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EPN Comments on New Source Performance Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions from Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule

Docket No.: EPA-HQ-OAR-2023-0072

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The Environmental Protection Network (EPN) harnesses the expertise of nearly 600 former Environmental Protection Agency (EPA) career staff and confirmation-level appointees from Democratic and Republican administrations to provide the unique perspective of former regulators and scientists with decades of historical knowledge and subject matter expertise.

EPN is pleased to comment on EPA's proposed New Source Performance Standards (NSPS) and Emission Guidelines for greenhouse gas (GHG) emissions from new and existing as well as modified or reconstructed fossil fuel-fired electric generating units. EPN strongly supports this action, which fits squarely within the dictates of the Clean Air Act (CAA) and the Supreme Court's two relevant rulings.

EPA officially decided in 2009 that the threat of climate change necessitates regulation of GHG emissions under the CAA. Since then the scientific consensus supporting the need to make major reductions as quickly as possible has only grown stronger.[1]

In the last two years, EPA has proposed a number of actions to reduce GHG emissions from major U.S. sources.[2] The proposed power plant rule is consistent with the CAA and would substantially reduce GHG emissions from one of the largest source categories[3] and deliver significant benefits to the U.S. and internationally.

[1] IPCC, 2023: Summary for Policymakers. In: *Climate Change 2023: Synthesis Report.* A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)], https://www.ipcc.ch/report/ar6/syr/.

[2] In addition to the proposed fossil fuel power plant rule, EPA has taken action to reduce GHG emissions from other major categories, including mobile and industrial sources. See Greenhouse Gas Emissions Standards for Heavy Duty Vehicles - Phase 3, https://www.govinfo.gov/content/pkg/FR-2023-04-27/pdf/2023-07955.pdf; Multipollutant Emission Standards for Model Years 2027 and Later for Light-Duty and Medium-Duty Vehicles, https://www.govinfo.gov/content/pkg/FR-2023-05-05/pdf/2023-07974.pdf; Supplemental notice of proposed rulemaking for Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources, https://www.govinfo.gov/content/pkg/FR-2022-12-06/pdf/2022-24675.pdf.

[3] The proposal states that the power sector is the largest stationary source of GHGs, emitting 25% of the overall domestic CO_2 emissions in 2021.

The proposal consists of several separate actions to address CO_2 emissions from new, modified, and existing fossil fuel power plants and repeals the Affordable Clean Energy rule.[4] Consistent with Section 111 of the CAA, in establishing standards and guidance for several categories of new and existing plants, EPA focused on establishing the Best System of Emissions Reduction (BSER) for each category, which is determined by taking into account costs, energy requirements, and other statutory factors, and whether it is adequately demonstrated for the purpose of improving the emissions performance of the covered electric generating units. EPA then proposed an emission standard and/or guidance for each category based on what emission level BSER could achieve for that category, considering differences in fuel, combustion technology, and size. EPA does not dictate what technologies power plants must use to meet the BSER-based emission standards and guidelines, but the standards must be met.

Below are EPN's comments on the approach EPA followed in the proposal, as well as comments and suggestions related to specific categories and issues.

Comments on Legal Context and General Approach

EPN believes that the proposal stays squarely within the dictates of the CAA and the U.S. Supreme Court's two relevant rulings. EPA's 2009 endangerment finding responded to the 2007 Supreme Court finding that the CAA authorizes EPA to control carbon emissions (*Massachusetts v. EPA*, 549 U.S. 497 (2007)). The proposal follows the requirement in Section 111 of the CAA that, in setting a control level, EPA must survey available technologies that reduce emissions of GHGs at the plant and choose the best one, considering costs and other factors. It is also consistent with the Court's 2022 finding (*West Virginia v. EPA,* 142 S. Ct.2587, 2614 (2022)) stating that EPA standards at existing power plants must be limited to controls that would apply only within the plant fence line.

