

**UNITED STATES OF AMERICA
ENVIRONMENTAL PROTECTION AGENCY**

Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants

Docket Number: EPA-HQ-OAR-2023-0072

**COMMENTS OF WE ACT FOR ENVIRONMENTAL JUSTICE AND THE CLEAN AIR FOR THE
LONG HAUL COHORT**

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Submitted via email to a-and-r-docket@epa.gov

WE ACT for Environmental Justice, on behalf of itself, and the Clean Air for the Long Haul Cohort submit these comments to the U.S. Environmental Protection Agency on its proposed New Source Performance Standards for GHG Emissions from New and Reconstructed Electric Generating Units (EGUs); Emission Guidelines for GHG Emissions from Existing EGUs; and Repeal of the Affordable Clean Energy Rule rule pursuant to the agency's authority under Section 111 of the Clean Air Act (CAA).¹

WE ACT for Environmental Justice ("WE ACT") is a Northern Manhattan-based member organization whose mission is to advocate for and build healthy communities by ensuring communities of Color and low income communities lead in creating just and equitable environmental health laws, policies, and practices.² Since its founding in 1988, WE ACT has worked to serve environmental justice communities across the country which have been and continue to be adversely affected by harmful infrastructure, pollution, and the inequitable

¹ United States Environmental Protection Agency, "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. RIN 2060-AV09," May 11, 2023. (hereafter "Proposed Rule"); The proposed regulatory text is available here: <https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power>.

² WE ACT for Environmental Justice, "Who we Are," WE ACT Website, Aug. 4, 2023, <https://www.weact.org/whoweare/ourstory/>.

enforcement of environmental laws. WE ACT consistently calls for strong environmental protections and actions that address and remediate historical burdens. WE ACT's Federal Policy Office in Washington, D.C. pursues national policy solutions that take into account the positions and voices of environmental justice organizations across the country. The Federal Policy Office addresses injustice and equity within the federal landscape and seeks to drive just and equitable solutions in the realms of clean air, clean water, climate, transportation, and energy justice, as well as the creation of healthy homes and other issue areas.

In addition to the New York and Washington, D.C. offices, WE ACT serves as the administrative anchor for the Clean Air for the Long Haul Cohort (the "Cohort"). The Cohort is a nationwide coalition of environmental justice groups working collectively to advance environmental justice by seeking emissions reductions in the power and transportation industry sectors in the United States. The Cohort creates and coordinates federal rulemaking campaigns, amplifies the voices and positions of overburdened communities, actively works to reduce and eliminate air pollution, and works to dismantle the legal and physical infrastructure that harm environmental justice communities. The Cohort also champions the urgent need for achieving emission reductions of toxic and greenhouse gasses (GHGs), adopting and enforcing climate justice policies, and actively combatting inequitable siting and permitting practices that perpetuate irreparable harms on Black, Brown, Tribal, Indigenous, and low income communities in the United States.

Member organizations of the Cohort include: Alternatives for Community and Environment; Clear Air Now; Coalition of Community Organizations; Deep South Center for Environmental Justice; Duwamish River Community Coalition; Green Door Initiative; New Jersey Environmental Justice Alliance; South Bronx Unite; Texas Environmental Justice Advocacy Services; West End Revitalization Association; and Wisconsin Green Muslims.

I. STATEMENT OF PURPOSE

WE ACT and the Cohort object to the agency's Proposed CAA Section 111(d) Rule, because it increases the burden on environmental justice communities and reinforces a climate apartheid in which the climate privileged are permitted to force the burdens of addressing and

living with the effects of climate change upon the climate dispossessed. **Given the rule's erroneous adoption of a technology that has never been successfully tested at scale, its failure to even consider, no less address, the considerable cumulative impacts on environmental justice communities, and the imposition of further harms on marginalized communities, which have been unjustly burdened for generations, WE ACT for Environmental Justice and the Cohort find no basis on which to support it.** Indeed, given the country's long history of systemic racism and classism, reflected in discriminatory laws, policies, and practices as well as social vulnerabilities and economic inequalities faced by environmental justice communities, it is unconscionable for the agency to pursue the provisions outlined in the proposed rule.

Climate solutions must not impose additional cumulative impacts on the communities who have experienced the brunt of environmental injustice. Efforts to address greenhouse gas emissions are not limited to accepting unmitigated emissions from power plants and the harsh effects of climate change or dealing with the severe impacts from an ill-considered, unjust, potentially dangerous, and unproven technology. There are other means to address carbon dioxide emissions and climate change-induced environmental problems. **At any rate, perpetuating government-sanctioned and "regulated" environmental violence upon communities is not the pathway forward.**

II. BACKGROUND

It is a testament to the intractable nature of racial and ethnic discrimination that even today in 2023, more than three decades after the publication of *Toxic Waste and Race*³, the impacts of redlining, exclusionary zoning practices, explicit racism, and other discriminatory practices are evident in permitting practices, policies, and climate-change impacts.⁴ This proposed rule fits within that framework, despite the Environmental Protection Agency's ("EPA") broader progression towards a more just and equitable regulatory landscape. EPA

³ United Church of Christ: Commission for Racial Justice, *Toxic Wastes and Race in the United States*, <https://www.ucc.org/wp-content/uploads/2020/12/ToxicWastesRace.pdf> (1987).

