

Unions for Jobs & Environmental Progress

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U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20004

March 8, 2019

Re: Docket ID No. EPA-HQ-OAR-2013-0495
Review of Standards of Performance for
Greenhouse Gas Emissions from New,
Modified and Reconstructed Stationary Sources:
Electric Utility Generating Units

Via E-Mail to <https://www.regulations.gov>

Ladies & Gentlemen:

We are writing on behalf of the members of Unions for Jobs & Environmental Progress ("UJEP"), an *ad hoc* association of energy-related labor unions. Our member unions represent workers in electric power, transportation, coal mining, construction, and other energy-related industries. UJEP members' jobs and economic wellbeing will be affected by U.S. EPA's decisions on New Source Performance Standards (NSPS) for greenhouse gas (GHG) emissions for new, modified and reconstructed electric utility sources.

UJEP is an independent ad hoc association of labor unions involved in energy production and use, transportation, engineering, and construction. Our members are: International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers Union; International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers; International Brotherhood of Electrical Workers; International Brotherhood of Teamsters; SMART Transportation Division; Transportation • Communications International Union, IAM; United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of the United States and Canada, and United Mine Workers of America. For more information about us, visit www.ujep4jobs.org.

UJEP Support for CCUS Technologies

UJEP member unions have participated for decades in both the domestic and international climate change debates. Our members have engaged the climate change debate domestically through assisting in the design of national climate change legislation, focusing particularly on emissions reduction targets and timetables, international trade adjustment issues, and mechanisms to promote the commercial development of advanced coal generation with carbon capture, utilization and storage (CCUS). UJEP members support U.S. EPA's authority to regulate greenhouse gases pursuant to various decisions of the U.S. Supreme Court,¹ and have testified before Congress on the design of New Source Performance Standards.

In 2008, UJEP members helped U.S. EPA's Work Group on Advanced Coal Technology (ACT) to reach a unanimous recommendation calling for prompt legislative development of a non-budget funding mechanism for early commercial demonstration of CCUS technologies.² UJEP members subsequently helped to design legislation implementing the ACT Work Group's consensus recommendation for accelerating the early demonstration of CCUS technologies.

The Boucher-Rahall bill (HR 6258, 110th Cong, 2d Sess.) reflected the basic design elements of the ACT recommendations by the creation of a "wires charge" to provide an annual funding stream of \$1 billion for the demonstration of CCUS technologies. This bill was later incorporated as Section 114 of the Waxman-Markey climate bill passed by the House of Representatives in June 2009 (HR 2454, 111th Cong., 1st Sess.)

To date, Congress has not authorized programs to accelerate the large-scale commercial demonstration of CCUS technologies beyond the relatively modest programs funded through the Office of Fossil Energy at the U.S. Department of Energy, and 45Q tax credit legislation. UJEP members actively supported the expansion of 45Q tax credits, and supported both the House and Senate bills.

While we strongly support the commercial deployment of CCUS technologies, and the expansion of U.S. DOE funding to accelerate the development of cost-effective CO₂ capture technologies, we agree with EPA that CCS, at this time, does not represent the Best System of Emission Reduction (BSER) for new, modified or reconstructed coal plants due to its "high costs and limited geographic availability." 83 Fed. Reg. 65424, 65426. Subsequent NSPS revisions may reflect CCS technologies when they have been adequately demonstrated at commercial-scale fossil electric generation units (EGUs) in the United States.

¹ See, e.g., *Massachusetts v. EPA*, 549 U.S. 497 (2007); *American Electric Power Co., et al., v. State of Connecticut, et al.*, 564 U.S. 410 (2011).

² U.S. EPA Clean Air Act Advisory Committee, "Final Report of the Advanced Coal Technology Work Group," (January 29, 2008).

Revision of 2015 NSPS

EPA's reconsideration of the 2015 NSPS proposes to eliminate the requirement of those regulations requiring new coal-based EGUs to utilize partial CCS³ technologies to achieve an emission rate of 1,400 lbs. CO₂/MWh. The 2015 regulations did not extend similar CCS requirements to new natural gas generating facilities, thus penalizing coal-based plants in decisions respecting new capacity additions. UJEP members did not support EPA's 2015 NSPS because CCS technology was not adequately demonstrated at that time for any fossil fuel.

