

Comments of the Attorneys General of New York, Arizona, California, Connecticut, Hawaii, Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Mexico, North Carolina, Oregon, Pennsylvania, Rhode Island, Vermont, Washington, Wisconsin, and the District of Columbia, and the Chief Legal Officers of the City and County of Denver, and the Cities of Boulder (CO), Chicago, Los Angeles, New York, and Philadelphia

on

the U.S. Environmental Protection Agency's 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 Electric Generating Units; and
Repeal of the Affordable Clean Energy Rule,
88 Fed. Reg. 33,240 (May 23, 2023)
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EXECUTIVE SUMMARY

The undersigned Attorneys General of New York, Arizona, California, Connecticut, Hawaii, Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Mexico, North Carolina, Oregon, Pennsylvania, Rhode Island, Vermont, Washington, Wisconsin, and the District of Columbia, and the chief legal officers of the City and County of Denver, the Cities of Boulder (CO), Chicago, Los Angeles, New York, and Philadelphia (together, “Attorneys General”) submit these comments on the Environmental Protection Agency’s 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 Electric Generating Units; and Repeal of the Affordable Clean Energy Rule, 88 Fed. Reg. 33,240 (May 23, 2023) (Proposed Rule).

The Proposed Rule comes at a critical time. The United States, like much of the world, is experiencing climate change impacts on a daily basis: from sweltering temperatures in our cities, to severe droughts, damaging wildfires, poor air quality, and lethal flash floods. The elements of our infrastructure—roads, bridges, sewer and stormwater systems, and, of particular relevance to this rulemaking, electrical grids—are under near constant stress from extreme weather, driven in part by the emission of carbon dioxide (CO₂) and other greenhouse gas pollutants. And although many of our states have made significant strides in reducing CO₂ emissions from power plants, nationwide carbon pollution limits on the power sector are necessary as part of a worldwide commitment to address climate change if we are to avoid ever-worsening climate change impacts.

Fortunately—and unlike in 2015, the last time that EPA made a serious attempt to limit power plant CO₂ pollution—Congress has enacted legislation to put the U.S. on a path to substantially reduce carbon emissions from the power sector. That legislation, the Inflation Reduction Act, is a game-changer for EPA’s rulemaking here, in two fundamental ways: First, by enacting generous tax credits for technologies such as carbon capture and sequestration (CCS) that power plants can use to significantly reduce CO₂, Congress dramatically reduced the costs of compliance with emission reduction requirements based on such technologies, one of the factors EPA must consider in establishing emission limits under section 111 of the Clean Air Act. Second, by expressly directing EPA to use its existing authority under section 111 to ensure that power plants cut their carbon pollution, Congress

made clear that it expects EPA to use that authority to promulgate meaningful CO₂ emission reductions necessary to help us confront the climate crisis.

The Proposed Rule is firmly grounded in these two aspects of the Inflation Reduction Act. EPA's proposed emission limits for coal-fired and gas-fired power plants reflect the changed economics for pollution control technologies brought about by the legislation. In addition, EPA has used its existing authority to propose meaningful limits on these two large sources of carbon pollution. The agency further based these emission limits on the type of source-specific approaches that fit comfortably within the four corners of the Supreme Court's decision last year in *West Virginia v. EPA*. Indeed, the Proposed Rule's emission limits are based on the use of pollution control systems, such as CCS and co-firing with hydrogen, that many of the states that were petitioners in *West Virginia* have embraced. Relatedly, we fully support EPA's proposed repeal of the Trump Administration's Affordable Clean Energy (ACE) rule, which had multiple legal defects and did nothing to require power plants to reduce their greenhouse gas emissions.

Although we are largely supportive of the Proposed Rule, there are areas in which EPA should modify and strengthen it:

- ***Pollution limits on new gas-fired combustion turbines.*** EPA should select one best system of emission reduction for new, modified, and reconstructed base load natural gas electric generating units. We further urge EPA to identify a single standard of performance for these units—with phased stringency as necessary—based on EPA's determination of the single best system of emission reduction. EPA should also consider finalizing more stringent emission limits for new peaking units.
- ***Pollution limits on existing gas-fired combustion turbines.*** As suggested above regarding new base load combustion turbines, EPA should similarly select one best system and set one presumptive emission limit for existing gas-fired units subject to the final rule. Next, EPA should expand coverage of the Proposed Rule's emission limits by lowering the capacity factor and size requirements. Increasing the scope of the rule's emission reduction requirements is both economically justified and necessary in order to protect against climate change harms. We further urge EPA to promptly undertake a supplemental rulemaking to establish emission limits for low-load “peaking” units. These inefficient units, which could see increased use while they are exempt from section 111 requirements, are often located in

communities that have experienced a disproportionate share of pollution relative to other areas. As a result, promptly addressing their emissions should be an environmental justice priority.

- ***Pollution limits on existing coal-fired electric generating units.*** EPA should move up by two years (to January 1, 2038) the date on which coal-fired generating units are categorized as long-term units, and thereby required to achieve an emission limit of 90 percent CO₂ capture. The agency should also consider more closely approaches that imminent-term and near-term generating units can take to further limit their CO₂ emissions, especially for those units located in communities that have already experienced a disproportionate share of power plant pollution.

Next, EPA should improve its analysis of the potential environmental justice impacts of the rule. The statute’s “nonair quality health and environmental impact” language authorizes EPA to evaluate cumulative impacts, including in frontline and downwind communities, in determining the best system of emission reduction that has been adequately demonstrated. EPA therefore should expand the scope of its Environmental Justice Impacts analysis included with the Proposed Rule to fully assess cumulative health and environmental impacts of the Proposed Rule on underserved communities.¹

Finally, we generally support the Proposed Rule’s provisions regarding state plan requirements for regulating existing coal-fired and natural gas-fired electric generating units. EPA appropriately proposes to allow state plans to include emissions trading and averaging, provided that such approaches will achieve at least equivalent emission reduction as applying EPA’s best system of emission reduction. EPA should make clear that states may use an existing or future trading program developed independently of the rule in such state plans, so long as the trading program provides at least the aggregate level of emission control as EPA’s emissions guidelines for affected sources, taking into account any standards

¹ “Underserved communities” refers to populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality. *See* Executive Order 13,985, Advancing Racial Equity and Support for Underserved Communities Through the Federal Government, 86 Fed. Reg. 7009 (Jan. 25, 2021).

imposed through application of remaining useful life and other factors. Recognizing that addressing existing source pollution can sometimes result in disproportionate pollution and related impacts, we support requiring that state plans include provisions for robust and meaningful engagement with any communities affected by these power plants. We also support EPA’s approach to state plans applying “remaining useful life and other factors” under section 111(d): namely that in situations in which the agency’s presumptive standard of performance is not reasonably achievable for a particular source, the state plan should still impose the most stringent standard of performance feasible under the circumstances. Relatedly, states contemplating a less stringent standard of performance for an electric generating unit based on remaining useful life should have to consider the potential pollution impacts and benefits of control to communities most affected by and vulnerable to emissions from the source.

The body of our comments is organized as follows: Section I is an introduction that contains a discussion of (A) recent scientific reports on climate change harms, (B) a summary of threats that our states and cities are facing from climate change, (C) a description of efforts our states and cities have undertaken to reduce carbon dioxide emissions from the electricity generating sector, (D) background on environmental justice, (E) key statutory concepts, (F) relevant litigation background, and (G) a discussion of the clean electricity program in the Inflation Reduction Act. In Section II, we discuss EPA’s proposed repeal of the ACE rule. In Section III, we address EPA’s proposed performance standards for new natural gas combustion turbines under section 111(b) of the Clean Air Act and the proposed emission limitations for existing natural gas combustion turbines under section 111(d) of the Act. Section IV sets forth our comments on EPA’s proposed emission guidelines under section 111(d) of the Act for states to set limits on greenhouse gas emissions from existing coal-fired power plants. Section V discusses environmental justice considerations that should inform EPA’s rulemaking. In Section VI, we provide our comments on the state plan section of the rulemaking. Finally, we offer some concluding thoughts.

I. INTRODUCTION

A. Recent Evidence of Climate Change

The March 2023 report by the Intergovernmental Panel on Climate Change (IPCC) states that human activities, principally through emissions of greenhouse

gasses, have unequivocally caused global warming.² Based on the annual report from National Oceanic and Atmospheric Administration’s (NOAA’s) Global Monitoring Lab, global average atmospheric carbon dioxide was 417 parts per million in 2022, a new record high.³ The global surface temperature has increased faster since 1970 than in any other 50-year period over at least the last 2000 years.⁴ For the last 8 consecutive years, annual global temperatures have reached at least 1°C above pre-industrial levels, with the temperature reaching 1.15 °C above the pre-industrial levels in 2022.⁵ So far, 2023 is even warmer. A new report shows that the week of July 3, 2023 was the hottest ever recorded globally.⁶ Temperatures are also getting higher earlier in the year; according to NOAA, April 2023 ranked as the world’s fourth-warmest April on record.⁷

Droughts and Fires

A warming climate can contribute to the intensity of heat waves by increasing the chances of very hot days and nights. A recent study found that droughts that stretched across three continents in summer 2022—drying out large parts of Europe, the United States and China—were made 20 times more likely by

² Intergovernmental Panel on Climate Change (IPCC), “Climate Change 2023 Synthesis Report,” (IPCC 2023 Synthesis Report) www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf.

³ Nat’l Oceanic and Atmospheric Admin., “Climate Change: Atmospheric Carbon Dioxide,” <https://www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide#:~:text=The%20global%20average%20carbon%20dioxide,was%20before%20the%20I%20ndustrial%20Revolution>.

⁴ IPCC 2023 Synthesis Report at 6.

⁵ World Meteorological Organization, “Past Eight Years Confirmed to Be the Eight Warmest on Record,” (Jan. 11, 2023), <https://public.wmo.int/en/media/press-release/past-eight-years-confirmed-be-eight-warmest-record#:~:text=The%20average%20global%20temperature%20in,all%20datasets%20compiled%20by%20WMO>.

⁶ The Guardian, “Monday Was Hottest Day for Global Average Temperature on Record, as Climate Crisis Bites,” (July 4, 2023), <https://www.theguardian.com/world/2023/jul/04/monday-was-hottest-day-for-global-average-temperature-on-record-as-climate-crisis-bites>.

⁷ Nat’l Oceanic and Atmospheric Admin., “Global climate summary for April 2023,” <https://www.climate.gov/news-features/understanding-climate/global-climate-summary-april-2023#:~:text=April%202023%20was%20the%20fourth,months%20have%20occurred%20since%202010>.

climate change.⁸ This analysis was done by using the warming the climate has already experienced so far, 1.2 °C. Climate change-driven droughts are now expected to happen every year throughout the Northern Hemisphere. Another study that examined 152 extreme heat events from around the globe concluded that climate change made 93 percent of the events more likely or more severe.⁹ These events include Siberia’s heatwave of 2020, the Pacific north-west “heat dome” event of 2021, and Europe’s record-breaking summer of 2021. And 37 percent of warm-season heat-related deaths across 43 countries between 1991 and 2018 can be attributed to anthropogenic climate change, and that increased mortality is evident on every continent.¹⁰

Climate warming also increases evaporation on land, which can worsen drought and create more favorable conditions for wildfires and a longer wildfire seasons. Scientific evidence shows that around the world, fire regimes (the characteristic pattern of fire established over time and space) are being altered due to climate change. A recent report from the United Nations found that, although the impact of climate change on fire behavior in the future is complex, current models suggest that some areas, such as the Arctic, are very likely to experience a significant increase in burning by the end of the century. Areas of tropical forest in Indonesia and the southern Amazon are also likely to see increased burning if greenhouse gas emissions continue at their current rate. There will also be significant changes in the number of hectares of land burned in landscapes that currently experience burning.¹¹ Most recently, Canada’s 2023 wildfire season is breaking records. With more than two months still to go in the country’s fire season, the 9 million hectares already burned has outstripped the fire season of 1989, the

⁸ PBS, “Climate Change Made Global Summer Droughts 20 Times More Likely” (Oct. 5, 2022), <https://www.pbs.org/newshour/science/climate-change-made-global-summer-droughts-20-times-more-likely>.

⁹ Carbon Brief, “Mapped: How Climate Change Affects Extreme Weather around the World” (Aug. 4, 2022), <https://www.carbonbrief.org/mapped-how-climate-change-affects-extreme-weather-around-the-world/>.

¹⁰ *Id.*

¹¹ UNEP - UN Environment Programme, “Spreading like Wildfire: The Rising Threat of Extraordinary Landscape Fires” (Feb. 22, 2022), <https://www.unep.org/resources/report/spreading-wildfire-rising-threat-extraordinary-landscape-fires>.

previous worst on record—with significant impacts on air quality throughout North America.¹²

Rainfall and Flooding

Flooding from heavy rainfall events is a dangerous phenomenon that has become increasingly probable and severe due to climate change. As air temperatures increase, more water vapor may be held in the atmosphere and discharged during rainfall events. For every one degree Celsius increase in temperature, 7 percent more water vapor is carried by the same air volume. As a result, record rainfall extremes have continued to increase worldwide and, on average, 1 in 4 record rainfalls in the last decade can be attributed to climate change.¹³ A recent study concluded that from 2015–2021, the frequency of extreme wet (and dry) events was four per year, compared with three per year in the preceding 13 years.¹⁴ A June 2023 study of rainfall in the United States found in much of the Northeast, the Ohio River Basin, Northwestern California, the Texas Gulf Coast and the Mountain West, the rainfall depths for a 1-in-100-year event could happen far more frequently, with estimates suggesting these types of heavy rain events at least every 5 to 10 years.¹⁵

Additionally, NOAA’s 2022 global climate report highlights how extreme rainfall is a global problem. For example, in that year alone, heavy rain in northern Puerto Rico triggered dangerous floods, landslides, downed trees, and power lines. The city of San Juan, Puerto Rico’s capital, had a monthly rainfall total of 301 mm (11.85 inches), which is San Juan's wettest February on record and the eighth-wettest month for any month on record. Copious rain fell across parts of Portugal and western and central Spain in mid-December, causing devastating floods that

¹² Natural Resources Canada, et al. “North American Seasonal Fire Assessment and Outlook,” (Jul. 12, 2023), https://www.nifc.gov/nicc-files/predictive/outlooks/NA_Outlook.pdf.

¹³ Robinson, et al., “Increasing Heat and Rainfall Extremes Now Far Outside the Historical Climate,” *NPJ Climate and Atmospheric Science*, vol. 4, no. 1 at 1–4 (Oct. 2021), www.nature.com, <https://doi.org/10.1038/s41612-021-00202-w>.

¹⁴ Nat’l Aeronautic and Space Admin., “Warming Makes Droughts, Wet Events More Frequent, Intense,” (Mar. 10, 2023), <https://www.nasa.gov/feature/warming-makes-droughts-extreme-wet-events-more-frequent-intense>.

¹⁵ First Street Foundation, “Highlights From the Precipitation Problem” (June 26, 2023), <https://firststreet.org/research-lab/published-research/article-highlights-from-the-precipitation-problem/>.

damaged or destroyed roads and homes. It was reported that rainfall totals in the affected areas in Spain were over 90 mm (3.5 inches) in just 24-hours.¹⁶

Hurricanes and Storms

Earth's warmer and moister atmosphere, combined with warmer oceans, make it likely that the strongest hurricanes will be more intense, produce more rainfall, affect new areas, and possibly be larger and longer-lived.¹⁷ In 2022, when Hurricane Ian hit Florida, it was one of the United States' most powerful hurricanes on record, and it followed a two-week string of massive, devastating storms around the world. A few days earlier in the Philippines, Typhoon Noru gave new meaning to rapid intensification when it strengthened from a tropical storm with 50 mph winds to a Category 5 with 155 mph winds within 24 hours. Hurricane Fiona flooded Puerto Rico, then became Canada's most intense storm on record. Typhoon Merbok gained strength over a warm Pacific Ocean and tore up over 1,000 miles of the Alaska coast.¹⁸ While most models show either no change or a decrease in hurricane frequency in a warmer climate, a greater proportion of the storms that form will reach very intense (Category 4 or 5) levels. In short, there may be fewer storms, but the ones that do form will have a greater chance of becoming stronger.¹⁹

Oceans

The oceans are absorbing more heat as greenhouse gases trap more energy from the sun, causing changes such as temperature increase, sea level rise, and acidification. Oceans absorb around 90 percent of the Earth's accumulated heat and 23 percent of the carbon dioxide emissions from human activity. Reflecting this, global ocean temperatures set a record high for April 2023 at 1.55 °F (0.86 °C) above the long-term average, marking the second-highest monthly ocean temperature for

¹⁶ Nat'l Centers for Environmental Information, "2022 Global Climate Report". *National Oceanic and Atmospheric Administration*, <https://www.ncei.noaa.gov/access/monitoring/monthly-report/global/202213>.

¹⁷ The Royal Society, "How does climate change affect the strength and frequency of floods, droughts, hurricanes, and tornadoes?" (Mar. 2020), <https://royalsociety.org/topics-policy/projects/climate-change-evidence-causes/question-13/>.

¹⁸ Camargo, S. and Barlow, M., "Here's What We Know About How Climate Change Fuels Hurricanes," Columbia Climate School, *State of the Planet* (Oct. 3, 2022), <https://news.climate.columbia.edu/2022/10/03/heres-what-we-know-about-how-climate-change-fuels-hurricanes/>.

¹⁹ Nat'l Aeronautic and Space Admin., "A Force of Nature: Hurricanes in a Changing Climate," (Jun. 1, 2022), <https://climate.nasa.gov/news/3184/a-force-of-nature-hurricanes-in-a-changing-climate/>.

any month on record.²⁰ Rising ocean temperatures cause the sea level to rise due to thermal expansion and melting glaciers: the average rate of sea level rise along U.S. coasts was 1.3 mm (0.05”)/year between 1901 and 1971, 1.9 mm (0.075”)/year between 1971 and 2006, and 3.7 mm (0.15”)/year between 2006 and 2018.²¹ Sea level along the U.S. coastline is projected to rise 254 mm to 305 mm (10” – 12”) in the next 30 years. Similarly, global sea level is rising. The 2021 global sea level set a new record high of 97 mm (3.8 inches) above 1993 levels.²² Additionally, the ocean is also now its most acidic in at least 26,000 years as it absorbs and reacts with more carbon dioxide in the atmosphere.²³ By the end of this century the ocean is expected to be 150 percent more acidic than it is now.²⁴

Irreversible Impacts

The IPCC has found that the likelihood and impacts of abrupt and/or irreversible changes in the climate system, including changes triggered when tipping points are reached—such as the risks of species extinction—increase with further global warming.²⁵ A 2022 study concluded that we may have already crossed some tipping point thresholds with the 1.1 °C increase in global temperature warming that humans have caused so far. The ice shelf of the 80-mile-wide Thwaites Glacier located in West Antarctica, for example, could shatter in as little as five years, sliding into the ocean and significantly contributing to sea level rise.²⁶ Similarly, Greenland’s ice sheet is melting; even if emissions were halted today, the melting will cause 254 mm (10”) of sea level rise. Another new study suggests that

²⁰ Nat’l Oceanic and Atmospheric Admin., “April 2023 was Earth’s fourth warmest on record” (May 12, 2023), <https://www.noaa.gov/news/april-2023-was-earths-fourth-warmest-on-record>.

²¹ Nat’l Oceanic and Atmospheric Admin., “2022 Sea Level Rise Technical Report,” <https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-tech-report.html>.

²² Nat’l Oceanic and Atmospheric Admin., “Climate Change: Global Sea Level,” (Apr. 19, 2022), <https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level>.

²³ World Meteorological Organization, “State of the Global Climate 2021,” (2022).

²⁴ The Economist, “The Threat of Ocean Acidification,” (Feb. 2, 2023), <https://www.economist.com/films/2023/02/02/the-threat-of-ocean-acidification>.

²⁵ IPCC, Climate Change 2023 Synthesis Report: Summary for Policymakers at 18 (2023), https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf.

²⁶ Pettit, et al., “Collapse of Thwaites Eastern Ice Shelf by intersecting fractures” (Dec. 2021), <https://ui.adsabs.harvard.edu/abs/2021AGUFM.C34A..07P/abstract>.

the jet stream is currently at its weakest state in more than 1,000 years.²⁷ Ecosystems are also being irreversibly impacted. As noted by IPCC estimates, as much as 90 percent of all warm water coral reefs will die off even if warming is kept to 1.5 °C. If the temperature creeps higher, it's likely to mark the first-ever man-made extinction of an entire ecosystem.

B. Climate Change-Related Harms Impacting States and Cities

Our states and cities are now experiencing climate change-related harms on a daily basis. Attached to these comments as *Appendix 1* is a detailed discussion of some of those impacts. This subsection highlights several of these recent harms:

- In Oregon, exposure to wildfire smoke during the 2020 wildfire season was associated with additional COVID-19 cases in 15 of 20 counties with high particulate matter (PM_{2.5}). High levels of PM_{2.5} on wildfire days accounted for up to 15 percent of total COVID-19 cases.²⁸
- In late June/early July 2021, the Pacific Northwest experienced a “once-in-a-millennium” heat wave that caused 100 heat-related deaths in Washington,²⁹ and an additional 38 deaths related to the heat wave after it had ceased.³⁰ Of the heat deaths in the summer of 2021, 67 percent were victims over the age of 65.³¹ In addition to the human death toll, the heat was so intense that hundreds of millions of shellfish baked to death in the Puget Sound.³²

²⁷ Courtney Lindwall, “Climate Tipping Points Are Closer Than Once Thought,” (Nov. 15, 2022), <https://www.nrdc.org/stories/climate-tipping-points-are-closer-once-thought>.

²⁸ Oregon Health Authority, *Climate and Health in Oregon: 2020 Report* at 9.

²⁹ The Seattle Times, “Window shades, ventilation and other key lessons from the 2021 Pacific Northwest heat wave,” (June 25, 2022), <https://www.seattletimes.com/seattle-news/environment/window-shades-ventilation-and-other-key-lessons-from-the-2021-pacific-northwest-heat-wave/>; Wash. State Dep’t of Health, *Heat Wave 2021*, <https://doh.wa.gov/emergencies/be-prepared-be-safe/severe-weather-and-natural-disasters/hot-weather-safety/heat-wave-2021> (last visited July 12, 2023).

³⁰ *Heat Wave 2021*

³¹ *Id.*

³² See John Ryan, “Extreme heat cooks shellfish alive on Puget Sound beaches,” *KUOW Puget Sound Public Radio* (June 23, 2022), <https://www.kuow.org/stories/extreme-heat-wave-cooked-many-shellfish-spared-others-study-finds>.

- In September 2021, powerful remnants of Hurricane Ida caused lethal flash flooding in Connecticut, New Jersey, New York, and Pennsylvania, killing more than 40 people and leaving more than 150,000 homes without power.³³
- In 2022, California saw over 9,900 wildfires burn about 4.3 million acres, more than twice the previous record of acres burned.³⁴
- In 2022, Massachusetts experienced significant or critical drought conditions across the entire state, leading to drought-induced fires, water restrictions, and water quality and availability impacts on private wells and water-dependent habitats across the state.³⁵
- On July 10–11, 2023, an intense storm dumped as much as 9 inches of rain on Vermont, at a time when rivers were high and soils saturated from prior storms.³⁶ The storm caused catastrophic flooding in downtown Montpelier, the state’s capital, and numerous other cities and towns. By the evening of July 11, more than 175 rescue operations had been conducted to reach stranded Vermonters, many conducted by boat.

C. State and Local Efforts to Reduce Carbon Dioxide Emissions from the Electric Generating Sector

Our states and cities are acting to address the threats posed by climate change, including by reducing power plant carbon pollution. As detailed in **Appendix 2** to these comments, these programs, which include statewide cap-and-trade, regional cap-and-trade, and renewable portfolio standards (RPS), have resulted in substantial CO₂ emission reductions without increasing consumer

³³ New York Times, “Flooding from Ida Kills Dozens of People in Four States,” (updated Oct. 13, 2021), <https://www.nytimes.com/live/2021/09/02/nyregion/nyc-storm>.

³⁴ Kerlin, Kat, and U.C. Davis, *California’s 2020 Wildfire Season: Report Summarizes Record-Breaking Fire Year and Calls for Shift in Strategy* (May 4, 2022), <https://phys.org/news/2022-05-california-wildfire-season-record-breaking-year.html>

³⁵ Massachusetts Drought Status (Sept. 8, 2022), <http://bit.ly/3hKCnwR> (last visited Nov. 28, 2022); Press Release, Mass. Exec. Off. of Energy & Env’t Aff., *Massachusetts Continues to Experience Drought Conditions* (July 21, 2022), <http://bit.ly/3ViORfS>.

³⁶ Seven Days Staff, *‘Historic and Catastrophic’: Unrelenting Rain Swamped Vermont’s Cities, Towns and Hamlets. The Recovery is Just Beginning*, (Updated July 13, 2023), <https://www.sevendaysvt.com/vermont/historic-and-catastrophic-unrelenting-rain-swamped-vermonts-cities-towns-and-hamlets-the-recovery-is-just-beginning/Content?oid=38643810> (last visited July 18, 2023).

electricity prices or undermining the reliability of the grid. This subsection highlights some of those efforts:

- At the end of 2019, New York enacted the Climate Leadership and Community Protection Act, which requires 70 percent of the state’s electricity be generated by renewable sources by 2030 and 100 percent zero-emission electricity by 2040.³⁷
- In 2019, the Washington legislature enacted the Clean Energy Transformation Act to effectuate the state’s policy of eliminating coal-fired electricity and transitioning the energy sector to be carbon neutral.³⁸ The Act requires that all retail sales of electric power to Washington consumers must be greenhouse gas neutral by 2030³⁹ and 100 percent renewable by 2045.⁴⁰
- Through the Clean Energy Jobs Act of 2019, Maryland’s renewable portfolio standards increased the amount of renewable energy electricity suppliers must procure from renewables to at least 50 percent from Tier 1 renewable energy resources by 2030. Additionally, 14.5 percent of retail electricity sales must come from solar resources by 2030.⁴¹
- Oregon passed a law in 2021 that requires Oregon’s investor-owned electric utilities to reduce greenhouse gas emissions to 80 percent below baseline levels by 2030 and to zero by 2040.⁴²
- In 2021, North Carolina Governor Roy Cooper signed into law House Bill 951, “Energy Solutions for North Carolina,” which requires the North Carolina Utilities Commission to take reasonable steps to achieve a 70 percent reduction in CO₂ emissions from investor-owned electric generating facilities by 2030 and carbon neutrality by 2050.⁴³ Between

³⁷ N.Y. Law 2019, ch. 106, § 2; N.Y. Pub. Serv. § 66-p.