⁴ Lara J. Cushing et al., *Historical Red-Lining Is Associated with Fossil Fuel Power Plant Siting and Present-Day Inequalities in Air Pollutant Emissions*, 8 *Nature Energy* 52-61 (2023), <https://www.nature.com/articles/s41560-022-01162-y>.

defines environmental justice as the “fair treatment and meaningful involvement of all people regardless of race, color, culture, national origin, income, and educational levels with respect to the development, implementation, and enforcement of protective environmental laws, regulations, and policies.”⁵ Further, EPA defines “fair treatment” as the principle that “no group of people, including a racial, ethnic or a socioeconomic group, should bear a disproportionate share of the negative environmental consequences from industrial, municipal and commercial operations or the execution of federal, state, local and tribal programs and policies.”⁶ This rulemaking does not satisfy those ideals, for a number of reasons. As members of the environmental justice movement, WE ACT and the Cohort offer additional perspective through the lens of historic exclusionary practices and unjust implications of the climate crisis.

i. Black, Brown, Tribal, Indigenous and/or low-income communities have been historically marginalized through permitting processes for environmental infrastructure and development.

Environmental justice communities have been historically excluded from permitting processes, creating sacrificial zones and denying communities access to environmental benefits, while overburdening them with environmental harms. Black, Brown, Tribal, Indigenous and/or low-income communities house a disproportionate amount of polluting environmental infrastructure due to historical patterns of exclusion and racism advanced through redlining, unjust industrial zoning policies, and other discriminatory processes.⁷ For example, Black and Hispanic communities respectively bear 56% and 63% more particulate matter exposure than they produce.⁸ An analysis of pollution exposure across all sectors, including transportation, construction, agricultural, power, and housing sectors, indicated that Black Americans are

⁵ Environmental Protection Agency, *EJ 2020 Glossary*, <https://www.epa.gov/environmentaljustice/ej-2020-glossary> (2020).

⁶ *Id.*

⁷ Haley M. Lane et al., “Historical Redlining is Associated with Present-Day Air Pollution Disparities in U.S. Cities.” *Environmental Science and Technology Letters* 9, no. 4, (2022): 345-350. <https://pubs.acs.org/doi/10.1021/acs.estlett.1c01012>.

⁸ Christopher W. Tessum et al., “Inequity in Consumption of Goods and Services Adds to Racial-Ethnic Disparities in Air Pollution Exposure.” *PNAS* 116, no. 13, (2019): 6001, 6006, <https://www.pnas.org/doi/10.1073/pnas.1818859116>.

exposed to “higher-than-average concentrations from all sectors.”⁹ Environmental inequities such as these are “the result of legacy of racial segregation and discrimination which spatially concentrated disproportionate pollution burdens in communities of Color placing them at a higher risk of exposure to environmental toxins.”¹⁰

Exposure to toxic pollutants causes adverse public health impacts, leading to or resulting in staggering levels of illness and disease. This is demonstrated in communities throughout the United States, such as the St. John Parish community in Louisiana, referred to as “Cancer Alley.”¹¹ In this region, the risk of developing cancer from air pollution in census tracts closest to polluting facilities is nearly 50 times the national average.¹² Unfortunately, there are many communities across the country with similar experiences of historic and current oppression caused by environmental injustice. The fossil fuel industry, in particular, poses a significant threat to communities of Color and/or low-income communities. Among communities of Color, Black people are found to bear a disproportionately high burden of fossil fuel pollution across the United States.¹³ Oil and gas infrastructure, in particular, has a disproportionate impact on Black people and is linked to a number of adverse health impacts including elevated cancer risk, pregnancy complications, respiratory illness, and cardiovascular disease.¹⁴ Other associated health impacts include cancer, anemia, brain damage, eye, nose, and throat irritation, blood disorders, neurological disorders, and death.¹⁵

⁹ Christopher Tessum et al., “PM2.5 Polluters Disproportionately and Systematically Affect People of Color in the United States,” *Sci. Adv.* 7, no. 18, (2021), <https://www.science.org/doi/pdf/10.1126/sciadv.abf4491>.

¹⁰ Climate Forum, “Approaches to Defining Environmental Justice Community for Mandatory Emissions Reduction Policy,” *Equitable & Just National Climate Platform* (2021), <https://ajustclimate.org/#:~:text=This%20platform%20lays%20out%20a,the%20national%20climate%20policy%20agenda>.

¹¹ University Network for Human Rights. “Waiting to Die: Toxic Emissions and Disease Near the Louisiana Denka/DuPont Plant,” (2019), <http://www.humanrightsnetwork.org/waiting-to-die>.

¹² *Id.*

¹³ Tim Donaghy, Ph.D, and Charlie Jiang, *Fossil Fuel Racism: How Phasing Out Oil, Gas, and Coal Can Protect Communities* (April 13, 2021) <https://www.greenpeace.org/usa/wp-content/uploads/2021/04/Fossil-Fuel-Racism.pdf> at 4.

¹⁴ *Id.*

¹⁵ NAACP, *Fumes Across the Fence-Line: The Health Impacts of Air Pollution from Oil and Gas Facilities on African American Communities* (November 2017) <https://naacp.org/resources/fumes-across-fence-line-health-impacts-air-pollution-oil-gas-facilities-african-american> at 16.

ii. Communities of Color disproportionately experience adverse impacts from climate change.

Communities of Color and/or low-income communities are disproportionately impacted by climate change. Black and African American individuals are 40% more likely to live in areas with the highest projected increases in extreme temperature deaths.¹⁶ Black and African American individuals are 34% more likely to live in areas with the highest projected increases in childhood asthma diagnoses due to climate-driven changes in particulate air pollution.¹⁷ Hispanic and Latin American individuals are 43% more likely to live in areas with highest projected reductions in labor hours due to extreme temperatures.¹⁸ Tribal and Indigenous communities in Alaska are 48% more likely to currently live in places where the highest percentage of land is projected to be inundated due to sea level rise. Further, these communities are the least able to anticipate, cope with, and recover from climate change impacts.¹⁹ Indeed, environmental justice communities face a larger threat from the worsening climate crisis and are experiencing a decreasing capacity to respond. While environmental justice communities are in need of immediate climate solutions that advance decarbonization, those solutions must not exist at the detriment of frontline and fenceline communities.

