified in the final emission guideline published under § 60.22a(a) and will require compliance with such standards as expeditiously as practicable but no later than the times specified in the emission guideline."[96]

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[94] *Id.* § 60.5740a(a)(1).

[95] Proposed 40 C.F.R. § 60.27a(c).

[96] *Id.* § 60.27a(e)(1).

As described above, there is no discernable binding BSER in the emission guidelines and it is entirely unclear how EPA would determine a state plan to be unsatisfactory. Nevertheless, if EPA were required to develop a federal plan (e.g., because a state failed to submit a state plan entirely), it is unclear how EPA would do so because there is no presumptively approvable emission limit for affected EGUs. EPA would apparently only need to evaluate the list of candidate technologies. However, it is unclear how EPA would determine the federal plan to be "of the same stringency" as the corresponding emission guidelines without any presumptively approvable emission limit and with only the list of candidate technologies to consider. This inconsistency between the section 111(d) implementing regulations and the ACE emission guidelines underlines the unreasonableness of EPA's approach in the ACE Rule.

d. The Emission Guidelines Facilitate States to "Race to the Bottom"

Finally, because the proposed emission guidelines fail to require any binding emission standard, certain states (e.g., states that are already resistant to pollution controls) will be incentivized to avoid and minimize applying emission reduction requirements to their EGUs. In essence, the emission guidelines facilitate a "race to the bottom", which is precisely what minimum federal standards are designed to prevent. Creating a federal minimum requirement for emissions reductions also minimizes leakage between states. Therefore, it is essential that any emission guidelines for power plants create a clear and enforceable regulatory signal, so that state goals ensure that emissions reductions are achieved, regardless of the political winds in certain states.

IV. The Proposed NSR Amendments are Unlawful and Concede That ACE Will Result in a Rebound Effect

Faced with the likelihood that the ACE Rule will increase emissions, EPA should have abandoned the rule as inconsistent with statute. Instead, EPA has proposed a second set of illegal loopholes in the NSR source permitting program intended to mask these emission increases. That EPA sees a need for these amendments further underlines the illegal and arbitrary nature of its emission guidelines, and the proposed amendments are illegal in their own right.

The Proposed NSR Amendments in the ACE Rule would create a significant new loophole for all EGUs, regardless of whether they are affected EGUs under the ACE Rule. EPA's proposal is to waive rigorous NSR permitting requirements whenever a facility's *potential* maximum hourly emissions rate will not increase relative to its historical maximum hourly emissions rate. This proposal is unlawful because it essentially allows EGUs to assess NSR applicability based on a potential-to-potential emissions test, which is contrary to caselaw that requires NSR be applied to increases in actual emissions. EPA's proposal risks allowing EGUs to continue operating for years without necessary, health-protective emissions controls. EPA had previously

floated a similar proposal, withdrawing it after it received numerous comments pointing to its illegality. The proposal has not become more legal with time.

Additionally, EPA's asserted rationale for this NSR loophole (i.e., it is necessary because ACE forces EGUs to institute major modifications) is misleading because sources can always take synthetic minor permit limits to avoid NSR applicability. Relatedly, the fact that EPA is proposing this NSR loophole at all underscores that the ACE Rule will cause affected EGUs to operate and emit more: If EGUs did not emit more on an annual basis as a result of ACE, then the NSR loophole would be unnecessary. Finally, CARB disputes EPA's assertion that the proposed NSR exemption is severable.

a. The Proposed NSR Exemption Is Illegal

EPA's proposal is unlawful under the Clean Air Act because it is an incorrect interpretation of the term "modification" in the Act. As the D.C. Circuit has held, the NSR program clearly applies to modifications that increase actual emissions instead of potential or allowable emissions. Despite this clear precedent, EPA now proposes a new loophole for NSR applicability for EGUs: If an EGU's *hourly* emissions rate does not increase from a modification—when comparing maximum hourly emissions in the baseline period to maximum projected emissions after the modification—then the source can avoid NSR wholesale. However, EPA's proposed hourly emissions increase test is essentially a potential-to-potential emissions test because the hourly rate at which a unit is able to emit (i.e., its potential to emit) is substantively equivalent to that unit's historical maximum hourly emissions. EPA's proposal hides actual emissions increases on an annual basis. NSR plainly applies to increases in actual emissions and, therefore, EPA's proposal is illegal.

i. *The Current NSR Applicability Test & EPA's Proposal*

New Source Review is a critical preconstruction permitting program under the Act that ensures that major stationary sources and major modifications to major stationary sources implement pollution controls that protect air quality. If NSR is triggered in a nonattainment area, then nonattainment NSR (NNSR) requirements apply, including that the source comply with lowest achievable emission rate (LAER) requirements for the project. If NSR is triggered in an attainment area, then prevention of significant deterioration (PSD) requirements apply, including that the source comply with BACT requirements for the project. LAER and BACT are both safeguards to protect air quality when a new major source is built or a source undertakes a major modification.

The applicability test for determining whether a major stationary source undertakes a major modification is the central issue with EPA's proposed NSR amendments. The

current applicability test for a major modification is as follows: (1) There is a physical change or change in the method of operation proposed for the source (i.e., the project); (2) there is a significant emissions increase from the project (i.e., emissions increase above a significance threshold when comparing annual actual emissions during a baseline period to future annual emissions (measured by calculating the source's projected actual emissions after the project)); and, (3) there is a significant *net* emissions increase from the project (accounting for emissions changes throughout the source).

EPA proposes to add a new step to the above applicability test after the first step described above. Under EPA's proposal, new Step 2 would consist of "an hourly emissions increase test (either maximum achieved hourly emissions rate or maximum achievable hourly emissions rate, each on an input-basis (lb/hr)".[97] As EPA states, "under Step 2, that change [i.e., the project] must result in an hourly emissions increase at the existing EGU. If a post-change hourly emissions increase is projected, a source must then proceed to determine whether there is also a significant emissions increase and a significant net emissions increase."[98] (Steps 2 and 3 described above would become Steps 3 and 4.) Essentially, a source would only have to determine whether a significant emissions increase occurs from a project if its hourly emissions rate increases from the project.[99]

ii. The New York v. EPA Decision interpreting the term "Modification"

In the Proposed Rule, EPA is interpreting the term "modification" in the Act to propose its hourly emissions increase test. The term "modification" means "any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted."[100] This term has been interpreted by multiple courts and, as is particularly relevant here, the D.C. Circuit in *New York v. EPA* held that the term plainly refers to actual emissions and cannot encompass potential emissions. This is a fatal defect of EPA's current proposal: Its determination of how to measure an "increase[]" in emitted pollutants under the "modification" definition is plainly illegal.

We have been here before. In 2002, EPA issued a rule that, among other things, exempted sources from undergoing NSR if they qualified for the so-called "Clean Unit" option. As The *New York* court stated, "[u]nder the Clean Unit option, sources that install technology 'comparable to' BACT (if in PSD regions) or LAER (if in NNSR

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[97] ACE Rule, at 44780.

[98] *Id.* at 44781.

[99] This comment section is responsive to Comment C–64.