³⁸ Wash. Laws of 2019, Ch. 288 (E2SSB 5116) (codified at Chapter 19.405 RCW).

³⁹ RCW § 19.405.040(1).

⁴⁰ RCW §§ 19.405.040(1), 19.405.050(1).

⁴¹ Md. S.B. 516, 2019 Reg. Sess. (cross filed as H.B. 1158).

⁴² OR. REV. STAT. § 469A.410(1)(a)–(c) (2021).

⁴³ N.C. Session Law 2021-165 (Oct. 13, 2021).

2007 and 2020, approximately \$19.8 billion was invested in clean energy development in the state. This investment has continued to grow with the state investing \$1.6 billion in renewable energy in 2020. Further, between 2007 and 2020, clean energy and energy efficiency project development had a \$40.3 billion impact on North Carolina's economy.

D. Environmental Justice Considerations

1. Climate change impacts on communities with environmental justice concerns

Climate change continues to disproportionately harm underserved communities—including Black and Latinx communities, Native American tribal communities, low-income communities, and communities with low educational attainment—who already face disparate health and environmental hazards.⁴⁴ In the United States, these groups are at increased risk of exposure given their likelihood of living in risk-prone areas like urban heat islands, isolated rural areas, or coastal and other flood-prone areas, as well as areas with older or poorly maintained infrastructure, or areas higher levels of air pollution—effects that can lead to issues with food safety, infectious diseases, and psychological stressors.⁴⁵

⁴⁴ See EPA, *Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts* at 6–7 (Sept. 2021), https://www.epa.gov/system/files/documents/2021-09/climate-vulnerability_september-2021_508.pdf; IPCC, Summary for Policymakers, in *Climate Change 2022: Impacts, Adaptation and Vulnerability* at 12 (2022), <http://bit.ly/3EEzBCy>.

⁴⁵ See U.S. Global Change Research Program (USGCRP), Janet L. Gamble et al., *Ch. 9: Populations of Concern in The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment* 247, 252 (2016), <http://dx.doi.org/10.7930/JOR49NQX>; see also EPA, *Climate Change and Social Vulnerability* at 6–7; EPA, *Climate Change, Health, & Environmental Justice* (May 2016), https://19january2017snapshot.epa.gov/sites/production/files/2016-10/documents/ej-health-climate-change-print-version_0.pdf; EPA, *Climate Change Indicators: Heat-Related Deaths* (Apr. 2021), <https://www.epa.gov/climate-indicators/climate-change-indicators-heat-related-deaths#:~:text=Hot%20temperatures%20can%20also%20contribute,other%20forms%20of%20cardiovascular%20disease.&text=Certain%20population%20groups%20already%20face,vulnerability%20will%20increase%20that%20risk>; USGCRP, Marcus C. Sarofim et al., *Ch. 2: Temperature-Related Death and Illness in The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment* 43, 54–55 (2016), <https://health2016.globalchange.gov/>; Gordon Walker, *Environmental Justice: Concepts, Evidence and Politics*, (1st ed.) Routledge (Dec. 16, 2011); Jayajit Chakraborty & Marilyn C Montgomery, *Assessing the Environmental Justice Consequences of Flood Risk: A Case Study in Miami, Florida*, *Environ. Res. Lett.* 10 (2015), <https://iopscience.iop.org/article/10.1088/1748-9326/10/9/095010/pdf>.

Studies have found, for example, that underserved communities are especially vulnerable to ambient air pollution—like PM_{2.5} pollution—due to socioeconomic and demographic factors.⁴⁶ The effects of ambient air pollution are particularly prevalent when filtering for race.⁴⁷ For example, Black and African American children are 41 percent more likely to currently reside in areas with the highest projected increases in asthma diagnoses due to climate-driven changes in air quality.⁴⁸ Additionally, Black or African American individuals are 41–60 percent more likely than from other racial demographics to experience premature mortality due to exposure to climate-driven increases in PM_{2.5}.⁴⁹

Furthermore, underserved communities experience disproportionate damage from natural disasters exacerbated by climate change, especially flooding, as well as drought.⁵⁰ They also suffer from more severe climate-related impacts, including water contamination from flood pollution and increased concentration of contaminants during droughts.⁵¹ Underserved communities often lack infrastructure necessary to control flooding or ensure steady water supplies.⁵² For example, EPA found that Hispanic and Latinx individuals are 50 percent more likely to live in areas with significant risk of traffic delays due to coastal flooding than non-Hispanic populations.⁵³

⁴⁶ See EPA, *Climate Change and Social Vulnerability* at 21.

⁴⁷ *Id.*

⁴⁸ *Id.* at 27–28.

⁴⁹ *Id.* at 24–25.

⁵⁰ Walker, *Environmental Justice: Concepts, Evidence, and Politics*.

⁵¹ USGCRP, *Climate and Health Assessment*, at 158–74.

⁵² Lily Katz, *A Racist Past, a Flooded Future: Formerly Redlined Areas Have \$107 Billion Worth of Homes Facing High Flood Risk—25% More Than Non-Redlined Areas*, Redfin (2021), <https://www.redfin.com/news/redlining-flood-risk/>; Michelle Roos (E4 Strategic Solutions), *Climate Justice Summary Report, California’s Fourth Climate Change Assessment* at 41–42 (2018), https://www.energy.ca.gov/sites/default/files/2019-11/Statewide%20Reports-%20SUM-CCCA4-2018-012%20ClimateJusticeSummary_ADA.pdf; USGCRP, *Climate and Health Assessment*, at 253–54; Ellen M. Douglas et al., *Coastal flooding, climate change and environmental justice: identifying obstacles and incentives for adaptation in two metropolitan Boston Massachusetts communities, Mitigation and Adaptation Strategies for Global Change* 17, 537–562 (2012), <https://link.springer.com/article/10.1007/s11027-011-9340-8>.

⁵³ See EPA, *Climate Change and Social Vulnerability* at 76.

Underserved communities also face disproportionate impacts from extreme heat conditions as greenhouse gas concentrations and global temperatures continue to rise,⁵⁴ including significant projected labor losses in Hispanic and Latinx communities.⁵⁵ Extreme heat days also have been linked to higher all-cause mortality rates in the contiguous United States and some subgroups, including older adults and Black adults, are disproportionately affected.⁵⁶ An EPA report, for example, found that individuals with lower incomes and individuals of color are respectively 11–16 percent and 8–14 percent more likely to live in areas with the highest projected increases in premature mortality from extreme heat.⁵⁷

Indigenous populations who rely “on the environment for sustenance or who live in geographically isolated or impoverished communities, are also likely to experience greater exposure and lower resilience to climate related health effects.”⁵⁸ Indigenous populations face not only climate related health risks such as food safety and security, water security, and degraded infrastructure, but also non-quantifiable impacts such as loss of cultural identity.⁵⁹ And Tribal communities with sovereign land holdings may also be more vulnerable to climate impacts because they are unable to relocate.⁶⁰

⁵⁴ See EPA, *Climate Change Indicators: Heat-Related Death; USGCRP Climate and Health Assessment*, at 59; Diana Reckien, et al., *Equity, Environmental Justice, and Urban Climate Change, Climate Change and Cities: Second Assessment Report of the Urban Climate Change Research Network*, Cambridge University Press, 173–224 (2018), <https://archium.ateneo.edu/cgi/viewcontent.cgi?article=1077&context=sa-faculty-pubs>.

⁵⁵ See EPA, *Climate Change and Social Vulnerability* at 76 (“Hispanic and Latino individuals are 43% more likely than their reference population to currently live in areas with the highest projected labor losses from extreme temperatures”).

⁵⁶ Sameed Ahmed M. Khatana, et al., *Association of Extreme Heat With All-Cause Mortality in the Contiguous US, 2008–2017*, JAMA Network Open (May 19, 2022), <https://doi.org/10.1001/jamanetworkopen.2022.12957>; John Muyskens et al., “More dangerous heat waves are on the way: see the impact by Zip code,” *The Washington Post* (Aug. 15, 2022), <https://www.washingtonpost.com/climate-environment/interactive/2022/extreme-heat-risk-map-us/> (by 2053, 80 percent of Black Americans and 60 percent of white Americans will be affected by dangerous heat).

⁵⁷ EPA, *Climate Change and Social Vulnerability* at 36.

⁵⁸ See *id.* at 253.

⁵⁹ See *id.* at 253–54.

⁶⁰ Justin Farnell, et al., Effects of land dispossession and forced migration on Indigenous peoples in North America, *Science* 374 (2021).

EPA recognizes that social determinants of health, including socioeconomic status, race and ethnicity, education level, and age, are all indicators of how adequately a population can prepare for and respond to climate change-related events.⁶¹ Additionally, access to medical care, immigration status, and English proficiency are factors that measure a population’s vulnerability to climate change-related events.⁶² And as a result of the disproportionate impact of climate change in underserved communities, and the disproportionate pollution and social inequities already faced by these communities, certain populations are at an increased risk of experiencing adverse health effects. For example, low-income urban populations are more sensitive to climate change-related health risks due to pre-existing cardiovascular and respiratory conditions, “resulting in increases in illness, hospitalization, and premature death.”⁶³

2. Power plant impacts on communities with environmental justice concerns

Power plant emissions raise significant health concerns for underserved communities. Power plants emit many pollutants, including particulate matter, CO₂, mercury, as well as sulfur dioxide (SO₂) and nitrogen oxides (NO_x), which contribute to the formation of ground-level ozone, smog, and fine particulate matter.⁶⁴ These power plant emissions are known to contribute to adverse health outcomes such as respiratory and cardiovascular diseases.⁶⁵ As EPA has recognized, underserved communities often bear a disproportionate burden of environmental harms and adverse health outcomes from these emissions, including “heart or lung diseases, such as asthma and bronchitis, increased susceptibility to respiratory and

⁶¹ *Id.* at 4–7.

⁶² See USGCRP Climate and Health Assessment at 252.

⁶³ *Id.* at 253.

⁶⁴ See EPA, *Clean Air Power Sector Programs: Power Plants and Neighboring Communities* (May 2023), <https://www.epa.gov/power-sector/power-plants-and-neighboring-communities>.

⁶⁵ *Id.*; see also Maninder P. S. Thind et al., *Fine Particulate Air Pollution from Electricity Generation in the US: Health Impacts by Race, Income, and Geography*, 53 *Envtl. Sci. & Tech.* 14,010, 14,010 (2019), DOI: 10.1021/acs.est.9b02527.

cardiac symptoms, greater numbers of emergency room visits and hospital admissions, and premature deaths.”⁶⁶

Power plants are also disproportionately located in proximity to underserved communities and have adverse health effects on their residents. For example, an analysis of the power plants in states belonging to the Regional Greenhouse Gas Initiative (RGGI) found that 42.6 percent of environmental justice communities host between two and five electric generating units, but only 28 percent of non-environmental justice communities host the same frequency range of these units.⁶⁷ Moreover, people living in poverty and communities of color are much more likely to live within six miles of a power plant than people not living in poverty and white communities.”⁶⁸

E. Section 111 of the Clean Air Act

Under the Clean Air Act, EPA establishes standards of performance to limit air pollution from new stationary sources under section 111(b) and issues emission guidelines that states use to establish standards for existing sources in the same industrial category under section 111(d). A “standard of performance” is a “standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impacts and energy requirements) the Administrator determines has been adequately demonstrated.”⁶⁹ Standards set by EPA under section 111(b) are federally enforceable and apply to all new, modified, or reconstructed sources in that category.

Under section 111(d), “[t]he Agency, not the States, decides the amount of pollution reduction that ultimately must be achieved.”⁷⁰ EPA does so by “determining, as when setting the new source rules,” the best system of emission

⁶⁶ EPA, *Powerplants and Neighboring Communities*; see also EPA, *Climate Change, Health, & Environmental Justice*, *supra* n. 45; USGCRP, *Climate and Health Assessment* at 54–55.

⁶⁷ Juan Declat-Barreto & Andrew A. Rosenberg, Environmental Justice and Power Plant Emissions in the Regional Greenhouse Gas Initiative States at 11–12 (2022), <https://doi.org/10.1371/journal.pone.0271026>.

⁶⁸ *Id.*

⁶⁹ 42 U.S.C. § 7411(a)(1).

⁷⁰ *West Virginia v. EPA*, 142 S. Ct. 258, 2601–02 (2022).

reduction that has been adequately demonstrated for existing sources in that category.⁷¹ “States then submit plans containing the emissions restrictions that they intend to adopt and enforce in order not to exceed the permissible level of pollution established by EPA.”⁷² Section 111(d) also directs EPA to allow states—in establishing a standard of performance for particular sources—to take into account a source’s “remaining useful life and other factors.”⁷³ In addition to issuing emissions guidelines that states use to establish standards for existing sources, EPA evaluates state plans to ensure that they are “satisfactory” in meeting the requirements of section 111(d).⁷⁴ If a state fails to submit a plan or EPA determines that a state plan is not satisfactory, EPA has the same authority to promulgate a federal plan to regulate the sources as it does in the state implementation plan context under section 110(c) of the Act.⁷⁵

The definition of “standard of performance” under section 111(a)(1), which applies equally to standards set by EPA for new sources under section 111(b) and to state-established standards for existing sources under section 111(d), requires that standards be based on “adequately demonstrated” systems.⁷⁶ Although the statute does not define the term “adequately demonstrated,” legislative history and court decisions provide some insight.

The legislative history to the 1970 Clean Air Act, which was when Congress added section 111, reveals that the phrase “adequately demonstrated” emerged from the conference committee that led to the final legislation. Congress substituted “adequately demonstrated” for the term “available,” which the Senate and House bills had previously used.⁷⁷ The Senate and the House committee reports described “available” broadly, explaining that although an “available” technology “may not be one which constitutes a purely theoretical or experimental means of preventing or controlling air pollution,”⁷⁸ it need not “be in actual,

⁷¹ *Id.*

⁷² *Id.* (citations omitted).

⁷³ 42 U.S.C. § 7411(d)(1).

⁷⁴ *Id.* § 7411(d)(2).

⁷⁵ *Id.*

⁷⁶ *Id.* § 7411(a)(1).

⁷⁷ See H.R. Rep. No. 91-1783, at 9, 45 (1970) (Conf. Rep.); S. Rep. No. 91-1196, at 91 (1970); H.R. Rep. No. 91-1146, at 35 (1970).

⁷⁸ H.R. Rep. No. 91-1146, at 10 (1970).

routine use somewhere.”⁷⁹ Although the reason for replacing “available” with “adequately demonstrated” in the final legislation is unclear, it seems unlikely that, given the House and Senate bills’ agreement on this term, the conference committee intended to narrow the broad meaning of the former term by substituting the latter one without any discussion.

In its review of EPA’s initial standards of performance under section 111(b), the D.C. Circuit reasoned that to be “adequately demonstrated,” a system must be shown to be reasonably “reliable,” “efficient,” and “expected to serve the interests of pollution control without becoming exorbitantly costly.”⁸⁰ Relatedly, an “achievable standard is one which is within the realm of the adequately demonstrated system’s efficiency and which, while not at a level that is purely theoretical or experimental, need not be routinely achieved within the industry prior to its adoption.”⁸¹

Cases in which courts have interpreted the meaning of “adequately demonstrated” establish two basic principles: First, a technology or approach to reduce pollution need not be in wide use to be “adequately demonstrated.” For example, in the 1973 *Essex Chemical* case, which involved challenges to new source standards for sulfuric acid plants, the court found the technology EPA determined to be the best system of emission reduction to be adequately demonstrated based on its use in one plant in the U.S. and several in Europe.⁸² By contrast, the D.C. Circuit observed in *dicta* in its subsequent decision in *Sierra Club v. Costle* that the record would not have supported a determination by EPA that dry scrubbing was adequately demonstrated to control sulfur dioxide from coal-fired power plants

⁷⁹ S. Rep. No. 91-1196, at 16 (1970).

⁸⁰ *Essex Chem. Corp. v. Ruckelshaus*, 486 F.2d 427, 433 (D.C. Cir. 1973); *see also* *Portland Cement Ass’n v. Ruckelshaus*, 486 F.2d 375, 391 (D.C. Cir. 1973) (whether a system is adequately demonstrated “cannot be based on a ‘crystal ball’ inquiry.”).

⁸¹ *Essex Chem. Corp.*, 486 F.2d at 433–34.

⁸² *Id.* at 435; *see also* *Bethlehem Steel Corp. v. EPA*, 651 F.2d 861, 873 (3d Cir. 1981) (construing “adequately demonstrated” in the context of delayed compliance orders under section 113 of the Act to preclude EPA reliance on “purely theoretical, experimental, or speculative technology.” (citation omitted); *cf.* *Chemical Mfrs. Ass’n v. EPA*, 870 F.2d 177, 263 (5th Cir. 1989) (“Congress did not intend the [Clean Water Act’s] term best available demonstrated control technology to limit treatment systems only to those widely in use in the industry.”) (citing *American Iron and Steel Inst. v. EPA*, 526 F.2d 1027, 1058 (3d Cir. 1975) (internal quotations omitted)).

where that approach was not yet in use at a power plant, and there had only been limited pilot-scale testing.⁸³

The second principle to emerge from the caselaw is that adequate demonstration can be shown based on the use of a technology or approach in a separate industry similar to the source category being regulated in the rulemaking at issue. For example, in *Lignite Energy Council v. EPA*, the court upheld a performance standard for NO_x emissions from industrial boilers that EPA had based on the application of pollution controls—selective catalytic reduction (SCR)—to utility boilers.⁸⁴ Rejecting petitioners’ contention that SCR was not “adequately demonstrated” because EPA lacked emissions data from industrial boilers, the court reasoned “[u]tility and industrial boilers are similar in design and both categories of boilers can attain similar levels of NO_x emissions reduction through combustion controls, which means that SCR will be required to capture comparable quantities of NO_x for both boiler types.”⁸⁵ The court also found relevant that the standard would apply to new boilers, and that it had previously recognized that section 111(b) “looks towards what may fairly be projected for the regulated future, rather than the state of the art at present.”⁸⁶ As long as EPA does not base its “adequately demonstrated” determination on mere speculation, it “may compensate for a shortage of data through the use of other qualitative methods, including the reasonable extrapolation of a technology’s performance in other industries.”⁸⁷

F. Litigation Background

This section highlights two cases directly relevant to the Proposed Rule: the D.C. Circuit’s decision in *American Lung Ass’n v. EPA*,⁸⁸ and the Supreme Court’s subsequent decision in *West Virginia v. EPA*,⁸⁹ which reversed the D.C. Circuit in part.

American Lung Ass’n involved consolidated challenges by the Attorneys General, power companies, and environmental organizations to EPA’s repeal of the

⁸³ *Sierra Club v. Costle*, 657 F.2d 298, 341, n.157 (D.C. Cir. 1981).

⁸⁴ *Lignite Energy Council v. EPA*, 198 F.3d 930 (D.C. Cir. 1999).

⁸⁵ *Id.* at 933–34.

⁸⁶ *Id.* at 934 (quoting *Portland Cement*, 486 F.2d at 391).

⁸⁷ *Id.* (citation omitted).

⁸⁸ 985 F.3d 914 (D.C. Cir. 2021).

⁸⁹ 142 S. Ct. 2587 (2022).

Clean Power Plan—the Obama Administration’s section 111(d) guidelines limiting greenhouse gas emissions from power plants—and its replacement, the Affordable Clean Energy (ACE) rule.

The D.C. Circuit granted the petitions for review, ruling that EPA’s repeal of the Clean Power Plan was unlawful because it rested on the erroneous legal premise that the statutory text expressly foreclosed “generation shifting” measures (the ability of power plants to reduce emissions in the aggregate through a shift from higher carbon-emitting electricity generation to lower or zero carbon-emitting methods) as a system of emission reduction.⁹⁰ The court similarly rejected the ACE rule’s prohibition on emissions trading and averaging because that prohibition was based on EPA’s “flawed interpretation of the statute as unambiguously confined to measures taken ‘at’ individual plants.”⁹¹ In light of these rulings, the D.C. Circuit did not rule on our additional arguments for invalidating the ACE rule, *i.e.*, that EPA failed to weigh pollution reduction in choosing the best system of emission reduction and did not establish a minimum degree of emission limitation for state plans.

On appeal, the Supreme Court held 6–3 that EPA impermissibly considered generation shifting in determining the best system of emission reduction in the Clean Power Plan, thereby exceeding the agency’s authority under section 111(d).⁹² The Court reasoned that the Clean Power Plan’s generation-shifting approach triggered the “major questions doctrine.” In the majority’s view, the Clean Power Plan was novel, was intended to restructure the nation’s overall mix of electricity generation, represented a transformative expansion of EPA’s authority, and resembled in key respects a program that Congress had considered and rejected multiple times.⁹³ And because it found that Congress had not clearly authorized EPA’s consideration of generation shifting as a system of emission reduction, the Court concluded that EPA had exceeded its statutory authority in promulgating the Clean Power Plan.⁹⁴ Although the Court suggested that EPA’s authority under section 111(d) may be limited to measures that would require regulated sources to operate more cleanly, it had “no occasion to decide whether the statutory phrase ‘system of emission reduction’ refers exclusively to measures that improve the

⁹⁰ 985 F.3d at 944–51.

⁹¹ *Id.* at 957–58.

⁹² *West Virginia*, 142 S. Ct. at 2610–16.

⁹³ *Id.* at 2610–14.

⁹⁴ *Id.* at 2614.

pollution performance of individual sources, such that all other actions are ineligible to qualify as the best system of emission reduction.”⁹⁵ The Supreme Court accordingly reversed the D.C. Circuit’s judgment in *American Lung Ass’n*.

Because the Supreme Court did not address the D.C. Circuit’s holding that section 111 does not forbid emissions trading and averaging in state plans, or otherwise reject the D.C. Circuit’s conclusion that “Section [1]11 itself does not textually restrict the States’ choice of compliance measures for their sources at all,” that holding continues in effect.⁹⁶

On remand, the parties agreed, in light of EPA’s announcement that it intended to replace the ACE rule, to have the case held in abeyance rather than have the D.C. Circuit adjudicate the petitioners’ remaining challenges to the ACE rule. EPA subsequently extended the time period for state plan submittals on implementing the ACE rule until April 2024 and indicated that states will not need to meet this deadline if/when EPA replaces the ACE rule deadline in a new rule.⁹⁷

G. Inflation Reduction Act

A few months after the *West Virginia* decision, Congress passed and President Biden signed into law the Inflation Reduction Act (IRA).⁹⁸ The Inflation Reduction Act affects the current rulemaking in two fundamental ways.

First, Congress has both confirmed EPA’s authority to regulate greenhouse gases from power plants under the Clean Air Act and directed the agency to use that authority to ensure that the power sector cut carbon emissions. In adding the Low Emissions Electricity Program to the Clean Air Act, Congress included a definition of “greenhouse gas” as referring to “the air pollutants carbon dioxide, hydrofluorocarbons, methane, nitrous oxide, perfluorocarbons, and sulfur hexafluoride.”⁹⁹ The law directs EPA to use its existing authorities—including section 111—to reduce carbon pollution from power plants. Congress directed EPA to assess within one year, *i.e.*, by August 15, 2023, the reductions in greenhouse gas emissions anticipated to occur from changes in domestic

⁹⁵ *Id.* at 2615.

⁹⁶ *See American Lung Ass’n*, 985 F.3d at 957–58.

⁹⁷ 88 Fed. Reg. 14,918, 14,919 (Mar. 10, 2023).

⁹⁸ Pub. L. No. 117-167, 136 Stat. 1366 (2022)

⁹⁹ 42 U.S.C. § 7435(c).

electricity generation and use on an annual basis through 2031.¹⁰⁰ The statute also appropriated \$18 million to EPA “to ensure that reductions in greenhouse gas emissions are achieved through the use of the existing authorities of this Act, incorporating th[is] assessment.”¹⁰¹ According to the bill’s lead sponsor in the House, Congressman Pallone, “Congress intends that EPA construe its authority under existing CAA authorities broadly, so EPA can promulgate impactful and innovative regulations, as appropriate.”¹⁰² Thus, Congress has given clear direction regarding the agency’s authority and congressional intent that EPA use that authority to tackle carbon pollution from power plants.

Second, the Inflation Reduction Act’s tax credits significantly changed the economics for two approaches to reducing power plant carbon pollution: carbon capture and sequestration (CCS) and co-firing with hydrogen. Congress’s decision to invest heavily in tax credits to support these approaches informs EPA’s consideration under section 111 of cost as a factor in determining the best system of emission reduction that has been adequately demonstrated. In addition, the extent of this investment indicates Congressional support for—and belief in the feasibility of—these technologies. As commentators have noted, “the funding provided by the IRA will allow EPA to increase the ambition of its CAA rulemakings, by lowering costs and demonstrating the feasibility of pollution control technologies.”¹⁰³

For example, regarding CCS, before the Inflation Reduction Act, the relevant federal tax credit (45Q) allocated \$50/ton of CO₂ captured and stored, which often undervalued the costs of capture, transport, and storage. By increasing the value of the 45Q tax credit to \$85/ton, the Inflation Reduction Act makes CCS at new and existing coal and gas plants more economic. For example, according to one recent analysis, the combined capture, transport, and storage costs for coal-fired and gas-fired power plants averages about \$80–90/ton.¹⁰⁴ The report concludes that the increase in the 45Q tax credit to \$85/ton makes carbon

¹⁰⁰ *Id.* § 7435(a)(5).