III. DISCUSSION

Upon review, WE ACT for Environmental Justice and the Clean Air for the Long Haul Cohort identified serious concerns with the proposed rule. First, CCS and Hydrogen have no demonstrated basis on which to be considered the Best Systems of Emissions Reductions (“BSER”). Secondly, the proposed rule will result in additional co-pollutant emissions in communities that already shoulder an unjust level of environmental burden. Third, the proposed rule will result in the buildout of CCS and Hydrogen infrastructure which further endangers environmental justice communities. Lastly, the proposed rule’s environmental justice

¹⁶ U.S. EPA, *Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts*, (2021), https://www.epa.gov/system/files/documents/2021-09/climate-vulnerability_september-2021_508.pdf.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.*

analysis is woefully inadequate, as evidenced by its failure to address cumulative impacts and the complete omission of natural gas power plants from the analysis.

A. Carbon Capture and Storage has no demonstrated basis on which to be considered the “Best System of Emission Reduction (“BSER”).

Clean Air Act Section 111(d) was specifically designed to empower EPA to address emissions of non-criteria, non-hazardous pollutants from existing stationary sources, which were left inadequately regulated under other sections of the Act. The requirement that any standard reflect an “adequately demonstrated” degree of emissions limitation was intended to ensure that EPA would conduct a fact-driven analysis of available, tested, and viable emission reduction strategies for each class of pollution sources before issuing any rule under Section 111, including Section 111(d).²⁰ The proposed rule violates these parameters by relying on technologies that are ineffective, increase emissions of various co-pollutants, and may cause adverse health effects in environmental justice communities.

At present, CCS has not been shown to be effective at anywhere near the levels needed for compliance with the proposed rule. No power plants employing CCS have demonstrated the ability to capture 90% of their total carbon emissions. Given this fact, there is no basis for the agency’s claim that CCS is a technology that has been “adequately demonstrated” within the meaning of the Clean Air Act. To the contrary, in fact, there are numerous examples of projects that have failed to meet the 90% level of carbon capture. For example, while the Boundary Dam project in Canada was reported to meet a 90% capture rate,²¹ the plant’s capture rate fluctuated wildly and never achieved a 90% capture rate for a sustained period of time.²² In

²⁰ See 42 U.S.C. § 7411(a)(1) (requiring the EPA Administrator to determine the “best system of emission reduction” that has been “adequately demonstrated” in order to set performance standards for a particular source category).

²¹ United Nations Climate Change, “Boundary Dam Carbon Capture and Storage Project - Canada,” (2023), <https://unfccc.int/climate-action/momentum-for-change/activity-database/boundary-dam-carbon-capture-and-storage-project>.

²² Heath Knakmuhs, et al., “A Closer Look at EPA’s Power Plant Rule,” *U.S. Chamber of Commerce Global Energy Institute*, (2023), https://www.globalenergyinstitute.org/sites/default/files/2023-06/USCC_EPA%20Powerplant%20Rule%20Analysis_2023.FINAL_.pdf.

fact, while a 90% capture rate was the stated goal for the plant, reports show that the actual capture rate was actually closer to 44%.²³ Indeed, the paper that EPA relies upon for its position that the plant had reached a 90% capture rate actually shows that the 90% rate was achieved on only a few brief occasions, with the average capture rate falling far below the planned level.²⁴

Another example is the Petra Nova Project at the W.A. Parish Generating Station, just outside of Houston, Texas. Petra Nova stands as the only domestic commercial-scale coal-fired power plant incorporating CCS and the largest post-combustion carbon capture project in the world, and is often touted as a success story about the efficacy of CCS technology, with reports indicating a 90% emissions capture rate.²⁵ However, a closer look at the March 2020 Final Scientific/Technical Report produced during the three-year “Demonstration and Monitoring” phase (2017-2019), shows both significantly lower emissions reduction rates and serious technical system failings.²⁶ Thus, while the U.S. Department of Energy reported that the project trapped 92.4% of the CO₂ from the slip stream of flue gas, the Energy and Policy Institute’s review of the technical report, along with a review of emissions data from EPA, found the capture rate to be far lower.²⁷

The carbon capture infrastructure at the Petra Nova plant was powered by an additional gas generator, which generated its own emissions that were not captured by the CCS structure, thereby offsetting a portion of the emissions captured at the coal unit. CO₂ captured at Petra Nova was used in enhanced oil recovery (EOR) and the overall capture rate is diminished further when the added emissions from burning the extracted oil are taken into account. In actuality,

²³ Carlos Anchondo, “CCS ‘red flag?’ World’s sole coal project hits snag,” Politico E&E News 1, (2022), <https://www.eenews.net/articles/ccs-red-flag-worlds-sole-coal-project-hits-snag/>.

²⁴ Stavroula Giannaris et al., “SaskPower’s Boundary Dam Unit 3 Carbon Capture Facility - The Journey to Achieving Reliability,” *Proceedings of the 15th Greenhouse Gas Control Technologies Conference 15-18 March 2021* (2021), <https://ssrn.com/abstract=3820191>.

²⁵ U.S. Department of Energy, Office of Fossil Energy and Carbon Management, “Petra Nova - W.A. Parish Project” (2023), <https://www.energy.gov/fecm/petra-nova-wa-parish-project>.

²⁶ U.S. Department of Energy, National Energy Technology Laboratory, “W.A. Parish Post-Combustion CO₂ Capture and Sequestration Demonstration Project, Final Scientific/Technical Report” (March 31, 2020), <https://www.documentcloud.org/documents/7010068-Petra-Nova-DOE-NETL-Report.html>.