The current CO₂ NSPS limits for the EGU source category were promulgated at the same time that EPA adopted the Clean Power Plan. EPA set these CO₂ NSPS limits pursuant to section 111(b) of the CAA, which authorizes the Agency to establish performance standards for new, modified, and reconstructed sources of emissions if the sources are in a category that EPA has found to emit pollutants at levels that "cause or contribute" to the "endangerment" of public health and welfare.⁴ This "endangerment finding" determination is a prerequisite for the regulation of any source category under section 111 of the CAA.

A section 111(b) emission standard takes the form of an emission limitation, which must be based on EPA's determination of the BSER for affected stationary sources within the regulated source category. The adoption of NSPS limits under CAA section 111(b) is a legal prerequisite to establishing performance standards for *existing* sources within the same source category under section 111(d) of the CAA. The Clean Power Plan and its proposed replacement, the Affordable Clean Energy Rule, are rules to set performance standards for existing fossil-fueled EGUs under CAA section 111(d).

The current NSPS rules established CO₂ emission standards for new, modified, and reconstructed coal-fueled power plants and natural gas-fired plants. Notably, the NSPS rules set a CO₂ emission standard for a new coal-fired power plant of 1,400 lbs of CO₂ per MWh based on partial CCS as the BSER. For natural gas-fired power plants, the current NSPS rules established two tiers of CO₂ standards, which depend on the operation of the plant. For a new baseload natural gas unit, EPA finalized a standard based on a highly efficient natural gas combined cycle plant as the BSER. The standard is somewhat less stringent for a non-baseload gas-fired combustion turbine.

The proposed rule seeks to revise EPA's prior determination that partial CCS is the BSER for new coal-fueled EGUs. EPA is basing its proposed revision to the BSER determination on new information developed by the Agency that indicates CCS is not

³ CCS refers to permanent carbon capture and storage, typically in deep underground storage sites such as saline aquifers. CCUS includes CCS but expands its applications to carbon utilization, such as for enhanced oil recovery or the creation of building materials, etc.

⁴ Section 111(b)(1) requires EPA to list those categories of stationary sources that the EPA Administrator finds "cause or contribute significantly to air pollution which may reasonably be anticipated to endanger public health or welfare."

“adequately demonstrated.” This new information included updated analyses showing that:

- (1) the costs of employing CCS technologies are not yet reasonable, and
- (2) there is limited geographic availability of CCS due to site-specific technical, regulatory, and economic constraints.

In addition, the proposal questions whether CCS technologies are technically feasible at this time due to many problems encountered in demonstrating effectiveness and reliability of carbon capture equipment at large utility-scale demonstration projects.

In reversing its previous BSER determination, the Agency proposes to find that the BSER for new and reconstructed coal-fueled EGUs⁵ is the most efficient steam cycle in combination with best operating practices. This BSER determination is applied to three separate subcategories of new and reconstructed coal-fueled steam generating units.

In the case of “large” steam generating units having a heat input greater than 2,000 MMBtu per hour, the BSER is defined as supercritical steam conditions that encompasses both supercritical and advanced ultra-supercritical steam conditions. For “small” EGUs with a heat input less than 2,000 MMBtu per hour, BSER is defined as the best available subcritical steam conditions. For these three EGU subcategories, EPA is proposing to set the following revised CO₂ performance standards:

- 1,900 lbs/MWh for new and reconstructed large coal-fueled EGUs;
- 2,000 lbs/MWh for new and reconstructed small coal-fueled EGUs; and
- 2,200 lbs/MWh for new and reconstructed coal-fueled EGUs burning coal refuse, regardless of size of the unit.

For modified coal-fired EGUs, the EPA proposal would continue to set unit-specific CO₂ performance standards based on the unit’s best historical annual CO₂ emissions rate from 2002 to the date of modification. However, the Agency is proposing to set an upper bound of this unit-specific CO₂ emissions limitation by providing that the limitation for the modified unit may not be more stringent than the applicable CO₂ performance standard set for the relevant new and reconstructed EGUs under the proposed rule. Finally, the EPA proposal would not change the current CO₂ performance standards for natural gas combustion turbines.

Analysis of Proposed NSPS Emission Standards

We agree with EPA's proposed emission limitations for new, modified, or reconstructed sources. The proposed limit of 1,900 lbs. CO₂/MWh for large coal EGUs is quite

⁵ Affected coal-fueled EGUs include both steam electric generating units and integrated gasification combined cycle (IGCC) units that are fueled by coal or coal-derived fuels. All references to coal-fueled EGUs for which revised performance standards have been proposed include coal-fueled IGCC units.

consistent with our independent analysis of the performance of large units representing the 90th percentile of 272 coal EGUs units based on data from the 2007 NETL public database of coal EGUs.