[100] 42 U.S.C. § 7411(a)(4).

regions) may make whatever changes they want over the next ten years without triggering NSR, provided that these changes do not cause them to exceed the 'emissions limitations' set by their comparable technology."[101] As the court described, "[g]overnment and environmental petitioners contend that the Clean Unit provision contravenes the plain meaning of the CAA because it measures 'increases' [per the "modification" definition] in terms of Clean Unit status instead of actual emissions."[102] On the other hand, EPA argued that "because the CAA 'is silent on whether increases in emissions for purposes of determining whether a physical or operational change constitutes a modification must be measured in terms of actual emissions, potential emissions, or some other currency,' [] its interpretation of the ambiguous term 'increases' is entitled to deference under *Chevron* Step 2."[103]

The Court employed "'traditional tools of statutory interpretation' under *Chevron* Step 1 to ascertain whether 'Congress had an intention on the precise question at issue,'" and concluded "that the CAA unambiguously defines 'increases' in terms of actual emissions."[104] In so doing, the Court indicated that "Section 7411(a) defines a 'modification' as any physical or operational change that 'increases the amount of any air pollutant *emitted* by [the] source.'"[105] In the Court's view, "even if the word 'emitted' does not by itself refer to actual emissions, the phrase 'the *amount* of any air pollutant *emitted* by [the] source' plainly refers to actual emissions."[106] The Court concluded: "Therefore, because the plain language of the CAA indicates that Congress intended to apply NSR to changes that increase actual emissions instead of potential or allowable emissions, we hold that EPA lacks authority to promulgate the Clean Unit provision, and we vacate that portion of the 2002 rule…as contrary to the statute under *Chevron* Step 1.[107]

iii. *Why EPA's Proposal is Unlawful under the Act and New York v. EPA*

EPA's current effort is based on an ill-conceived 2007 rulemaking, which was never finalized and was itself illegal.[108] The 2007 rulemaking proposed an hourly emissions

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[101] *New York v. EPA*, 413 F.3d 3, 17 (D.C. Cir. 2005) (internal citation omitted).

[102] *Id.* at 39.

[103] *Id.*

[104] *Id.* (citing *Chevron v. NRDC,* 467 U.S. 837, 843 n. 9 (1984).

[105] *Id.* at 40 (emphasis in original) (internal citation omitted).

[106] *Id.* (emphasis in original) (internal citation omitted).

[107] *Id.* (internal citation omitted).

[108] ACE Rule, at 44780 ("EPA is proposing some of the same alternatives for an hourly emissions test that EPA proposed in 2007. The 2007 SNPRM [i.e., supplemental notice of

test for EGUs for purposes of NSR applicability. EPA now asserts that the 2007 action "explained how an applicability test based on maximum achievable hourly emissions is, in fact, a test based on actual emissions."[109] As EPA recounts "[t]he reason is that, as a practical matter, 'for most, if not all EGUs, the hourly rate at which the unit is actually able to emit is substantively equivalent to that unit's historical maximum hourly emissions. That is, most, if not all EGUs will operate at their maximum actual physical and operational capacity at some point in a 5-year period. In general, the highest emissions occur during the period of highest utilization. As a result, both the maximum achievable and maximum achieved hourly emissions increase tests allow an EGU to utilize all of its existing capacity, and in this aspect the hourly rate at which the unit is actually able to emit is substantively equivalent under both tests.'"[110]

However, both the maximum achievable and maximum achieved hourly emissions increase tests (which EPA proposes to allow under Step 2 in the ACE Rule) are essentially potential-to-potential emissions tests. EPA's inclusion of the terms "actual" and "actually" in the above description fails to reconcile the fact that an hourly emissions rate reflects what a source is *able to emit* (i.e., its potential hourly emissions). EPA's assertion that "'for most, if not all EGUs, the hourly rate at which the unit is actually <u>able to emit</u> is substantively equivalent to that unit's historical <u>maximum</u> hourly emissions'" concedes as much. If you remove the meaningless term "actually"[111] before the phrase "able to emit", then it is apparent that a unit's historical maximum hourly emissions are the same as its potential hourly emissions.

Therefore, both maximum achievable and maximum achieved hourly emissions increase tests measure potential emissions to determine whether a modification increases emissions. This approach is plainly illegal under *New York v. EPA*. As the

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proposed rulemaking] solicited comment on 12 alternatives, but EPA is narrowing the number of alternatives for this revised proposal and solicitation of comment. In this case, EPA is proposing only alternatives in which the hourly test is paired with the current NSR annual emissions test (i.e., Option 1 in the 2007 SNPRM) and only the alternatives that have an input-based format (i.e., Alternatives 1, 3, and 5 in the 2007 SNPRM).").

[109] ACE Rule, at 44779.

[110] *Id.* (citing Supplemental Notice of Proposed Rulemaking for Prevention of Significant Deterioration and Nonattainment New Source Review: Emission Increases for Electric Generating Units, 72 Fed. Reg. 26202, 26219 (May 8, 2007)).

[111] This term is meaningless because what a source is "able" to emit is not limited by what it "actually" emits. EPA attempts to conflate two separate concepts here: actual emissions and potential emissions. However, in terms of an hourly emission rate, the maximum historical hourly emission rate is necessarily the source's potential hourly emission rate. Therefore, the term "actually" in this context is superfluous and misleading.

New York court stated, "Congress intended to apply NSR to changes that increase actual emissions instead of potential or allowable emissions."[112]

iv. *Additional Reasons Why EPA's NSR Loophole is Unreasonable and Unlawful*

There are other reasons why EPA's proposal is unreasonable and unlawful. The "Clean Unit" option that the D.C. Circuit vacated at least required a prerequisite showing that the individual EGUs using the option were equipped with pollution controls corresponding to BACT or LAER, so there was at least an argument that the option would incentivize emissions reductions. In this case, EPA proposes that all EGUs may utilize the maximum achievable or maximum achieved hourly emissions increase tests *absent any demonstration of instituting pollution controls*. Also, unlike the 10-year limit corresponding with the Clean Unit option, there is no expiration date for EPA's proposed NSR loophole in the ACE Rule.

Indeed, the emissions increase occurring from an EGU that utilizes EPA's NSR loophole will be experienced annually and over the entire life of the source. If an EGU is able to rate-base its HRI project (via approval by a state public utility commission), that EGU would likely operate for much longer than it would have otherwise, which increases emissions on a decadal scale. Therefore, EPA's proposal is also legally flawed because it is contrary to the entire purpose of section 165 and the NSR program of reducing emissions for purposes of ensuring attainment or maintenance of the NAAQS.

Additionally, various failed legislative efforts underline EPA's lack of authority under the Act to propose an hourly emissions increase test. Namely, the Clean Skies Act of 2003 would have redefined the term "modification" to mean "any physical change in, or change in the method of operation of, an affected unit that *increases the maximum hourly emissions* of any pollutant regulated under this Act *above the maximum hourly emissions achievable at that unit* during the five years prior to the change or that results in the emission of any pollutant regulated under this Act and not previously emitted."[113] A recent discussion draft of a bill in the House of Representatives would have added the following sentence after the current definition of "modification": "a change increases the amount of any air pollutant emitted by such source only if the maximum achievable hourly emission rate of an air pollutant for such source after the change is higher than

[112] *New York v. EPA*, 413 F.3d at 40.

[113] Clean Skies Act of 2005, S.131, § 483(d)(3).

such maximum achievable hourly emission rate for such source during the 10-year period immediately preceding the change."[114]

Both of these efforts failed. Both were apparently proposed in the first place because of their sponsors' accurate calculation that *New York v. EPA* precludes interpreting the Act to allow an hourly emissions increase test. In other words, these bills further demonstrate that EPA lacks the authority it now claims under the current version of the Act.

b. EPA's Asserted Rationale For The NSR Loophole Is Misleading And Unreasonable

EPA "requests comment on the extent to which EPA should allow the adoption of an NSR hourly emissions test for EGUs in light of EPA's decision to issue these proposed emission guidelines for the power sector..."[115] In EPA's framing, "[w]hen a state's 111(d) plan requires an EGU to comply with a standard of performance, sources cannot choose to forego a project in an effort to avoid NSR permitting as they could with improvement projects they were otherwise considering."[116] EPA also suggests that "because changes considered under 111(d) plans could result in a source triggering NSR under the current NSR rules and increasing the costs to the point that undertaking HRI are less financially feasible for some sources",[117] EPA should be able to read the definition of "modification" to afford more flexibility to exempt sources from NSR requirements when they are compelled to make changes by an NSPS. EPA asserts that, for this reason, the proposed NSR loophole is reasonable.