²⁷ Joe Smyth, “Petra Nova carbon capture project stalls with cheap oil,” *Energy and Policy Institute* (Aug. 6, 2020), <https://energyandpolicy.org/petra-nova/>.

the CCS project managed to capture only a very small fraction of the power plant's total emissions: just 7% in 2017, and 6.9% in 2018.²⁸ Such statistics certainly do not support the elevation of the Petra Nova as the paradigm of CCS success. And DOE's failure to include the emissions generated as part of the whole CCS process in its reportage on Petra Nova do not instill confidence in the accuracy of the agency's reporting on this and other CCS projects.

Further, the DOE report reveals that the project suffered a series of technical problems. Over its three-year span, the project experienced 367 days of outages, largely attributed to problems with the CCS infrastructure and gas unit,²⁹ affecting nearly one-third of the project's operational days. Other outages were due to partial or complete shutdown of the CO₂ pipeline, and difficulties with the West Ranch oilfield's ability to receive captured CO₂.³⁰ The report also shows that the infrastructure consumed a staggering 1.49 billion gallons of water over the three-year period, exclusive of the volume of water consumed by the coal unit.³¹

The environmental justice impacts of the Petra Nova CCS project must also be considered. Notably, the project received multiple Notices of Violations from the Texas Commission on Environmental Quality and from the Texas Railroad Commission.³² Moreover, the Texas Railroad Commission's violation was based on issues concerning the carbon dioxide pipeline.³³ A study by researchers at Rice University unearthed information showing that air pollution from the W.A. Parish Generating Station caused more deaths than any other coal plant in Texas due to pollutants from the power plant affecting densely populated areas in and around Houston.³⁴ According to the DOE report, because the eight-county area surrounding Petra Nova is a severe nonattainment area for ozone, Petra Nova, as a new or expanding source

²⁸ Joe Smyth, "Petra Nova carbon capture project stalls with cheap oil," *Energy and Policy Institute* (Aug. 6, 2020), <https://energyandpolicy.org/petra-nova/>.

²⁹ *Id.*

³⁰ U.S. Department of Energy, National Energy Technology Laboratory, "W.A. Parish Post-Combustion CO₂ Capture and Sequestration Demonstration Project, Final Scientific/Technical Report," 9 (March 31, 2020), <https://www.documentcloud.org/documents/7010068-Petra-Nova-DOE-NETL-Report.html>.

³¹ *Id.* at 9.

³² *Id.* 51-52.

³³ *Id.*

³⁴ Brian Strasert et al., "Air quality and health benefits from potential coal power plant closures in Texas," *J. Air & Waste Mgt. Ass'n.* 69 no. 3 (2019), <https://doi.org/10.1080/10962247.2018.1537984>.

was required to provide offsets or credits for VOCs and nitrogen oxides.³⁵ Functionally, this means that the plant increased VOC and NO_x pollution in an area that was already out of compliance with the law, creating a troubling precedent for what will occur at other power plants adopting CCS as a means of continuing operations. Additionally, as will most certainly be the case with regard to those other plants, a majority of the residents of the community nearest the plant—as determined by the Energy Justice Network’s mapping project—are people of Color, meaning that plant operations exacerbate the harms that have already been imposed on the people of that community from other types of polluting operations.³⁶

Not only are the purportedly “prime” examples of CCS deeply flawed, a massive gap exists between the existing CCS fleet and what is required to reduce the country’s carbon dioxide emissions by any appreciable amount, no less to the level agreed upon in the Paris Accords.³⁷ Currently, CCS facilities in the U.S. claim to capture approximately 20 Mt of CO₂ per year.³⁸ But “capture” does not mean that the reported emissions are actually permanently stored in geologic formations; in fact, currently the vast majority of CO₂ captured is used for EOR operations. Of the 14 U.S. plants listed as currently operational by the Global CCS Institute, only two plants sequester captured CO₂ in a geological storage site, the other eleven plants (one of the fourteen plants listed as operational is a study of site specific geological characteristics) are all used for CO₂-EOR.³⁹

In the absence of officially reported data indicating how much CO₂ is trapped

³⁵ U.S. Department of Energy, National Energy Technology Laboratory, “W.A. Parish Post-Combustion CO₂ Capture and Sequestration Demonstration Project, Final Scientific/Technical Report,” 12 (March 31, 2020), <https://www.documentcloud.org/documents/7010068-Petra-Nova-DOE-NETL-Report.html>.

³⁶ Energy Justice Network, “W A Parish Data,” *Energy Justice Network Website* (Aug. 4, 2023 9:00 PM), <http://www.energyjustice.net/map/displayfacility-65596.htm>.

³⁷ Global CCS Institute, “Global Status of CCS 2021,” *Global CCS Institute Website* 12 (2021), <https://www.globalccsinstitute.com/wp-content/uploads/2021/11/Global-Status-of-CCS-2021-Global-CCS-Institute-1121.pdf>; International Energy Agency, “Energy Technology Perspectives 2020: Special Report on Carbon Capture Utilisation and Storage,” *IEA Publication* (2020), <https://www.iea.org/events/ccus-in-clean-energy-transitions-etp-special-report>.

³⁸ U.S. Department of Energy, “Sector Spotlight: Carbon Management,” *U.S. Dept. of Energy Website* (June 12, 2023), <https://www.energy.gov/lpo/articles/sector-spotlight-carbon-management#:~:text=The%20reports%20emphasize%20that%20the,storage%20and%20carbon%20dioxide%20removal>.

³⁹ *Id.*

underground after the oil recovery process is complete⁴⁰, there is no way to ascertain how effectively any existing CO₂-EOR site is able to trap and retain the carbon dioxide injected below the surface. Given the unknown viability of CO₂ storage when used for EOR and the additional CO₂ emissions as a result of the extracted oil, allowing for any increase in EOR activities due to the proposed rule would be a climate and environmental justice disaster. Given that so few CCS projects have been specifically designed and used for the long-term storage of CO₂, and that so few are capable of ensuring a significant net reduction in emissions, it is difficult to conceive how the agency can anchor its rule on such meager data points and such amorphous results.