¹⁰¹ *Id.* § 7435(a)(6).

¹⁰² 168 Cong. Rec. E869 (Aug. 23, 2022).

¹⁰³ Greg Dotson and Dustin J. Maghamfar, “The Clean Air Act Amendments of 2022: Clean Air, Climate Change, and the Inflation Reduction Act,” 53 *ELR* 10017, 10026 (Jan. 2023).

¹⁰⁴ Clean Air Task Force, “The Inflation Reduction Act creates a whole new market for carbon capture,” (Aug. 22, 2022), <https://www.catf.us/2022/08/the-inflation-reduction-act-creates-a-whole-new-market-for-carbon-capture/>.

capture within the cost range for these plants (and other industries). As for co-firing hydrogen with natural gas, according to a recent analysis, “green hydrogen” has the potential to receive the greatest support, as electricity produced using it can simultaneously receive three tax incentives.¹⁰⁵ First, renewable facilities used to produce green hydrogen will be eligible for either the production tax credit or the investment tax credit, reducing production costs. Second, green hydrogen production facilities would qualify for the full value of the 45V hydrogen tax credit being zero emissions facilities. Third, electricity produced using green hydrogen would qualify for the production tax or investment tax credits. The combined effect of these incentives would reduce the levelized cost of energy of green hydrogen-fueled combined cycle generating turbines in 2030 by 52–67 percent relative to projects without incentives.

Impacts of the Inflation Reduction Act on the electricity generation mix are expected to be very significant, too. For example, in 2021, there were 210 coal plants in the continental U.S. providing 220 gigawatts of power capacity and 22 percent of total generation.¹⁰⁶ Before the Inflation Reduction Act was enacted, EPA expected coal-fired generation to drop to 131.7 gigawatts by 2028.¹⁰⁷ That was the baseline EPA used in its analysis that accompanied its proposed effluent limitation guidelines for coal-fired power plant water pollution in March 2023.¹⁰⁸ The revised projections for the power sector that reflect the new law show that EPA now expects coal to drop to 100 gigawatts of capacity by 2028 (about 100 plants) and provide about 11 percent of the nation’s power.¹⁰⁹ By contrast, the expected impact of the Proposed Rule on generation mix is small. When EPA added the proposed limits for

¹⁰⁵ ICF, “How clean energy economics can benefit from the biggest climate law in U.S. history,” (Sept. 16, 2022), <https://www.icf.com/insights/energy/clean-energy-economic-benefits-us-climate-law>.

¹⁰⁶ Jean Chemnick, “EPA: Climate law—not power plant rules—will reshape grid,” *Climatewire* (May 17, 2023), [E&E News | Article | EPA: Climate law — not power plant rules — will reshape grid \(politicopro.com\)](#); see 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) (RIA) at 2-6.

¹⁰⁷ Chemnick, *supra* n.122; see EPA, *Regulatory Impact Analysis for Proposed Supplemental Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category* (Feb. 28, 2023) at 5-6.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*; see RIA at 3-27.

existing coal plants under section 111(d) to the modeling, for instance, those proposed limits further reduced coal generation capacity by only an additional 2 percent.¹¹⁰ And while the Inflation Reduction Act is projected to reduce coal generation capacity in 2030 by 52 gigawatts, the Proposed Rule is predicted to decrease that capacity by 14 gigawatts.¹¹¹

II. PROPOSED REPEAL OF THE ACE RULE

As part of the Proposed Rule, EPA proposes to formally repeal the ACE rule. EPA cites three grounds for repeal:

- As a policy matter, the best system of emission reduction in the ACE rule for coal-fired plants—heat rate improvements—is not an appropriate best system for these plants. Specifically, the heat rate improvements under the ACE rule “provide negligible CO₂ reductions at best and, in many cases, could increase CO₂ emissions because of the rebound effect.”
- In the ACE rule, EPA had rejected CCS and natural gas co-firing as the best system for reasons that are no longer applicable.
- The ACE rule conflicts with section 111 of the Act and EPA’s implementing regulations because it did not specifically identify the best system or the degree of emission limitation achievable through application of the best system.¹¹²

The Attorneys General support EPA’s proposed repeal of the ACE rule and offer these comments on the three grounds cited by EPA for the repeal:

Heat rate improvements provide negligible emission reductions.

EPA proposes “as a policy matter” to repeal the ACE rule.¹¹³ As EPA notes, heat rate improvements “achieve only limited GHG emission reductions.”¹¹⁴ When it promulgated the ACE rule, EPA acknowledged that the rule would only achieve about a 1 percent reduction in greenhouse gas emissions in 2030. Now, the agency

¹¹⁰ *Id.*

¹¹¹ *Id.*

¹¹² 88 Fed. Reg. at 33,335–36.

¹¹³ *Id.* at 33,335.

¹¹⁴ *Id.* at 33,337.

“doubts that even these minimal reductions would be achieved.”¹¹⁵ EPA explains that an updated report on heat rate improvements that has superseded the study relied upon in the ACE rule concludes that heat rate improvements are less effective in reducing CO₂ emissions than previously assumed and that most sources have already optimized application of heat rate improvements. Furthermore, the ACE rule was projected to *increase* emissions in 15 states and the District of Columbia as a result of the “rebound effect,” where a heat rate improvement results in greater utilization of a modified power plant, potentially overwhelming any emission reduction from a lower emission rate.¹¹⁶ In light of these facts and the urgent need (discussed above) to substantially cut carbon pollution from the power sector, EPA’s proposed repeal is on sound policy grounds.

In addition to representing a reasonable policy decision, repeal of the ACE rule is required under the Clean Air Act. As the D.C. Circuit has noted, “no sensible interpretation” of the best system of emission reduction would fail to incorporate “the amount of air pollution as a relevant factor to be weighed.”¹¹⁷ Yet, in the ACE rule, EPA did *not* weigh the amount of pollution reduction as a factor in choosing heat rate improvements as the best system. The agency did not, for example, compare anticipated pollution reductions from heat rate improvements with reductions from approaches that fit within its narrow interpretation of “system,” such as CCS or co-firing with natural gas. Instead, EPA merely observed that “[i]mplementation of heat rate improvement measures would also achieve reasonable reductions in CO₂ emissions from designated facilities in light of the limited cost-effective and technically feasible emissions control opportunities.”¹¹⁸ Therefore, repeal of the ACE rule on the ground that the agency never weighed pollution reduction—even among those approaches that in the Trump EPA’s view were systems under section 111—is also required under the Clean Air Act.

Relatedly, repeal of the ACE rule would remedy another legal defect: EPA’s failure to explain its reversal in position that heat rate improvements “would not meet one of the considerations critical to the [best system] determination—the quantity of emission reductions.”¹¹⁹ Under the Supreme Court’s decision in *FCC v.*

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ *Sierra Club v. EPA*, 657 F.2d at 325–26.

¹¹⁸ 84 Fed. Reg. 32,520, 32,542 (July 8, 2019).

¹¹⁹ 80 Fed. Reg. at 64,727.

Fox Television Stations, Inc.,¹²⁰ an agency changing course must “provide a more detailed justification than would suffice for a new policy . . . when, for example, its new policy rests upon factual findings that contradict those which underlay its prior policy.” In the ACE rule, EPA did not explain its reversal in position that heat rate improvements were not the best system because they did not satisfy the “critical” factor of pollution reduction.¹²¹ By repealing the ACE rule, EPA would cure this legal defect as well.

The bases EPA cited in the ACE rule for rejecting CCS and natural gas co-firing as the best system no longer apply.

EPA further explains that the factual underpinnings of the ACE rule have changed in several ways, including the costs of reducing CO₂ emissions by using CCS or co-firing with natural gas. In the ACE rule, EPA justified its rejection of these two approaches as the best system of emission reduction on grounds that they would be too costly.¹²² Four years later, the costs of natural gas co-firing have substantially decreased.¹²³ Similarly, as discussed above, the costs of CCS have substantially declined due to the Inflation Reduction Act’s tax credit provisions as well as developments in the technology that have lowered capital costs. EPA concludes that CCS and natural gas co-firing are now cost reasonable, a factor that supports the agency’s determination that these approaches constitute the best system for coal-fired power plants. We concur that the more favorable economic conditions of these approaches also support repeal of the ACE rule.

The ACE rule conflicts with section 111 by failing to identify the best system or specifying a degree of emission limitation from applying the best system.

As a third independent reason, EPA proposes to repeal the ACE rule on the ground that “the rule did not identify with sufficient specificity the [best system] or the degree of emission limitation achievable through the application of the [best

¹²⁰ *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515–16 (2009).

¹²¹ 80 Fed. Reg. at 64,727; *see also id.* (the amount of pollution reduced using heat rate improvements “is too small for these measures to be the [best system] by themselves for this source category,” especially in light of “the magnitude of the environmental problem and projections by climate scientists that much larger emission reductions are needed from fossil fuel-fired [power plants] to address climate change.”).

¹²² *See* 84 Fed. Reg. at 32,545.

¹²³ 88 Fed. Reg. at 33,337.

system].”¹²⁴ Under section 111(d), it is EPA “not the States, [that] decides the amount of pollution reduction that ultimately must be achieved.”¹²⁵ States then “submit plans containing the emissions restrictions that they intend to adopt and enforce in order not to exceed the permissible level of pollution established by EPA.”¹²⁶ The ACE rule, however, merely identified a suite of heat rate improvements as “candidate technologies” without specifying “the degree of emission limitation States should apply in developing standards of performance for their sources.”¹²⁷ As EPA acknowledges now, the ACE rule “shifted the responsibility for determining the [best system] and degree of emission limitation achievable from the EPA to the States,” and therefore “did not meet the CAA section 111 requirement that the EPA determine the [best system] or the degree of emission limitation from application of the [best system].”¹²⁸ The Attorneys General agree that the ACE rule should be repealed because it is fundamentally inconsistent with the structure of section 111(d) and the respective roles of EPA and the states as recognized by the Supreme Court in *West Virginia*.

EPA cites two defects related to the lack of a specific emission limitation that warrant repeal of the ACE rule. As the agency explains, the ACE rule’s failure to specify a degree of emission limitation for state plans would turn EPA’s evaluation into whether state plans are “satisfactory” into a “standardless exercise.”¹²⁹ Under section 111(d), Congress assigned EPA a supervisory role to ensure state plans contain standards of performance for existing sources that are “satisfactory.”¹³⁰ EPA has the authority and the responsibility to set criteria for evaluating the standards of performance proposed in state plans. Section 111(d)(1) makes clear that states are required to “establish standards of performance” for existing sources that reflect the degree of emission reduction achievable through application of the best system of emission reduction that EPA determines is adequately demonstrated.¹³¹ Similarly, EPA must have some objective criteria to determine whether state plans

¹²⁴ *Id.* at 33,338.

¹²⁵ *West Virginia v. EPA*, 142 S. Ct. at 2602.

¹²⁶ *Id.*

¹²⁷ 88 Fed. Reg. at 33,338.

¹²⁸ *Id.* at 33,339.

¹²⁹ *Id.*

¹³⁰ 42 U.S.C. § 7411(d)(1), (2)(A).

¹³¹ *Id.* § 7411(a)(1).

are “satisfactory.”¹³² EPA considered whether a substantive emissions limitation was necessary in its original adoption of the implementing regulations, finding that “it seems clear that some substantive criterion was intended to govern not only the Administrator’s promulgation of standards but also [EPA’s] review of state plans.”¹³³ The ACE rule’s approach of having states evaluate the feasibility of heat rate improvements at power plants—without requiring imposition of any minimum emissions limit—would have resulted in no “substantive criterion” for EPA to use in evaluating state plans. As EPA notes, the one state that submitted a (partial) state plan to implement the ACE rule would have established a standard of performance “that was higher (*i.e.*, less stringent) than the source’s historical emission rate.”¹³⁴

The lack of a federal emissions limitation in the ACE rule not only created uncertainty for EPA evaluations, the rule created uncertainty for states in developing their own emissions limitations, leading to uncertainty for their regulated sources. The lack of a federal numerical emissions limitation would also have left state plans vulnerable to challenge on the basis that they did not establish a performance standard reflective of the emissions limitation achievable from application of the best system of emission reduction that EPA has chosen, and would have complicated judicial review of state plans.¹³⁵

And by proposing to allow states to set individualized standards of performance under section 111(d) without EPA establishing any overall statewide numerical emissions limits, the agency would also undermine national uniformity and create incentives for a “race to the bottom,” encouraging states to outcompete each other for new industry. Congress sought to avoid this very situation in the Clean Air Act Amendments of 1970, where it expressed concerns with “efforts on the part of States to compete with each other in trying to attract new plants and facilities without assuring adequate control of extra-hazardous or large-scale emissions therefrom.”¹³⁶

The second related defect EPA identifies is that it failed in the ACE rule to justify its departure from previous section 111(d) rules that always included a

¹³² *Id.* § 7411(d)(2).

¹³³ 40 Fed. Reg. at 53,342.

¹³⁴ 88 Fed. Reg. at 33,337 (citing partial plan submitted by West Virginia).

¹³⁵ *See* 42 U.S.C. § 7607(b)(1).

¹³⁶ H. Rep. No. 91-1146, Reporting on H.R. 17255, p. 893 (Jun. 3, 1970), *reprinted in* 1970 U.S.C.C.A.N 5356, 5358.

numeric degree of emissions limitation, in violation of *FCC v. Fox Television*.¹³⁷ As EPA notes, prior to the ACE rule, the agency consistently required a numerical emissions limitation in its emission guidelines. To reverse this longstanding policy, EPA was required to address the multiple reasons it adopted this requirement in 1975 and explain why the facts and circumstances no longer justify this approach. Instead, in the ACE rule EPA offered only a short and deeply-flawed legal analysis of why it believed that a numerical emissions limitation was no longer required.¹³⁸ Where an agency changes a decades-old regulation on which states and regulated entities have come to rely, it must provide a “more detailed justification than what would suffice for a new policy created on a blank slate.”¹³⁹ EPA did not meet that significant burden, providing another ground for the ACE rule’s repeal.

EPA has multiple, strong legal and factual grounds for repealing ACE.

III. EPA’S PROPOSED PERFORMANCE STANDARDS FOR NEW GAS TURBINES AND EMISSION LIMITS FOR EXISTING UNITS

In 2015, EPA issued new source performance standards to limit emissions of carbon dioxide from three subcategories of new and reconstructed stationary combustion turbines: base load electrical generating units, non-base load natural gas-fired units, and non-base load multifuel-fired (*i.e.*, non-natural gas-fired) units.¹⁴⁰ Since then, the technology has improved with respect to achievable emission reductions and new gas-fired plants continue to be built as both base load generation and non-base load generation to support intermittent renewable energy sources such as solar and wind. Indeed, power generation from natural gas-fired combustion turbines is projected to increase as more coal-fired electrical generating units retire and new combustion turbines are added to the grid. By 2050, 309 gigawatts of new natural-gas fired capacity is expected to come online, and by 2035, CO₂ emissions from natural gas-fired units is projected to reach 527 million metric tons.¹⁴¹

To address the projected growth in the natural-gas power sector and the sector’s associated greenhouse gas emissions, EPA is proposing to revise the 2015

¹³⁷ 88 Fed. Reg. at 33,339 (citing 556 U.S. 502)).

¹³⁸ See 83 Fed. Reg. at 44,771.

¹³⁹ *Fox Television*, 556 U.S. at 515.

¹⁴⁰ 80 Fed. Reg. 64,510 (Oct. 23, 2015).

¹⁴¹ 88 Fed. Reg. at 33,265.

new source performance standard and is proposing emission guidelines for existing natural gas-fired combustion turbines. In the Proposed Rule, EPA has created subcategories based on the “capacity factor” of the combustion turbine, *i.e.*, the percentage of its full generating capacity that the turbine is expected to use. The low load (“peaking units”) subcategory consists of combustion turbines with a capacity factor of less than 20 percent, which are used mainly as reserves during peak demand.¹⁴² The intermediate load subcategory consists of combustion turbines with a capacity factor that ranges between 20 percent and a source-specific upper bound based on design efficiency.¹⁴³ The base load subcategory consists of combustion turbines that operate above the upper-bound threshold for intermediate load turbines and supply electricity to the grid more or less constantly.¹⁴⁴ EPA has identified the best system of emission reduction for each subcategory, including CCS and mixing cleaner fuels into existing fossil fuels (co-firing). The Proposed Rule sets emission standards based on the emission levels that would be achievable using CCS or co-firing, but does not require facilities or states to use these specific emission-control strategies.

As detailed below, the Attorneys General support EPA’s proposed new source performance standards for low load, intermediate load, and base load combustion turbines as consistent with the statutory command of section 111 of the Clean Air Act. Likewise, we support EPA’s proposed emission guidelines for base load combustion turbines. Within each subcategory, the proposed standards and emission guidelines reflect the application of the best system of emission reduction that, taking into account costs, energy requirements, and other statutory factors, is adequately demonstrated. For low load combustion turbines, we encourage EPA to promptly supplement these guidelines with a proposal for existing peaker plants, which remain unregulated for greenhouse gases under the proposal, and to consider whether stronger standards can be adopted for new plants. For base load combustion turbines, we encourage EPA to identify one system as the *best* system of emission reduction based on EPA’s balance of the cost of the reductions, non-air quality health and environmental impacts, and energy requirements.¹⁴⁵ We also urge EPA to strengthen the Proposed Rule by expanding regulation of existing

¹⁴² *Id.* at 33,244.

¹⁴³ *Id.*

¹⁴⁴ *Id.*

¹⁴⁵ *See* 42 U.S.C. § 7411(a)(1); *Sierra Club v. Costle*, 657 F.2d at 326, 330.

natural gas-fired combustion turbines in order to protect against climate change and other public health impacts of natural gas combustion.

A. EPA Should Promptly Commence a Supplemental Rulemaking to Address Existing Peaking Units

Low-capacity factor electricity generating units, *i.e.*, “peaking units” or “peakers,” raise significant environmental justice and climate concerns not addressed by the Proposed Rule. As the Clean Energy Group recently found, peakers contribute to climate change, emitting an average of 60 million tons of CO₂ each year.¹⁴⁶ And, importantly, they contribute significantly to local air pollution. Over 4.4 million people in urban areas are currently living within one mile of a peaker, and almost 32 million people are living within three miles of one.¹⁴⁷ Peakers are disproportionately located in low-income communities and communities of color.¹⁴⁸ And these plants can also be less efficient and more polluting than baseload units, with disproportionate emissions of PM_{2.5}, as well as NO_x and SO₂, which contribute to the formation of ground-level ozone and PM_{2.5}.¹⁴⁹

These impacts are of substantial concern to many of our states, where existing peaking units contribute to local air pollution, often in underserved communities. For example, according to the Clean Energy Group’s analysis, the 20 peakers in Boston’s Metropolitan Area run more than the national average and contribute an annual average of 544,500 pounds of NO_x and 63,000 pounds of SO₂ to the city’s local pollutants.¹⁵⁰ About 256,000 people live within one mile of these units, and 1.45 million people live within 3 miles of one.¹⁵¹ In New York City,

¹⁴⁶ Clean Energy Group & Stratagen, *The Peaker Problem* (July 2022), at 13.

¹⁴⁷ *Id.* at 17.

¹⁴⁸ *Id.* at 8. In its analysis, the Clean Energy Group defines peakers as all operating plants running on oil or gas turbines with a minimum generating capacity of 10 MW and a maximum capacity factor of 15 percent. *Id.* at 11.

¹⁴⁹ *Id.* at 8. In absolute terms, peaking units are estimated to contribute 46,000 U.S. tons of NO_x and 7,700 tons of SO₂ every year. *Id.* at 12–13; *see also* Ozone Transport Commission (OTC) Stationary and Area Source Committee, High Electric Demand Days (HEDD) Workgroup, *White Paper: Examining the Air Quality Effects of Small EGUs, Behind the Meter Generators, and Peaking Units during High Electric Demand Days* (Nov. 10, 2016), at 4, 25–40 (describing peaker NO_x emissions impacts on high electric demand days).

¹⁵⁰ *Id.* at 21.

¹⁵¹ *Id.*

750,000 people live within one mile of a peaker plant, 78 percent of whom are either low income or people of color.¹⁵²

Accordingly, while the Proposed Rule does not address existing peaking units, EPA should take prompt action in a subsequent rulemaking to identify a best system of emission reduction and issue emission guidelines for these sources.

B. EPA's Should Consider Strengthening its Proposal for New and Reconstructed Peaking Units

For new and reconstructed peaking units, EPA is proposing that the best system of emission reduction is the use of lower-emitting fuels (*e.g.*, natural gas and distillate oil) with standards of performance ranging from 120 pounds of CO₂ per one million British thermal units (lb CO₂/MMBtu) to 160 lb CO₂/MMBtu depending on the type of fuel used.¹⁵³ EPA's proposed best system, which is the same as for the non-base load subcategory in the 2015 rule, is technically feasible and adequately demonstrated.¹⁵⁴ Because of the variability in the operation of low load combustion turbines with multiple starts and stops, EPA has determined that the use of lower emitting fuels is the best system and the associated standard of performance should be based on heat input.

Since 2015, all newly-constructed low load simple cycle turbines have been subject to this standard; therefore, a best system based on the use of lower-emitting fuels would have minimal costs to affected facilities and continue to control these sources' emissions by limiting the use of fuels with higher carbon content. However, given the substantial impact of peaking units – including new and reconstructed peaking units – on the surrounding communities, EPA should consider whether stronger standards of performance are achievable and warranted.

¹⁵² The PEAK Coalition, *The Fossil Fuel End Game: A Frontline Vision to Retire New York City's Peaker Plants by 2030* at 13 (Mar. 2021), <https://www.cleane.org/wp-content/uploads/Fossil-Fuel-End-Game.pdf>.

¹⁵³ 88 Fed. Reg. at 33,244.

¹⁵⁴ Although the BSER for this subcategory is the same, EPA's proposed definition of the low load subcategory is narrower as compared to the electric sales threshold for non-base load combustion turbines in the 2015 NSPS. *See* 88 Fed. Reg. at 33,284.

C. EPA’s Proposed Best System for New and Reconstructed Intermediate Load Natural Gas Combustion Turbine Units Is Adequately Demonstrated.

For the intermediate load subcategory, EPA is proposing two components for the best system of emission reduction and the associated standard of performance applies in phases: the first component of the best system is highly efficient simple cycle generation, and the second component is 30 percent by volume low-greenhouse gas hydrogen co-firing.¹⁵⁵ EPA’s proposed standard of performance for the first phase—based on application of high efficiency simple cycle turbine technology—is 1,150 lb CO₂/MWh-gross based, which affected facilities must meet upon promulgation of the final rule.¹⁵⁶ EPA’s proposed standard of performance for the second phase—based on continued application of highly efficient generation and co-firing of 30 percent by volume low-greenhouse gas hydrogen—is 1,000 lb CO₂/MWh-gross, which affected facilities must meet by 2032.¹⁵⁷

With respect to the first component, EPA’s proposed best system of highly efficient simple cycle generation is adequately demonstrated. As EPA notes, highly efficient simple cycle designs have been demonstrated by facilities for decades and the proposed levels of efficiency have been achieved by many recently constructed turbines, both simple cycle and combined cycle combustion turbines.¹⁵⁸ With respect to the second component, the technology that sources would use to implement low-greenhouse gas hydrogen co-firing is also adequately demonstrated. The use of byproduct fuels containing large percentages of hydrogen is well-established, and most combustion turbines currently used for electricity generation can burn hydrogen blends of 5–10 percent by volume, with blends as high as 20–30 percent

¹⁵⁵ 88 Fed. Reg. at 33,244. “Low-GHG hydrogen” is defined as “hydrogen (or a hydrogen derived fuel such as ammonia) produced through a process that results in a well-to-gate GHG emission rate of less than 0.45 kilograms of CO₂ equivalent per kilogram of hydrogen produced (kg CO₂e/kg H₂), determined using the Greenhouse gases, Regulated Emissions, and Energy use in Transportation model (GREET model).” Proposed Regulatory Text, 40 C.F.R. § 60.5580a.

¹⁵⁶ 88 Fed. Reg. at 33,244.

¹⁵⁷ *Id.*

¹⁵⁸ *See id.* at 33,287 (“Approximately 14 percent of simple cycle and combined cycle combustion turbines that have commenced operation since 2015 have maintained emission rates below the proposed standards, demonstrating that . . . this BSER is commercially available and that the standards of performance [are] achievable.”)

by volume being used in certain situations.¹⁵⁹ Indeed, many models of new utility combustion turbines have demonstrated the ability to co-fire up to 30 percent hydrogen and developers are working toward models that will be ready to combust 100 percent hydrogen by 2030.¹⁶⁰ Some of these projects include:

- Los Angeles Department of Water and Power’s Scattergood Modernization Project, which is converting its gas-fired power plant to run on 100 percent electrolytic hydrogen by 2035;
- The Brentwood Power Station (simple cycle turbine) and Cricket Valley Energy Center (combined cycle facility) in New York, which intend to utilize hydrogen blends ranging from 5 to 30 percent;
- Intermountain Power Authority’s project in Utah, which is studying the integration of large-scale hydrogen production and storage, with the goal of combusting 30 percent hydrogen by 2025 and 100 percent hydrogen by 2045;
- The Long Ridge Energy Generation Project in Ohio, which is planning to blend 15 to 20 percent hydrogen before a turbine modification is necessary for the plant to combust 100 percent hydrogen;
- Northern California Power Authority’s project at Lodi Energy Center, which has already installed a turbine capable of using up to 45 percent hydrogen;¹⁶¹ and
- San Diego Gas & Electric’s Palomar Energy Center, which plans to blend a small amount of low-carbon hydrogen starting this year.¹⁶²

The feasibility challenges associated with low-greenhouse gas hydrogen co-firing are primarily a matter of whether a sufficiently developed industry and infrastructure for the production and delivery of low-greenhouse gas hydrogen will

¹⁵⁹ *See id.* at 33,305.