However, while a source cannot choose to forego a project if it is ultimately required by the ACE Rule and a state or federal plan, a source *can* choose to accept a synthetic minor permit limitation. Synthetic minor permit limitations are well-used provisions that allow a source to avoid NSR by limiting a source's emissions post-project by permit. As such, even if a source would be projected to trigger NSR for a project, the source may avoid NSR by limiting its post-project emissions to below the significance threshold by a legally enforceable permit condition. If this type of permit limitation conflicted with the source's projected dispatch, the state plan could include "conditions for a source expected to trigger NSR that would limit the unit's ability to move up in the dispatch enough to result in a significant net emissions increase that would trigger NSR

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[114] Rep. Griffith, Discussion Draft, H.R. __, § 2 (2018), available at: https://docs.house.gov/meetings/IF/IF18/20180516/108304/BILLS-115pih-NewSourceReviewPermittingReformDiscussionDraft.pdf. Attached as Exhibit 14.

[115] ACE Rule, at 44782. This section of the letter is responsive to Comment C–67 and C-69.

[116] *Id.* at 44777.

[117] *Id.* at 44782.

(effectively establishing a synthetic minor limit)", as EPA recognized in the CPP.[118] Therefore, the asserted basis for EPA's proposed NSR loophole is unreasonable.

Additionally, the scope of the NSR loophole is unreasonable and unjustified. EPA's asserted rationale for the NSR loophole is that the emission guideline is required for certain coal-fired EGUs and that may trigger NSR involuntarily; so, affected EGUs should receive this regulatory relief. However, affected EGUs are a subset of all EGUs. EPA has provided *no* reason to apply the NSR loophole to non-affected EGUs (e.g., NGCC or IGCC units). Therefore, EPA is proposing to apply the NSR loophole to *all* EGUs, even though EPA has only asserted a rationale for applying the NSR loophole to affected EGUs.[119] EPA's proposal is arbitrary and capricious for this reason.

c. The Purported Basis For NSR Exemption Illustrates The Rebound Effect From EPA's BSER

EPA requests comment "on the concern about the potential emission increases as part of the proposed NSR changes that some stakeholders have raised…"[120] This is an odd framing given that EPA itself (not stakeholders) has indicated how emissions increases would occur as part of the ACE Rule. Indeed, the only apparent reason for EPA to propose the NSR loophole is because the ACE Rule would increase emissions and potentially trigger NSR otherwise. In sum, the inclusion of the NSR loophole in the ACE Rule highlights that EPA's narrow BSER will likely cause a rebound effect.

As EPA itself describes, "a HRI project is designed to lower the heat rate of the EGU, which correlates to the unit consuming less fuel per kWh and emitting lower amounts of CO_2 (and other air pollutants) per kWh generated as compared to a less efficient unit. Along with this increase in energy efficiency, the EGU which undergoes the HRI project will typically experience greater unit availability and reliability, all of which contribute to lower operating costs. EGUs that operate at lower costs are generally preferred in the dispatch order by the system operator over units that have higher operational costs, and EPA's [RIA] for this action [] shows that improving an EGU's heat rate will lead to increased generation due to its improved efficiency and relative economics. As the EGU increases its generation, to the extent the EGU operates beyond its historical levels by a meaningful amount, *it could result in an increase in emissions on an annual basis, as calculated pursuant to the current NSR regulations*."[121]

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[118] CPP, at 64920.

[119] *See* ACE Rule, at 44781; 40 C.F.R. § 51.124(q). This comment is responsive to Comment C-62.

[120] ACE Rule, at 44782. This comment is responsive to Comment C-65.

[121] *Id.* at 44775 (emphasis added).

While EPA states that "it *could* result in an increase in emissions on an annual basis", that scenario is more likely than not, given the way that electricity markets operate by least cost dispatch. Indeed, EPA must concede that more efficient units would operate more and increase their emissions. If that were not the case, then there would be no rationale for EPA's proposed NSR loophole; i.e., if EPA's BSER did not increase emissions on an annual basis, then the institution of HRI measures would not trigger NSR under the current applicability test.

As described above, the rebound effect is borne out in the Proposed Rule and the RIA, even under EPA's rosy assumptions. The RIA shows that generation at coal-fired EGUs increases in all scenarios in all snapshot years (i.e., 2025, 2030, and 2035) compared to the Base Case Scenario (i.e., CPP) and a "No CPP Alternative Baseline" (i.e., CPP repeal with no replacement rule).[122] The RIA projects that CO_2 emissions *increase* for coal-fired EGUs that are greater than 25 MW relative to the No CPP Baseline in 2035 with a "4.5% HRI at $50/kW" scenario.[123] The RIA also projects that SO_2 emissions *increase* in 2025 with a "4.5% HRI at $50/kW" scenario, compared to the No CPP Baseline.[124] In all likelihood, the "highly illustrative" RIA underestimates potential emissions increases, given the likely effects of the NSR loophole and rebound effect.

EPA attempts to argue that the rebound effect could be mitigated because "the resulting effect on the dispatch order could yield an emission reduction from a system-wide standpoint."[125] However, this is pure speculation on EPA's part. There is no analysis in the ACE Rule about specific source displacement in the dispatch order as a result of ACE. Indeed, the affected EGUs under the ACE Rule likely are the most polluting units on the grid. Up to 80% of existing coal-fired EGUs have SOx and NOx emissions above the level of control that would be required by NSR.[126] Therefore, if affected EGUs improved their heat rate and operated more (but were exempt from NSR), they would likely be displacing cleaner units (e.g., renewables and natural gas-fired units) rather than more polluting units. In sum, the rationale for the NSR loophole acknowledges that the ACE Rule could increase emissions.

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[122] RIA at Table 3-17.

[123] *Id.* Table 3-13.

[124] *Id.* Table ES-7.

[125] ACE Rule, at 44775.

[126] *Id.* at 44775-76.

d. The NSR Loophole Cannot Be Severable Because EPA Would Not Likely Promulgate The ACE Rule In Its Current Form Absent The Loophole

EPA intends that the NSR revisions, if finalized, would be severable from the other provisions of the ACE Rule on judicial review.[127]

However, a mere assertion of severability is insufficient to insulate the remainder of the ACE Rule from judicial scrutiny. Severability depends on: (1) whether there is any "'indication that the regulation would not have been passed but for [the] inclusion' of the [invalid] standards" and (2) whether severance would "'impair the function of [the remainder of the rule].'"[128]

In this case, EPA admits that it does not identify the sources to which NSR would be required absent the proposed NSR loophole, nor does EPA estimate the resulting cost of instituting NSR for such sources. As EPA states, "the analysis conducted for the ACE rule estimates the cost and benefits of the different scenarios in a categorical sense and does *not* attempt to identify the particular sources at which major NSR permitting may be required absent the type of revisions to the NSR regulations proposed here or incorporate a specific cost for NSR permitting within any of the scenarios."[129] EPA's failure to identify the sources to which NSR would apply and incorporate a cost for NSR permitting makes the RIA insufficient as a public document. Additionally, without such analysis in the RIA, it is unclear whether the ACE Rule would be promulgated absent the NSR loophole, and severance would appear to impair the function of the ACE Rule, at least in EPA's framing. Therefore, EPA's assertion of severability for the NSR exemption is unsupported. If the NSR exemption were vacated, it would be proper to vacate and remand the remainder of the ACE Rule.[130]

V. The Proposed Section 111(d) Implementing Regulations Are Arbitrary and Capricious

The ACE Rule is so illegal that EPA is also proposing changes to the decades-old implementing regulations for section 111(d) to justify it. These proposed amendments are also illegal. EPA's new proposed section 111(d) implementing regulations (Part 60,

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[127] ACE Rule, at 44783.