In sum, the various CCS projects' low emission capture rates, technical problems, substantial water consumption, and unknown long-term storage rates and capacities, undermine any claim that carbon capture and storage is a viable solution to the problem of power plant carbon emissions.

B. If implemented, the proposed rule will result in additional dirty and toxic co-pollutant emissions in communities that already endure disproportionate levels of environmental pollution.

In addition to their carbon dioxide emissions, power plants burning fossil fuels are significant emitters of co-pollutants such as ozone, particulate matter (PM), and NOx.⁴¹ The adverse public health impacts of these pollutants, including increased rates of asthma and other respiratory diseases, are well documented.⁴² Additionally, concentrations of these compounds are found in higher concentrations in proximity to communities of Color, which accounts for higher rates of asthma and other respiratory diseases in frontline communities.⁴³

The Biden Administration has previously stated the importance of achieving

⁴⁰ Under EPA's Greenhouse Gas Reporting Program, Class II wells used for EOR purposes are required to report *only the amount and source of CO₂ received* and not the amount injected or retained over a period of time, there is no way of ascertaining how much CO₂ was actually sequestered or (barring an effect on USDW) how much CO₂ migrated or leaked during and after the end of EOR operations.

⁴¹ U.S. Environmental Protection Agency, "Power Plants and Neighboring Communities" (May 11 2023), <https://www.epa.gov/power-sector/power-plants-and-neighboring-communities>.

⁴² *Id.*

⁴³ American Lung Association, "Disparities in the Impact of Air Pollution" (April 17 2023), <https://www.lung.org/clean-air/outdoors/who-is-at-risk/disparities>.

environmental justice goals through actions aimed at reducing greenhouse gasses. Upon rejoining the Paris agreement, the Administration announced: “Each policy considered for reducing emissions is also an opportunity to improve equity.”⁴⁴ In fact, the Biden Administration has undertaken many efforts to acknowledge and begin to alleviate the disproportionate burden carried by frontline communities and communities of Color including signing executive order 14008 and creating initiatives such as Justice40.⁴⁵

The high levels of environmental and economic burden carried by environmental justice communities make them increasingly vulnerable to additional fossil-fuel pollution. Emissions reductions for CO₂ are important as environmental justice communities are already facing devastating impacts from climate change, which stand to increase in the future. However, CO₂ emissions are merely one of the harmful byproducts of the burning of fossil fuels and both technologies chosen as BSER by the EPA, will burden environmental justice communities with harmful increases of air pollution, undermining the goals of the Biden Administration.

Carbon capture processes implemented at power generation facilities aim to capture carbon dioxide emissions prior to their release into the atmosphere. However, many harmful air pollutants such as NO_x, PM, ammonia, and others will still be emitted.⁴⁶ Compounding this problem is the fact that the use of CCS engenders an overall increase in these harmful emissions rather than merely the continuance of the status quo. The process of capturing CO₂ from power plant emissions is a highly energy intensive one, requiring additional power generation at facilities implementing CCS. This additional energy is likely to be provided by the burning of

⁴⁴ U.S. Government, “The United States of America Nationally Determined Contribution Reducing Greenhouse Gases in the United States: A 2030 Emissions Target,” *United Nations Framework Convention on Climate Change* (Apr. 20, 2021),

<https://unfccc.int/sites/default/files/NDC/2022-06/United%20States%20NDC%20April%202021%20Final.pdf>

⁴⁵ The White House, *Executive Order on Revitalizing Our Nation’s Commitment to Environmental Justice for All*, <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/04/21/executive-order-on-revitalizing-our-nations-commitment-to-environmental-justice-for-all/> (last accessed August 1, 2023); also see The White House, *Justice40 Initiative*, <https://www.whitehouse.gov/environmentaljustice/justice40/> (last accessed August 1, 2023).

⁴⁶ European Environment Agency, *Air Pollution Impacts from Carbon Capture and Storage (CCS): EEA Technical Report*, European Environment Agency Publication (Nov. 17, 2011), <https://www.eea.europa.eu/publications/carbon-capture-and-storage>.

more fossil fuels (in the form of coal or natural gas), thereby increasing the total mass of harmful pollutants emitted by any facility relying upon CCS to achieve compliance with the proposed rule. Indeed, EPA states this fact in the proposed rule, noting that “scaling a unit larger to provide heat and power to the CO₂ capture equipment would have the potential to increase non-GHG air emissions.”⁴⁷

Continued air pollution is not limited to facilities that install CCS but also those which implement hydrogen co-firing. All energy generation involving combustion and generating high levels of heat creates the prerequisite conditions for NO_x production and emission. Co-firing with hydrogen has the potential to burn at higher temperatures than natural gas alone, and NO_x production increases exponentially with higher temperatures. Studies have shown that when hydrogen is burned alongside natural gas, NO_x emissions rise as the percentage of hydrogen in the blend is raised. Recently deployed technologies, such as dry low NO_x power generation, which have the ability to handle fuel blends that are hydrogen rich (up to 100% hydrogen), still emit NO_x at levels of newer natural gas plants.⁴⁸ The EPA acknowledges that NO_x emissions are expected to continue when it notes that newer turbines will be able to “assure acceptable levels of NO_x emissions.” It is unclear what level of emissions should be considered acceptable and there is certainly no justifiable level of “acceptable” NO_x emissions to communities already suffering enormous public health burdens from fossil fuel emissions.