¹⁶⁰ *Id.* at 33,255.

¹⁶¹ NCPA, “NCPA’s Green Hydrogen Future” <http://www.ncpa.com/wp-content/uploads/2021/10/NCPAs-Green-Hydrogen-Future-Position-Paper.pdf> .

¹⁶² SDGE, “Hydrogen Innovations,” <https://www.sdge.com/more-information/environment/sustainability-approach/hydrogen-innovation>.

be available to sources. Given the significant technological developments and federal incentives to grow the hydrogen sector—specifically low-greenhouse gas hydrogen—EPA’s projection that an adequate supply of low-greenhouse gas hydrogen will be available for combustion turbines by 2032 is reasonable. The Department of Energy is working to create the regional markets necessary for the production of low-greenhouse gas hydrogen through DOE’s \$8 billion Regional Clean Hydrogen Hub Program, \$500 million Clean Hydrogen Manufacturing and Recycling Program, and \$1 billion Clean Hydrogen Electrolysis Program authorized by the Infrastructure Investment and Jobs Act of 2021.¹⁶³ In addition, as discussed above (*see infra* Section I.G.), the Inflation Reduction Act authorizes a multi-tier hydrogen production tax credit that awards the highest amount of tax credits to the hydrogen production processes with the lowest estimated greenhouse gas emissions (0.45 kg CO₂e/kgH₂ or less) from well to gate.¹⁶⁴ Indeed, the extraordinary investment Congress has made in low-greenhouse gas hydrogen across the Infrastructure Investment and Jobs Act and the Inflation Reduction Act is plainly intended to bring the hydrogen sector into a state of maturity consistent with the courts’ criteria for adequate demonstration, such as reliability, efficiency, and cost-effectiveness.¹⁶⁵ These federal incentives would provide the greatest support for the proposed standards if the Department of the Treasury’s forthcoming guidance on the hydrogen tax credit, DOE’s program criteria, and EPA’s criteria for low greenhouse gas-hydrogen are aligned as much as possible.

In evaluating whether a system of emission reduction is the “best” adequately demonstrated system under section 111, EPA must consider its *overall* emissions reductions. It would be untenable to identify as the “best system of emission reduction” one that produces an equal or greater quantity of upstream emissions as it reduces at the sources.¹⁶⁶ Accordingly, we support EPA’s proposed standard of performance reflecting the application of co-firing with *low*-greenhouse gas hydrogen. Here, EPA appropriately acknowledges the importance of how hydrogen is produced and the *net* greenhouse gas emission reductions associated with using

¹⁶³ *Id.* at 33,310.

¹⁶⁴ *Id.* at 33,261.

¹⁶⁵ *See Essex Chem. Corp. v. Ruckelshaus*, 486 F.2d at 433.

¹⁶⁶ *See Sierra Club v. Costle*, 657 F.2d at 326 (“[W]e can think of no sensible interpretation of the statutory words ‘best . . . system’ which would not incorporate the amount of air pollution as a relevant factor to be weighed when determining the optimal standard for controlling . . . emissions”); *Portland Cement Ass’n*, 465 F.2d at 385, n.42 (supporting EPA’s holistic consideration of environmental impacts of pollution control equipment and stating that “[t]he standard of the ‘best system’ is comprehensive”).

hydrogen as a fuel. Specifically, EPA determined that “[c]o-firing hydrogen at combustion turbines when that hydrogen is produced with large amounts of GHG emissions would ultimately result in increasing overall GHG emissions, compared to combusting solely natural gas at the combustion turbine.”¹⁶⁷ A standard of performance that allows sources to burn high-greenhouse gas hydrogen to comply with the proposed standard would accordingly not “reflect[] the degree of emission reduction achievable through application of the [BSER].”¹⁶⁸ EPA’s proposal to base the standard of performance on co-firing with low-greenhouse gas hydrogen also represents the reasoned decision-making required by agencies when enacting regulations.¹⁶⁹ Burning high-greenhouse gas hydrogen to meet EPA’s proposed standard would result in an overall increase in greenhouse gas emissions, thereby “ignor[ing] an important aspect of the problem” being addressed by the Proposed Rule: the reduction of greenhouse gas emissions from the intermediate load subcategory’s operations.¹⁷⁰ In that regard, EPA should consider a separate rulemaking under section 111 to determine whether to list hydrogen production as a source category and whether to set standards that limit greenhouse gas emissions from the hydrogen production process.

Even low-greenhouse gas hydrogen co-firing has its drawbacks, including the environmental justice concerns discussed *infra* in Part V, as well as potential inefficiency. Outside those situations where low-greenhouse gas hydrogen production is used as a strategy to store surplus renewable-generated electricity,¹⁷¹ it is plainly more efficient and environmentally sound to use renewable electricity to serve demand in lieu of a combustion turbine rather than produce a co-firing fuel for that turbine. We recognize that the Supreme Court’s decision in *West Virginia v.*

¹⁶⁷ 88 Fed. Reg. at 33,315.

¹⁶⁸ 42 U.S.C. § 7411(a)(1).

¹⁶⁹ See *Motor Vehicles Mfrs. Ass’n v. State Farm Auto Ins Co.*, 463 U.S. 29, 43 (1983) (an agency engaged in reasoned decision making may not ignore “an important aspect of the problem.”).

¹⁷⁰ EPA correctly notes the importance of avoiding upstream methane emissions in lowering the impact of natural gas combustion turbines. Although it is not clear how EPA will factor upstream methane emissions in the context of limiting greenhouse gases from combustion turbines, we support EPA’s consideration and encourage EPA to review the recent studies that illustrate the historical underestimation of the actual levels of methane emissions.

¹⁷¹ 88 Fed. Reg. at 33,306; see Intl. Energy Ass’n, *The Future of Hydrogen*, at 150–65 (June 2019), https://iea.blob.core.windows.net/assets/9e3a3493-b9a6-4b7d-b499-7ca48e357561/The_Future_of_Hydrogen.pdf.

EPA precludes *EPA* from recognizing generation-shifting as the best system of emission reduction, however.¹⁷² And in that light, we agree low-greenhouse gas hydrogen co-firing is the “best” out of the systems *EPA* is legally permitted to consider. But the constrained nature of that exercise is further reason to ensure that states retain flexibility to secure equivalent or greater emission reductions through their innovative policies and strategies, even under the new source performance standards program.

D. *EPA* Should Strengthen its Proposal for New and Existing Base Load Natural Gas Combustion Turbines.

The Attorneys General support *EPA*’s proposal to curb greenhouse gas emissions from base load natural gas electrical generating units but have identified ways to strengthen this proposal, while respecting the important role these sources currently play in supplying power. First, we encourage *EPA* to identify a single system as the *best* system of emission reduction, while preserving viable compliance pathways based on CCS and low-greenhouse gas hydrogen co-firing. Second, we urge *EPA* to expand regulation of existing natural gas-fired combustion turbines in order to protect against climate change and other public health impacts of natural gas combustion.

For new and reconstructed combustion turbines, the base load subcategory consists of natural gas combined cycle units with a capacity factor of more than 50 percent. These units supply electricity to the grid more or less constantly. *EPA* is proposing an approach in which the best system of emission reduction for the base load category has two best system pathways: one that is based on the use of CCS at a capture rate of 90 percent and a separate one based upon co-firing with low-greenhouse gas hydrogen. Similar to the intermediate load subcategory, the associated standard of performance applies in multiple phases.

For these base load combustion turbines, *EPA*’s proposed standard of performance for the first phase—based on highly efficient generation—is 770 lb CO₂/MWh-gross for units with a base load rating of 2,000 MMBtu/h or more, and 770 lb to 900 lb CO₂/MWh-gross for units with a base load rating of less than 2,000 MMBtu/h.¹⁷³ All affected facilities—those that commence construction after the date the Proposed Rule was published in the Federal Register—would have to meet the first phase of the standard of performance based on highly efficient

¹⁷² 142 S. Ct. at 2616.

¹⁷³ 88 Fed. Reg. at 33,244.

generation.¹⁷⁴ At the second phase of the standards, the two pathways emerge. First, for the co-firing with hydrogen pathway, EPA's proposed standard, based on co-firing with 30 percent by volume low-greenhouse gas hydrogen, is 680 lb CO₂/MWh-gross, which affected facilities must meet by 2032.¹⁷⁵ Second, for the CCS pathway, EPA's proposed standard, based on installation of a CCS system that achieves 90 percent capture of greenhouse gas emissions, is 90 lb CO₂/MWh-gross, which affected facilities would have to meet by 2035.¹⁷⁶ Facilities that choose the co-firing with hydrogen pathway have a third phase: by 2038, they must achieve a standard of 90 lb CO₂/MWh-gross, which is based on co-firing with low-greenhouse gas hydrogen at 96 percent.¹⁷⁷

For existing combustion turbines, EPA is proposing to issue emission guidelines only for large units over 300 megawatts with a capacity factor greater than 50 percent.¹⁷⁸ Given the similarities between new and existing base load combustion turbines, EPA is proposing a best system for existing base load natural gas combustion turbines that is the same as the second phase of requirements for new and reconstructed base load combustion turbines. Thus, EPA is proposing emission guidelines that require either that these sources achieve a degree of emission limitation reflecting the utilization of 30 percent by volume low-greenhouse gas hydrogen co-firing by 2032 (increasing to 96 percent in 2038) or the use of a CCS system that achieves 90 percent capture of CO₂ emissions by 2035.¹⁷⁹

- 1. EPA's proposed best system for new and existing base load gas-fired combustion turbines is adequately demonstrated, but EPA should consider finalizing a single best system of emission reduction.**

EPA's proposed first component best system of emission reduction and associated standard of performance for new and reconstructed base load combustion turbines—based on highly efficient generation—is both adequately demonstrated and well supported in the record. EPA has long recognized that combustion turbines can be designed to limit greenhouse gas emission rates through improving heat rate

¹⁷⁴ *Id.*

¹⁷⁵ *Id.* at 33,244–45.

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*

¹⁷⁸ *Id.* at 33,245.

¹⁷⁹ *Id.* at 33,361.

(efficiency) and thereby reducing fuel usage per megawatt hour. A review of recent determinations in the agency's RACT/BACT/LAER online database shows that more than three dozen permits have been issued for baseload gas combustion turbines since 2014 with emission limits below the current new source performance standard of 1,000 lb. CO₂/MWh-gross.¹⁸⁰ These results demonstrate that increased efficiency through design improvements warrant strengthening of the current standard for baseload combustion turbines. Indeed, since 2012, New York has had in place a more stringent performance standard for new and modified combined cycle combustion turbines of 925 lb CO₂/MWh-gross.¹⁸¹

With respect to the second component best system for new and reconstructed base load combustion turbines, as well as the best system for existing base load turbines, we urge EPA to identify one system as the *best* adequately demonstrated system of emission reductions based on EPA's balance of the cost of the reductions, non-air quality health and environmental impacts, and energy requirements.¹⁸² We further urge EPA to identify a single standard of performance—with phased stringency as necessary—based on EPA's determination of that best system of emission reduction. The adequate demonstration of low-greenhouse gas hydrogen is discussed *supra* in Section III.C; below, we discuss CCS's demonstration as a system of emission reduction for base load combustion turbines.

Natural gas-fired combustion turbines can be built and retrofitted with CCS and can play a valuable role in a decarbonized grid by providing clean power when required. Although most CCS projects to date have been at coal-fired steam generating units, the core technology of CO₂ capture applied to combustion turbines is similar to that of coal-fired generating units (both may use amine solvent-based methods).¹⁸³ For example, the Bellingham power plant in Massachusetts was a 40-megawatt combined cycle combustion turbine that operated from 1991–2005 and captured 85–95 percent of CO₂ in the slipstream for use in the food industry.¹⁸⁴ The deployment of CCS at the Bellingham power plant demonstrates that CCS can be successfully applied to combined cycle turbines.

¹⁸⁰ See EPA, RACT/BACT/LAER Clearinghouse, RBLC Greenhouse Gas Search (Utilities, Fossil Fuel Electric Power Generation), <https://cfpub.epa.gov/rblc/index.cfm?action=Results.PermitSearchResults>.

¹⁸¹ 6 N.Y. Comp. Codes R. & Regs. Tit. 6, § 251.3(a)(1).

¹⁸² See 42 U.S.C. § 7411(a)(1); *Sierra Club v. Costle*, 657 F.2d at 326, 330.

¹⁸³ See 88 Fed. Reg. at 33,291.

¹⁸⁴ *Id.* at 33,292.

Along with the Bellingham plant, there are several DOE-funded projects in progress at natural gas combustion turbines in the U.S. that will use carbon capture designed to capture 95–97 percent of CO₂ emissions.¹⁸⁵ In 2022, DOE announced up to \$189 million in funding for integrated Front-End Engineering Design (FEED) studies to support the development of community-informed integrated CCS projects.¹⁸⁶ Recent CCS FEED studies at natural gas combined cycle plants either underway or selected for award negotiations include:

- Duke Energy’s proposed CCS project at an integrated gasification combined cycle facility in Edwardsport, Indiana,¹⁸⁷
- Entergy Services, LLC’s proposed CCS project for the Lake Charles Power Station using post-combustion CO₂ capture technology and a pipeline to transport the captured CO₂ for sequestration,¹⁸⁸
- Taft Carbon Capture, LLC’s proposed carbon capture facility for the existing Taft cogeneration power plant facility in Hahnville, Louisiana,¹⁸⁹
- Tampa Electric Company’s proposed post-combustion CO₂ capture technology with transport and secure geologic sequestration for the existing natural gas combined cycle power plant at the Polk Power Station in Mulberry, Florida,¹⁹⁰
- Elk Hills power plant in Kern County, California,¹⁹¹
- Mustang Station in Texas,¹⁹²
- Southern Company in Mississippi or Alabama,¹⁹³

¹⁸⁵ *Id.* at 33,293.

¹⁸⁶ DOE, “Carbon Capture Demonstration Projects Program FEED Studies Selections for Award Negotiations,” <https://www.energy.gov/oced/carbon-capture-demonstration-projects-program-front-end-engineering-design-feed-studies>.

¹⁸⁷ *Id.*

¹⁸⁸ *Id.*

¹⁸⁹ *Id.*

¹⁹⁰ *Id.*

¹⁹¹ DOE, “FOA 2058: Front-End Engineering Design Studies for Carbon Capture Systems on Coal and Natural Gas Power Plants,” <https://www.energy.gov/fecm/foa-2058-front-end-engineering-design-feed-studies-carbon-capture-systems-coal-and-natural-gas>.

¹⁹² *Id.*

¹⁹³ *Id.*

- Calpine’s Delta Energy Center in California,¹⁹⁴
- Calpine Baytown combined heat and power in Texas,¹⁹⁵
- Calpine Deer Park Energy Center in Texas,¹⁹⁶
- Coyote Energy Center (NET Power) in Colorado,¹⁹⁷
- Broadwing Energy (NET Power) in Illinois,¹⁹⁸ and
- Chevron Eastridge Cogeneration plant in California.¹⁹⁹

Several demonstration CCS natural gas projects further support EPA’s determination that CCS is adequately demonstrated. In July 2023, Calpine Corp. announced the first pilot CCS project in California on a natural gas plant near Los Medanos Energy Center.²⁰⁰ The pilot will use solvent-based technology to reduce CO₂ emissions by more than 95 percent and is expected to be done by mid-August of this year.²⁰¹ Calpine is also assessing CCS projects at the Sutter Energy Center in California and at two natural gas projects in Texas.²⁰² NET Power, LLC, is working to build a utility-scale gas power plant with near zero emissions in Texas’s Ector County,²⁰³ and Competitive Power Ventures Inc. has a planned facility in West

¹⁹⁴ Calpine, “Our CCS Projects,” <https://calpinecarboncapture.com>

¹⁹⁵ *Id.*

¹⁹⁶ *Id.*

¹⁹⁷ Sonal Patel, “8 Rivers Unveils 560 MW of Allam Cycle Gas-Fired Projects for Colorado, Illinois.” *Power* (Apr. 15, 2021), <https://www.powermag.com/8-rivers-unveils-560-mw-of-allam-cycle-gas-fired-projects-for-colorado-illinois/>.

¹⁹⁸ Broadwing Energy, “Broadwing Clean Energy Complex,” <https://broadwing.energy/>.

¹⁹⁹ Chevron, Press Release, “Chevron Launches Carbon Capture and Storage Project in San Joaquin Valley,” (May 18, 2022), <https://chevroncorp.gcs-web.com/news-releases/news-release-details/chevron-launches-carbon-capture-and-storage-project-san-joaquin>.

²⁰⁰ Energywire, “Power Company Eyes First CCS Plant In California, (July 14, 2023) <https://subscriber.politicopro.com/article/eenews/2023/07/14/power-company-eyes-first-gas-ccs-plant-in-california-00106112>.

²⁰¹ *Id.*

²⁰² *Id.*

²⁰³ E&E News, “Texas Company set to build first big CCS gas power plant,” (Apr. 12, 2023), <https://subscriber.politicopro.com/article/eenews/2023/04/12/net-power-and-zachry-group-00091419>.

Virginia.²⁰⁴ Federal funding of CCS natural gas technologies, transport, and sequestration as well as federal policies such as the Inflation Reduction Act's newly expanded tax credit for CCS under Internal Revenue Code section 45Q will further reduce the cost of implementing CCS and will support the deployment of CCS at the national level.

For these reasons, as well as the significant emission reduction achieved by CCS, the reasonable cost of achieving such reduction, and the non-air quality health and environmental impact and energy requirements, the record would support EPA finding that CCS at a capture rate of 90 percent is the best system of emission reduction that has been adequately demonstrated for base load natural gas-fired combustion turbines. However, EPA is correct to note the significant investment in low-greenhouse gas hydrogen as an emission reduction system by industry, states, federal agencies, and Congress,²⁰⁵ which favors preserving low-greenhouse gas hydrogen as a viable compliance pathway even under standards of performance and emission guidelines based on a CCS "best system." To that end, EPA should consider setting a compliance date of 2038 for the 90 lb CO₂/MWh-gross standard of performance, even if it identifies 90 percent CCS as "best," to allow states and utilities that have invested heavily in low-greenhouse gas hydrogen to leverage those investments in compliance. Although this adjustment could sacrifice emission reductions that would otherwise be achieved in 2035-2038, EPA may be able to recoup or surpass any foregone reductions by making the further adjustments we urge below to the coverage of its proposal for existing gas-fired sources.

2. EPA should broaden the Proposed Rule's coverage of existing natural gas-fired sources.

Under the Proposed Rule, EPA is proposing emission guidelines for large (*i.e.*, greater than 300 megawatt), frequently operated (*i.e.*, with a capacity factor of greater than 50 percent), existing gas-fired combustion turbines. The Proposed Rule only covers about 25 percent of the emissions from these sources; therefore, EPA is soliciting comments on whether the capacity factor threshold or capacity threshold should be lowered to cover more existing natural gas-fired turbines. For example, a 40 percent capacity factor and 100 megawatt capacity would cover 75 percent of

²⁰⁴ Energywire, "Climate law spurs CCS at new West Virginia gas plant" (Sept. 19, 2022), <https://subscriber.politicopro.com/article/eenews/2022/09/19/climate-law-spurs-new-west-virginia-gas-plant-with-ccs-00057278>.

²⁰⁵ 88 Fed. Reg. at 33,305–06, 33,312–13.

emissions from existing gas-fired combustion turbines, but may also require substantial infrastructure build out.

Alternatively, EPA stated in its recent supplemental modeling analysis that it is evaluating whether to apply the threshold based on the total capacity of the plant rather than based on the capacity of the unit.²⁰⁶ Based on a recent analysis of this approach, a plant-based CCS standard could increase emissions coverage by over 60 percent while leaving the total number of existing gas-fired plants subject to the proposed emission guidelines essentially unchanged.²⁰⁷

We support EPA's consideration of this issue and recommend that EPA decrease the capacity and capacity factor thresholds to a level that is achievable, taking into account cost and feasibility considerations. We further encourage EPA to continue its evaluation of whether a plant-based standard is appropriate. To the extent greater coverage in the proposed guidelines for existing gas-fired sources is feasible, the additional emission reductions secured will provide crucial mitigation for the climate crisis and promote the objectives of section 111.

IV. EPA'S PROPOSED EMISSION GUIDELINES FOR EXISTING COAL-FIRED PLANTS

The Proposed Rule also contains proposed emission guidelines for states to regulate carbon dioxide pollution from existing coal-fired power plants. EPA's guidelines contain subcategories that would require coal-fired power plants that will operate longer to meet more stringent emission control requirements. Although we support EPA's concept, we urge the agency to consider revising its approach to include more stringent emission limits. Our comments below first cover EPA's proposed subcategory approach. We then turn to the agency's proposed best system of emission reduction and emission limitations for each subcategory.

A. Subcategory Approach

EPA proposes to limit CO₂ emissions from existing coal-fired power plants using a subcategory approach under which plants that operate longer have more stringent emission reduction requirements than those that intend to retire in the near future. EPA explains that, based on information provided by the utility

²⁰⁶ EPA, *Integrated Proposal Modeling and Updated Baseline Analysis* (July 7, 2023), at 5.

²⁰⁷ See Comments of Clean Air Task Force and Natural Resources Defense Council on Proposed Rule (Aug. 8, 2023) at 75-78.

industry regarding planned retirements for economic reasons or other factors, plants set to retire in the near future will not be able to amortize and recoup the costs of installing pollution controls such as CCS.²⁰⁸ Specifically, EPA stated that “industry commenters to the pre-proposal docket noted that many sources have plans to permanently cease operations in the coming years, and that GHG control technologies might not be cost reasonable for those units operating on shorter timeframes.”²⁰⁹ That information in turn informed the agency’s consideration of the cost factor in determining the best system of emission reduction. EPA found that over one-third of existing coal-fired generating capacity plans to cease operation by 2032, and approximately half of the capacity will cease operations by 2040.²¹⁰ EPA further found that many coal-fired generating units “are part of utilities with commitments to net zero power by certain dates, or are in States or localities with commitments to net zero power by certain dates.”²¹¹

Based on this industry input, EPA has devised four subcategories: (1) long-term electricity generating units (those that intend to operate beyond January 1, 2040); (2) medium-term electricity generating units (those that operate after December 31, 2031 and will cease operations prior to January 1, 2040); (3) near-term electricity generating units (those that will retire prior to January 1, 2035 and adopt an annual capacity factor limit of 20 percent); and (4) imminent-term electricity generating units (those that will cease operation prior to January 1, 2032).²¹² We generally support EPA’s subcategory approach, although suggest some revisions that would result in greater emission reductions.

EPA has broad authority under section 111(d) to identify subcategories, including on grounds of cost.²¹³ Here, EPA reasons that in light of the announced plans of many coal-fired power plants to cease operations in the near future, “[s]ubcategorizing on the basis of operating horizon is . . . relevant for determining

²⁰⁸ 88 Fed. Reg. at 33,345.

²⁰⁹ *Id.* at 33,343.

²¹⁰ *Id.*

²¹¹ *Id.*

²¹² *Id.* at 33,334.

²¹³ See 42 U.S.C. § 7411(d); 40 § C.F.R. 60.22a(b)(5); *Northeast Maryland Waste Disposal v. EPA*, 358 F.3d 936, 947 (D.C. Cir. 2004) (noting, in upholding subcategorization of waste combustors by plant capacity, “the dictionary definition [of ‘class’] — ‘a group, set, or kind marked by common attributes’ — could hardly be more flexible” (quoting Webster’s 3d New Int’l Dict. 416 (1976))).

the cost reasonableness of control requirements.”²¹⁴ This is because “[w]hether the costs of control are reasonable depends in part on the period of time over which the affected sources can amortize those costs.”²¹⁵ In other words, for generating units with shorter operating horizons, “controls will [] be less cost-effective and therefore may not qualify as the [best system].”²¹⁶

While acknowledging some overlap between (largely) basing subcategories on source operating horizons and the ability of states to consider remaining useful life in establishing emission standards for particular sources, EPA explains that the two roles are distinct: EPA’s role is to determine a generally applicable best system of emission reduction for a source category and, as appropriate, for subcategories, based on different classes, types, or sizes of sources.²¹⁷ By contrast, a state’s authority to invoke remaining useful life is premised on the state’s ability “to take into account the characteristics of a particular source that may differ from the assumptions EPA made in determining the best system generally.”²¹⁸ For example, a state with a coal-fired generating unit scheduled for retirement at the end of 2035 that also would have a difficult time securing natural gas at its location could make a credible argument for a less stringent emission standard than the corresponding emission limitation EPA has proposed based on 40 percent co-firing with natural gas. We concur that EPA has indeed left room for states to apply the remaining useful life factor in determining emission standards for particular electric generating units.

With respect to imminent-term subcategory (units that retire prior to January 1, 2032), EPA seeks comment on whether to instead merge these units into the near-term subcategory. As we understand this concept, units that would have otherwise retired by the end of 2031—but with no restrictions on capacity, just on increasing their emission rate—would be allowed to operate a bit longer (until the end of 2034) provided that they agree to an annual capacity factor limit of 20 percent.²¹⁹ Although we take no position on this alternative, we urge EPA to consider the relative public health impacts of the two approaches, especially given

²¹⁴ 88 Fed. Reg. at 33,345.

²¹⁵ *Id.*

²¹⁶ *Id.*

²¹⁷ *Id.*

²¹⁸ *Id.*

²¹⁹ *Id.* at 33,344.

EPA’s finding that at least some of these units are located in underserved communities.²²⁰

B. Best System of Emission Reduction and Emission Limitation

1. Long-term electricity generating units

For long-term electricity generating units, EPA determined the best system of emission reduction to be carbon capture and sequestration and is proposing an emission limitation of 90 percent capture of CO₂, the equivalent of an 88.4 percent reduction in emission rate. EPA’s determination is well supported. The record shows that the technology is adequately demonstrated, achieves substantial emission reductions, and is cost-effective.