[128] *Davis Cty. Solid Waste Mgmt. v. EPA,* 108 F.3d 1454, 1460 (D.C. Cir. 1997) (Since severance of the standards for small units and cement kilns "will not impair the function of [the other standards] ... and there is no indication that the regulation would not have been passed but for [the] inclusion" of the standards for small units and cement kilns, these standards are severable.") (citing *K Mart Corp. v. Cartier, Inc.,* 486 U.S. 281, 294 (1988)).

[129] ACE Rule, at 44781 (emphasis added).

[130] *See Davis Cty. Solid Waste Mgmt.,* 108 F.3d at 1460.

subpart Ba) contradict the core purpose of the Clean Air Act 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."[131] The cooperative federalism of the CAA is intended, in part, "to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution."[132] In its proposed changes to the implementing regulations, the EPA ignores the broad remedial purposes of the CAA and disregards the urgency associated with the Endangerment Finding. The proposed implementing regulations are also contrary to section 111 itself because they effectively do not require EPA to define a discernable or enforceable BSER for states to incorporate in their state plans.[133]

a. The Only Reasonable Interpretation of Section 111 Is That Emission Guidelines Must Include Binding Presumptive Emission Standards

EPA proposes to amend the section 111(d) implementing regulations to "not require EPA to provide a presumptive numerical standard as part of its emission guidelines" and to indicate "that the ranges of expected emission reductions that can be achieved in EPA's BSER determination adequately provide sufficient information to the states on the degree of emission limitation that will result from application of the BSER to existing sources…"[134] The current implementing regulations define "emission guideline" as "a guideline set forth in subpart C of this part, or in a final guideline document published under § 60.22(a), which *reflects the degree of emission reduction achievable* through the application of the best system of emission reduction which (taking into account the cost of such reduction) [EPA] has determined has been adequately demonstrated for designated facilities."[135] EPA's proposes to revise this term to mean "a final guideline document published under § 60.22a(a), which *includes information on the degree of emission reduction achievable* through the application of the best system of emission reduction which (taking into account the cost of such reduction and any nonair quality

[131] 42 U.S.C. § 7401(b)(1).

[132] *Id.* § 7401(b)(2)

[133] CARB also notes here that it believes EPA should retain the current definition of "emission standard", which encompasses allowance systems. The current definition of "emission standard"—which EPA proposes to eliminate—reasonably provides discretion to the states in developing enforceable state plans, including through the use of allowance systems. This current definition, by providing such discretion to the states, is consistent with the cooperative federalism framework of the CAA.

[134] ACE Rule, at 44764.

[135] 40 C.F.R. § 60.21(e) (emphasis added).

health and environmental impact and energy requirements) [EPA] has determined has been adequately demonstrated for designated facilities."[136]

Section 111(d) requires that "standards of performance for any existing source" be established in accordance with EPA guidelines for existing sources.[137] "Standards of performance" mean standards which "reflect the degree of emission limitation achievable through the application of the best system of emission reduction" and are designed to apply to source categories as a group[138] – to, in other words, "any existing source."[139] Accordingly, the current definition of "emission guideline" aligns with the structure of section 111, while EPA's proposed definition does not. EPA's proposed definition is arbitrary and capricious in light of the structure of section 111.

Additionally, EPA's proposed new interpretation that it can determine BSER *without defining presumptive emission limits* and then allow States to set unit-by-unit emission standards is no standard at all. Such a "standard" would not reflect reductions consistent with the "best system" of emission reduction. Indeed, it is unclear how a state emission standard could reflect BSER when EPA merely provides "information" on the degree of emission reduction achievable, and no presumptive numerical standard, as part of the emission guidelines. EPA's proposed implementing regulations and emission guidelines for affected EGUs amounts to a paper rule with no defined (or determinable) emission limitation. Finalizing a rule based upon this approach would be contrary to the Act and would not fulfill EPA's obligations under section 111(d).[140]

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[136] Proposed 40 C.F.R. § 60.21a(e) (emphasis added).

[137] 42 U.S.C. § 7411(d).

[138] *Id.* § 7411(a)(1); *see also id.* § 7602(k) (indicating that emissions limitations and standards are to apply "on a continuous basis" – a requirement which, applied in the Section 111 context, further reinforces Section 111's structural purpose of supplying uniform, category-wide, hour-by-hour pollution coverage).

[139] *Id.* § 7411(d).

[140] EPA also proposes that states should determine *source-specific* compliance schedules vis-à-vis the ACE Rule, rather than require adherence to a uniform compliance schedule (which the CPP required). ACE Rule, at 44763. EPA imposes no limit on such source-specific compliance schedules, beyond requiring increments of progress if the compliance schedule for a source extends more than 24 months. States could apparently allow extremely long (and potentially unending) source-specific compliance schedules given that there is no explicit provision in the Proposed Rule that would support EPA disapproving of a state plan due to the unreasonable duration of a compliance schedule. Therefore, EPA's approach to compliance schedules is unlawful for the same reason that its informational approach to BSER is unlawful: Extremely long source-specific compliance schedules—like an information-only BSER—risk preventing state emission standards from reflecting the best system of emission reduction. This is contrary to section 111 of the Act.

b. The Proposed Variance Provision Undermines The Emission Guidelines

40 C.F.R. § 60.24(c) provides that "where the Administrator has determined that a designated pollutant *may cause or contribute to endangerment of public health*, [state] *emission standards shall be no less stringent* than the corresponding [federal] emission guideline(s)..."[141] The 2009 Endangerment Finding and EPA's analysis of its authority to regulate GHG emissions from fossil fuel-fired EGUs in the New Source Rule are legally valid and unchallenged in the ACE Rule. Therefore, EPA has made an endangerment determination that triggers the 40 C.F.R. § 60.24(c) requirement. For this reason, state emission standards for GHGs cannot be less stringent than the corresponding federal emission guidelines pursuant to 40 C.F.R. § 60.24(c).

While 40 C.F.R. § 60.24(f) qualifies the 40 C.F.R. § 60.24(c) requirement in some instances, that limited qualification cannot be used as broad authorization for states to exempt affected EGUs from GHG emissions regulation. The qualification in 40 C.F.R. § 60.24(f) provides that "[u]nless otherwise specified . . . States may provide for the application of less stringent emissions standards or longer compliance schedules than those required by paragraph (c) of this section, *provided* that the State demonstrates with respect to each such facility…" unreasonable cost of control, physical impossibility of installing control equipment, or other facility-specific factors that make application of a less stringent standard "*significantly* more reasonable".[142] 40 C.F.R. § 60.24(f) is permissive[143] and limited to situations in which the state demonstrates that a facility-specific factor makes a less stringent standard significantly more reasonable. EPA may not permit blanket application of section 60.24(f) where, as in the context of GHG emissions from power plants, to do so would be contrary to the Act and unnecessary as a practical matter.

EPA now proposes to amend the implementing regulations to delete the distinct treatment of health-based pollutants and allow the variance provision regardless of the type of pollutant.[144] EPA argues that because the variance provision was promulgated prior to Congress' addition of language in section 111(d)(1)(B) requiring EPA to permit states to take into account remaining useful life and other factors, the variance provision may not account for all of the factors envisioned under section 111(d)(1)(B).[145] Based

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[141] 40 C.F.R. § 60.24(c).

[142] *Id.* § 60.24(f) (emphasis added).

[143] As the Supreme Court described section 60.24(f): "EPA *may* permit state plans to deviate from generally applicable emissions standards upon demonstration that costs are '[u]n-reasonable.'" *Am. Elec. Power Co. v. Connecticut*, 564 U.S. 410, 427 (2011) (emphasis added).