EPA’s own modeling, located in the Regulatory Impact Analysis of the rule, indicates co-pollutant emissions will likely increase as a result of the proposed rule. In fact, the EPA states “In absolute terms, this equates to less than 81 million people experiencing worsening PM_{2.5} concentrations (or up to 170 million in the 2028 more stringent regulatory option) and up to

⁴⁷U.S. Environmental Protection Agency, “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,” RIN 2060-AV09 (May 11, 2023), <https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power>.

⁴⁸Kevin Clark, “Taking DLN Gas Turbine Hydrogen Blending to the next Level,” *Power Engineering Blog*, (Sept. 26, 2022), <https://www.power-eng.com/hydrogen/taking-dln-gas-turbine-hydrogen-blending-to-the-next-level/>.

196 million people experiencing worsening ozone concentration.”⁴⁹ Once again, any increase in co-pollutant emissions to communities who are already carrying large burdens from proximity to fossil fuel infrastructure, is completely contrary to environmental justice priorities.

C. Implementing Carbon Capture Sequestration and Hydrogen as “BSER” will require a buildout of both technologies, which further endangers environmental justice communities.

Implementation of CCS and Hydrogen co-firing as BSER will require a substantial buildout of infrastructure for both technologies. CCS requires transportation of the captured CO₂, usually in the form of pipelines, to the location where geologic sequestration will occur. Hydrogen co-firing will require a buildout of production facilities and a transportation network to deliver the hydrogen to the plants that employ it for energy generation. This additional infrastructure comes with additional emissions and dangers to frontline communities. The constraints against use of the natural gas pipeline network, in addition to making CCS infrastructure costly, also mean that there will have to be an extensive network of carbon dioxide pipelines to serve CCS systems. Carbon dioxide pipelines will have to grow exponentially to meet the demand created by federal and state tax credits, grants, and research programs, and most importantly in terms of incentives, the fossil fuel industry’s profit motive.

Projections of needed pipeline development vary considerably, from the National Energy Technology Laboratory’s assessment that construction through 2030 could result in “an average annual build-rate of nearly 1,000 miles per year,”⁵⁰ to high-end predictions that the CO₂ pipeline network will be comparable in size to that of the existing natural gas infrastructure—*i.e.*,

⁴⁹ “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.” Accessed August 1, 2023.
<https://www.regulations.gov/document/EPA-HQ-OAR-2023-0072-0007>.

⁵⁰ Matthew Wallace et al., *A Review Of The CO₂ Pipeline Infrastructure in the U.S.*, U.S. DOE, NETL, OFE 31 (April 21, 2018),
https://www.energy.gov/sites/prod/files/2015/04/f22/QR%20Analysis%20-%20A%20Review%20of%20the%20CO2%20Pipeline%20Infrastructure%20in%20the%20U.S_0.pdf.

300,000 miles of interstate and intrastate pipelines.⁵¹ Adding heft to these estimates is the advent of large multi-company networks designed to share CCUS infrastructure, including pipelines, shipping, port facilities, and storage wells. Examples include the multi-partner network established in March 2021 by Valero and partners BlackRock Global Energy & Power Infrastructure Fund and Navigator Energy Services, to develop an industrial-scale CCS pipeline system that would span more than 1,200 miles in just its initial phase,⁵² and the Summit Carbon Solutions project to carry CO₂ from over 30 ethanol and fertilizer plants in five states through a 1300-mile pipeline network to storage sites in Illinois.⁵³

Given that the location of the power plants would be the sites of CO₂ capture, there can be little doubt that carbon dioxide pipelines will be constructed in the same locations, further burdening the same communities that have dealt with power plant pollution for decades. These pipelines present high levels of danger to public safety and public health. Due to CO₂ density greater than that of the ambient atmosphere, spills can result in pools of CO₂ that have displaced breathable air. CO₂ is also extremely corrosive and makes maintenance on pipelines and other infrastructure critical to safety. Spills have the potential to severely - and fatality - harm the public health of entire communities.

In February of 2020, residents of Sartoria, MS experienced the dangers of CO₂ first hand. A CO₂ pipeline rupture resulted in a mass poisoning that saw over 200 persons evacuated and 45 persons hospitalized.⁵⁴ As the cloud of CO₂ rolled into town, people gasped for air, experienced nausea, and within minutes lost consciousness due to asphyxiation. The emergency response to the spill was hampered as high CO₂ concentrations prevented internal combustion

⁵¹ Adam Vann et al., "Regulation of Carbon Dioxide CO₂ Sequestration Pipelines: Jurisdictional Issues," CRS Report 29 (2008). *See also* J.J. Dooley et al., "Comparing Existing Pipeline Networks with the Potential Scale of Future U.S. CO₂ Pipeline Networks," *Energy Procedia* 3 (2008) (estimating that the number of miles of CO₂ pipelines in operation by 2050 will fall between 16,000 and 28,000 miles).

⁵² Businesswire, "Valero and BlackRock Partner with Navigator to announce Large-Scale Carbon Capture and Storage Project," (Mar. 16, 2021), <https://www.businesswire.com/news/home/20210316005599/en/Valero-and-BlackRock-Partner-with-Navigator-to-Announce-Large-Scale-Carbon-Capture-and-Storage-Project>.

⁵³ Paul W. Parfomak, "Carbon Dioxide Pipelines: Safety Issues," *Congressional Research Service* (June 3, 2022).