We sorted the NETL data base to identify coal-based units likely to remain in operation after implementation of the 2011 EPA Mercury and Air Toxics Standards (MATS) rule, using three screening criteria: unit nameplate capacity of 400 MW or greater, current age of 50 years or less, and heat rate of 9,000 BTU/kWh or higher (some coal units in the NETL data base have reported heat rates as low as 7,000 BTU/kWh, reflecting cogeneration or other factors that should exclude them from consideration.)

This sort produced 272 coal-based units, totaling 176,700 MW of capacity:

- 141 bituminous units, totaling 94,037 MW, with an average emission rate of 2,055 lbs. CO₂/MWh;
- 110 subbituminous units, totaling 69,500 MW, with an average emission rate of 2,214 lbs. CO₂/MWh; and
- 21 lignite units, totaling 13,140 MW, with an average emission rate of 2,425 lbs. CO₂/MWh.

The three sample coal groups were analyzed for average CO₂/MWh emission rates by quintile (i.e., lowest 20% emitting units, next lowest 20% emitting units, etc.) The average emission rate for units in the top quintile is equivalent to the 90th percentile of best performing units for the sample group:

Summary of Average and 90th Percentile CO₂ Emission Rates for 272 Coal EGU Sample, >400 MW, <50 Years (176,679 MW)

Coal type	Avg. Lbs. CO ₂ /MWh	Lbs. CO ₂ /MWh 90th Percentile
Bituminous	2,055	1,838
Subbituminous	2,214	1,973
Lignite	2,425	2,235
Wgt. Average	2,148	1,939

This analysis confirms the reasonableness of EPA's proposed standard of 1,900 lbs. CO₂/MWh for large coal based EGUs as consistent with BSER. The 90th percentile top-performing units in the NETL analysis generally are equipped with flue gas scrubbers for SO₂ control and a variety of other emission control equipment comparable to current regulatory requirements. The proposed standard appears to be achievable for bituminous and subbituminous units, but may represent a challenge for new lignite-fueled units.

Endangerment Finding Issues

In the 2015 NSPS rulemaking, EPA interpreted the statute to require an “endangerment finding” to be made for the source category, and not the air pollutant. EPA based its interpretation on the fact that CAA section 111(b) does not specify which pollutants EPA should regulate once it lists a source category pursuant to an affirmative endangerment finding.

Rather, the statute provides EPA with the discretion to decide which pollutants to regulate so long as the Agency has a “rational basis” for doing so.⁶ Under this interpretation of the statute, EPA has the authority to set performance standards for CO₂ emissions from fossil-fuel EGUs given that the Agency has already made an endangerment finding for the EGU source category in a prior NSPS rulemaking and has relied on that endangerment finding for setting performance standards for various other air pollutants, such as SO₂, NO_x and PM. Furthermore, the Agency asserts that even if it were required to make a specific endangerment finding for CO₂ emissions from EGUs in order to regulate them under section 111(b), such an endangerment finding could easily be made based on “the same facts that provided the rational basis” for regulating CO₂ from the EGU source category under the prior NSPS rulemaking.⁷

We support retaining this previous statutory interpretation, consistent with EPA's current proposal. We are concerned, however, that EPA is also requesting comment on legal and technical issues that could have the effect of reversing the Agency's current position on the endangerment finding made for the EGU source category.

In particular, the preamble to the proposed rule notes that some stakeholders have opposed EPA's interpretation of the endangerment finding requirement for greenhouse gases (GHG). EPA therefore “sees value to allowing them to comment” on a wide range of issues relating to “the correctness of the EPA's interpretations and determinations and whether there are alternative interpretations that may be permissible, either as a general matter or specifically applied to GHG emissions.”⁸ The three key issues for which EPA is seeking comment:

- Whether it is correct to interpret the statute to require EPA to make an endangerment finding only once for the source category at the time that EPA lists the source category, or whether the Agency must make a new endangerment finding each time that it regulates an additional air pollutant emitted from an already-listed source category?
- Whether GHG emissions are different in salient respects from conventional air pollutants such that it would require EPA to conduct a new endangerment finding for GHG emissions from a previously listed source category?