EPN believes the Agency has achieved a balanced approach when considering all relevant factors, including associated uncertainties. EPN appreciates EPA's focus on reducing GHG emissions from the power sector while maintaining the reliable delivery of electricity. EPA met with utility stakeholders in the process of developing the proposal to discuss their perspectives. In the process of evaluating technologies, EPA considered the availability of tax exemptions and other resources provided in the Inflation Reduction Act (IRA) that will support development and cost-effective adaptation of these technologies. We believe EPA should be encouraged by the fact that some electric utilities have already taken significant actions to reduce CO_2. The preamble notes some specific utility plans to ensure all new gas plants built by 2030 be capable of co-firing hydrogen at 30% and all new gas-fired utilities would be 100% low-GHG hydrogen by 2040. EPA's Regulatory Impact Analysis provides several recent examples of electric utilities, which together serve roughly 40 million customers, that have publicly announced near- and long-term significant CO_2 emission reduction commitments to be "carbon free" by 2050 or even earlier.[5]

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[4] *Federal Register*, Vol. 84, No.130, July 8, 2019, p. 32520. CFR Part 60. Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations.

[5] EPA Regulatory Impact Analysis for the Proposed New Source Performance Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions from Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule, May 2023, p 2-12. See also this preamble citation: "EEI's member companies see a clear path to continued reductions over the next decade using current technologies, including nuclear power, natural gas-based generation, energy demand efficiency, energy storage, and

Comments on Proposals for Specific Power Plant Categories

EPN supports EPA's proposal that the Emission Guidelines require "existing" coal-fired steam-generating plants that stay in operation <u>after</u> December 31, 2039, meet an emission standard based on a "broadly applicable" BSER of carbon capture and storage (CCS) with 90% capture. We also support EPA's proposal to establish a separate BSER for the three different load subcategories, i.e., for "low load"- "lower emitting fuels, e.g., natural gas;" and for "intermediate" and "base load" subcategories - "highly efficient generation" and the choice of two "pathways": either using CCS with 90% capture (by 2035) <u>or</u> co-firing low-GHG hydrogen in a phased approach (30% low-GHG hydrogen by volume as early as 2032 for intermediate and base load, and then, for baseload only, 96% by volume by 2038). This general approach of sub-categorizing and phasing of requirements seems reasonable and should generate productive discussion.

With respect to the technologies, we note that EPA provides over a dozen examples of carbon capture in practice, although few are directly linked to power generation. Current projects described include SaskPower's Boundary Dam Unit 3, AES's Warrior Run, and Shady Point coal-fired power plants and Bellingham Energy Center's use of CCS in an existing combined cycle combustion turbine unit, among others.[6] With regard to co-firing with GHG hydrogen, we understand that DOE's assessment is that while the U.S. clean hydrogen market is poised for rapid growth and commercial "lift off," it is now in its initial phase and there are uncertainties as to how soon it could be achieved for the power sector.[7]

EPN urges EPA to consider setting specific maximum CO_2 emission rates in the proposed emissions guidelines for existing coal-fired steam-generating plants that commit to permanently ceasing operations <u>before</u> January 1, 2040 (according to federally-enforced commitment dates set forth in state plans). For facilities closing before January 1, 2040, EPN recommends that EPA's proposal would establish BSER as "co-firing 40% gas on a heat input basis" with no limit on CO_2 emission rates. For facilities closing before January 1, 2035, EPA's proposal would establish BSER as "routine methods of operation and maintenance and no increase in emission rate." EPN believes consideration should be given to EPA setting emission limits in each case, with careful consideration given to degrees of stringency. This is important given the wide variability in emission rates and the fact that coal-fired units can emit nearly twice as much CO_2 as gas-fired units.[8]

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deployment of new renewable energy – especially wind and solar – as older coal-based and less-efficient natural gas-based generating units retire." 60 Edison Electric Institute (EEI)/ (November 18, 2022). Clean Air Act Section 111 Standards and the Power Sector:" Consideration and Options for setting Standards and Providing Compliance Flexibility to Units and States. p 5. Public comments submitted to the EPA's pre-proposal rulemaking, Docket No. EPA-HQ-OAR-2022-0723. Proposal at 33254.