[144] Proposed 40 C.F.R. §§ 60.24a(c), (e).

[145] ACE Rule, at 44773.

on this reasoning, EPA proposes to strip away the distinction between health-based and welfare-based pollutants.

EPA provides no justification for its supposition. It is just as plausible, if not more so, that Congress would have clearly addressed the already existing structure of the implementing regulations if it intended to overrule them. Additionally, EPA ignores the broader remedial purpose of the CAA altogether by proposing a loophole in the section 111(d) regulations, even when a health-based pollutant is at issue.

Ultimately, EPA's authority to allow a state to diverge from GHG emission guidelines must be consistent with the overall structure and purpose of Section 111. In exercising this limited discretion, EPA has previously recognized "that the provisions in 60.24(f) should not apply to the class of facilities covered by the […] [GHG emission] guidelines."[146] In so doing, EPA reasonably found that "the agency is not bound to permit states to set less stringent standards in all cases, particularly where the pollutants pose a risk to public health."[147] Given the risk to public health and welfare posed by GHGs, the urgent need to immediately address climate change, and, specifically, the need to address GHG pollution from existing power plants, EPA's GHG emission guidelines must remain binding on the states and EPA's proposed implementing regulations are unreasonable as applied to the GHG emission guidelines.

As a practical matter, it is also difficult to conceive of situations where proposed section 60.24a(e) (i.e., the variance provision) would apply to existing power plants. Because power plants operate in an interconnected grid, the provision of electric service is not disrupted if some sources curtail electricity production or shut down.[148] In other words, a uniform standard that applies to all sources and that may cause some sources to become uneconomic would not affect electric service or reliability. In this sense, there is no "cost of control [], location, [] basic process design" or "other factors" that make source-specific exemptions appropriate.[149] Therefore, the application of EPA's proposed implementing regulations to the ACE emission guidelines would be unreasonable.

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[146] CPP, at 64870.

[147] EPA, Legal Memorandum Accompanying Clean Power Plan for Certain Issues, EPA-HQ-OAR-2013-0602-36872, at 23, note 38 (2015) (hereinafter, CPP Legal Memorandum). Attached as Exhibit 15.

[148] *See* CPP Legal Memorandum, at 83 (stating that examples of EGUs retiring on short notice "demonstrate circumstances in which the electricity system has sufficient resiliency, including the ability to make some types of transmission upgrades and reconfigurations on short notice, to accommodate retirements without raising reliability concerns.").

[149] Proposed 40 C.F.R. § 60.24a(e).

If EPA unwisely allows state variances for particular facilities based on proposed section 60.24a(e), then, at a minimum, these variances must be strictly limited and scrutinized by EPA. Moreover, approval of any variance should be conditioned on: (1) offsets that are sufficient to compensate for the plant's lower emissions performance,[150] and (2) a permit requirement mandating the plant shut down at the end of its RUL. Conditional approval of state plans is well within EPA's existing authority.[151] Without the aforementioned conditions, EPA would essentially be incentivizing states to grandfather older, dirtier, and less efficient plants. Conditional approval of state variances based on the RUL of plants is necessary to ensure that EGUs actually shut down by the end of their purported RUL. Otherwise, the least efficient EGUs could continue to operate well past their purported RUL, and without the application of the emission standards that should have applied to such sources in the first place.

c. Extending State Plan Submittal, EPA Review, And FIP Submittal Deadlines Is Illegal

EPA proposes to significantly extend the deadlines for state plan submission, EPA action on a state plan, and EPA promulgation of a federal plan, if necessary. The current deadlines are: 9 months for a state to submit a state plan after promulgation of a final emission guideline; 4 months after the submittal deadline for EPA to take action on a state plan; and, 6 months for EPA to promulgate a federal plan, as appropriate. EPA now proposes to extend the deadlines to: 3 years for submission of a state plan; 12 months for EPA to take action on a state plan; and 2 years for EPA to promulgate a federal plan, as appropriate.[152] As such, EPA proposes a potential delay in the commencement of regulating affected EGUs (and other sources subject to section 111(d)) of more than 4 years total.

The proposed delay in the regulation of GHG emissions from power plants—which could extend to potentially six years total after ACE is finalized—ignores the EPA's statutory duty and endangers the health and welfare of millions of people. As discussed above, the 2009 Endangerment Finding warned that GHG emissions may reasonably

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[150] *See* CPP Legal Memorandum, at 33 (stating "In 1995, the EPA added the prefatory phrase 'Unless specified otherwise in the applicable subpart' to 60.24(f). The EPA was not challenged on that revision to subpart B, which now applies to emission guidelines issued under both sections 111(d)(1) and 129(b). On its face, the language now allows for other approaches to satisfy the remaining useful life provision. Thus, subpart B does not mandate the outcome that the commenters suggest, that States must be permitted to relax emission standards on particular affected EGUs on the basis of remaining useful life (or other factors) without requiring offsetting reductions from other affected EGUs.").

[151] Neither Section 111(d) nor proposed section 60.24a(e) would preclude the EPA from conditioning a variance based on RUL. *See* 42 U.S.C. § 7411(d); 40 C.F.R. § 60.24(f).

[152] ACE Rule, at 44770.

be anticipated to endanger public health and welfare. In the Endangerment Finding, EPA stated that it "has a responsibility [] 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."[153] Since the 2009 Endangerment Finding, the scientific consensus around climate change has only deepened, underscoring the dire need for immediate action to address this existential threat to the United States and the rest of the world.

With respect to the regulation of GHG emissions, extending deadlines for state plan submittals, EPA review of state plans, and the FIP submittals to potentially six years total is unreasonable given the EPA's assessment of the threat to public health and welfare in the 2009 Endangerment Finding. In the context of regulating power plant GHG emissions, needlessly postponing regulation by more than 4 additional years runs counter to the remedial intent of the CAA. Given the long-lived nature of GHG emissions once emitted into the atmosphere, any additional delay in regulation locks in climate change impacts that will last centuries, underlining the need to act now.[154]

"The arbitrary and capricious test applie[s] to rescissions of prior agency regulations,"[155] which means that EPA's actions must be consistent with statutory structure and intent, and grounded in evidence. Here, the EPA's primary justification for the extended timelines and more than 4-year delay is to conform to State Implementation Plan (SIP) timelines. The CAA directs the EPA to look to the structure of the SIP program when designing the procedures the states will use to develop the section 111(d) plans. However, it would be unreasonable to base section 111(d) *deadlines* on SIP deadlines. While both programs rely on a model of cooperative federalism, SIPs are inherently more complex. The analysis supporting a SIP requires a greater amount of coordination across sectors and more complex modeling. Therefore, the EPA's reliance on SIP deadlines for section 111(d) plans is arbitrary and capricious.

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[153] Endangerment Finding, at 66500.

[154] *See, e.g.,* IPCC Fifth Assessment Report, at 24. The IPCC Fifth Assessment Report states 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". Given that the ACE Rule would essentially leave power sector GHG emissions unchanged compared to a no-CPP baseline through 2035 and given the proposed extension of submittal and review deadlines in the section 111(d) implementing regulations, EPA is essentially proposing *no* additional mitigation in the power sector prior to 2030. The IPCC has found that delaying additional mitigation to 2030 "substantially" increases the difficulty of limiting warming to below 2 °C.

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

Furthermore, there is no need for further delay as a practical matter.[156] The ACE Rule only requires states to evaluate certain HRI measures at affected EGUs. States do not need three years to complete this evaluation. Therefore, further delay in regulating GHG emissions is not only dangerous, it is unnecessary.