⁶ See *National Lime Ass'n v. EPA*, 627 F.2d 416, 431-32, n. 48 (D.C. Cir. 1980).

⁷ 83 Fed. Reg. at 65,432.

⁸ 83 Fed. Reg. at 65,432, n. 25.

- Whether EPA has a rational basis not to regulate CO₂ emissions from new coal-fueled EGUs based on “ongoing and projected power sector trends?” Notably, those trends indicate that substantial CO₂ emissions reductions from coal-fueled EGUs have occurred in recent years and are expected to continue to occur due to reduced coal-fueled generation and current projections for the construction of, at most, only a few new coal-fired EGUs.⁹

Major adverse regulatory consequences certainly would ensue if EPA reversed course on its regulatory interpretation of the endangerment finding. This could occur under either of two scenarios. The first scenario is that the Agency concludes that the CAA requires the Agency to make an endangerment finding for the air pollutant and not the source category and that CO₂ emissions from coal-fueled EGUs do not endanger public health and welfare due to the sharp continued declines in CO₂ emissions from the EGU source category and very low prospects of new coal-fueled generating capacity being built in the future.

EPA correctly notes, however, that there are significant uncertainties regarding current model projections of future power plant construction trends:

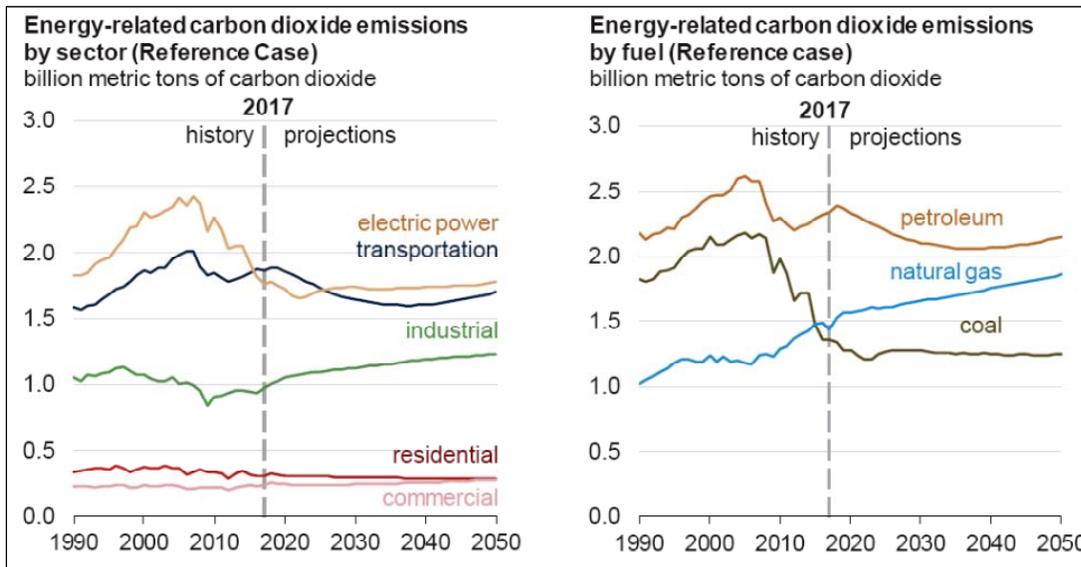
As with any modeling of future projections, many of the inputs are uncertain. In this context, notable uncertainties, in the future, include the cost of fuels, the cost to operate existing power plants, the cost to construct and operate new power plants, infrastructure, demand, and policies affecting the electric power sector. The modeling conducted for this economic impact analysis is based on estimates of these variables, which were derived from the data currently available to the EPA. However, future realizations could deviate from these expectations as a result of changes in wholesale electricity markets, federal policy intervention, including mechanisms to incorporate value for onsite fuel storage, or substantial shifts in energy prices. 83 Fed. Reg. 65427.

We view these uncertainties as strongly supporting the agency's current and proposed interpretation of the applicability of the endangerment finding to 111(b) rulemakings such as this.

The second scenario of concern is that EPA might determine that there is no rational basis for setting performance standards for CO₂ emissions from the EGU source category for similar reasons. Making either one of these determinations would preclude not only the setting of CO₂ performance standards for new coal-fueled EGUs under section 111(b), but could have the effect of precluding the regulation of CO₂ emissions from existing EGUs under section 111(d), thereby invalidating the Affordable Clean Energy Rule once it is adopted as a replacement rule to the Clean Power Plan. Until now, EPA has resisted seeking to repeal the endangerment finding for CO₂ or GHG emissions under the CAA.