[6] As a comparison of determining BSER with limited examples, in 1978, EPA based the 111 best technology-based standard for sulfur oxide-emitting power plants based on stack gas scrubbers, despite very limited adoption at that time. *Technology Diffusion and Environmental Regulation. The Adoption of Scrubbers by Coal-Fired Power Plants* (E.Frey). https://www.epa.gov/sites/default/files/2014-12/documents/technology_diffusion_and_environmental_regulation.pdf

[7] DOE: *Pathways to Commercial Liftoff: Clean Hydrogen Liftoff,* March 2023.

[8] U.S. Energy Information Administration, https://www. eia.gov. CO_2 emissions associated with coal and natural gas generated electricity differ because coal has more carbon content per unit of energy. In addition, coal-fired plants and natural gas-fired plants differ in how efficiently they convert their respective fuels to electricity. The amount of CO_2 produced when a fuel is burned

EPN urges EPA to update the 2015 NSPS standards for new and reconstructed coal-fired units. EPA's current proposal states that EPA does not intend to revise the NSPS for new and for reconstructed units; rather that it intends for the 2015 standards to remain in place, since construction of new coal-fired units in the U.S. is not anticipated.[9] The 2015 NSPS, however, establishes BSER for new coal-fired power plants as "partial CCS" — specifically, that the power plants would capture and store 16-23% of CO_2 emissions, depending on the coal type.[10] We note that EPA does propose revising the NSPS standards for new modified coal-fired units to be based on the BSER of CCS with 90% capture, to ensure consistency for any existing units currently subject to the emission guidelines that may modify and become subject. We believe similar logic regarding consistency should apply here to new units. In addition, this would provide clarity for all, including the global community, and particularly countries where new coal plants continue to be constructed.

EPN supports EPA's proposed emission guidelines for existing natural gas-fired stationary combustion turbines, but urges consideration be given to expanding the scope of CO_2 control requirements beyond "large (i.e., larger than 300 MW) frequently operated units (i.e., units having a capacity factor of greater than 50 percent)." EPA should consider thresholds for smaller units down to and including 100 MW and lower capacity factors. For all cases not requiring CCS or low-GHG hydrogen, EPA should set maximum CO_2 emission limits.

EPN urges consideration be given to including requirements for maximum CO_2 emission rates in the proposed emissions guidelines for existing natural gas- and oil-fired steam-generating plants. EPA's proposal would establish BSER as "routine methods of operation and maintenance with no increase in the CO_2 emission rate." EPN believes that EPA instead should set maximum emission limits for different categories of facilities. This will provide consistency with our comment regarding coal-fired units (above).

EPN supports EPA's proposal for a revised NSPS for new and reconstructed natural gas-fired stationary combustion turbines that would establish a BSER calling for "highly efficient generation" and, depending on the load subcategory, use of CCS or co-firing low-GHG hydrogen. EPN urges that for all cases not requiring CCS or low-GHG hydrogen, EPA set maximum CO_2 emission limits.

EPN urges EPA to consider slight changes to the regulatory language to address issues arising from the possibility of some units in the "intermediate load" sub-category, which are capable of

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depends on a fuel's carbon content. Coal produces more CO_2 per unit of energy than natural gas does when burned. Coal consumption for electricity generation produces 209 pounds of CO_2 per million British thermal units (MMBtu) compared with 117 pounds of CO_2/MMBtu for natural gas.

[9] *Federal Register* ,Vol. 88, No. 99, May 23, 2023 / Proposed Rules

[10] *Federal Register*, Vol. 80, No. 205, October 23, 2015, p. 64510. CFR Parts 60, 70, 71, et al. Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units; Final Rule.

