



March 27, 2023

U.S. Environmental Protection Agency
EPA Docket Center

Re: Docket ID No. EPA-HQ-OAR-2022-0723, Reducing Greenhouse Gas Emissions from New and Existing Fossil Fuel-Fired Electric Generating Units

Submitted electronically via www.regulations.gov

To whom it may concern:

The Center for Biological Diversity submits the following comments to the U.S. Environmental Protection Agency (EPA) in response to EPA's non-rulemaking Docket EPA-HQ-OAR-2022-0723, which includes questions to the public regarding EPA's upcoming rulemaking to reduce carbon dioxide emissions from existing power plants using Clean Air Act section 111(d).

These comments support the need for stringent standards that make verifiable, substantial reductions to greenhouse gas (GHG) emissions. In setting the best system of emission reductions (BSER), EPA should recognize the significant drawbacks of carbon capture and storage (CCS or CCUS) technologies and incorporate environmental justice considerations in its rulemaking.¹

In addition, we urge EPA to consider setting a National Ambient Air Quality Standard (NAAQS) for GHGs under Clean Air Act section 108 to more effectively combat the climate crisis and address emissions from multiple sources. Given the Supreme Court's recent decision in *West Virginia v. EPA*, 142 S. Ct. 2587 (2022), limiting EPA's ability to regulate power plant emissions under section 111(d), a NAAQS standard would better utilize the EPA's central authorities to address a broader range of emissions.

I. Stringency, Flexibility, and Necessity of Standards

We encourage EPA to adopt stringent section 111(d) standards that will achieve the greatest GHG emission reductions at both at coal- and gas-fired power plants. To ensure that standards are implemented, EPA should expeditiously review states implementation plans (SIPs) upon submission and approve those that are administratively complete.² EPA often faces Clean Air Act deadline suits compelling the agency to review and approve (or disapprove) SIPs;³ if EPA is

¹ We incorporate by reference herein points made by the Center for International Environmental Law, et al. in their March 27, 2023 comment letter responding to this information request and encourage EPA to take those facts and concerns into account.

² 42 U.S.C. § 7411(c)-(d).

³ See, e.g., Ctr. for Biological Diversity, "Legal Agreement Forces EPA Action to Reduce Dangerous Smog Levels in Parts of California, Texas" (Feb. 21, 2023), <https://biologicaldiversity.org/w/news/press-releases/legal-agreement-forces-epa-action-to-reduce-dangerous-smog-levels-in-parts-of-california-texas-2023-02-21/>; Ctr. for Biological Diversity, "Legal Agreement Spurs EPA to Take Stronger Steps to Reduce Smog Pollution in Areas of Five States With Some of Nation's Worst Air Quality" (Sept. 16, 2022), <https://biologicaldiversity.org/w/news/press-releases/legal-agreement-spurs-epa-to-take-stronger-steps-to-reduce-smog-pollution-in-areas-of-five-states-with-some-of-nations-worst-air-quality-2022-09-16/>; Ctr. for Biological Diversity, "Lawsuit Forces EPA to Protect People in Seven States From Asthma-Causing Sulfur Dioxide Air Pollution" (June 28, 2021),

concerned about having the resources necessary to take prompt action reviewing and approving SIPs, as well as issuing failure notices, EPA must seek the requisite appropriations from Congress now in order to prepare for these mandatory tasks.

As the United Nations Secretary General Antonia Guterres recently noted, referring to the latest report by the Intergovernmental Panel on Climate Change (IPCC), “[t]he climate time-bomb is ticking.”⁴ The climate crisis demands a rapid phaseout of fossil fuels,⁵ and EPA’s standards under section 111(d) must push the fossil fuel power generating industry to align with targets to limit planetary climate warming by 1.5 degrees Celsius.⁶ There is no time to waste when it comes to ratcheting down GHG emissions.

II. EPA Must Accurately Consider CCS Technologies When Setting the Standards

Clean Air Act section 111(a) requires EPA to set a standard of performance that “reflects the degree of emission limitation achievable through the application of the best system of emission reduction (BSER).” 42 U.S.C. § 7411(a)(1). To the degree EPA considers CCS in the rulemaking, it must fully and fairly evaluate these technologies. EPA’s goal must be reducing emissions, not promoting CCS.