⁹ 83 Fed. Reg. at 65,432, n. 25.

Given the continuing and projected substantial contribution of EGUs to national CO₂ emissions, as shown in the DOE/EIA chart below, we believe that any departure from the agency's current and proposed application of 111(b) standards of performance to EGUs risks substantial opposition from the D.C. Circuit and, indeed, from the Supreme Court. We thus urge the agency to reject appeals from commentators whose ultimate objectives may be to undermine the endangerment finding and EPA's authority to regulate GHGs under the Clean Air Act.



Source: U.S. DOE/EIA, 2018 *Annual Energy Outlook*.

The likelihood that any emissions reductions associated with the proposed NSPS may be very small does not, in itself, support any change to the agency's current regulatory application of the endangerment finding. The Supreme Court's holding in *Massachusetts* is instructive on the importance of managing relatively small changes in GHG emissions:

Given EPA's failure to dispute the existence of a causal connection between man-made greenhouse gas emissions and global warming, its refusal to regulate such emissions, at a minimum, "contributes" to Massachusetts' injuries. EPA overstates its case in arguing that its decision not to regulate contributes so insignificantly to petitioners' injuries that it cannot be hailed into federal court, and that there is no realistic possibility that the relief sought would mitigate global climate change and remedy petitioners' injuries, especially since predicted increases in emissions from China, India, and other developing nations will likely offset any marginal domestic decrease EPA regulation could bring about. Agencies, like legislatures, do not generally resolve massive problems in one fell swoop, *see Williamson v. Lee Optical of Okla., Inc.*, 348 U. S. 483, 489, but instead whittle away over time, refining their approach as circumstances change and they develop a more nuanced understanding of how best to proceed. 549 U.S. 497, 499 (2007).

As EPA considers the appropriateness of its current approach to the endangerment

finding, the comments submitted on these issues, and relevant Supreme Court precedent, the agency also should be informed by the findings of the *4th National Climate Assessment*, produced through the collaboration of 13 federal agencies organized by the U.S. Global Change Research Program, and mandated by the Global Change Research Act of 1990. The *4th Assessment* finds that:

In the absence of more significant global mitigation efforts, climate change is projected to impose substantial damages on the U.S. economy, human health, and the environment. Under scenarios with high emissions and limited or no adaptation, annual losses in some sectors are estimated to grow to hundreds of billions of dollars by the end of the century. It is very likely that some physical and ecological impacts will be irreversible for thousands of years, while others will be permanent. ...

Recent studies also show that many climate change impacts in the United States can be substantially reduced over the course of the 21st century through global-scale reductions in greenhouse gas emissions. While the difference in climate outcomes between scenarios is more modest through the first half of the century, the effect of mitigation in avoiding climate change impacts typically becomes clear by 2050 and increases substantially in magnitude thereafter. Research supports that early and substantial mitigation offers a greater chance of avoiding increasingly adverse impacts. ...

Net cumulative CO₂ emissions in the industrial era will largely determine long-term global average temperature change and thus the risks and impacts associated with that change in the climate. Large reductions in present-day emissions of the long-lived GHGs are estimated to have modest temperature effects in the near term (over the next couple decades), but these emission reductions are necessary to achieve any long-term objective of preventing warming of any desired magnitude.

Decisions that decrease or increase emissions over the next few decades will set into motion the degree of impacts that will likely last throughout the rest of this century, with some impacts (such as sea level rise) lasting for thousands of years or even longer.¹⁰

We appreciate the opportunity to comment on the issues raised by EPA's reconsideration of the 2015 NSPS, and support the agency's recommendations on the appropriate level of emissions standards for new, modified and reconstructed sources. For the reasons noted above, we do not support any change to the agency's current approach to the application of the endangerment finding in 111(b) rulemakings.

¹⁰ U.S. Global Change Research Program, *4th National Climate Assessment* (2018), Ch. 29.

Thank you for your consideration of our views.

Sincerely,

A handwritten signature in black ink, appearing to read "Donnie Colston". The signature is fluid and cursive, with a long horizontal stroke at the end.

Donnie Colston
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President, UJEP
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