"The EPA has determined that a newly constructed highly efficient supercritical utility boiler burning bituminous coal can meet this final emission limitation by capturing 16% of the CO_2 produced from the facility (or 23% if burning subbituminous or dried lignite), which would be either stored in on-site or offsite geologic sequestration repositories subject to control under either the Class VI (for geologic sequestration) or Class II (for Enhanced Oil Recovery) standards under the UIC program."

operating as "low load" or "peaker" units, mischaracterizing themselves as peaker units so as to avoid the costs of installing CCS or co-firing low-GHG hydrogen.

EPN urges EPA to adopt regulatory language regarding low-GHG hydrogen that ensures that "acceptable uses" reflect the entire life cycle of hydrogen (including the carbon emissions of any electricity used for electrolysis).

Environmental Justice Concerns

EPN believes environmental justice must be a central consideration of EPA rulemaking. We applaud EPA for including an environmental justice analysis that quantitatively evaluates the proposal's health impacts on potentially vulnerable and/or overburdened populations residing near the affected facilities. The analysis presents the estimated changes that implementation of the proposal would bring in the distribution of ozone and PM2.5 concentrations relative to the baseline across different demographic groups, including race, economic status, and access to healthcare, among other factors.

EPA found that the proposal would lead to modest but widespread reductions in ambient levels of PM2.5 and ground-level ozone for a large majority of the nation's population, as well as reductions in ambient PM2.5 exposures that are similar in magnitude across all racial, ethnic, income, and linguistic groups.

According to EPA, in 2030 alone, the estimated nationwide health benefits resulting from implementation of the proposals on new gas and existing coal include approximately 1,300 avoided premature deaths; more than 800 avoided hospital and emergency room visits; approximately 2,000 avoided cases of asthma onset; more than 300,000 avoided cases of asthma symptoms; 38,000 avoided school absence days; and 66,000 lost work days.

Despite these nationwide benefits, EPA and states have a vital responsibility to engage directly with communities that are most affected by and vulnerable to emissions from these electric generating units (EGUs). EPA notes that community stakeholders have raised strong concerns about the potential health, environmental, and safety impacts of CCS.[11] Communities surrounding EGUs have experienced historically disproportionate burdens from the environmental impacts of energy production, and some believe that decisions to use technologies such as CCS and low-GHG hydrogen may add to these disproportionate burdens. Communities are concerned that the use of CCS may extend the life of an existing coal-fired steam generating unit, subjecting surrounding communities to additional harmful pollution. They are also concerned with the CO_2 pipeline safety and geologic sequestration.

EPN supports communities in raising these concerns to EPA.

EPN is encouraged that EPA will require states to undertake meaningful engagement with these communities to ensure their priorities, concerns, and perspectives are heard on all topics they believe relevant, including compliance strategies and compliance flexibilities that may be included in a state plan. We are also encouraged that EPA is committed to assuring that CCS deployment happens in a manner

[11] https://www.epa.gov/system/files/documents/2023-05/FS-EJ-GHG-for%20Power%20Plants%20-%20FINAL%205-10-23.pdf

protective of public health and safety. As the rule becomes effective, we urge EPA, in coordination with other government agencies, to carefully monitor its implementation for unanticipated effects.

EPN urges EPA to continue to carefully consider and respond to the comments of vulnerable communities in the final rule, with the goal of minimizing the disproportionate impact of EGU emissions on surrounding communities.

EPN continues to support EPA efforts to strengthen standards for mercury and several other toxic pollutants in filterable particulate matter from coal plants.

Conclusion

In sum, EPN believes EPA's proposal for effecting reduced CO_2 emissions from the U.S. fossil fuel power sector provides a prudent path forward in helping to address the challenge of climate change. It provides essential leadership nationally as well as inspiration internationally. We offer several suggestions for changes that, if adopted, could lead to a strengthening of the rule. We hope EPA will consider them in its deliberations leading to the final rule.