VI. The RIA Is Insufficient, Unreasonable, And Demonstrates That The ACE Rule Imposes Net Costs On The U.S.

The ACE Rule's RIA is unreasonable for several reasons. First, the RIA's social cost of carbon dioxide (SC-CO_2) values are drastically underestimated, which leads to misleading cost-benefit calculations. Second, the RIA's failure to quantify direct SO_2, NOx and hazardous air pollutant (HAP) exposure is unreasonable in light of the fact that coal-fired power plants emit all of these pollutants in substantial quantities. Finally, despite the foregoing limitations, the RIA nevertheless demonstrates that the ACE Rule imposes net costs on society, which makes the rule unreasonable.

a. The RIA's SC-CO_2 Values Are Misleading

As the ACE Rule states "[t]he SC-CO_2 estimates used in the RIA for this proposed rulemaking focus on the direct impacts of climate change that are anticipated to occur *within U.S. borders*."[157] EPA also only analyzes SC-CO_2 estimates using a 7 and a 3 percent discount rate. The combined effect of these two variables is to drastically underestimate the social costs of GHG emissions, which makes the ACE Rule appear to be net beneficial in certain scenarios. The domestic SC-CO_2 estimates are approximately *five to six times smaller* than global SC-CO_2 estimates (depending on whether a 7 percent or a 3 percent discount rate is used).[158] Using a 2.5 percent discount rate (which appropriately accounts for the intergenerational effects of GHG emissions) and global SC-CO_2 estimates, forgone global climate benefits of the ACE Rule are projected to be up to $4.8 billion annually by 2035.[159]

EPA's preferred approach to analyzing the SC-CO_2 is unreasonable. First, "domestic-only" SC-CO_2 estimates directly contrast with the robust and peer-reviewed approach of the federal Interagency Working Group (IWG), which endorses calculating *global* damages when estimating the social cost of carbon (SCC). The rationale for IWG's approach is reflected in a January 2017 National Academies of Sciences, Engineering, and Medicine (NAS) report, which states that, "[d]ue to the global nature of the impacts

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[156] CARB notes here that the deadline for submission of state plans for compliance with the CPP was reasonable. Despite the stay of the CPP, CARB adopted California's CPP state plan on July 27, 2017.

[157] ACE Rule, at 44792 (emphasis added).

[158] RIA at 7-7.

[159] *Id.* at 7-8.

that result from CO_2 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."[160] As the NAS report states, "[a]ccurately estimating the damage of CO_2 emissions for the United States involves more than examining the direct impacts of climate change that occur within U.S. physical borders. The IWG has noted that climate change in other regions of the world could affect the United States, through such pathways as global migration, economic destabilization, and political destabilization."[161] In short, it is unreasonable to fail to consider the global impacts of GHGs emitted from the U.S., as EPA proposes in its RIA.

Additionally, the ACE Rule RIA unreasonably relies on 3 and 7 percent discount rates in quantifying climate costs. While EPA uses a 2.5% discount rate as part of a "sensitivity analysis", it buries the headline effects of utilizing such a discount rate: Forgone climate benefits (i.e., climate costs) increase by billions of dollars when a 2.5% discount rate is used to estimate the costs of the ACE Rule.[162]

The social cost of carbon is highly sensitive to the discount rate. Higher discount rates decrease the value today of future environmental damages. Due to the atypically long timeframe and important intergenerational consequences associated with CO_2 emissions, the IWG has focused on scenarios with discount rates of 2.5, 3 and 5 percent.[163] Since 2008, federal agencies have reasonably relied on this range of discount rates in estimating climate damages through the use of the SCC.

As such, the use of a 7 percent discount rate is inappropriately high. It is contrary to the long-standing approach of the IWG and federal agencies. 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."[164] Because the 7 percent discount rate is unsupported by leading economic experts, scientists, and federal RIAs, EPA should reassess the costs of the ACE Rule using 2.5, 3, and 5 percent discount rates.

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[160] NAS Report, Valuing Climate Damages: Updating Estimation of the Social Cost of Carbon Dioxide, at 9 (2017), https://www.nap.edu/catalog/24651/valuing-climate-damages-updating-estimation-of-the-social-cost-of. Attached as Exhibit 16.

[161] *Id.*

[162] RIA at 7-8.

[163] NAS Report, at 19; IWG, Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866, at 3 (Feb. 2010). Attached as Exhibit 17.

[164] Council of Economic Advisers Issue Brief, Discounting for Public Policy: Theory and Recent Evidence on the Merits of Updating the Discount Rate (Jan. 2017). Attached as Exhibit 18.

b. EPA's Failure To Quantify Direct SO_2, NOx And HAP Exposure Is Unreasonable

The ACE Rule states that "[m]onetized co-benefits estimates [] do not include several important benefit categories, such as direct exposure to SO_2, NOX and hazardous air pollutants including mercury and hydrogen chloride."[165] This is plainly arbitrary, given the subject matter of the ACE Rule. The ACE Rule regulates emissions from existing coal-fired power plants. Coal-fired power plants emit all of the pollutants that EPA has failed to consider in its cost-benefit analysis. Significantly, coal-fired power plants are "by far the largest U.S. anthropogenic sources of mercury [] emissions into the air…"[166] Mercury is a powerful neurotoxin.[167] EPA's failure to quantify the impacts of mercury emissions (as well as direct SO_2, NOx, and hydrogen chloride emissions) from the ACE Rule is arbitrary.

c. The RIA Demonstrates That The ACE Rule Imposes Net Costs Compared To The CPP

Despite the obvious gaps and flawed assumptions in the ACE Rule RIA, the RIA nevertheless demonstrates that the ACE Rule is a bad deal for the U.S. Significantly, the RIA projects that up to *1,400 additional premature deaths will occur under the ACE Rule*, as compared to the CPP.[168] Additionally, EPA's own analysis is that the ACE Rule will increase emissions of CO_2, SO_2, and NO_x relative to the CPP.[169] Finally, the ACE Rule imposes *annual* net costs of $1.4 billion to $6.4 billion more than the CPP, and *every* ACE scenario imposes net costs compared to the CPP.[170] In present value terms, the ACE Rule imposes additional costs of *up to $76.3 billion* from 2023-2037 compared to the CPP.[171] In sum, the RIA demonstrates that more people will die—and more total costs will be imposed on society—from the ACE Rule, as compared to the CPP. And this is probably an underestimate, as the RIA does not directly account for climate-related deaths.[172] Given EPA's failure to demonstrate how its proposed legal

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[165] ACE Rule, at 44792.

[166] Proposed Rule, National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units, 76 Fed. Reg. 24976, 24977 (May 3, 2011).

[167] *Id.* at 24994.

[168] RIA, Table 4-6.

[169] ACE Rule, Table 6.

[170] *Id.* Table 18.

[171] *Id.*

[172] *See* University of Chicago, Climate Impact Lab, "Valuing the Global Mortality Consequences of Climate Change Accounting for Adaptation Costs and Benefits" (2018), available at:

interpretation of section 111 forecloses generation shifting, EPA's exclusion of such cost-effective emission reduction measures—and promulgation of a rule that imposes significant costs on the U.S. without appreciably reducing emissions—is unreasonable.

VII. The ACE Emission Guidelines Are Arbitrary For Failing To Include EGUs That Emit Significant Quantities Of GHG Emissions

The ACE's emission guidelines would only apply to certain coal-fired EGUs. Significantly, EPA proposes no BSER for integrated gasification combined cycle (IGCC) and natural gas combined cycle (NGCC) EGUs.