First, CCS technology regularly over-promises and under-delivers on carbon capture targets. For example, in 2021, Chevron admitted that its self-described “world’s biggest CCUS project,” the Gorgon natural gas-fired powerplant in Australia, failed to meet its five-year capture target of 80%, instead reaching only around 30%.⁷ Similarly, while the Petra Nova coal-fired power plant in Texas promised to capture 90% of its GHG emissions, it achieved only a rate of 65-75% capture rate, which reduced further to 50% when the fossil fuels needed to capture and store the carbon were taken into account.⁸ And ExxonMobil’s Shute Creek natural gas-fired power plant

https://biologicaldiversity.org/w/news/press-releases/lawsuit-forces-epa-to-protect-people-in-seven-states-from-asthma-causing-sulfur-dioxide-air-pollution-2021-06-28/email_view/.

⁴ United Nations, “Secretary-General Calls on States to Tackle Climate Change ‘Time Bomb’ through New Solidarity Pact, Acceleration Agenda, at Launch of Intergovernmental Panel Report” (March 20, 2023), <https://press.un.org/en/2023/sgsm21730.doc.htm>.

⁵ See IPCC, Summary for Policymakers, Synthesis Report of the IPCC Sixth Assessment Report (AR6) (March 19, 2023), https://report.ipcc.ch/ar6syr/pdf/IPCC_AR6_SYR_SPM.pdf; see also United Nations Secretary-General, Secretary-General’s statement on the IPCC Working Group 1 Report on the Physical Science Basis of the Sixth Assessment (Aug. 9, 2021), <https://www.un.org/sg/en/content/secretary-generals-statement-the-ipcc-working-group-1-report-the-physical-science-basis-of-the-sixth-assessment>; IPCC, Summary for Policymakers, In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (2018), <https://www.ipcc.ch/sr15/> (2018 IPCC Summary).

⁶ 2018 IPCC Summary.

⁷ See “Australia’s only working carbon capture and storage project fails to meet target,” The Guardian (Nov. 11, 2021), <https://www.theguardian.com/australia-news/2021/nov/12/australias-only-working-carbon-capture-and-storage-project-fails-to-meet-target>; “Chevron’s five years of Gorgon carbon storage failure could cost \$230 million,” Sydney Morning Herald (Nov. 11, 2021), <https://www.smh.com.au/environment/climate-change/chevron-s-five-years-of-gorgon-carbon-storage-failure-could-cost-230-million-20211110-p597uf.html>.

⁸ Institute for Energy Economics and Financial Analysis (IEEFA), Reality of carbon capture not even close to proponents’ wishful thinking (Aug. 8, 2019), <https://ieefa.org/resources/ieefa-op-ed-reality-carbon-capture-not-even-close-proponents-wishful-thinking>.

in Wyoming failed its capture targets by 34%, venting the rest of its carbon emissions into the atmosphere.⁹

Second, research shows that once the social cost of carbon capture is taken into account—in other words, the resulting air pollution, potential health problems, economic costs and overall contributions to climate change—the impacts of CCS are similar to or higher than a fossil fuel plant without carbon capture.¹⁰ Further, EPA must consider that over 70% of captured carbon from CCS projects is used to extract more fossil fuels in a process called enhanced oil recovery (EOR),¹¹ a process that perpetuates fossil fuel use and in turn, adds to the climate crisis. And since 90% of emissions from gas usage occur when the gas is utilized, “CCS is incapable of addressing the lion’s share of emissions that occur from natural gas.”¹²

EPA may not simply assume that CCS systems will achieve a high CO₂ capture rate. While industry models may claim that CCS projects will capture 80-90% of their carbon emissions, this wildly overshoots what typically occurs with real-world CCS deployment (see above). As the Institute for Energy Economics and Financial Analysis (IEEFA) explained, “[t]he 90% emission reduction target generally claimed by the industry has been unreachable in practice.”¹³ In its study, IEEFA examined CCS projects in the natural gas, industrial and power sectors.¹⁴ CCS used in the power section had the worst results, and across the board CCS projects showed that CCS continues to overpromise and underperform.¹⁵