⁵⁴ Simon, Julia. "The U.S. Is Expanding CO₂ Pipelines. One Poisoned Town Wants You to Know Its Story." *NPR*, May 21, 2023, sec. Climate. <https://www.npr.org/2023/05/21/1172679786/carbon-capture-carbon-dioxide-pipeline>.

engines from normal operations and first responders lacked the training and equipment for a CO₂ spill response.⁵⁵ Long term effects from the event continue for many residents of the area who report long lasting respiratory ailments among other health abnormalities. Although the operations company knew immediately when the spill occurred, they did not warn local authorities for hours. Negligence of this type is extremely familiar to communities that live in the shadow of the fossil fuel industry and there have been countless other disasters leading to loss of life and health issues for front line communities.⁵⁶

Hydrogen use at natural gas power plants would also involve a substantial infrastructure buildout. Hydrogen cannot be transported in the current natural gas pipeline network, and much like CO₂, hydrogen would need special pipelines to facilitate transport of large volumes of the gas. Hydrogen is extremely explosive which would place any community within proximity to hydrogen pipelines at risk. Additionally, hydrogen is a potent greenhouse gas. Currently, fugitive emissions from methane are a significant component of the United States annual greenhouse gas emissions⁵⁷ and there is no reason to expect a different result from hydrogen infrastructure. A future where the proposed rule leads to lower CO₂ emissions, but replaces them with fugitive hydrogen emissions, is a climate disaster. Policies such as the proposed rule that aim to address climate change must not encourage further fossil fuel buildouts and impose harm on environmental justice communities across the country.

D. The proposed environmental justice analysis is woefully inadequate, as evidenced by its failure to address cumulative impacts and omission of natural gas power plants from the analysis.

⁵⁵ Zegart, Dan. "Gassing Satartia: How A CO₂ Pipeline Explosion Affected This Mississippi Town." HuffPost, August 26, 2021.

https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f.

⁵⁶ "Exxon Valdez | Oil Spills | Damage Assessment, Remediation, and Restoration Program." (Accessed August 8, 2023). <https://darrp.noaa.gov/oil-spills/exxon-valdez/>; also see "Philadelphia Energy Solutions (PES) Refinery Fire and Explosions | CSB." (Accessed August 8, 2023).

<https://www.csb.gov/philadelphia-energy-solutions-pes-refinery-fire-and-explosions-/>; also see "BP America (Texas City) Refinery Explosion | CSB." (Accessed August 8, 2023).

<https://www.csb.gov/bp-america-texas-city-refinery-explosion/>.

⁵⁷ US EPA, OAR. "Inventory of U.S. Greenhouse Gas Emissions and Sinks." Reports and Assessments (1990-2021) <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>.

The Environmental Justice analysis found within the regulatory impact analysis for this rule is inadequate and insufficient in its scope and methods. People of Color, low-income and other marginalized communities suffer disproportionately from many chronic illnesses and diseases as well as from exposures to a wide range of environmental assaults, including from air pollution due to the burning of fossil fuels.⁵⁸ And the science is well-established that climate-induced harms fall disparately upon communities of Color and low income communities.⁵⁹ As articulated by fellow environmental justice advocates, the level of review provided in the rule is “grossly insufficient.”⁶⁰ Failure to thoroughly and adequately address these inequities in the rulemaking is simply unacceptable.

First, EPA plainly failed to examine the cumulative impacts of CCS in crafting the standard for BSER when it did not assess: (a) the increased emissions resulting from the incorporation of CCS systems into existing power plants; (b) co-pollutants; (c) the extensive buildout of new carbon dioxide pipelines in environmental justice communities where power plants are located; (d) the adverse impacts from the construction of pipeline infrastructure including displacement, loss of homes, businesses, and social and cultural centers; and (e) the dangers arising from pipeline operation such as leaks and explosions.

Second, eliminating harmful, toxic emissions from the power sector is critical to addressing the disproportionate public health and quality of life impacts imposed on environmental justice communities. These communities will continue to suffer in the absence of any movement toward air emissions abatement. EPA must address this inequity and the cascading effects of climate change by reducing energy sector pollution. The numbers are undeniable - as pollution from the energy sector accounted for 1.55 billion metric tons of CO₂

⁵⁸ NAACP, *Fumes Across the Fence-Line: The Health Impacts of Air Pollution from Oil and Gas Facilities on African American Communities* (November 2017)

<https://naacp.org/resources/fumes-across-fence-line-health-impacts-air-pollution-oil-gas-facilities-african-america>

[n](#).

⁵⁹ U.S. EPA, *Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts* (2021), https://www.epa.gov/system/files/documents/2021-09/climate-vulnerability_september-2021_508.pdf at 6.

⁶⁰ The Tishman Environment and Design Center at the New School, Center for Urban Environment of the John S. Watson Institute for Urban Policy and Research at Kean University, the New Jersey Environmental Justice Alliance, and the Center for Earth, Energy, and Democracy, *Docket ID No. EPA-HQ-OAR-2023-0072* (August 7, 2023) at 2.

emitted in 2021 (representing 32 percent of all U.S. CO₂ emissions).⁶¹ The burdens imposed by this pollution only perpetuates injustice and force those with the fewest resources to bear the physical, emotional, social, and political costs and impacts.⁶² Because communities of Color shoulder elevated environmental and economic burdens, a comprehensive environmental justice analysis that acknowledges the preexisting disparities and the importance of the cumulative impacts faced by EJ communities is imperative. Failure to appropriately do so, as demonstrated in the proposed rule, will threaten environmental violence and harm upon communities.

Additionally, EPA's decision to omit natural gas facilities from the same analysis used for coal plants is of great concern. Omitting the majority of the power plants covered by the proposed rule is an indefensible decision that makes it impossible to fully understand what the proposed rule's impact will be on environmental justice communities. Communities of Color and low income communities are known to make an outsized portion of the population living in proximity to natural gas power plants.⁶³ Given the EPA's modeling expects the retirement of more coal plants when compared to natural gas plants, as well as additions of natural gas EGUs, the impacts of natural gas EGUs to environmental justice communities is at least of equal, if not greater, importance. Incorporating natural gas plants into the current environmental justice analysis is likely to yield a substantially different picture of the proposed rule's impact on communities of Color and low income communities. Failure to perform a comprehensive environmental justice analysis of all plants subject to the proposed rule is completely counter to the agency's and the administration's stated environmental justice goals. It is unconscionable to think the proposed rule can be finalized without this crucial step.