EPA's failure to apply the emission guidelines to significant and common types of EGUs is arbitrary and capricious.[173] Namely, the ACE Rule should apply to NGCC and IGCC EGUs. These are significant sources of GHG emissions in their own right: CO_2 emissions from natural gas now exceed emissions from coal and are expected to continue to grow through 2050.[174] EPA reasonably applied the CPP to steam generating units (as ACE does), as well as IGCC and NGCC units.[175] Indeed, given that a valid section 111(b) rule applies to IGCC and NGCC units, EPA *must* create emission guidelines for these units.[176] Therefore, EPA's failure to regulate IGCC and NGCC units in the ACE Rule is arbitrary and capricious in light of the Endangerment Finding, the New Source Rule, and the significant GHG emissions from these units.[177]

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http://www.impactlab.org/wp-content/uploads/2018/08/CIL_mortality_SSRN.pdf?mc_cid=2f646312c0&mc_eid=506f02c4af. Attached as Exhibit 19. This study finds that, even after accounting for adaptation and decreased cold-related deaths, an additional 1.5 million people die per year from climate change by 2100 if past emissions trends continue.

[173] This comment section is responsive to Comment C-3 and C-4.

[174] EIA AEO 2018, at 16. Natural gas emissions are derived from both electricity and industrial production in the AEO.

[175] *See* CPP, Proposed 40 C.F.R. § 60.5845.

[176] *See* New Source Rule, at 64512.

[177] In proposing to not apply the ACE Rule to NGCC and IGCC EGUs, EPA states that "in the CPP's identification of the BSER, no HRIs were identified as the BSER for stationary combustion turbines and IGCC units." ACE Rule, at 44754. However, this excuse alone cannot serve to justify failing to establish BSER for these units. The CPP did not identify HRIs for these units because generation-shifting is a more cost-effective means to reduce emissions from these units. Now that EPA proposes to foreclose generation shifting as part of its BSER, EPA must consider other measures to reduce emissions from sources, even if they are less cost-effective.

Further, The ACE Rule identifies a number of HRI measures that would reduce emissions from natural gas combustion turbines. ACE Rule, at 44761. EPA notes that it does not have cost figures for these HRIs. However, that point alone does not justify failing to establish a BSER for

VIII. Trading Should Be A State Plan Compliance Option

EPA asserts that "both legal and practical concerns may weigh against the inclusion of averaging and trading between existing sources in state plans at any level more broad than averaging between sources across a particular facility."[178] Specifically, EPA states that it "is concerned that averaging and trading across affected sources (or between affected sources and non-affected sources, e.g., wind turbines) would be inconsistent with our proposed interpretation of the BSER as limited to measures that apply at and to an individual source."[179] EPA claims that "[a]pplying a different analytical approach to standard-setting may result in asymmetrical regulation (for example, a state's implementation measures might result in a more stringent standard than could otherwise be derived from application of the BSER)."[180]

EPA's concern is unfounded.[181] First, trading is not necessarily inconsistent with EPA's proposed interpretation of the BSER. EPA's proposed interpretation is that "the BSER be limited to measures that can be applied at or to a source."[182] While EPA asserts that its interpretation forecloses trading and only allows HRI measures at affected EGUs, there is nothing inherent in EPA's proposed interpretation that actually forecloses trading. As CARB explained in its comments on the Proposed CPP Repeal Rule,[183] the BSER underlying the CPP is limited to measures that can be applied at sources themselves. 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.

The CPP preamble recognizes as much when it states 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*."[184] The CPP elsewhere "clarified that the components of the BSER must be *implementable by the affected EGUs*" and "show[ed]

NGCC units. EPA must explain why it fails to regulate NGCC units in the ACE Rule and what cost figure EPA believes would foreclose establishing a BSER for natural gas combustion turbines wholesale.

[178] ACE Rule, at 44767.

[179] *Id.*

[180] *Id.*

[181] This section of CARB's comments is responsive to Comment C-28.

[182] ACE Rule, at 44752.

[183] *See* Exhibit 1, Section IV.

[184] CPP at 64762 (final emphasis added).

that all the components of the BSER have been demonstrated to be achievable on that basis."[185] Therefore, the ACE Rule's suggestion that trading is foreclosed as a compliance option because it would not conform with EPA's proposed interpretation of the CAA misunderstands how trading works: Trading—as the CPP demonstrates—requires that BSER be implementable by affected sources *themselves*.

Additionally, even if trading were foreclosed as BSER, there is no legal limitation precluding state plan compliance options that are not incorporated into EPA's BSER. As the ACE Rule itself states, "EPA takes no position regarding whether there may be other methods or approaches to meeting such a standard, since there are likely various approaches to meeting the standard of performance that EPA is either unable to include as part of the BSER, or is unable to predict. EPA proposes that affected sources may use both BSER and non-BSER measures to achieve compliance with their state plan obligations."[186] The CPP also appropriately provided flexibility to states in how to comply with the emission guideline. Indeed, the section 111(d) implementing regulations explicitly recognize that states are not precluded from adopting or enforcing standards of performance more stringent than applicable emission guidelines.[187] [188]

EPA's proposal to preclude trading as a compliance option appears to be motivated by its concern that trading would undermine the basis for EPA's proposed exemptions to the BSER. As the ACE Rule states, "EPA believes that if section 111(d) authorized states to include trading and averaging between sources in their plans, the express provision under 111(d)(1) authorizing states to consider existing sources' remaining useful life and other factors when establishing and applying standards of performance

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[185] *Id.* at 64736 (emphasis added).

[186] ACE Rule, at 44765.

[187] Proposed 40 C.F.R. § 60.24a(f).

[188] EPA asserts that "[t]o demonstrate that measures taken to meet compliance obligations for a source actually reduce its emission rate, EPA proposes that the measures should meet two criteria: (1) They are implemented at the source itself, and (2) they are measurable at the source of emissions using data, emissions monitoring equipment or other methods to demonstrate compliance, such that they can be easily monitored, reported and verified at a unit…EPA solicits comment on whether these two criteria are appropriate or not and why, and whether there may be compliance flexibilities that might meet the two proposed criteria (Comment C–17)." ACE Rule, at 44765. CARB notes that trading satisfies both of these criteria: (1) trading is implemented at the source itself (by either increasing or decreasing generation at the source) and (2) trading is measurable at the source of emissions using data to demonstrate compliance (e.g., CEMS data).

Relatedly, CARB urges EPA to support trading by allowing state compliance plans to indicate the standard of performance in mass terms, as opposed to rate terms. This would support the institution of trading as a compliance measure. This comment is responsive to Comment C-15.

could be viewed as superfluous."[189] If trading makes consideration of RUL "superfluous", that translates into a benefit for public health and welfare: Low-cost emissions reductions can be achieved via trading without exempting the least efficient sources from any controls. Therefore, while EPA is correct that source-specific factors may be irrelevant if trading is available, that is ultimately a win for the climate and public health, and otherwise not precluded by the Act.[190] CARB urges EPA to allow trading as a compliance option in state plans. CARB also urges EPA to consider the additional burdens that its proposal imposes on states that currently use trading to regulate emissions from coal-fired EGUs.

IX. The ACE Rule Fails to Comply with EPA's Environmental Justice Obligations

Repealing the CPP and replacing it with the ACE Rule—which may *increase* emissions and may not reduce emissions at all—will disproportionately affect disadvantaged communities by removing the regulatory signal favoring long-term investment in low-emissions electricity and by foregoing the emissions reductions that would be achieved by the CPP itself if it were fully implemented. This is contrary to EPA's environmental justice obligations under Executive Order 12898.

According to 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."[191] In the CPP, EPA properly concluded that "communities of color… may be uniquely vulnerable to climate change health impacts" and that therefore these communities "will benefit from this final

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[189] ACE Rule, at 44768.