Adequately Demonstrated

As discussed above, a technology is adequately demonstrated if it has been shown to work in practice at a representative plant in the source category or in a similar industry. CCS readily meets this test.

Eight years ago, when EPA determined that the best system of emission reduction for new coal-fired power plants was partial CCS, the agency found that each of the three main components of CCS—capture, transport, and sequestration—was adequately demonstrated.²²¹ When EPA proposed to weaken the 2015 rule by, among other things, reversing its finding that CCS was adequately demonstrated, many of our offices submitted comments in opposition.²²² At that time, we noted several reasons why EPA’s original finding of adequate demonstration was well founded:

- EPA’s determination was based on a large body of evidence, including the agency’s finding that the Boundary Dam project in Saskatchewan was a “commercial-scale fully integrated post combustion CCS project at a coal-fired power plant,” as well as evidence of numerous smaller scale projects at coal-fired plants that could be successfully scaled up.²²³

²²⁰ *See id.* at 33,413; RIA ch. 6.

²²¹ *See* 80 Fed. Reg. 64,510, 64,548–73 (Oct. 23, 2015).

²²² A copy of those comments (2019 Multistate Comments) is attached hereto.

²²³ 2019 Multistate Comments at 37–38 (citing 79 Fed. Reg. at 64,548–58).

- The evidence in the record for CCS being adequately demonstrated was stronger than for other technologies previously found to be the best system by EPA and upheld by the courts.²²⁴
- A majority of states had enacted laws or regulations to support and promote the use of CCS, further supporting a finding of adequate demonstration.²²⁵

During the Trump Administration, EPA decided against finalizing its proposed reversal of its finding that CCS has been adequately demonstrated as a pollution control at new coal-fired power plants. That finding—and EPA’s performance standard for new coal-fired power plants based on partial CCS—has therefore been in place for eight years.²²⁶

EPA’s determination in the Proposed Rule that CCS is the best system of emission reduction for existing coal-fired power plants therefore begins from a solid foundation. And as EPA discusses in the preamble to the Proposed Rule, the three main components of CCS—capture, transport, and sequestration—are adequately demonstrated for existing coal-fired units.

With respect to CO₂ capture, SaskPower’s Boundary Dam Unit 3, the electric generating unit that EPA significantly relied on in finding in 2015 that this approach was adequately demonstrated for new coal-fired plants, was an *existing* unit that was retrofitted with carbon capture pollution controls. Consistent with its previous finding, EPA notes in the proposed rule that Boundary Dam Unit 3 has continued to achieve capture rates of 90 percent of the CO₂ in flue gas using solvent-based post-combustion control.²²⁷ Carbon capture has also been used successfully at a smaller scale for multiple years at several other coal-fired plants, including AES Warrior Run in Maryland and Shady Point in Oklahoma. EPA also cites carbon capture in use at other industrial process facilities, including the Searles Valley Minerals soda ash plant in California and the Quest steam methane reformer facility in Alberta. In addition, EPA references DOE-funded projects at two coal-fired power plants (Petra Nova in Texas and Plant Barry in Alabama) that operated

²²⁴ 2019 Multistate Comments at 39–40 (citing EPA standards upheld in *Sierra Club v. Costle*, *Lignite Energy Council v. EPA*, and *Essex Chem. Corp. v. Ruckelshaus* with less robust record evidence than for CCS).

²²⁵ 2019 Multistate Comments at 49–51 and Appendix B (attached hereto).

²²⁶ Although a group of states and industry challenged the 2015 NSPS, the litigation has been in abeyance since 2017. *North Dakota v. EPA* (D.C. Cir. No. 15-1381).

²²⁷ 88 Fed. Reg. at 33,291, 33,346.

for several years and achieved 90 percent or better capture rates.²²⁸ EPA also cites the successful carbon capture at natural gas combustion turbines, which as detailed above (*supra* section III.D.1.), use similar core technology as coal-fired generating units.²²⁹ Finally, EPA projects that even without the proposed rule, 9 gigawatts of coal-fired steam generating units would apply CCS by 2030.²³⁰

Likewise, the transport of CO₂ is adequately demonstrated, as EPA found in 2015. CO₂ has been transported in the U.S. by pipeline for 60 years, and there are currently more than 5,000 miles of CO₂ pipeline in operation as of 2021.²³¹ In addition, EPA notes that there are several new major pipeline projects or expansions in progress, including two in the Midwest and Great Plains that would add another 3,300 miles of pipeline infrastructure in the next few years. Based on an analysis by the Department of Energy, 77 percent of existing coal-fired electric generating units that have planned operations during or after 2030 are within 50 miles of potential saline sequestration sites, and another 5 percent are within 62 miles (100 kilometers) of sequestration sites.²³²

Regarding sequestration, the evidence further supports EPA's finding in 2015 that sequestration is adequately demonstrated for coal-fired power plants. First, the effectiveness of the long-term trapping of CO₂ has been demonstrated in geologic formations such as the Jackson Dome in Mississippi, the Bravo Dome in New Mexico, and the McElmo Dome in Colorado, in which large volumes of CO₂ have been trapped for millions of years.²³³ Second, EPA cites the Department of Energy's Regional Carbon Sequestration Partnerships, which have demonstrated geologic sequestration through a series of field research projects that increased in scale over time, injecting more than 11 million tons of CO₂ with no indications of negative impacts to human health or the environment. DOE's Carbon Storage Assurance Facility Enterprise (CarbonSAFE) is demonstrating how knowledge from the field research can be applied to commercial-scale storage. Third, there are numerous additional saline facilities under development across the U.S. As evidence, EPA is currently reviewing Underground Injection Control Class VI geologic sequestration

²²⁸ *Id.* at 33,293.

²²⁹ *Id.* at 33,292–93.

²³⁰ *Id.* at 33,346.

²³¹ *Id.* at 33,293–94.

²³² *Id.* at 33,294.

²³³ *Id.* at 33,295.

well permit applications for proposed sequestration sites in at least seven states. Fourth, geologic sequestration has been proven to be successful in projects internationally. For example, EPA notes that in Norway, facilities have conducted offshore sequestration under the Norwegian continental shelf for over 20 years.

EPA also found that nearly all existing coal-fired generating units have access to geologic sequestration sites. Specifically, of the coal-fired generating units with planned operation during or after 2030, 90 percent are located within 100 kilometers of any of the considered formations, including deep saline, unmineable coal seams, and oil and gas reservoirs.²³⁴

In addition, states have continued to enact laws and regulations premised on the assumption that CCS is an adequately demonstrated method of reducing carbon emissions at coal-fired power plants. These are in addition to the voluminous state laws and regulations detailed in our 2019 comments. For example:

- In 2020, Wyoming passed a law requiring that at least 20 percent of an electric utility’s portfolio be made up of coal-fired power plants equipped with carbon capture and storage technology by 2030.²³⁵
- In 2021, Kansas enacted a law that provides that the State Corporation Commission shall establish requirements, procedures, and standards for the safe and secure injection of carbon dioxide and maintenance of underground storage of carbon dioxide.²³⁶
- In 2022, Indiana enacted a law (H.R. 1209) that creates permitting and regulatory processes for underground CO₂ storage, outlines CO₂ injection rights, and provides a process by which the state would assume the responsibility and associated liability for stored CO₂ following a CCS project’s completion.²³⁷
- Also in 2022, Kentucky enacted legislation to promote CCS, and declared in its findings that the “development and deployment of carbon capture and storage technology in the Commonwealth will allow industries to utilize

²³⁴ *Id.* at 33,347.

²³⁵ Wyo. Stat. Ann. §§ 37-18-101 & 102 (2020).

²³⁶ KS Stat § 55-1637 (2021).

²³⁷ Ind. Code Ann. §§ 14-39-1-1 et seq. (2022).

diverse fuel sources, create jobs, contribute to state and local tax bases, and enable Kentucky industries to remain competitive in the global economy.”²³⁸

Best System of Emission Reduction Determination

EPA has also reasonably explained its determination that CCS constitutes the best system of emission reduction for long-term coal-fired electric generating units. Below we provide comments on certain aspects of this determination:

Cost. In determining that long-term existing coal-fired power plants can cost-effectively use CCS, EPA examined the combined costs of capture, transport, and storage. Factoring in the tax credits available as a result of the Inflation Reduction Act, the agency determined that for units with 50 percent capacity factor and 10-year amortization period, the dollar per megawatt hour (\$/MWh) costs of reduction are comparable to or less than the costs for controls in analogous rulemakings (\$10.60–\$29/MWh), such as the costs to purchase scrubbers to comply with the 2011 Cross-State Air Pollution Rule or to purchase SCR to comply with the 2023 Good Neighbor rule.²³⁹ We agree that this is one appropriate metric that the agency can consider in evaluating the cost criterion, and therefore supports a finding of CCS as the best system here. EPA also evaluated units with 70 percent capacity factor—a scenario that the agency found reasonable given that increases in utilization are likely at units that apply CCS due to the incentives provided in the section 45Q tax credit—and found compliance costs to be relatively less.²⁴⁰ The agency even found that there could be *negative* costs for units with a 70 percent capacity factor; these negative costs “indicate that the value of the 45Q tax credit more than offsets the costs to install and operate CCS.”²⁴¹ EPA therefore has demonstrated that long-term existing coal-fired power plants can install CCS at reasonable cost.

Level of Pollution Reduction. Addressing one of its failures in the ACE rule (discussed in Point II, *supra*), EPA has appropriately evaluated the extent of the reduction in CO₂ emissions in making its best system determination. The agency notes that 90 percent capture will result in emission rates that are 88.4 percent lower on a pound per megawatt hour gross basis compared to units without

²³⁸ Ky. Rev. Stat. 353.802 (2022).

²³⁹ 88 Fed. Reg. at 33,301, 33,348.

²⁴⁰ *Id.* at 33,348.

²⁴¹ *Id.*

capture.²⁴² By contrast, natural gas co-firing at 40 percent would only yield emission rate reductions of about 16 percent, “far fewer emission reductions [and] without improving the cost effectiveness of the control strategy.”²⁴³ And, as discussed above, in the context of explaining its reasons for repealing the ACE rule, EPA discusses how heat rate improvements—the ACE rule’s best system—achieve little, if any, pollution reductions.²⁴⁴ In sum, the level of pollution reduction factor weighs heavily in support of finding CCS to be the best system for existing coal-fired electric generating units.

Energy Requirements. EPA evaluated an emission limit based on CCS with 90 percent capture on grid reliability and determined that “there would be no unreasonable impacts on the reliability of electricity generation.”²⁴⁵ The agency concluded that the time available before the compliance deadline of January 1, 2030, provides for adequate resource planning, including accounting for the downtime necessary to install the CO₂ capture equipment at long-term coal-fired electric generating units.

In addition to EPA’s careful evaluation, in our experience compliance with federal air pollution requirements does not cause problems with grid reliability. States work with the federal government to ensure that sufficient generation resources are available over the near and long term. In the scenario where unforeseen circumstances result in a generating unit scheduled for retirement being needed to temporarily address a reliability need, state and federal agencies along with grid operators work to make sure the lights stay on.²⁴⁶ And both EPA and state

²⁴² *Id.* at 33,350.

²⁴³ *Id.* at 33,351.

²⁴⁴ *Id.* at 33,336–37.

²⁴⁵ *Id.* at 33,349.

²⁴⁶ 16 U.S.C. § 824a(c)(1)–(3) (authorizing the U.S. Department of Energy to declare an emergency due to shortage of electricity or electric generating facilities and to require generation of electricity to address the emergency); U.S. Department of Energy, Order No. 202-21-2 (Sept. 10, 2021) (order declaring an emergency pursuant to 16 U.S.C. § 824a(c) at the request of a grid operator and authorizing dispatch from certain generating units); <https://www.energy.gov/sites/default/files/2021-09/EXEC-2021-005025%20-%20Order%20202-21-2%20-%20signed%209-10-21.pdf>; PJM, What Happens When an Owner Wants to Close Its Power Plant? (describing grid operator’s use of temporary “reliability must run” contracts to provide for temporary continued operation of plant planning to close if there is a reliability issue), <https://insidelines.pjm.com/what-happens-when-an-owner-wants-to-close-its-power-plant/>; M. McVety, “Indian River Power Plant

enforcement officials can properly exercise enforcement discretion to account for noncompliance in such situations.²⁴⁷ Moreover, given the long lead times for compliance under the Proposed Rule, there is ample opportunity for grid operators and state and federal agencies to evaluate and take action to prevent any potential future reliability issues well in advance.

On the flip side of the coin, climate change is hampering our efforts to ensure grid reliability.²⁴⁸ The grids in our states are increasingly being jeopardized by extreme weather events, which are expected to only increase in severity unless we take prompt action to limit greenhouse gas emissions.

Advancement of Technology. As an additional factor supporting CCS as the best system, EPA states that “designating CCS as the [best system of emission reduction] will provide for meaningful advancement of CCS technology.”²⁴⁹ It is well established that in establishing performance standards, EPA may incentivize the further development of pollution control technologies. For example, in the litigation over EPA’s 1979 performance standards for new coal-fired power plants, the D.C.

shutdown delayed for 4 years. Why your electric bill will rise?,” Delaware online (Aug. 3, 2022), <https://www.delawareonline.com/story/news/local/2022/08/03/coal-powered-indian-river-power-plant-shutdown-delayed/65384383007/> (example of reliability-must-run situation).

²⁴⁷ EPA, “EPA Exercises Enforcement Discretion for All Power Plants in Florida,” (Sept. 11, 2017) (authorizing operation of power plants without meeting all pollution requirement to maintain supply of electricity); 16 U.S.C. § 824a(c)(1)–(3) (declaring that any noncompliance with federal, state or local environmental laws or regulations resulting from emergency orders is not a violation of such laws or regulations and is not subject to civil or criminal liability); Dept. of Energy, Order No. 202-21-1 at 1–3 (Feb. 14, 2021) (order declaring an emergency pursuant to 16 U.S.C. § 824a(c) and authorizing dispatch from certain generating units notwithstanding possible exceedance of air pollutant emission limits), <https://www.energy.gov/sites/prod/files/2021/02/f82/DOE%20202%28c%29%20Emergency%20Order%20-%20ERCOT%2002.14.2021.pdf>; Texas Comm’n on Env’tl. Quality, Winter Storm Elliot (noting that agency approved grid operator requests for enforcement discretion to ensure grid reliability), <https://www.tceq.texas.gov/response/winter-storms/winter-storm-elliott>.

²⁴⁸ See, e.g., U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Volume II*, at 179–183 (D.J. Wuebbles, et al., eds., 2017).

²⁴⁹ 88 Fed. Reg. at 33,350; see also *id.* at 33,303 (“[A] determination that a component of the BSER for new base load stationary combustion turbines (and long term coal-fired steam generating units) is the use of CCS will also likely incentivize the deployment of alternative CO₂ capture techniques at scale.”).

Circuit observed that section 111(a)(1)'s "mandated balancing of cost, energy, and nonair quality health and environmental factors embraces consideration of technological innovation as part of that balance."²⁵⁰ In upholding the performance standards for sulfur dioxide, the court rejected the argument that the statute's "adequately demonstrated" language precluded EPA from considering the objective of advancing pollution control technology. "Recognizing that the Clean Air Act is a technology-forcing statute," the D.C. Circuit cited EPA's "authority to hold the industry to a standard of improved design and operational advances, so long as there is substantial evidence that such improvements are feasible and will produce the improved performance necessary to meet the standard."²⁵¹

Given that the statute's definition of standard of performance in section 111(a)(1) likewise applies to section 111(d), the D.C. Circuit's reasoning that EPA may consider technological innovation logically extends to emission guidelines for existing sources. Similarly, the Third Circuit Court of Appeals recently held that the Act's Reasonably Available Control Technology (RACT) requirement under section 172(c)(1) of the Act, which applies to existing sources, "is a technology-forcing standard designed to induce improvements and reductions in pollution for existing sources."²⁵²

Finally, EPA's best system CCS determination is squarely within the four corners of *West Virginia v. EPA*. Carbon capture pollution controls are in the mode of traditional technologies such as scrubbers and selective catalytic reduction installed on the plant to capture pollutants on site. It therefore fits within the types of the previous section 111 rules the Supreme Court cited with approval, *i.e.*, those

²⁵⁰ *Sierra Club v. Costle*, 657 F.2d at 346.

²⁵¹ *Id.* at 364. *see also Portland Cement Ass'n v. Ruckelshaus*, 486 F.2d at 391 ("Section 111 looks toward what may fairly be projected for the regulated future, rather than the state of the art at present."); *Wisconsin Elec. Power v. Reilly*, 893 F.2d 901, 909 (7th Cir. 1990) ("Standards of performance should provide an incentive for industries to work toward constant improvement in techniques for preventing and controlling emissions from stationary sources.") (quoting S. Rep. No. 91-1196, 91st Cong., 2d Sess. 17 (1970)); *cf. National Petrochemical & Refiners Ass'n v. EPA*, 287 F.3d 1130, 1144 (D.C. Cir. 2002) (upholding EPA's adoption of a technology-forcing standard for diesel engines, reasoning that "[i]n the absence of theoretical objections to the technology, the agency need only identify the major steps necessary for development of the device, and give plausible reasons for its belief that the industry will be able to solve those problems in the time remaining.").

²⁵² *Sierra Club v. EPA*, 972 F.3d 290, 294 (3d Cir. 2020); *see also id.* at 295 ("RACT is not designed to rubber-stamp existing control methods. It is a technology-forcing mechanism.").

“based on measures that would reduce pollution by causing plants to operate more cleanly.”²⁵³ The Court also made clear that it is well within EPA’s authority to establish a pollution reduction rule under section 111(d) that “caus[es] an incidental loss of coal market’s share.”²⁵⁴ And the record here shows that the Proposed Rule’s impacts on coal-fired generation would be relatively minor compared to those already anticipated as a result of the Inflation Reduction Act and market forces.²⁵⁵

Emission Limitation

EPA has also shown that the emission limitation for long-term coal-fired generating units is achievable. As discussed above, the Boundary Dam coal-fired power plant has demonstrated capture rates of 90 percent of the CO₂ in flue gas using solvent-based post-combustion capture retrofitted to existing coal-fired steam generating units.²⁵⁶ A feasibility study for SaskPower’s Shand Power Station, a coal-fired plant, indicated achievable capture rates of 97 percent, even at lower loads.²⁵⁷ The Petra Nova (Texas) and Plant Barry (Alabama) coal-fired power plants also have demonstrated capture rates of 90 percent or better.²⁵⁸ As further evidence, EPA cited natural gas combustion turbines that have either captured or have been designed to capture 90–97 percent of CO₂.²⁵⁹

2. Medium-term electricity generating units

The agency has determined that co-firing natural gas at the level of 40 percent of annual heat input is the best system of emission reduction for medium-term coal-fired electricity generating units, *i.e.*, those that intend to operate beyond January 1, 2035, and commit to retire before January 1, 2040.²⁶⁰ The level of emission limitation using this approach is a 16 percent reduction in emission rate on a pound of CO₂ per megawatt hour gross basis. We concur with

²⁵³ 142 S. Ct. at 2599; *see also id.* at 2611 (distinguishing the Clean Power Plan’s generation-shifting approach from previous section 111 rules that “focus[ed] on improving the performance of individual sources”).

²⁵⁴ *Id.* at 2613 n.4.

²⁵⁵ *See* Section I.G, *supra*.

²⁵⁶ 88 Fed. Reg. at 33,346.

²⁵⁷ *Id.* at 33,291.

²⁵⁸ *Id.* at 33,293.

²⁵⁹ *See id.*

²⁶⁰ *Id.* at 33,351.

EPA’s best system determination for medium-term units, which is well supported by the evidence in the record.

Relatedly, we urge EPA to reduce the size of this subcategory by changing the relevant end date for medium-term units (*i.e.*, beginning date for long-term units) from January 1, 2040, to January 1, 2038—a change that—in light of the substantially greater emission reductions that CCS can achieve compared to co-firing with natural gas—could result in significant additional carbon pollution reductions. Such a revision is also economically justified. EPA’s cost analysis shows that using an 8-year amortization period (which would equate with a January 1, 2038, cutoff date for the medium-term subcategory) would still have dollar per megawatt hour costs within the \$10.60–\$29/MWh range of previous EPA rules the agency cites.²⁶¹ Moreover, the costs of compliance with prior EPA power plant rules is only one metric in adjudging cost reasonableness. Under D.C. Circuit caselaw, the best system of emission reduction need not be cost effective; it need only be not “exorbitantly costly” to industry.²⁶² In previous air pollution rules for the power sector, for example, EPA has considered other cost metrics, such as the cost of compliance as a percentage of the power sector’s historical revenue, expenditures, and rate changes.²⁶³ Moreover, EPA could cite the social costs of greenhouse gases as an additional basis for justifying more stringent requirements.²⁶⁴ Thus, there are ample grounds to find an 8-year amortization period cost reasonable, justifying revising the end date for the medium-unit subcategory to January 1, 2038.

3. Near-term and imminent-term electric generating units

EPA has determined the best system for near-term and imminent-term electric generating units to be routine methods of maintenance and operation.²⁶⁵ The emission limitation would be no increase in the emission rate (on a lb

²⁶¹ See 88 Fed. Reg. at 33,348 (estimating costs of \$24/ton of CO₂ reduced and \$21/MWh and noting that the cost of generation may be reasonable relative to the representative cost for a wet scrubber to control SO₂).

²⁶² See *Essex Chem. Corp.*, 486 F.2d at 433.

²⁶³ See 81 Fed. Reg. 24,420 (Apr. 25, 2016) (supplemental cost finding for Mercury and Air Toxics Standards).

²⁶⁴ See 88 Fed. Reg. at 33,412, 33,416 tbl. 10 (explaining that the climate benefits alone of the Proposed Rule are more than twice the compliance costs, and seven times more if human health benefits are added); RIA, ch. 7. In addition, as discussed in **Appendix 3** (attached hereto), EPA has omitted some key climate benefits; therefore the agency’s analysis understates the benefits of reducing power plant carbon emissions.

²⁶⁵ 88 Fed. Reg. at 33,356.

CO₂/MWh-gross basis) from baseline levels. EPA is taking comment on whether, alternatively, the best system for these units is low levels of natural gas co-firing. EPA found that “[f]or moderate increases in natural gas co-firing, units with existing gas ignitors may be able to increase the gas use at those ignitors at a capital cost of roughly less than \$2/kW.”²⁶⁶ The agency further noted that units may be able to convert existing oil ignitors to gas ignitors for approximately the same cost. For both of these types of units, “[t]hese small modifications could likely achieve co-firing levels of up to 20 percent of heat input.”²⁶⁷ In light of EPA’s finding that it would be very inexpensive for these units to be modified to be able to co-fire small amounts of natural gas and given EPA’s determination in the context of medium-term units that co-firing with natural gas meets the other best system criteria, EPA should further consider this approach if it is likely to result in significant additional emission reductions compared to the current proposed approach.

V. ENVIRONMENTAL JUSTICE

A. EPA Must Conduct a More Comprehensive Cumulative Impact Analysis of its Final Rule.

We commend EPA for undertaking an Environmental Justice Impacts analysis for the Proposed Rule, but urge EPA to strengthen the Proposed Rule by expanding the scope of that analysis to more fully understand cumulative health and environmental impacts of the Proposed Rule on underserved communities.

1. EPA is required to conduct a comprehensive cumulative impact assessment including nonair quality health and environmental impacts of its Proposed Rule.

EPA is required to consider “any nonair quality health and environmental impacts” in determining the best system of emission reduction under section 111.²⁶⁸ Indeed, even before that language was added to the statute, the D.C. Circuit recognized that “section 111. . . properly construed, requires the functional

²⁶⁶ EPA, *Greenhouse Gas Mitigation Measures for Steam Generating Units: Technical Support Document* at 10 (May 23, 2023).

²⁶⁷ *Id.*

²⁶⁸ 42 U.S.C. § 7411(a)(1).

equivalent of a [National Environmental Policy Act (NEPA)] impact statement.”²⁶⁹ More specifically, EPA must “accompany a proposed standard with a statement of reasons that sets forth the environmental considerations, pro and con which have been taken into account.”²⁷⁰

Thus, as is required under NEPA, in determining the best system of emission reduction, EPA must analyze the environmental, public health, and economic effects on underserved communities, including “public health data and industry data concerning the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population and historical patterns of exposure to environmental hazards.”²⁷¹ In this analysis, “the distribution as well as the magnitude of the disproportionate impacts in these communities should be a factor in determining the environmental preferable alternative.”²⁷² Furthermore, “agencies should elicit the views of the affected populations on measures to mitigate a disproportionately high and adverse human health or environmental effect.”²⁷³ And, consistent with the section 111’s language and D.C. Circuit precedent, CEQ’s guidance provides that where an agency is implementing a statute that requires the “functional equivalent” of a NEPA analysis and the proposed action may disproportionately impact overburdened communities, the agency “should fully develop and consider alternatives to the proposed action whenever possible, as would be required by NEPA.”²⁷⁴

As EPA recognizes, numerous executive orders also oblige EPA to conduct a comprehensive analysis of, and work to mitigate, the cumulative effects of its Proposed Rule.²⁷⁵ For example, Executive Order 14096 expressly requires federal agencies to identify and address “disproportionate and adverse human health and

²⁶⁹ *Portland Cement Ass’n*, 486 F.2d at 384; *Sierra Club v. Costle*, 657 F.2d at 331 (recognizing “Congress made no attempt to cut back on EPA’s ability to apply the new terms broadly” with 1977 addition of requirement to consider “any nonair quality health and environmental impacts” in Section 111(a)(1)).

²⁷⁰ *Portland Cement Ass’n*, 486 F.2d at 385; see also *Essex Chem. Corp.*, 486 F.2d at 431 (section 111 implicitly requires a NEPA-type analysis).

²⁷¹ Council on Environmental Quality (CEQ), Environmental Justice Guidance Under the National Environmental Policy Act at 9 (Dec. 10, 1997). CEQ has oversight of the federal government’s compliance with E.O. 12898 and NEPA. *Id.* at 1.