E. Additional Considerations

i. Currently, no federal agency is charged with full oversight of carbon pipelines.

⁶¹ US EPA, OAR. "Inventory of U.S. Greenhouse Gas Emissions and Sinks." Reports and Assessments, February 8, 2017. <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks> (1990-2021)

⁶² World Resources Institute, "State of Climate Action 2022," at 3.

⁶³ Declat-Barreto, Juan, and Andrew A. Rosenberg. "Environmental Justice and Power Plant Emissions in the Regional Greenhouse Gas Initiative States." *PLOS ONE* 17, no. 7 (July 20, 2022): e0271026. <https://doi.org/10.1371/journal.pone.0271026>.

The current regulatory framework governing carbon dioxide pipelines is fractured. The Federal Energy Regulatory Commission (FERC) has disclaimed jurisdiction over CO₂ pipelines under the Natural Gas Act, 15 U.S.C. §717(b), the Interstate Commerce Commission (ICC) has done the same on the basis that CO₂ is a “gas” and therefore exempt from regulation under Title 49 of the U.S. Code, the Surface Transportation Board, the successor to the ICC, has not rendered an opinion on the question of its jurisdiction over CO₂ pipelines, and the Bureau of Land Management has only imposed a common carrier obligation on CO₂ pipelines crossing federal lands based on its determination that CO₂ is a natural gas.⁶⁴

Within the Department of Transportation’s Pipeline and Hazardous Materials Safety Administration (PHMSA), the federal agency responsible for overseeing the safe construction and operation of interstate liquid CO₂ pipelines, the Office of Pipeline Safety (OPS) regulates the design, operation, maintenance, and spill response planning for regulated pipelines.⁶⁵ However, States with CO₂ pipelines regulate the safety of these pipelines to varying degrees under delegation of the Hazardous Liquid Pipeline Act authority, and can assume complete regulatory authority for intrastate pipelines via a certification attesting to the adoption of the minimum federal standards,⁶⁶ or enter into agreements with the OPS to oversee aspects of the safety of intrastate pipelines.⁶⁷ Under either of these scenarios, it is up to the individual State how intrastate pipeline safety is regulated, leaving little leeway for communities seeking to ensure their safety during the buildout and operation of CO₂ pipelines.

Importantly, neither PHMSA nor any other federal agency has authority to regulate the siting and permitting of interstate CO₂ pipelines.⁶⁸ Furthermore, PHMSA’s limited jurisdiction over interstate CO₂ pipelines—with respect to pipeline design, construction, maintenance, and operation—does *not* permit the agency to apply new design standards to existing pipelines or

⁶⁴ Robert R. Nordhaus et al., “Carbon Dioxide Pipeline Regulation,” *Energy Law Journal* (2009): 85, 89, available at https://www.eba-net.org/assets/1/6/8-85_-_nordhaus_and_pitlick.pdf.

⁶⁵ 49 C.F.R, §§190, 195-199.

⁶⁶ 49 U.S.C. §60105.

⁶⁷ 49 U.S.C. §60106.

⁶⁸ Council on Environmental Quality, “Report to Congress on Carbon Capture, Utilization, and Sequestration” (June 30, 2021): 1, 27, <https://www.whitehouse.gov/wp-content/uploads/2021/06/CEQ-CCUS-Permitting-Report.pdf>.

require operators to modify existing pipelines for the purpose of transporting CO₂.⁶⁹ Thus, absent a violation of a specific federal law that might affect CO₂ pipelines, such as the Safe Drinking Water Act or the Clean Air Act, these aspects of pipeline regulation are *not* determined at the federal level and largely left to state and local government, which invites an additional set of challenges for impacted communities.⁷⁰

III. CONCLUSION

WE ACT for Environmental Justice and the Clean Air for the Long Haul reiterate that the proposed rule is an affront to a clean, safe, just, and equitable model to address climate change and combat greenhouse gas emissions. In summary, CCS and Hydrogen have no demonstrated basis on which to be considered the Best Systems of Emissions Reductions (“BSER”); the proposed rule will result in additional co-pollutant emissions in communities that historically and currently shoulder unjust environmental burdens; the buildout of CCS and Hydrogen infrastructure will further endanger impacted communities and lastly, the environmental justice analysis included in the proposed rule is woefully inadequate, as evidenced by its failure to address cumulative impacts and the omission of natural gas power plants from the analysis.

The Principles of Environmental Justice explicitly mandate “the right to ethical, balanced and responsible uses of land and renewable resources” and this rulemaking blatantly disregards this principle.⁷¹ WE ACT for Environmental Justice and the Clean Air for the Long Haul Cohort thank EPA for the opportunity to provide comment and stand in solidarity with other environmental justice voices standing in opposition to the proposed rule.

Respectfully submitted,

**WE ACT for Environmental Justice
Clean Air for the Long Haul Cohort**

⁶⁹ Council on Environmental Quality, “Report to Congress on Carbon Capture, Utilization, and Sequestration” (June 30, 2021): 1, 27, <https://www.whitehouse.gov/wp-content/uploads/2021/06/CEQ-CCUS-Permitting-Report.pdf>.

⁷⁰ This is apart from EPA’s role under the Clean Air Act, the Safe Drinking Water Act, the National Environmental Policy Act, or other agencies’ jurisdiction.

⁷¹ The Principles of Environmental Justice, <https://www.ejnet.org/ej/principles.html>, (October 24-27, 1991).