Finally, EPA must also take into account the “energy penalty” of CCS, meaning the additional electricity required to run carbon capture equipment per unit electricity produced by the power plant for normal electricity consumption.¹⁶ The energy penalty for carbon capture is

⁹ IEEFA, Carbon Capture and Storage Natural Gas Oil Industry Energy Investment Trends United States Carbon capture to serve enhanced oil recovery: Overpromise and underperformance (March 1, 2022), <https://ieefa.org/resources/carbon-capture-serve-enhanced-oil-recovery-overpromise-and-underperformance> (and attached report).

¹⁰ *Id.*; see also Clark Butler, IEEFA, Carbon Capture and Storage Is About Reputation, Not Economics at 4 (2020), https://ieefa.org/wp-content/uploads/2020/07/CCS-Is-About-Reputation-Not-Economics_July-2020.pdf (noting that the energy required to capture, transport, and inject carbon underground “materially reduces its net benefit.”).

¹¹ IEEFA, The Carbon Capture Crux: Lessons Learned at 8 (Sept. 22, 2022) (“IEEFA Carbon Capture Crux Report”).

¹² IEEFA, Carbon capture remains a risky investment for achieving decarbonization (Sept. 2, 2022), <https://ieefa.org/resources/carbon-capture-remains-risky-investment-achieving-decarbonisation>; see also IEEFA Carbon Capture Crux Report at 33-34.

¹³ IEEFA Carbon Capture Crux Report at 46-47; see also IEEFA, Carbon capture remains a risky investment for achieving decarbonization (Sept. 2, 2022), <https://ieefa.org/resources/carbon-capture-remains-risky-investment-achieving-decarbonisation>.

¹⁴ IEEFA Carbon Capture Crux Report.

¹⁵ IEEFA Carbon Capture Crux Report at 46-47; see also IEEFA, Carbon capture remains a risky investment for achieving decarbonization (Sept. 2, 2022), <https://ieefa.org/resources/carbon-capture-remains-risky-investment-achieving-decarbonisation> (noting “Close to 90% of proposed CCS capacity in the power sector has failed at implementation stage or was suspended early Further, most projects have failed to operate at their theoretically designed capturing rates.”).

¹⁶ Mark Z. Jacobson, The health and climate impacts of carbon capture and direct air capture, 12 Energy Env't. Sci. 3567 (2019).

substantial—typically around 25%—meaning that even if a project promises 90% capture, its net benefit is reduced because capturing and compressing carbon is so energy intensive.¹⁷

III. EPA Must Incorporate Environmental Justice Considerations

EPA must incorporate environmental justice considerations in its section 111(d) rulemaking and any subsequent model state rules. These considerations must not be a mere paperwork exercise and should include both meaningful engagement with frontline communities and actions to reduce disparities in health risks from air pollution and harms from climate change. Any section 111(d) emission guidelines should be designed not only to reduce emissions overall but to reduce emissions in areas already overburdened by pollution and vulnerable to the impacts of climate-related disasters.

EPA could take specific, discrete steps to incorporate environmental justice considerations around section 111(d). This support could include nationwide environmental justice guidance, communication materials in multiple formats and languages, and direct support to community groups to build their capacity for participating in the 111(d) processes. For example, EPA has proposed to require states to conduct outreach to and meaningfully engage with environmental justice communities as part of their development of state plans in response to the proposed oil and gas emission guidelines under 40 C.F.R. 60 subpart OOOOc.¹⁸ EPA has yet to finalize these regulations.¹⁹

For more on specific environmental justice considerations, we incorporate by reference the comments of the Center for International Environmental Law, et al., responding to this information request. We also encourage EPA to take seriously ideas and concerns raised by the agency's National Environmental Justice Advisory Council, as well as the White House Environmental Justice Advisory Council.