²⁷² *Id.* at 15.

²⁷³ *Id.* at 16.

²⁷⁴ *Id.* at 17.

²⁷⁵ RIA at 6-1.

environmental effects (including risks)” including the cumulative impacts and effects related to climate change.²⁷⁶ Executive Order 14008 also directs federal agencies to “secure environmental justice and spur economic opportunity for disadvantaged communities that have been historically marginalized and overburdened by pollution and underinvestment” and “to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities.”²⁷⁷ And other Executive Orders similarly require assessment of cumulative impacts on underserved communities and communities experiencing environmental injustice, and affirmative work toward equity and environmental justice in agency actions.²⁷⁸

2. EPA should expand its Environmental Justice Impacts analysis to more fully assess the environmental justice and cumulative impacts of the Proposed Rule.

In chapter 6 of its Regulatory Impact Analysis, EPA conducted an assessment of Environmental Justice Impacts of the Proposed Rule that analyzes multiple important impacts on underserved communities. EPA’s Environmental Justice Impacts analysis is an important first step in understanding potentially disparate impacts of the Proposed Rule. But it presently considers an unduly narrow range of impacts. Accordingly, to strengthen the Proposed Rule we urge

²⁷⁶ 88 Fed. Reg. 25,251, 25,253 (Apr. 26, 2023).

²⁷⁷ 86 Fed. Reg. 7619, 7629 (Feb. 1, 2021).

²⁷⁸ *See, e.g.*, Exec. Order No. 13,985, 86 Fed. Reg. 7009 (Jan. 25, 2021) (directing all federal agencies to “work to redress inequities in their policies and programs that serve as barriers to equal opportunity”); Exec. Order No. 13,990, 86 Fed. Reg. 7037 (Jan. 25, 2021) (directing all executive departments and agencies to address any actions that conflict with goals of reducing greenhouse gas emissions and prioritizing environmental justice, among other national objectives); Exec. Order No. 13,563, 76 Fed. Reg. 3821 (Jan. 21, 2011) (directing that agencies select regulatory approaches that maximize net benefits including “distributive impacts[] and equity” and “[w]here appropriate and permitted by law, each agency may consider (and discuss qualitatively) values that are difficult or impossible to quantify, including equity . . . and distributive impacts.”); Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 16, 1994) (directing each federal agency to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations,” including “multiple and cumulative exposures”); Exec. Order No. 12,866, 51 Fed. Reg. 51,735 (Oct. 4, 1993) (ordering agencies to consider “distributive impacts[] and equity” in designing regulations); *cf.* Exec. Order on Modernizing Regulatory Review (Apr. 6, 2023) (requiring Office of Management and Budget “to recognize distributive impacts and equity, to the extent permitted by law”).

EPA to more comprehensively assess environmental justice and distributive impacts of the Proposed Rule.

EPA's current Environmental Justice Impacts analysis should be enhanced in several important respects. As an initial matter, it is unclear how EPA's updated modeling, released July 7, 2023, would alter EPA's Environmental Justice Impacts analysis. EPA should update its analysis to reflect the latest modeling.

Additionally, to comply with its statutory obligation to take into account "any nonair quality health and environmental impact" in identifying the best system of emission reduction, EPA must analyze the extent to which its chosen best system would extend the life of fossil-fueled units or require installation of infrastructure that poses additional risks to surrounding communities, as compared to the baseline and alternative best systems.²⁷⁹ EPA acknowledges these concerns,²⁸⁰ but does not fully analyze the actual impact of those realities. Instead, EPA indicates that such impacts *may* be assessed in future rulemakings or potential permitting processes.²⁸¹ If EPA expects its Proposed Rule to increase deployment of CCS and hydrogen technologies, however, EPA should incorporate information regarding resulting health and environmental impacts into its Environmental Justice Impacts analysis and work to reduce any identified disparities in adopting new source performance standards and require states to do the same in state plans governing existing sources.²⁸²

Additionally, EPA's proximity analysis only assesses impacts of existing coal units greater than 25 megawatts and does not assess proximity of underserved

²⁷⁹ 42 U.S.C. § 7411(a)(1); CEQ Environmental Justice Guidance at 17 (agencies must "fully develop and consider alternatives to the proposed action whenever possible, as would be required by NEPA").

²⁸⁰ See, e.g., EPA, *Fact Sheet for Communities with Environmental Justice Concerns: Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants Proposed Rule* at 4 ("[o]ne concern is that adding CCS to EGUs can extend the life of an existing coal-fired steam generating unit, subjecting local residents who have already been negatively impacted by the operation of the coal-fired steam generating unit to additional harmful pollution. Communities have also expressed concerns about CO₂ pipeline safety and geologic sequestration.").

²⁸¹ See, e.g., *id.* at 5.

²⁸² See *Portland Cement*, 486 F.2d at 386 ("[t]o the extent that EPA is aware of significant adverse environmental consequences of its proposal, good faith requires appropriate reference in its reasons for the proposal and its underlying balancing analysis.").

populations to existing natural gas-fired units.²⁸³ While the stack emissions impacts of gas-fired units may be more moderate, EPA should nonetheless evaluate the units' proximity to underserved populations. Indeed, such analysis is particularly important if EPA is, as it claims,²⁸⁴ employing the proximity analysis as a proxy for disproportionate impacts like noise, odors, and traffic—impacts that may not be meaningfully different as between coal- and gas-fired units. Further, as EPA acknowledges,²⁸⁵ its pollutant-specific analysis only involves potential impacts from longer-term PM_{2.5} and ozone exposures and does not assess shorter-term exposures, which are known to be harmful particularly to those suffering from acute respiratory disease.²⁸⁶ EPA should supplement its analysis with modeling of short-term exposures expected to recur as a result of the Proposed Rule.

Finally, EPA should expand the scope of its Environmental Justice Impacts analysis to include additional relevant indicators in both the proximity and pollutant-specific analyses, as well as conduct additional criteria pollutant modeling and risk characterization, to fully understand the disproportionate burdens impacted communities already face and the cumulative impact of the Proposed Rule in light of such burdens. And EPA should also require that states conduct similarly robust cumulative impact analyses for state plans covering existing sources. Several states have incorporated or proposed more comprehensive factors and assessment in cumulative impact analyses. For example, Massachusetts recently proposed regulations²⁸⁷ pursuant to a 2021 statute requiring cumulative impact analysis for air permits for facilities located in or near an environmental justice population, as

²⁸³ RIA at 6-6 to 6-7.

²⁸⁴ RIA at 6-6.

²⁸⁵ RIA at 6-12.

²⁸⁶ See Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, 88 Fed. Reg. 5558, 5586–89 (Jan. 27, 2023) (detailing evidence of causal relationship between short-term exposure to PM_{2.5} and cardiovascular and respiratory effects); EPA, *Health Effects of Ozone in the General Population*, <https://www.epa.gov/ozone-pollution-and-your-patients-health/health-effects-ozone-general-population> (last updated Apr. 20, 2023); EPA, *Health Effects of Ozone in Patients with Asthma and Other Chronic Respiratory Disease*, <https://www.epa.gov/ozone-pollution-and-your-patients-health/health-effects-ozone-patients-asthma-and-other-chronic> (last updated July 11, 2023).

²⁸⁷ See Proposed 310 C.M.R. § 7.02(14) (proposed Dec. 29, 2022), <https://www.mass.gov/doc/310-cmr-70214-cumulative-impact-analysis-amendments/download>.

defined by state law.²⁸⁸ As proposed, the regulations would require air permit applicants to prepare a cumulative impact report assessing thirty indicators relating to air quality and climate, nearby regulated facilities, health, socioeconomic, and nearby sensitive receptors.²⁸⁹ The regulations would also require cumulative impact analyses to include air quality dispersion modeling for all criteria pollutants as well as cancer and non-cancer risk characterization of air toxics or, alternatively, a refined risk characterization based on air dispersion modeling.²⁹⁰

New Jersey also recently adopted environmental justice regulations²⁹¹ pursuant to a 2020 statute requiring an assessment of existing environmental and public health stressors and the presence or absence of “adverse cumulative stressors” in an environmental justice impact statement (EJIS) for permits for facilities, including air permits for major sources of air pollution (i.e., gas-fired plants), located in or near a state designated overburdened community.²⁹² Where communities are already subject to adverse cumulative stressors or where a facility will create adverse cumulative stressors, the applicant must submit supplemental information including detailed information of the site conditions and pollution control measures.²⁹³

Similarly, Minnesota requires a Cumulative Levels and Effects Analysis as part of air permit applications for any facility in a geographically defined section of South Minneapolis.²⁹⁴ This analysis includes evaluation of environmental health data, community stressors and vulnerabilities, contributions from nearby sources, and modeling results for air toxics and criteria pollutants. EPA should expand the

²⁸⁸ 2021 Mass. Acts., ch. 8, sec. 56, 102C, <https://malegislature.gov/Laws/SessionLaws/Acts/2021/Chapter8>.

²⁸⁹ See Proposed 310 C.M.R. § 7.02(14)(c) tbl. 1.

²⁹⁰ See *id.* § 7.02(14)(d)–(e).

²⁹¹ See N.J. Admin. Code § 7:1C, https://dep.nj.gov/wp-content/uploads/rules/rules/njac7_1c.pdf.

²⁹² New Jersey Environmental Justice Law, N.J. Stat. § 13:1D-157 to § 13:1D-161, <https://dep.nj.gov/wp-content/uploads/ej/docs/ej-law.pdf>.

²⁹³ See N.J. Admin. Code § 7:1C-3.2.

²⁹⁴ See Minn. Stat. 116.07 subd. 4a; see also Air Permitting in South Minneapolis, <https://www.pca.state.mn.us/business-with-us/air-permitting-in-south-minneapolis> (last visited Aug. 3, 2023); C. Ellickson et al., *Cumulative Risk Assessment and Environmental Equity in Air Permitting: Interpretation, Methods, Community Participation and Implementation of a Unique Statute*, 8 Int. J. Env. Res. Public Health 4140 (Nov. 2011).

scope of its proximity and pollutant analyses to account for such indicators in assessing the cumulative impact of the Proposed Rule against burdens faced by impacted communities.

B. EPA Should Use Every Available Authority to Develop a Robust Regulatory Framework and Minimize Health and Safety Risks from its Final Rule.

As EPA acknowledges, CCS and co-firing with hydrogen, if insufficiently regulated, may carry additional potential health and safety risks to communities with environmental justice concerns.²⁹⁵ But EPA and other federal agencies have ample authority to address these risks. Swiftly and diligently exercising these authorities would provide further support for EPA’s proposed best system here and ensure that the Proposed Rule does not further burden underserved communities. Below, we identify several environmental justice concerns and offer recommendations for EPA’s consideration for future action. In general, we encourage EPA to confront these health and safety concerns as soon as possible, promptly review and update existing regulatory frameworks, prioritize the health and safety of underserved communities, and proactively engage and collaborate with the relevant regulatory agencies.

1. Carbon Capture and Sequestration

Underserved communities have raised concerns about elevated safety risks at multiple points of the carbon management supply chain: from extending the life of fossil fuel emitting electric generating units to a possible surge in new infrastructure to capture and transport CO₂, and from pipeline leakage risks to the security of underground storage.²⁹⁶ As such, we urge EPA to critically assess all its

²⁹⁵ See 88 Fed. Reg. at 33,413–14 (recognizing and considering “the various concerns that potentially vulnerable communities have raised with regard to the use of CCS” and noting that “hydrogen production presents a unique set of potential issues for vulnerable communities”).

²⁹⁶ *Id.*; see also White House Environmental Justice Advisory Council, Justice40 Climate and Economic Justice Screening Tool & Executive Order 12898 Revisions Interim Final Recommendations at 57–58 (May 13, 2021), https://www.epa.gov/sites/default/files/2021-05/documents/whejac_interim_final_recommendations_0.pdf (including CCS among the “types of projects that will not benefit a community”); Collective EJ Statement on Engineered Carbon Capture, Use, and Storage (CCUS) in California (June 2022), <https://ww2.arb.ca.gov/sites/default/files/2022->

existing authority and to explore partnerships with other agencies to establish a more robust regulatory regime for CCS in future rules. EPA identifies several regulatory programs in response to stakeholder concerns surrounding CCS deployment.²⁹⁷ We now address each of these in turn.

Non-CO₂ emissions: New Source Review Permitting

Major New Source Review (NSR) provides an opportunity for underserved communities to give input on permits for major modifications to existing electric generating units and new sources, and it allows EPA and state permitting authorities to require pollution control technologies to limit pollutant emissions.²⁹⁸ In the Proposed Rule, EPA addresses underserved communities' concerns about CCS by noting that "a CCS retrofit may trigger" major NSR permitting.²⁹⁹ But EPA also acknowledges that it does not expect most CCS installations to trigger major NSR requirements.³⁰⁰ We encourage EPA to strictly enforce major NSR permitting whenever applicable, review its processes to find opportunities for meaningful engagement on CCS projects outside of the NSR process, and collaborate with relevant agencies to assess the effect of CCS deployment on air quality to inform future regulatory actions.³⁰¹

[08/Collective%20EJ%20Statement%20on%20Engineered%20Carbon%20Capture%2C%20U
se%2C%20and%20Storage%20%28CCUS%29.pdf](https://www.epa.gov/collective-ej-statement-on-engineered-carbon-capture-and-storage-ccus).

²⁹⁷ *Id.* at 33,247–48.

²⁹⁸ *See generally id.* at 33,350 ("the permitting authority may determine that the NSR permit requires the installation of SCR") and *id.* at 33,414 ("[i]f the source is undergoing major NSR permitting, the permitting authority would provide an opportunity for the public to comment on the draft permit").

²⁹⁹ *Id.* at 33,413–14.

³⁰⁰ *See id.* at 33,408 ("we expect this situation to not occur often").

³⁰¹ *See* CEQ Carbon Capture, Utilization, and Sequestration Guidance, 87 Fed. Reg. 8808, 8809 (Feb. 16, 2022) ("the successful widespread deployment of responsible CCUS will require strong and effective permitting...[and] meaningful public engagement early in the review and deployment process") and *id.* at 8,811 ("CEQ recommends that agencies, including EPA and DOE, collaborate on studies regarding the effect of carbon capture deployment on air quality in the United States").

CO₂ Storage: Underground Injection Control Regulations

EPA regulates CO₂ injected and stored underground, in what are known as Class VI wells, through its UIC Program.³⁰² Under the program, states may apply for primary enforcement and permitting responsibility (“primacy”).³⁰³ In light of recent concerns surrounding state UIC programs,³⁰⁴ we urge EPA to review these applications carefully, with attention to impacts on underserved communities. For example, in assessing Class VI primacy applications, EPA should consider whether applicants have demonstrated successful facilitation of a Class II program³⁰⁵ and compliance with a state’s Title VI obligations.³⁰⁶ And once Class VI approval is

³⁰² See 40 C.F.R. §§ 144–48; Federal Requirements Under the UIC Program for CO₂ Geologic Sequestration Wells, 75 Fed. Reg. 77,230 (Dec. 10, 2010) (adding Class VI wells to the UIC program).

³⁰³ 40 C.F.R. § 145.

³⁰⁴ See e.g., Letter from Reps. Lloyd Doggett and Joaquin Castro to Administrator Regan (July 14, 2023), <https://castro.house.gov/imo/media/doc/castro-doggett-epa-letter.pdf> (discussing concerns with Texas administration of UIC program in context of Class VI application, including Railroad Commission of Texas’s history of waiving its own rules to favor oil and gas interests over health and storage and insufficient attention and funding provided to plugging inactive wells—which threaten health of groundwater, soil, and air); Environmental Defense Fund, Comment Letter on Proposed Class VI Program Revision Application for State of Louisiana at 2–3 (July 3, 2023), <https://www.regulations.gov/comment/EPA-HQ-OW-2023-0073-0179> (discussing concerns about Louisiana administration of UIC program in context of Class VI application, including lack of state regulatory administrative capacity, large quantity of orphaned wells, and underground sinkholes and blowouts related to underground injection activities under state’s regulatory purview).

³⁰⁵ Class II wells are also used to inject CO₂ underground, except for enhanced oil recovery rather than geological storage, and they are considered the closest analogue to the Class VI well program. 40 C.F.R. § 144.6; Earthjustice, Comment Letter on Proposed Class VI Program Revision Application for State of Louisiana at 2–3 (July 3, 2023), https://earthjustice.org/wp-content/uploads/2023/07/comments-on-epas-proposed-approval-of-la-class-vi-primacy-application_2023jul03.pdf; see also Congressional Research Service, *CO₂ Underground Injection Regulations: Selected Differences for Enhanced Oil Recovery and Geologic Sequestration* (June 16, 2020), <https://crsreports.congress.gov/product/pdf/IF/IF11578#:~:text=Class%20II%20wells%20are%20used,to%20inject%20CO2%20for%20GS>.

³⁰⁶ Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, and national origin in programs receiving federal financial assistance. 42 U.S.C. § 2000d. EPA’s nondiscrimination regulations create an affirmative obligation for recipients of EPA financial assistance from taking actions that are “intentionally discriminatory as well as practices that have an unjustified discriminatory effect.” EPA, *Legal Tools to Advance Environmental Justice: Cumulative Impacts Addendum* at 45 (Jan. 2023),

granted, EPA should vigilantly monitor state programs and promptly withdraw approval when a state program fails to comply with EPA requirements.³⁰⁷ Lastly, EPA should review its Class VI UIC regulations—which have not been updated since 2011—and consider supplemental rulemakings to ensure the regulations reflect EPA’s current views on safety and meaningful public engagement.³⁰⁸ We urge EPA to prioritize federal regulation of Class VI wells and approve the delegation to states only when the state has demonstrated that it can safely and effectively regulate its wells.

CO₂ Transportation: Collaborating with PHMSA on Pipeline Safety Rulemaking

EPA should be fully aware of safety risks, potential impacts, and regulatory gaps associated with additional CO₂ pipeline infrastructure resulting from its final rule.³⁰⁹ Incentivizing the buildout of CO₂ pipelines without necessary safety regulations in place could put frontline communities at risk, as exemplified by a 2020 pipeline rupture in Satartia, Mississippi, which forced 200 residents to evacuate and hospitalized 45.³¹⁰ The Pipeline and Hazardous Materials Safety Administration (PHMSA) currently regulates the safety of CO₂ pipelines; however,

<https://www.epa.gov/system/files/documents/2022-12/bh508-Cumulative%20Impacts%20Addendum%20Final%202022-11-28.pdf>; see also Earthjustice Comment Letter at 31–33.

³⁰⁷ As authorized under 40 C.F.R. § 145.33, including for failure to comply with the terms of the Memorandum of Agreement between EPA and a state (§ 145.33(a)(4)). For example, EPA should strongly enforce the requirements of its Memorandum of Agreement with Louisiana regarding its Class VI primacy application. Memorandum of Agreement Addendum 3 Between Louisiana and EPA Region 6 for the Class VI UIC Program at 4–5 (Mar. 2023), <https://www.regulations.gov/document/EPA-HQ-OW-2023-0073-0007/>.

³⁰⁸ EPA announced a plan to review its rulemaking on Class VI wells and determine if modifications were needed every six years when it initially expanded the UIC program in 2010; it has not updated its regulations since. 75 Fed. Reg. at 77,241.

³⁰⁹ Even before the Proposed Rule, it was estimated that the United States will need to expand its CO₂ pipeline capacity 14x–19x by 2050. GAO-22-105274, *Decarbonization: Status, Challenges, and Policy Options for Carbon Capture, Utilization, and Storage* at 35–36, Figure 9 (Sept. 2022), <https://www.gao.gov/assets/gao-22-105274.pdf>.

³¹⁰ CO₂ is odorless and heavier than air in a supercritical state, meaning it can go undetected while displacing the oxygen around it when released, which can lead to asphyxia and even death at extreme concentrations. PHMSA, *Failure Investigation Report—Denbury Gulf Coast Pipelines LLC—Pipeline Rupture/Natural Force Damage* (May 26, 2022), <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-05/Failure%20Investigation%20Report%20-%20Denbury%20Gulf%20Coast%20Pipeline.pdf>; Minnesota Department of Health, Carbon Dioxide, <https://rb.gy/xjr3h> (last updated Oct. 3, 2022).

its regulations only cover CO₂ transported in a supercritical state above 90 percent concentration, leaving a regulatory gap for CO₂ transported in liquid or gaseous form.³¹¹ And while the agency is in the process of proposing rules governing the shipment of CO₂ in non-supercritical states, it is not expected to release an updated proposed rule until 2024, nor has it announced a final rulemaking date.³¹² Therefore, we encourage EPA to urge PHMSA to release interim guidance that they will regulate CO₂ transport in all forms, and to later collaborate with PHMSA on its official rulemaking efforts to strengthen CO₂ pipeline safety and leak detection regulations.³¹³

2. Hydrogen Co-Firing

Hydrogen co-firing poses many of the same potential challenges as CCS for underserved communities, including extending the life of fossil fuel-emitting electric generating units and pipeline transportation safety concerns. Hydrogen also poses unique challenges such as an elevated risk of NO_x emissions and upstream fuel production concerns. We encourage EPA to consider these issues when devising its final rule and to work with its partner agencies in future rulemaking efforts to create a safer and more robust regulatory framework for the hydrogen economy.

Non-CO₂ Emissions: New Source Review and NO_x Emissions Concerns

Like CCS, EPA notes that for facilities that elect to co-fire with hydrogen, “there exists an opportunity for community engagement” as part of major NSR

³¹¹ See Pipeline Safety Trust, *Accufacts’ Perspectives on the State of Federal Carbon Dioxide Transmission Pipeline Safety Regulations* at 1–2 (Mar. 23, 2022), <https://pstrust.org/wp-content/uploads/2022/03/3-23-22-Final-Accufacts-CO2-Pipeline-Report2.pdf>; California Natural Resources Agency, *SB 905 Proposal for Establishing a State Framework and Standards for Intrastate Pipelines Transporting Carbon Dioxide* at 4 (Mar. 2023), <https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/Transitioning-to-Clean-Energy/SB-905--CO2-Pipeline-Regulatory-Framework--Stds-March-2023.pdf>.

³¹² See PIPES Act 2020 Web Chart, “OPS: Carbon Dioxide and Hazardous Liquid Pipelines” Rule (updated May 26, 2023), <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2023-05/2023%20May%20PIPES%20Act%20Chart%20final.pdf> (completing NPRM for Fed. Reg. publication by Jan. 26, 2024).

³¹³ PHMSA Deputy Administrator Tristan Brown has expressed interest in fostering greater collaboration with EPA. See, e.g., Mike Soraghan, “Is Biden cracking down on pipeline violators?” E&E News (July 5, 2023), <https://www.eenews.net/articles/is-biden-cracking-down-on-pipeline-violators/>.

permitting, but again acknowledges that NSR may not often apply.³¹⁴ EPA also acknowledges that cofiring with hydrogen can increase emissions of NO_x,³¹⁵ a harmful pollutant that is a precursor to ozone and the secondary formation of ambient PM_{2.5}.³¹⁶ To address these risks, EPA has highlighted turbine manufacturers and plant operators' efforts to produce low-NO_x burners.³¹⁷ We urge EPA to take a stronger regulatory stance.³¹⁸ Specifically, we urge EPA to strictly enforce major NSR permitting whenever applicable and evaluate every possible avenue for limiting NO_x emissions resulting from its final rule,³¹⁹ including partnering with other agencies where necessary.³²⁰

³¹⁴ 88 Fed. Reg. at 33,414 (noting that “[w]hile new combustion turbines that co-fire with hydrogen may trigger major NSR, there are cases in which they are less likely to trigger major NSR”, but not estimating how frequently it expects this to occur). Elsewhere in discussing NSR permitting more generally, EPA says that while “it may be possible . . . to trigger major NSR . . . we expect this situation to not occur often.” *Id.* at 33,408.

³¹⁵ *Id.* at 33,312; *see also* Hydrogen in Combustion Turbine EGUs – Technical Support Document at 3 (May 23, 2023), <https://www.epa.gov/system/files/documents/2023-05/TSD%20-%20Hydrogen%20in%20Combustion%20Turbine%20EGUs.pdf> (“[h]igh hydrogen blends by volume also have the potential to increase nitrogen oxide (NO_x) emissions from the combustion turbine as well as increase any upstream GHG emissions associated with the hydrogen production process”).

³¹⁶ *See* 88 Fed. Reg. at 33,312 (“the combustion characteristics of hydrogen can lead to...increase[d] emissions of the criteria pollutant NO_x”), 33,350 (NO_x is precursor to ozone), and at 33,412 (NO_x is precursor to ambient PM_{2.5}).

³¹⁷ In most cases, EPA notes, the combustion turbines in new combined cycle units will be equipped with low-NO_x burners to control flame temperatures and reduce NO_x formation, *id.* at 33,302, and that “most turbine manufacturers are working to safely increase the levels of the hydrogen combustion in new and existing turbine models while limiting emissions of NO_x. Hydrogen Technical Support Document at 5.

³¹⁸ EPA should endeavor to align with DOE’s recommendation that “concerted efforts must be made to solicit and address community concerns around NO_x emissions” to successfully unlock the potential of clean hydrogen as a national decarbonization pathway. Department of Energy, U.S. National Clean Hydrogen Strategy and Roadmap at 12 (June 2023), <https://www.hydrogen.energy.gov/pdfs/us-national-clean-hydrogen-strategy-roadmap.pdf>.

³¹⁹ Even when major NSR requirements do not apply, minor NO_x sources can still be harmful to frontline communities.

³²⁰ *See* 42 U.S.C. § 16161b(a)(2)(H); *see also* DOE Clean Hydrogen Roadmap at 3–4 (discussing amendment of § 814 of Title VIII of the Energy Policy Act of 2005).