[190] As a final note, EPA's asserts that trading "would also undermine the purpose of section 111 in a broader sense. The section is directed toward the improvement of performance of new sources, and, through section 111(d)'s specific procedures, of existing sources. It is not, under EPA's proposed interpretation of section 111 (and contrary to the interpretation underlying the CPP), directed toward the aggregate emissions of an industrial sector as a whole, at either the state or national level." ACE Rule, at 44768. EPA's assertion is incorrect. The purpose of section 111 is not to improve performance for the sake of performance. The purpose of section 111 is to reduce emissions from new and existing sources. That is why the definition of standard of performance is 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) [EPA] determines has been adequately demonstrated." Section 111 is squarely focused on achieving emission reductions from subject sources.

[191] 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 20.

rulemaking because this action directly addresses the impacts of climate change."[192] These benefits also accrued because the CPP "would reduce other emissions from affected EGUs" including criteria and toxic pollutants, including particulate matter.[193] EPA has "identified low-income populations as being a vulnerable population for experiencing adverse health effects" to particulate matter, in particular.[194]

The ACE Rule asserts that it is "unlikely" that disparate impacts will occur.[195] Yet, the ACE Rule acknowledges that the CPP was "anticipated to reduce emissions of $PM_{2.5}$ and ozone, and some of the benefits of reducing these pollutants would have accrued to minority populations, low-income populations and/or indigenous peoples."[196] The ACE Rule also concedes that the Proposed Rule will not achieve the emissions reductions that the CPP would have.[197]

Nevertheless, EPA asserts that the proposal will achieve CO_2, ozone, and $PM_{2.5}$ emission reductions compared to instituting no policy at all.[198] However, EPA's assertion is contrary to what EPA has already conceded: Emissions may actually increase from the ACE Rule in certain scenarios. As CARB argues above, the ACE Rule can be anticipated to increase emissions in other scenarios as well, when the rebound effect and the proposed NSR loophole are taken into account.

In light of the potential for emissions to increase relative to both the CPP and *no* policy at all, EPA must do more to assess and reduce the impacts of the ACE Rule on EJ communities. EPA has already concluded that power plants are disproportionately located in disadvantaged communities.[199] Given the emissions impacts of the ACE Rule and where power plants are located, it is wholly reasonable to anticipate that the ACE Rule will disproportionately affect disadvantaged communities.

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[192] CPP, at 64940-41.

[193] *Id.*

[194] *Id.*

[195] ACE Rule, at 44797.

[196] *Id.*

[197] *Id.*

[198] *Id.*

[199] 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 21.

X. The ACE Rule Fails to Comply with EPA's Endangered Species Act and National Historic Preservation Act Obligations

Climate change and air pollution profoundly threaten ecosystems and cultural properties. Yet, EPA has failed to consider the impacts of the ACE Rule on EPA's Endangered Species Act (ESA) and National Historic Preservation Act (NHPA) obligations.

Under the ESA, EPA must consider the potential impacts of any proposed relaxed standards, and resulting pollution on threatened and endangered species and critical habitats.[200] [201] 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 species[202] is required to ensure that 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.[203] 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."[204]

Such consultation is especially critical here because the increased pollutant emissions resulting from the ACE Rule would exacerbate climate change, ocean acidification, and air pollution impacts that EPA, per the Endangerment Finding, has already determined to threaten global ecosystems. The ESA requires that EPA consult expert federal agencies regarding these matters, fully disclose them in a formal consultation process, and address any negative consequences. The ACE Rule entirely fails to adhere to this mandatory process.

EPA is also required to consider the potential impacts on archaeological sites and other historical resources under the NHPA.[205] These resources are, in many instances, profoundly threatened by climate change. As the NHPA states, "[p]rior 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 [i.e., the

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[200] 5 U.S.C. § 1536.

[201] 50 C.F.R. § 402.10.

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

[203] 15 U.S.C. § 1536(a)(2).

[204] 50 C.F.R. § 402.10(a); 50 C.F.R. § 402.11.

[205] 42 U.S.C. § 300101 *et seq.*

Advisory Council on Historic Preservation] a reasonable opportunity to comment with regard to the undertaking."[206]

This is not a hypothetical concern. The National Park Service has documented a wide array of threats to national parks and national historic places, including fires, floods, increased erosion, and sea level rise.[207] The ACE Rule does not appreciably reduce GHG emissions and, therefore, does not address these impacts. Therefore, consultation with the Council is required because the ACE Rule may directly and adversely affect National Historic Landmarks.

XI. Conclusion

The ACE Rule represents a misguided effort to prop up coal-fired power plants at the expense of public health and welfare. The fact that coal-fired power plants need this type of special treatment reflects the reality that cleaner power options are winning in the market. However, the momentum for cleaner electricity in the market does not obviate EPA's Clean Air Act obligations. The ACE Rule is contrary to section 111 and the Act generally. CARB urges EPA to withdraw the Proposed ACE Rule, conclude the outstanding CPP litigation, and implement the CPP.

[206] 54 U.S.C. § 306107.

[207] National Park Service, *Cultural Resources Climate Change Strategy*, at 20-24 (2016), available at: https://www.nps.gov/subjects/climatechange/upload/NPS-2016_Cultural-Resoures-Climate-Change-Strategy.pdf. Attached as Exhibit 22.

Exhibits

1. CARB Comments on Proposal to Repeal the Clean Power Plan, Docket No. EPA-HQ-OAR-2017-0355 (April 26, 2018).
2. CARB Comments on State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units, Docket No. EPA-HQ-OAR-2017-0545 (Feb. 26, 2018).
3. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency (2018). Indicators of Climate Change in California, available at: https://oehha.ca.gov/media/downloads/climate-change/report/2018caindicatorsreportmay2018.pdf.
4. IPCC, Summary for Policymakers, *Global Warming of 1.5 °C* (2018), available at: http://www.ipcc.ch/report/sr15/.
5. Sarah K. Adair, David C. Hoppock, Jonas J. Monast, ‘‘New Source Review and coal plant efficiency gains: How new and forthcoming air regulations affect outcomes’’, 70 Energy Policy 183–192 (2014).
6. RFF Working Paper, Carbon Standards Examined: A Comparison of At-the-Source and Beyond-the-Source Power Plant Carbon Standards (Aug. 2018).
7. Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures, 162 FERC ¶ 61,012 (Jan. 8, 2018).
8. 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.
9. EIA, Annual Energy Outlook 2018, available at: https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf.
10. 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.)].
11. 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.)].
12. California Fourth Climate Change Assessment, Statewide Summary Report (2018).
13. EPA, CPP Responses to Comments Document, Chapter 1A.
14. Rep. Griffith, Discussion Draft, H.R. __, § 2 (2018), available at: https://docs.house.gov/meetings/IF/IF18/20180516/108304/BILLS-115pih-NewSourceReviewPermittingReformDiscussionDraft.pdf.
15. EPA, Legal Memorandum Accompanying Clean Power Plan for Certain Issues, EPA-HQ-OAR-2013-0602-36872 (2015).

16. NAS Report, Valuing Climate Damages: Updating Estimation of the Social Cost of Carbon Dioxide (2017), https://www.nap.edu/catalog/24651/valuing-climate-damages-updating-estimation-of-the-social-cost-of.
17. IWG, Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866 (Feb. 2010).
18. Council of Economic Advisers Issue Brief, Discounting for Public Policy: Theory and Recent Evidence on the Merits of Updating the Discount Rate (Jan. 2017).
19. University of Chicago, Climate Impact Lab, "Valuing the Global Mortality Consequences of Climate Change Accounting for Adaptation Costs and Benefits" (2018), available at: http://www.impactlab.org/wp-content/uploads/2018/08/CIL_mortality_SSRN.pdf?mc_cid=2f646312c0&mc_eid=506f02c4af.
20. 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.
21. 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.
22. National Park Service, *Cultural Resources Climate Change Strategy* n2016), available at: https://www.nps.gov/subjects/climatechange/upload/NPS-2016_Cultural-Resoures-Climate-Change-Strategy.pdf.