IV. EPA Should Consider a GHG NAAQS to Further Reduce GHG Emissions

In addition to setting stringent standards under section 111(d), EPA must utilize the full suite of tools under the Clean Air Act to regulate GHGs, including through National Ambient Air Quality Standards.²⁰ Since the Act was passed, EPA has successfully used NAAQS to fight other broadly distributed pollutants like ozone, lead, and particulate matter and could do so as well for carbon dioxide and other GHGs. For a more detailed discussion of how the NAAQS program could address GHGs, see Crystal et al (2019).²¹

The NAAQS program provides a national framework for addressing the most pervasive forms of air pollution emitted from numerous or diverse sources and offers the best and most flexible way to achieve the emissions reductions needed across all sectors of the economy. Section 108 of the

¹⁷ *Id.*; see also S. Sgouridis et al., Comparative net energy analysis of renewable electricity and carbon capture and storage, *Nat. Energy* (2019) (concluding that “renewables plus storage provide a more energetically effective approach to climate mitigation than constructing CCS fossil-fuel power stations.”).

¹⁸ 86 Fed. Reg. 63,110, 63,253–55 (Nov. 15, 2021).

¹⁹ 87 Fed. Reg. 74,702 (Dec. 6, 2022).

²⁰ 42 U.S.C. §§ 7408-7410.

²¹ Howard Crystal et al., Returning to Clean Air Act Fundamentals: A Renewed Call to Regulate Greenhouse Gases Under the National Ambient Air Quality Standards (NAAQS) Program, *Georgetown Envtl. Law Review*, Vol. 31:233 at 233 (2019), <https://www.law.georgetown.edu/environmental-law-review/wp-content/uploads/sites/18/2019/04/GT-GELR190001.pdf>.

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Clean Air Act states that if a pollutant “may reasonably be anticipated to endanger public health or welfare,” and its “presence ... in the ambient air results from numerous or diverse mobile or stationary sources,” the EPA is authorized to establish NAAQS. 42 U.S.C. § 7408(a)(1)(A) and (B). GHGs easily meet both criteria pollutant standards. Using NAAQS, the EPA then sets a maximum level of a pollutant, and the states must take the necessary steps to ensure that the level is not exceeded.

A NAAQS approach not only would address a broader range of emissions from multiple sources, but it may also prove more resilient in the courts. Last year in *West Virginia v. EPA*, the Supreme Court curtailed EPA’s ability to regulate power plant GHG emissions under section 111(d). But in overturning EPA’s use of “outside the fence line” measures in the Clean Power Plan, the majority contrasted EPA’s approach in that case with setting a “cap that must be based on some scientific, objective criterion, such as the NAAQS.”²² Justice Roberts noted that “capping carbon dioxide emissions at a level that will force a nationwide transition away from the use of coal may be a sensible solution to the crisis of the day,”²³ just not under the Act’s “ancillary” Section 111(d).²⁴

Although GHGs clearly meet the requirements for regulation under section 108, EPA has failed to classify GHGs as a criteria pollutant under the NAAQS. In fact, a 2009 petition to EPA from the Center for Biological Diversity and 350.org to set a NAAQS for GHGs remains pending. While the Trump administration initially denied the petition on January 19, 2021, the Biden administration withdrew the denial in March 2021. The Center’s response to the Biden administration’s withdrawal of the denial is attached.²⁵ The issue is thus ripe for consideration.

Adopting GHGs as a NAAQS would allow EPA to address GHG emissions more comprehensively than would regulation under section 111(d), and we strongly encourage EPA to do it.

We appreciate this opportunity to comment ahead of EPA’s section 111(d) rulemaking. We’ve attached our references cited herein for your convenience.

Thank you,

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²² 142 S. Ct. 2587, 2615 (2022).

²³ *Id.* at 2616.

²⁴ *Id.* at 2602.

²⁵ Ctr. Biol. Diversity, Response to Withdrawal of Petition Denial (April 14, 2021), https://www.biologicaldiversity.org/programs/climate_law_institute/pdfs/GHG-NAAQS_response-to-withdrawal-of-denial.pdf.