Non-air Quality Impacts: Clean Hydrogen and Water Availability

Hydrogen produced by clean energy-powered electrolysis creates a low-greenhouse gas emission fuel, but it is also highly water-intensive.³²¹ Given the increasing regional strain on water resources from climate change, water access is likely to become an even greater environmental justice concern in the coming decades.³²² EPA acknowledges that “electrolyzer siting will need to take water availability into account.”³²³ We encourage EPA to fully assess water risks associated with the final rule and provide guidance to states and plant operators regarding the water resources needed to support electrolysis-produced hydrogen.³²⁴

Hydrogen Pipeline Transportation: Collaborating with PHMSA

Hydrogen has unique properties, like its small atomic size and corresponding tendency to leak, which raise distinct safety concerns from those involved in transporting natural gas by pipeline.³²⁵ For example, a report by the California Public Utility Commission (CPUC) suggests that blending hydrogen into existing

³²¹ 88 Fed. Reg. at 33,304 (explanation of clean energy-powered electrolysis), 33,414 (water scarcity impacts on vulnerable communities); *see also* DOE Clean Hydrogen Roadmap at 52 (similarly highlighting that “regional availability of water resources is also an important factor in the siting and sustainability of hydrogen production facilities”).

³²² *See e.g.*, Christopher Flavelle and Jack Healy, “Arizona Limits Construction Around Phoenix as Its Water Supply Dwindles”, *The New York Times* (June 1, 2023), <https://www.nytimes.com/2023/06/01/climate/arizona-phoenix-permits-housing-water.html>; Dr. Mel Michelle Lewis, “Climate and Environmental Injustice: Thousands Without Water in Jackson, Mississippi”, *American Rivers* (Sept. 2, 2022), <https://www.americanrivers.org/2022/09/climate-and-environmental-injustice-thousands-without-water-in-jackson-mississippi/>; UN Environment Programme, “As the climate dries the American west faces power and water shortages, experts warn” (Aug. 2, 2022), <https://www.unep.org/news-and-stories/story/climate-dries-american-west-faces-power-and-water-shortages-experts-warn>.

³²³ 88 Fed. Reg. at 33,414.

³²⁴ For example, EPA could engage the National Renewable Energy Laboratory (NREL) regarding the use of its high-resolution spatial analysis of U.S. water resources and scarcity by county. Elizabeth Connelly et. al., NREL Resource Assessment for Hydrogen Production at 39–40, Figure 21 (July 2020), <https://www.nrel.gov/docs/fy20osti/77198.pdf>.

³²⁵ Pipeline Safety Trust, *Accufacts Report: Safety of Hydrogen Transportation by Gas Pipelines* at 4–6 (Nov, 28, 2022), <https://pstrust.org/wp-content/uploads/2022/11/11-28-22-Final-Accufacts-Hydrogen-Pipeline-Report.pdf>.

natural gas pipelines may be unsafe at concentrations greater than 20 percent;³²⁶ anything greater may increase the risk of leakage, rupture, and potential ignition.³²⁷ With hydrogen concentrations of 30–96 percent by 2038 required in the Proposed Rule,³²⁸ new hydrogen-specific infrastructure will likely be needed, potentially negatively impacting underserved communities.³²⁹ Additionally, while PHMSA’s recently proposed Gas Pipeline Leak Detection and Repair Rule, if finalized, would apply to hydrogen pipelines,³³⁰ it is not designed for the unique properties and challenges related to hydrogen transportation. Therefore, we encourage EPA to engage with PHMSA on developing guidance specific to hydrogen pipelines and assist wherever feasible in working toward a regulatory solution for safer hydrogen transportation.

C. EPA Should Define “Meaningful Engagement with Affected Stakeholders” Required in State Plans.

The Proposed Rule requires states to “undertake meaningful engagement with affected stakeholders,” including communities that are most affected by and vulnerable to emissions from these power plants.³³¹ We support EPA’s requirement that states consult affected stakeholders in their development of state plans for existing sources. As the Office of Information and Regulatory Affairs (OIRA) recognized in its recent guidance *Broadening Public Participation and Community*

³²⁶ California Public Utility Commission, CPUC Issues Independent Study on Injecting Hydrogen Into Natural Gas Systems (July 21, 2022), <https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-issues-independent-study-on-injecting-hydrogen-into-natural-gas-systems> (Summary of Findings); *see also* CPUC, Final Report: Hydrogen Blending Impacts Study at 8, 17, Table 2 (July 18, 2022), <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M493/K760/493760600.PDF>.

³²⁷ CPUC Final Report at 7. Hydrogen leakage could, if not abated, also undermine some of the rules’ climate benefits. *See* Ilissa B. Ocko and Steven Hamburg, Environmental Defense Fund, Climate consequences of hydrogen emissions, 22 *Atmos. Chem. Phys.* 9,349 (2022), <https://acp.copernicus.org/articles/22/9349/2022/acp-22-9349-2022.pdf>.

³²⁸ 88 Fed. Reg. at 33,244.

³²⁹ *See* DOE Clean Hydrogen Roadmap at 43, Figure 23 (map of where hydrogen production and pipeline infrastructure is currently concentrated).

³³⁰ Pipeline Safety: Gas Pipeline Leak Detection and Repair, 88 Fed. Reg. 31,890, 31,926, n.222 (May 18, 2023).

³³¹ 88 Fed. Reg. at 33,247; *see also* EPA, *Fact Sheet: Greenhouse Gas Standards and Guideline for Fossil Fuel-Fired Power Plants Proposed Rule* at 11, <https://www.epa.gov/system/files/documents/2023-05/FS-OVERVIEW-GHG-for%20Power%20Plants%20FINAL%20CLEAN.pdf>.

Engagement in the Regulatory Process, “[b]roadening public participation and community engagement in the regulatory process can help agencies produce more responsive, effective, durable, and equitable regulations,” particularly “when agencies engage communities through trust-based, long-term, and two-way relationships.”³³² Meaningful involvement is thus critical to ensuring state efforts to implement the rule’s emission limitations further—rather than frustrate—environmental justice principles.³³³

We thus recommend that the EPA provide further concrete guidance to ensure states fulfill the meaningful engagement requirement, specifically by including a definition and concrete examples of meaningful engagement in the final rule. EPA also should adopt a list of non-exhaustive minimum meaningful engagement requirements that must be demonstrated in state plans. And in doing so, we urge EPA to center community voices to ensure its definitions, guidance, and requirements reflect and are consistent with the recommendations of impacted communities.³³⁴

³³² Richard L. Revesz, Administrator, Office of Information and Reg. Affs., Memorandum for the Heads of Executive Departments and Agencies at 4 (July 19, 2023), <https://www.whitehouse.gov/wp-content/uploads/2023/07/Broadening-Public-Participation-and-Community-Engagement-in-the-Regulatory-Process.pdf>; see also Cary Coglianese et al., Transparency and Public Participation in the Federal Rulemaking Process: Recommendations for the New Administration, 77 *Geo. Wash. L. Rev.* 924, 946–47 (2009) (“Robust public participation in the rulemaking process allows agencies to obtain information that helps them (1) improve the quality of new regulations, (2) increase the probability of compliance, and (3) create a more complete record for judicial review. Public participation is also fundamentally linked to concepts of legitimacy and fairness in agency rulemaking.”); Cynthia R. Farina et al., Knowledge in the People: Rethinking “Value” in Public Rulemaking Participation, 47 *Wake Forest L. Rev.* 1185, 1197 (2012) (positing that broader participation in rulemaking by “individuals and small private or public entities who would be directly affected . . . but who, based on historical participation patterns, are unlikely to engage in the conventional comment process” can contribute valuable information such as “information about impacts, ambiguities and gaps, enforceability, contributory causes, unintended consequences, etc. that is known by participants because of their lived experience in the complex reality into which the proposed regulation would be introduced.”).

³³³ Massachusetts law, for example, defines “environmental justice principles” to require “the meaningful involvement of all people with respect to the development, implementation and enforcement of environmental laws, regulations and policies, including climate change policies.” Mass. Gen. Laws ch. 30, § 62.

³³⁴ For example, the Massachusetts Attorney General’s Office convened a Stakeholder Working Group to amplify community recommendations for incorporating

First, we urge EPA to strengthen its definition of meaningful engagement in several respects. EPA’s December 2022 proposed Subpart Ba rule provided a definition of meaningful engagement that would apply to EPA’s current proposed emissions guidelines.³³⁵ Specifically, EPA would require “timely engagement with pertinent stakeholder representation in the plan development or plan revision process.³³⁶ Such engagement must not be disproportionate in favor of certain stakeholders,³³⁷ and must include the development of public participation strategies to overcome linguistic, cultural, institutional, geographic, and other barriers to participation to assure pertinent stakeholder representation, recognizing that diverse constituencies may be present within any particular stakeholder community.³³⁸ It must include early outreach, sharing information, and soliciting input on the State plan.”³³⁹ In its discussion of meaningful engagement strategies in the December 2022 proposed Subpart Ba, EPA recognized the need to conduct outreach to communities that are already vulnerable to ambient air pollution and climate change-related impacts, communities in close proximity to affected facilities, and local Tribal communities.³⁴⁰ One such strategy included a thorough notice requirement.³⁴¹

While we commend EPA for recognizing these important components of meaningful participation, we urge EPA to adopt a revised, more robust and nuanced definition of meaningful engagement with specific examples of meaningful engagement practices. Existing definitions of “meaningful engagement” or “meaningful involvement” provide useful models for such requirements. For example, Massachusetts’s Executive Office of Energy and Environmental Affairs defines “Meaningful Involvement” to require “that all neighborhoods have the right and opportunity to participate in energy, climate change, and environmental

meaningful participation into Massachusetts energy proceedings. *See* *Overly Impacted & Rarely heard: Incorporating Community Voices into Massachusetts Energy Regulatory Processes* (May 2023), <https://www.mass.gov/doc/overly-impacted-and-rarely-heard-incorporating-community-voices-into-massachusetts-energy-regulatory-processes-swg-report/download>.

³³⁵ *See* 88 Fed. Reg. at 33,276 n.215.

³³⁶ *Id.* at 33,398.

³³⁷ *Id.*

³³⁸ *Id.*

³³⁹ *Id.*

³⁴⁰ *Id.* at 33,398–99.

³⁴¹ *Id.*

decision-making including needs assessment, planning, implementation, compliance and enforcement, and evaluation, and neighborhoods are enabled and administratively assisted to participate fully through education and training, and are given transparency/accountability by government with regard to community input, and encouraged to develop environmental, energy, and climate change stewardship.”³⁴² Similarly, the State of Oregon Environmental Justice Task Force recommends a “collaborative government approach” to engaging in capacity building for environmental justice communities to promote the core principle of “self-determination” and to further avoid the traditional “Decide. Announce. Defend.” model of public participation.³⁴³ Such definitions of “environmental justice” and “meaningful engagement” are also encoded in New York State law.³⁴⁴ EPA should adopt a similarly robust definition required for state implementation here.

Next, to promote genuine and productive conversations between states and affected stakeholders, EPA also should adopt the following specific guidelines and requirements for meaningful engagement:

Identify All Relevant Stakeholders: EPA should require states to begin the process of meaningful engagement by gauging the interest of the local community members and affected stakeholders on issues of climate change, health, and

³⁴² Mass. Exec. Off. of Energy & Env’t Affs., Environmental Justice Policy (updated June 24, 2021), <https://www.mass.gov/doc/environmental-justice-policy6242021-update/download>. OIRA, too, recently broadly defined “[p]ublic participation” as “any process that involves members of the public in government decision-making,” which “seeks and facilitates the involvement of those affected by, or interested in, a government decision, including individuals; state, local, Tribal, and territorial governments; non-profit organizations; educational institutions; businesses; and other entities.” Administrator Revesz Memorandum for the Heads of Departments and Agencies at 4. And OIRA defined “[c]ommunity engagement” as “a more specific concept within public participation that involves agency actions to build trust-based, long-term, and two-way relationships with communities, including underserved communities that have been historically left out of government decision-making.” *Id.*

³⁴³ State of Oregon Environmental Justice Task Force, Environmental Justice: Best Practices for Oregon’s Natural Resource Agencies at 2–3, 10 (Jan. 2016), https://www.oregon.gov/dsl/About/Documents/Oregon_EJTF_Handbook_Final.pdf.

³⁴⁴ N.Y. Env’t Conserv. L § 48-0103 (2020), [https://www.nysenate.gov/legislation/laws/ENV/48-0103#:~:text=Environmental%20Conservation%20\(ENV\)%20CHAPTER%2043-B%2C%20ARTICLE%2048%20%2A7,group%20established%20by%20section%2048-0105%20of%20this%20article](https://www.nysenate.gov/legislation/laws/ENV/48-0103#:~:text=Environmental%20Conservation%20(ENV)%20CHAPTER%2043-B%2C%20ARTICLE%2048%20%2A7,group%20established%20by%20section%2048-0105%20of%20this%20article).

equity.³⁴⁵ In assessing potential interest, states should communicate with individuals; state, local, Tribal, and territorial governments; non-profit organizations; educational institutions; businesses; and other entities regarding their interest and activities related to climate change, health, and equity.³⁴⁶ States should commit to working toward a better understanding of the perspectives of local communities and affected stakeholders, especially disadvantaged and underserved communities, on climate change health and equity, including the needs specific to their membership and availability of resources.³⁴⁷

Solicit and Respond to Feedback: EPA should require multiple methods for public notification, including publication in newspapers, distribution via email, flyer distribution, social media posts, TV/radio ads, and educational sessions. To increase opportunities for affected stakeholders to provide input, EPA should require states to accept written and oral modes of engagement, including the submission of pre-recorded videos. Additionally, stakeholders should be given the option to participate in events, either in-person or remotely, with the assurance that remote access will be available by phone or computer, so as not to require internet access. To further strengthen accessibility and transparency in the state planning process, we urge EPA to consider requiring states to provide opportunities to participate in stakeholder sessions outside the hours of 9:00AM and 5:00PM. Opportunities for meaningful engagement should not only solicit stakeholder feedback, but also provide information regarding the environmental and health risks related to state implementation to relevant stakeholders and community-based organizations. And to ensure accountability and transparency and to demonstrate appreciation for stakeholder feedback, we strongly recommend that states follow a community-led agenda and publish a full list of recommendations and comments received, along with detailed information about which recommendations will and will not be incorporated into the planning process and explanations for these decisions.

³⁴⁵ Linda Rudolph et al., *Climate Change, Health, and Equity: A Guide for Local Health Departments* at 12 (2018) (“Conduct a scan to assess potential interest in the issue of climate change, health, and equity including both current and potentially new partners.”), https://www.apha.org/-/media/files/pdf/topics/climate/climate_health_equity.ashx.

³⁴⁶ *See id.* (“Conduct outreach to local Environmental Justice (EJ) groups, Community-based Organizations (CBOs), and community leaders to begin conversations regarding their interest and activities related to climate change, health, and equity.”).

³⁴⁷ Rudolph et al. at 12 (“Make an effort to meet potential CBO or community partners where they are and to develop an understanding of their current priorities, concerns and challenges, membership and constituency, strengths and resources, and level of interest in climate change and health equity.”).

Require Concrete Accessibility Measures: We strongly urge EPA to adopt clear language accessibility requirements for all communications with affected stakeholders. EPA should require that states offer translation and interpretation services for Limited English Proficient (LEP) stakeholders, as well as for stakeholders who use American Sign Language (ASL). To effectuate a thorough language access policy, states should collaborate with community-based organizations and local community members to ensure that the needs of affected stakeholders are being considered in culturally sensitive and linguistically diverse modes of communication, *i.e.*, regular updates on websites, mailing lists, press releases, and social media posts.³⁴⁸ Prior to hosting a community meeting or listening session, states should make educational materials available in multiple languages to affected stakeholders, explaining the states' role in the new regulations, how community members can participate, and relevant environmental and health impacts using plain language summaries and infographics.³⁴⁹

We urge the EPA to adopt the aforementioned recommendations regarding meaningful participation with affected stakeholders to ensure compliance with, and equitable implementation of, its final guidelines.

VI. PROPOSED STATE PLAN REQUIREMENTS

In this section, we provide our comments on the state plan provisions of the Proposed Rule, focusing on the aspects of emissions trading and averaging and application of the remaining useful life and other factors provision. Before addressing those specific aspects, however, we reiterate our request discussed in the preceding section (V.C, *supra*), that EPA require robust cumulative impact analyses for those state plans.

A. Emissions Trading and Averaging

The Attorneys General generally support the Proposed Rule's provision for states to incorporate averaging and market-based mechanisms, such as emission trading, into their section 111(d) state plans as compliance mechanisms. EPA's substantial experience and expertise with emission trading programs across various

³⁴⁸ *Id.* (“Collaborate with CBOs and community members and leaders to develop culturally and linguistically appropriate materials for public information and dissemination and use an array of channels to ensure information reaches all members of the community.”).

³⁴⁹ Administrator Richard Revesz, Memorandum for the Heads of Departments and Agencies at 17–18.

pollutants well positions it to evaluate trading-based state plans to ensure they demonstrate equivalent or greater stringency with EPA’s emission guidelines.

But the Attorneys General urge EPA to make clear that states may use an existing or future trading program developed independently of the rule in such state plans, so long as the trading program provides at least the aggregate level of emission control as EPA’s emissions guidelines for affected sources (*i.e.*, those sources for which EPA’s emission guidelines require 111(d) standards of performance), taking into account any standards imposed through application of remaining useful life and other factors. EPA should likewise commit to approving state plans incorporating trading programs (1) whether they cover a single state jurisdiction (intrastate programs) or multiple jurisdictions (interstate programs), and (2) whether they cover only affected sources or a broader category or categories of sources, so long as the state plan robustly demonstrates equivalent or greater stringency.

As EPA notes, trading programs have been used successfully on the federal, interstate, and state levels for decades to reduce air pollution.³⁵⁰ EPA has developed substantial guidance in designing trading programs to ensure environmental integrity and efficient, healthy trading markets.³⁵¹ One of the reasons such programs are successful is that they allow “emission reductions at a lower cost relative to more prescriptive forms of regulation.”³⁵² Another reason is that they “can allow the owners and operators of [power plants] to prioritize emission reduction actions where they are the quickest or cheapest . . . while still meeting electricity demand and broader environmental and economic performance goals.”³⁵³ And such programs generate “greater innovation and deployment of clean technologies that reduce emissions and control costs.”³⁵⁴

³⁵⁰ 88 Fed. Reg. at 33,393. We offer our support here for greenhouse gas trading programs, and note that we continue to have concerns about the use of trading to control mercury, toxics, and other pollutants with highly localized and severe health impacts.

³⁵¹ EPA, *Tools of the Trade: A Guide to Designing and Operating a Cap and Trade Program for Pollution Control* (June 2003), <https://www.epa.gov/sites/default/files/2016-03/documents/tools.pdf>; see also EPA, “Emissions Trading Resources,” <https://www.epa.gov/emissions-trading-resources> (last visited July 24, 2023).

³⁵² 88 Fed. Reg. at 33,393.

³⁵³ *Id.*

³⁵⁴ *Id.*

EPA and state experience in implementing trading programs have identified several design elements that enhance these benefits. In general, a trading program that covers a greater share of significant emissions sources with a greater diversity in abatement costs may be more environmentally effective, promote a more efficient, stable, and liquid market for compliance instruments, and enable greater emission reductions at lower cost.³⁵⁵ Simplicity in program administration and fungibility of compliance instruments are likewise important to a well-functioning, transparent, and robust trading program.³⁵⁶ We therefore urge EPA to tailor its evaluation of trading-based plans to ensure programs with these characteristics are approvable when they otherwise demonstrate equivalent or greater stringency.

The Attorneys General agree with EPA’s general criterion for approval of a state trading or averaging program, namely, that the program “maintains the level of emission performance for the source category that would be achieved if each affected EGU was individually achieving its presumptive standard of performance, after allowing for any application of [remaining useful life and other factors].”³⁵⁷ In essence, this requires that the state program obtain the same or better emission reductions associated with the affected source categories as those required by the rule’s presumptive standards of performance.

1. Inclusion of types of sources

EPA raises a number of questions concerning how to integrate certain subcategories of sources into a trading program. We believe that those questions can all be resolved reasonably. First, “EPA believes that it would not be appropriate to allow affected EGUs in certain subcategories—imminent-term and near-term coal-fired steam generating units and natural gas- and oil-fired steam generating units—to comply with their standards of performance through trading.”³⁵⁸ EPA also suggests that sources with standards of performance that apply the remaining useful life and other factors might similarly be excluded from a trading program, reasoning that these sources already benefit from operational flexibility because their presumptive standards are based on routine operations and maintenance.³⁵⁹

³⁵⁵ *Id.*; EPA, *Tools of the Trade*, at 3–6.

³⁵⁶ EPA, *Tools of the Trade*, at 3–6.

³⁵⁷ 88 Fed. Reg. at 33,392; *see also id.* at 33,398.

³⁵⁸ *Id.* at 33,393.

³⁵⁹ *Id.* at 33,393–94.

No “undermining” of the intended stringency would result, however, provided that emissions among all affected sources meet the overall aggregate limit—which, here, would be set consistent with application of all applicable standards of performance, whether based on the remaining useful life or other factors or not.³⁶⁰ Under EPA’s general criterion for plan approval, such a trading program would be “satisfactory,”³⁶¹ and “reflect the degree of emission reduction achievable through application of the best system.”³⁶² Because larger and more diverse trading markets can improve a program’s liquidity, efficiency, and environmental efficacy, these sources’ participation may enhance the program even if they are not required to reduce their emissions. For instance, a state could impose the relevant standard of performance for the identified sources—either no increase in emissions,³⁶³ or a standard based on remaining useful life or other factors—as a unit-specific cap on emissions, but still allow the sources to trade or average any *overcompliance* beyond the applicable standard with other sources in other subcategories not subject to such a cap. If these sources can in fact reduce emissions beyond their standard, participation in a trading program would incentivize them to do so.

In addition, in the event that EPA chooses to establish or allow the alternative “above the baseline” emission standard for imminent-term coal-fired steam generating units,³⁶⁴ permitting affected imminent-term sources to purchase compliance instruments to cover temporary, unforeseen increases in emissions may allow states to eliminate the compliance margin for these sources and revert to the “baseline” standard, promoting predictability and transparency. Similarly, the ability of sources to meet standards of performance through trading should inform how EPA evaluates an invocation of the remaining useful life and other factors, rather than exclude the source from the program altogether.³⁶⁵

³⁶⁰ *Id.* at 33,394.

³⁶¹ *Id.* at 33,392.

³⁶² 42 U.S.C. § 7411(a)(1).

³⁶³ 88 Fed. Reg. at 33,346, 33,357.

³⁶⁴ *Id.* at 33,377.

³⁶⁵ As EPA notes, “EPA has also proposed in subpart Ba that a State may not invoke [remaining useful life and other factors] to provide a less stringent standard of performance for a particular source if that source cannot apply the BSER but can reasonably implement a different system of emission reduction to achieve the degree of emission limitation required by the EPA’s BSER determination.” *Id.* at 33,383. Thus, a source that can comply within reasonable cost by purchasing compliance instruments instead of applying the best system of emission reduction may be ineligible for a less stringent standard of performance.

Second, we see no problem in allowing participation in a trading program by sources that receive Internal Revenue Code 45Q tax credit for capturing and sequestering CO₂.³⁶⁶ The fact that such facilities have reduced costs because of the tax credit is a Congressional policy choice that is independent of any state plan under the rule. So any incentive for such facilities to maximize application of CCS generation and electric generation exists, whether the plan involves trading or unit-specific standards of performance. If, however, it is less expensive for the facility receiving the 45Q tax credit to reduce greenhouse gas pollution than for another facility not receiving that credit, that trading could be economically advantageous. In such a scenario, the revenue from the sale of compliance instruments could tip the scale in incentivizing sources on the margin to install CCS or help such sources secure financing to do so. As discussed above, these sources' participation in the trading program may carry broader benefits, such as strengthening the market. Most importantly, such trading would not interfere with achieving the rule's overall pollution reduction goals—the combination of all facility-specific emissions reduction mandates—which is the ultimate criterion for approving a trading-based plan.

EPA also suggests it would not be appropriate to include existing base load gas-fired plants, *i.e.*, combustion turbines of greater than 300-megawatt capacity, in a qualifying trading program because such facilities could move in and out of regulated status from year to year under the proposed rule, depending on whether their capacity factor exceeds 50 percent or not.³⁶⁷ But nothing would bar a state from regulating those turbines beyond the requirements of the Proposed Rule, so that they would be required to participate in the trading program even when their capacity factor is less than 50 percent. For example, California's Cap-and-Trade Regulation covers all electric generating units that exceeded the minimum threshold (25,000 metric tons of CO₂e) in any year and does not release such a unit from coverage until after a full three-year compliance period of operating below that threshold.³⁶⁸ Alternatively, if the compliance period for the trading program is annual, then it could be used as the annual compliance period for the standards of performance under the Proposed Rule. In that case, if a source operated at a capacity factor of less than 50 percent for a given compliance year, then then it would not need to participate in the trading program, and the aggregate amount of permissible emissions for the program under, say, a mass-based trading system,

³⁶⁶ *See id.* at 33,394.

³⁶⁷ *Id.*

³⁶⁸ Cal. Code Regs., tit. 17, §§ 95802(a), 95812(c)(2)(A), 95835(c)(2)(A).

could be reduced by the emission level for that source under the presumptive standard. While states should certainly address the coverage issue that EPA identifies in a manner that preserves program integrity, there is no indication that states must exclude baseload gas-fired electric generating units from a trading program in order to achieve equivalent or greater stringency with the proposed emission guidelines.

EPA states that trading might not be effective because, given the subcategories created in the proposed rule and the expected decrease in the number of steam generating units subject to the proposed rule, there may be limited diversity among sources and thus limited opportunities for difference in control costs and performance.³⁶⁹ We are less concerned with this potential market failure for several reasons. First, given the rationales noted above for including all affected sources in a trading program, the number of sources that can trade likely will be higher than EPA has stated. Second, an insufficient number of sources is even less likely if a state plan incorporates an interstate trading program rather than an intrastate program. Finally, if for a given state the number of covered sources is too small for a functioning intrastate trading program, and the state does not choose to link with or otherwise participate in a qualifying interstate trading program, then the state need not rely on—and EPA need not approve—an intrastate trading program in its state plan.

2. Rate-based trading

EPA articulates several advantages to rate-based trading over mass-based trading in ensuring the program's stringency.³⁷⁰ However, there are notable disadvantages to rate-based trading—including the potential for an absolute increase in greenhouse gas emissions among sources. Rate-based trading limits participation in the market to power plants, inherently limiting the size of the trading market. Rate-based trading is also more difficult to harmonize with existing, effective greenhouse gas trading programs. Therefore, EPA should ensure that state plans with robustly designed mass-based trading programs are approvable as well.

We further note that, if a state plan were to incorporate a rate-based trading program, the types of sources discussed in the previous subsection can be included in such a trading regime. As EPA recognizes, a state plan could set emission rates

³⁶⁹ 88 Fed. Reg. at 33,393.

³⁷⁰ *Id.*

for each category or subcategory of sources, consistent with EPA’s emission guidelines, and then allow trading of compliance instruments denominated in tons of CO₂.³⁷¹ Sources that would otherwise be subject to an emissions rate no greater than their historical rate, such as a near-term coal-fired steam generating unit, could purchase instruments to reach that rate and sell instruments resulting from any overcompliance. And if a 300-megawatt combustion turbine facility operating at 50 percent or greater capacity reduced its capacity factor to less than 50 percent, so that it was no longer a covered facility, the trading program could simply forego awarding instruments to that source or requiring their surrender.³⁷² While this suggests that emissions increases could occur—e.g., if a facility went from 51 percent capacity factor to a 48 percent capacity factor, it could theoretically increase its emission rate over its previously applicable standard of performance—this would not be a problem caused by trading, but instead a feature of how EPA has defined this particular subcategory.

3. Mass-based trading

The Attorneys General support inclusion of mass-based emission trading as a potential compliance mechanism in an approvable state plan, and in general support EPA’s conception of such mass-based trading.³⁷³ Mass-based trading facilitates a trading program’s broader coverage beyond the affected sources, which can enhance market liquidity and efficiency, and promotes compatibility with existing programs. Mass-based allowances are a transparent metric that promotes easy comparison of different jurisdictions’ targets and programs, in turn promoting multistate linkages. As with rate-based trading, we believe that the types of sources discussed in the subsection (1) above can be included in a mass-based trading regime.

We particularly appreciate EPA’s concern that, under a mass-based trading program, certain changes in sources’ operations could render emission budgets less stringent than intended.³⁷⁴ For example, if a program calculated an emissions budget for coal-fired steam generating units with a medium-term operating horizon by aggregating these sources’ historical emissions and then applying a 16 percent

³⁷¹ *Id.* at 33,394.

³⁷² *See id.*

³⁷³ *Id.* at 33,394–95.

³⁷⁴ *Id.* at 33,395.

reduction,³⁷⁵ but failed to account for retirements or idling of covered units in the compliance period, the resulting surplus of compliance instruments could dilute the effective stringency of the program, so that the program no longer demonstrates equivalent stringency or “reflect[s] the degree of emission reduction achievable through application of the [best system].”³⁷⁶

Accordingly, we support requiring state plans that incorporate mass-based trading programs to include methods for accurately projecting or updating emission budgets, or otherwise addressing the potential for surplus emissions budgets. EPA identifies dynamic budgeting as a promising means to ensure appropriately stringent emission budgets over time.³⁷⁷ We note, however, that in some cases, resetting intrastate or interstate emission budgets may occur through a political process, that is, by legislative amendment of statutes, and, even when done by administrative act, may involve substantial notice-and-comment procedures and environmental review. Thus, dynamic budgeting likely is workable only for those states whose state administrative law allow for ministerial action to update budgets. EPA should allow for such variation in approval process in reviewing and approving state plans that incorporate mass-based trading. Dynamic budgeting should be one means of demonstrating equivalent or greater stringency in a state plan incorporating mass-based trading, but not the exclusive means. Other means might include rigorous modeling of future power sector emissions under the state plan, substantiated by verified historical data, or economy-wide trading programs that are demonstrably stringent enough to absorb the surpluses and volatility caused by source retirements or reduced utilization. How a state plan may demonstrate equivalent stringency in such a case should be left in the first instance to the state, subject to EPA’s review and notice-and-comment processes.

4. General program trading implementation elements

EPA proposes to require state plans to describe certain implementation elements of any trading programs they incorporate, including “compliance timeframes and the mechanics for demonstrating compliance under the program . . . [;] requirements for continuous monitoring and reporting of CO₂ emissions and generation; and . . . a tracking system for tradable compliance instruments.”³⁷⁸ We

³⁷⁵ *See id.* at 33,245.

³⁷⁶ 42 U.S.C. § 7411(a)(1).

³⁷⁷ 88 Fed. Reg. at 33,395.

³⁷⁸ *Id.*

agree that these requirements are necessary for EPA to evaluate whether a trading-based state plan satisfactorily demonstrates equivalent or greater stringency. EPA should further require trading-based state plans to describe: (1) coverage, *i.e.*, which sources and/or source categories beyond affected sources (if any) will participate in the trading program; (2) pollutants, *i.e.*, whether greenhouse gas emissions other than CO₂ are subject to mandatory monitoring, reporting, and compliance obligations; (3) linkages with other jurisdictions; and (4) market integrity provisions, *e.g.*, anti-fraud, anti-manipulation, and enforcement programs. These facets of a trading program also inform whether the program is likely to achieve in fact the emission reductions it promises.

EPA asks how a state program could address differential standards for different subcategories of sources, and in particular, the fact that different subcategories face different effective dates for regulation.³⁷⁹ One way to address this would be to have a multistage or multiphase trading program. For a rate-based program, rates could be set for, and trading allowed among, the universe of sources regulated at any given time. Then, if a set of additional facilities becomes subject to the rule in, say, 2032, then the state agency could add those facilities to the trading system at that time and assign them rates, and if necessary or appropriate reassign rates to facilities previously subject to the trading system.

Somewhat similarly, for a mass-based trading program, when the initial subcategories of sources became subject to the rule, the state agency could set an emissions budget for those sources, and when at later dates new subcategories of source became subject to the rule, the state agency could set a new budget or budgets to reflect the additional subcategories. In neither case, however, would the state need to restrict trading between subcategories.

As EPA notes, trading programs provide great flexibility. For example, in a rate-based system, the state agency can set different emission rate standards for different subcategories of sources, and in a mass-based system, the state agency can set different trading rates for different subcategories of sources.

5. Banking of emission allowances

The Attorneys General support banking of compliance instruments, with certain conditions.³⁸⁰ As EPA notes, banking may result in stockpiles of compliance

³⁷⁹ *Id.*

³⁸⁰ *Id.* at 33,396.

instruments that, when eventually used, could undermine a trading program's achievement of the required level of emission performance under the rule.³⁸¹ Accordingly, state plans that include trading programs with bankable instruments should describe how the program meaningfully limits holding and banking (such as time limits or quantity limits). In addition, the possible effects of banking should be included in the broader evaluation of possible impacts of a trading program, including any impacts on underserved communities.

6. Economy-wide and cross-sectoral trading

EPA should approve state plans that incorporate trading programs that cover entities beyond EPA's proposed affected sources, including economy-wide trading programs, as long as these plans demonstrate equivalent or greater stringency with respect to sources covered by the Proposed Rule. All existing greenhouse gas trading programs' coverages extend beyond EPA's Proposed Rule: for example, RGGI covers more existing gas-fired electric generating units than the Proposed Rule, while California's and Washington's cap-and-trade programs cover non-electric generating entities that emit significant amounts of greenhouse gases. Even states without existing trading programs may wish to create trading programs that cover entities beyond the proposed affected sources, in order to ensure a liquid, efficient, and stable trading market and a greater diversity in control costs and opportunities among covered entities that incentivizes cost-effective reductions. Because greenhouse gas pollution generally is well mixed in the atmosphere, there is sound basis for EPA, in the right circumstances, to find that greenhouse gas trading programs with broader coverage than the proposed affected sources are part of a "satisfactory" state plan.

EPA should evaluate these broader trading programs similar to how it evaluates "better-than-BART" trading programs under the Regional Haze Rule.³⁸² Under the regional haze program, a state can forego installing the "best available retrofit technology" on individual electric generating units if it establishes, by the clear weight of the evidence, that an alternative measure (like a trading program) will achieve greater reasonable progress than source-by-source BART installation.³⁸³ This analysis involves establishing a benchmark emission reduction

³⁸¹ *Id.*

³⁸² *See Center for Energy & Econ. Devel. v. EPA*, 398 F.3d 653, 660 (D.C. Cir. 2004) (finding EPA's "better-than-BART" approach allowed under Clean Air Act section 169B).

³⁸³ 40 C.F.R. § 51.308(e)(2)(i), (i)(E).

that BART installation would achieve in BART-eligible sources, then showing that the state’s alternative measure achieves better progress than this benchmark.³⁸⁴

Analogously, EPA could find a state trading program to be “better than [best system of emission of reduction]” if there is an overall reduction in greenhouse gas emissions in the power sector that is equivalent to or more stringent than the guidelines’ reductions in affected sources only.

7. Interstate emissions trading

As noted above, we support the approvability of state plans that incorporate interstate emission trading regimes as a compliance mechanism. Interstate trading presents many of the same market advantages as an economy-wide program, including liquidity and diversity of sources, but likewise requires an additional showing to establish equivalent or greater stringency with EPA’s emission guidelines. Generally, interstate trading programs like RGGI can readily identify a participating state’s share of the regional budget. Comparison of a state’s share of the regional budget, on the one hand, to the emissions budget representing application of the emission guidelines to affected sources within that state, on the other hand, should allow for such an equivalency demonstration.

While RGGI was developed as a single multistate program that each participating state enacted into local law, some interstate markets may emerge when different intrastate programs, developed independently with distinct objectives and design elements, decide to link markets, with each jurisdiction agreeing to count the other’s instruments toward its local entities’ compliance obligations.³⁸⁵ In such a case, EPA may wish to require additional information about the linked jurisdiction’s program to ensure that compliance instruments are equivalent across jurisdictions, with equally stringent provisions on verification, monitoring, and surrender, among other elements.

8. Rate-based averaging

The Attorneys General do not oppose a rate-based averaging program along the lines that EPA describes, with either facility-level averaging or owner/operator

³⁸⁴ *Id.* § 51.308(e)(2)(i)(A)–(E); *Utility Air Reg. Group v. EPA*, 471 F.3d 1333, 1340–41 (D.C. Cir. 2006) (approving EPA methodology of establishing greater reasonable progress).

³⁸⁵ *United States v. California*, 444 F. Supp. 3d 1181, 1186–87 (E.D. Cal. 2020) (describing California cap-and-trade program’s framework for linkage with other jurisdictions’ programs).

level averaging,³⁸⁶ subject to an evaluation of the impacts of the averaging program on underserved communities similar to the evaluation of impacts from a trading program on such communities as discussed above. In addition, the state plan should demonstrate that such averaging does not lead to an absolute increase in emissions.

9. Relation to existing state programs

The Attorneys General appreciate EPA’s recognition of the importance of existing state greenhouse gas trading programs, their significant impact in reducing carbon pollution from power plants, and their potential to reduce future greenhouse gas emissions beyond the power sector.³⁸⁷ Principles of cooperative federalism and pragmatism favor allowing these states to use their existing trading programs to comply with the Proposed Rule, so long as they can demonstrate equivalent or better stringency than EPA’s emission guidelines for affected sources. These programs represent years of consensus-building and technical development, and EPA should avoid disrupting these positive state efforts to the extent federal statutory prerogatives are satisfied. Leveraging existing state programs carries the further benefit of avoiding duplicative state and federal regulation, whether through simultaneous requirements under a state trading program and the federal standards of performance, or through regulation under competing trading programs, one under state law authority and one as part of a section 111(d) plan.

EPA’s rate-based, source-specific emission guidelines, as well as certain views on trading expressed in the proposal (including its preference for rate-based trading and its suggested exclusion of various types of sources from trading programs), do “differ[] significantly” from existing state policies and programs.³⁸⁸ EPA therefore seeks comment on whether any elements of proposed guidelines would interfere with implementation of existing state greenhouse gas trading programs.³⁸⁹ Despite these differences, the rule should not interfere with any existing state trading programs as long as EPA adheres to its criterion for approvability—that is, as long as EPA commits to approving state plans that “maintain[] the level of emission performance for the source category that would be achieved if each affected EGU was individually achieving its presumptive standard of performance, after allowing

³⁸⁶ *Id.* at 33,396.

³⁸⁷ *Id.*

³⁸⁸ *Id.*

³⁸⁹ *Id.*

for any application of [remaining useful life and other factors].”³⁹⁰ By definition, such trading programs would provide the same level of greenhouse gas control as EPA’s presumptive standards of performance, despite any divergence in design elements or policy choices.

Certain design elements and choices will go toward a state plan’s stringency, of course, and EPA should disapprove state plans based on trading programs that lack sufficient assurances of stringency. As in state plan development generally, demonstrating a trading program’s equivalent stringency is necessarily a prospective exercise that involves projections and assumptions about how sources and state-covered entities will behave in future years. EPA’s expertise and the public notice-and-comment process can ensure state plans are using reasonable assumptions and sound methods to project how their trading programs will likely compare to EPA’s guidelines. EPA should evaluate trading programs in state plans for design flaws that undermine the program’s apparent stringency, such as double-counting emissions, weak enforcement and monitoring provisions, or use of unverified data in the plan’s projections. Nevertheless, EPA’s ultimate criterion should be equivalent stringency, and any robust demonstration of equivalent stringency—addressing the above challenges in any reasonable way—should result in program approval.

B. Remaining Useful Life and Other Factors

Section 111(d) allows states, when establishing standards of performance for existing facilities, to take into account the remaining useful life of a specific source as well as other factors.³⁹¹ In December 2022, EPA set out proposed threshold requirements and other considerations and criteria for applying these factors to guide states that decide to take into account remaining useful life and other factors.³⁹² Many of our group of Attorneys General submitted comments in support of the December 2022 proposed rule.³⁹³ EPA has not finalized that proposed rule as of the date of these comments.

³⁹⁰ *Id.* at 33,392.

³⁹¹ 42 U.S.C. § 7411(d)(1).

³⁹² 87 Fed. Reg. 79,176 (Dec. 23, 2022).

³⁹³ See Comments of the Attorney General of New York, *et al.*, on Adoption and Submittal of State Plans for Designated Facilities: Implementing Regulations Under Clean Air Act Section 111(d); 87 Fed. Reg. 79,176 (July 6, 2023) (EPA-HQ-OAR-2021-0527-0092).

In the Proposed Rule, EPA is not seeking further comment on the December 2022 proposal, but is instead indicating how the remaining useful life considerations and criteria identified in the December 2022 proposal would be implemented in the context of these greenhouse gas emissions guidelines for power plants.³⁹⁴ In particular, the Proposed Rule addresses these five issues: (1) how the threshold remaining useful life requirements would apply to sources under this rule; (2) how states would determine a source-specific best system of emission reduction and standard of performance applying remaining useful life factors; (3) how to apply to power plants the proposed remaining useful life requirement to consider the potential pollution impacts and benefits of control to the communities most affected by and vulnerable to emissions from the source; (4) proposed provisions for EPA review of state plans incorporating remaining useful life standards of performance; and (5) EPA's interpretation of the Clean Air Act that allows states to adopt and enforce standards of performance more stringent than the guidelines set out by EPA.³⁹⁵

The key issue here is that, in situations where EPA's presumptive standard of performance is, for an acceptable reason, not available for a particular source, state plans applying remaining useful life and other factors should still impose the most stringent standard of performance feasible under the circumstances. In that light, we address each of the five issues identified above.

1. Application of remaining useful life threshold requirements

The December 2022 proposed rule provided that states could deviate from the presumptive emission guidelines for a specific source set by EPA under section 111(d) if one of these threshold remaining useful life or other factors requirements were met: (1) unreasonable cost of control resulting from plant age, location, or basic process design; (2) physical impossibility or technical infeasibility of installing necessary control equipment; or (3) other circumstances specific to the facility that are fundamentally different from the information considered in the determination of the best system of emission reduction.³⁹⁶ EPA developed these three requirements to ensure consistency in the states' application of remaining useful life and other

³⁹⁴ 88 Fed. Reg. at 33,381.

³⁹⁵ *Id.*

³⁹⁶ *Id.* at 33,382.

factors and so that remaining useful life would not be used to inappropriately undermine the stringency of the presumptive standards.³⁹⁷

The comments many of us submitted on the December 2022 proposed rule supported these proposed provisions, and we support the ways in which EPA proposes to apply them to developing standards for power plants under this specific Proposed Rule. We support EPA's proposed requirement that a state could only invoke remaining useful life to establish a less stringent standard for an electric generating unit if it demonstrated that there are "fundamental differences" between the source and EPA's best system determination, based on consideration of the factors that EPA considered in determining its best system.³⁹⁸ Minor, nonfundamental differences would not be sufficient. The "fundamentally different" language also adds clarification on applying the "other factors" criteria, is consistent with variance provisions in the Clean Water Act and other environmental laws, and would prevent widespread application of these factors, which could complicate implementation, result in foregone emission reductions, and undermine the level of stringency in the emissions guideline.

EPA explains that in developing the best system of emission reduction for each of the subcategories in the Proposed Rule, it applied the statutory factors such as technical feasibility and costs, and those are the appropriate factors for states to apply when developing source-specific best systems under the remaining useful life provision. Thus, EPA properly explains that a state seeking to invoke remaining useful life would need to evaluate costs using the same metrics as EPA—\$/ton of CO₂ removed and \$/MWh electricity generated—and then determine that the costs for the source at issue were "significantly higher" than those that would be reasonable for that source, for example, costs at the 95th percentile of fleetwide costs.³⁹⁹

The Attorneys General also support provisions clarifying the use of the remaining useful life and other factors in the Proposed Rule. First, EPA indicates that a state may not impose a less stringent standard of performance based on remaining useful life if the source cannot apply the best system of emission reduction but can reasonably implement a different emission reduction system that

³⁹⁷ *Id.*

³⁹⁸ *Id.*

³⁹⁹ *Id.* at 33,382–83.

can achieve the same degree of emission control.⁴⁰⁰ Second, EPA explains that, in light of the fact that its standards for subcategories of coal-fired generation sources already take into account costs amortized consistent with the relevant operating horizons, it is unlikely that an electric generating unit could properly be given a less stringent standard based solely on the unit's remaining useful life. Third, the Attorneys General agree that, while a state may use remaining useful life to extend a source's deadline to comply with one of the presumptive standards of performance, such use should be "rare," as EPA's proposed emission guidelines already provide "relatively long lead times and compliance timeframes."⁴⁰¹

2. Determination of source-specific best system of emission reduction and standard of performance

In the December 2022 proposed rule, EPA proposed to clarify how a state could determine a source-specific best system of emission reduction for a source that qualifies for an alternative best system based on remaining useful life or other factors. Specifically, a state plan submission must identify all emission reduction systems available for the source and then evaluate each system using the same factors and evaluation metrics EPA used to determine the best system for the source's subcategory.⁴⁰²

In the Proposed Rule, EPA applied these requirements in the context of setting a best system or standard of performance for power plants that qualify for remaining useful life or other factors, or explains why, in certain circumstances, it is not imposing those requirements in that context. EPA's proposed decisions on these points work toward ensuring that the most stringent degree of pollution control is set given relevant considerations when the presumptive degree cannot be met for an acceptable reason.

In general, EPA is prescribing that states evaluate certain specific controls when applying remaining useful life and setting a source-specific best system and standard of performance for power plants. For existing coal-fired plants in the long-term subcategory, EPA would require a state to evaluate natural gas co-firing as a potential source-specific best system, and if the source can implement CCS but not attain the standard of performance set by EPA, the state must evaluate a source-specific standard of performance. And for coal-fired plants in both the long-term and

⁴⁰⁰ *Id.* at 33,383.

⁴⁰¹ *Id.* at 33,384.

⁴⁰² *Id.*

medium-term categories, states must evaluate lower levels of natural gas co-firing if the EPA presumptive emission level cannot be met.

Similarly, for existing combustion turbines, if a source cannot participate in the CCS subcategory, the state must demonstrate that the source cannot participate in the hydrogen co-firing subcategory, and vice-versa.⁴⁰³ And if the source cannot meet the presumptive standards of performance for either category, the state must evaluate less stringent standards for either CCS or hydrogen co-firing.

In these circumstances, imposing consideration of certain controls is important to ensure that all relevant controls are considered and the emission standard established based on the most stringent control is selected. In this regard, for both the coal-fired and combustion turbine provisions discussed in the previous two paragraphs, EPA asks whether the proposed requirement to consider the identified technologies should be weakened to make consideration of the technologies a presumptively approvable approach.⁴⁰⁴ We believe it more appropriate to leave consideration of the technologies as requirements, to ensure selection of the most protective control reasonably available.

The December 2022 proposed rule required that EPA, for purposes of evaluating remaining life, would (a) identify outermost dates to cease operation for a source category to qualify for consideration of remaining useful life or (b) provide a methodology and consideration for states to establish such a date.⁴⁰⁵ EPA proposes to supersede that requirement for the various subcategories in the Proposed Rule.⁴⁰⁶ We generally agree with EPA's reasoning on this point. In addition, we agree with EPA's particular point that, given that the subcategories for existing coal-fired sources are based on self-identified expected source lifetimes, there is little likelihood that a state would find reason to invoke the remaining useful life criterion for those sources.

As in the previous subsection, we support the qualifications that EPA proposes to impose on a source-specific best system and standards of performance for electric generating units on remaining useful life grounds. For example, if a source cannot reasonably apply the EPA best system but can use other emission reduction systems to achieve the same standard of performance as EPA's best

⁴⁰³ *Id.* at 33,385.

⁴⁰⁴ *Id.* at 33,384–85.

⁴⁰⁵ *Id.* at 33,385.

⁴⁰⁶ *Id.*

system, then the state should not be permitted to give that source a less stringent standard of performance. Next, if a state plan subjects a source to a less stringent standard of performance based on its remaining useful life, the plan should be required to identify the date by which the source commits to permanently cease operations as an enforceable requirement.⁴⁰⁷ Similarly, if a state plan subjects a source to a less stringent standard based on a source's restricted capacity or other operating condition, the plan should be required to include that operating condition as an enforceable requirement.⁴⁰⁸ In the absence of such enforceable requirements, a subsequent change in a facility's operations could result in foregone emission reductions and undermine the level of stringency in the emissions guideline.

3. Consideration of impacted communities

The Attorneys General support requiring that a state contemplating a less stringent standard of performance for a power plant based on remaining useful life “consider the potential pollution impacts and benefits of control to communities most affected by and vulnerable to emissions from the [source] in determining [the] source-specific BSER[] and the degree of emission limitation achievable through application of such BSER[].”⁴⁰⁹ Consideration of such impacts and benefits is a necessary corollary to the state's obligation to identify such communities as stakeholders through the required meaningful engagement process, as identifying such communities without then considering impacts on them would be pointless.

EPA correctly notes that the additional pollution from such less stringent standards “have the potential to result in disparate health and environmental impacts” to such communities, and that failure to consider such outcomes “would be antithetical to the public health and welfare goals of CAA section 111(d).”⁴¹⁰ Thus, state submission of a plan including a less stringent standard pursuant to the remaining useful life provision must demonstrate that such consideration occurred. Additionally, in such circumstances, the state also could permissibly select a higher-cost standard of performance for a source to benefit communities that would otherwise be harmed by a less stringent standard.

As we previously noted, EPA has ample authority to require such consideration. Congress's inclusion of the “other factors” language in the remaining

⁴⁰⁷ *Id.* at 33,385–86.

⁴⁰⁸ *Id.* at 33,386.

⁴⁰⁹ *Id.*

⁴¹⁰ *Id.*

useful life provision indicates that it envisioned that additional factors aside from remaining useful life could be relevant in determining the appropriate performance standard for individual facilities. Also, section 111(d)'s language directing that EPA "permit" states to consider remaining useful life indicates that the agency has some discretion regarding how states can apply remaining useful life, among other factors, in establishing performance standards. Given that the purpose of regulating stationary source pollution under section 111 is to address emissions that endanger public health and welfare, requiring that states take into account how excess pollution (above the level reflected in application of the best system of emission reduction) may impact the health and welfare of local communities furthers the statutory design. Finally, EPA's oversight authority in ensuring that state plans do a "satisfactory" job of adopting standards that reflect the degree of emission reduction from applying the best system provides additional support for requiring that potential harms from exceeding the emissions guideline be adequately considered.

4. EPA's standard of review of state plans including standards of performance incorporating remaining useful life

The Attorneys General support the Proposed Rule's provisions regarding the EPA's standard of review for state plans including standards of performance that incorporate remaining useful life and other factors. We agree that states carry the burden of making any demonstrations necessary to invoke remaining useful life and to justify any best system or standard of performance that are less stringent than the presumptive standards developed by EPA. We also agree that a state selecting less stringent standards of performance under the remaining useful life provision must meet all other applicable requirements, whether those that might be imposed under the December 2022 proposed rule or otherwise.

The Proposed Rule appropriately requires that, when available, a state must use source- and site-specific information as the basis for applying remaining useful life, because, as EPA points out, remaining useful life can only be invoked for a particular source when there are fundamental differences between EPA's best system and the source's specific circumstances. If such site-specific information is not available, then a state may use other "reliable and adequately demonstrated" sources of information, such as information provided by EPA, permits, environmental consultants, vendors of control technology and inspection reports.⁴¹¹ In such circumstances, EPA would appropriately require that the state has the

⁴¹¹ *Id.* at 33,386.

burden of explaining why reliance on the non-site-specific information to establish a less-stringent standard of performance is reasonable.

5. State authority to apply more stringent standards of performance

The Attorneys General support EPA's position that states may use remaining useful life and other factors to impose standards of performance on individual sources that are *more* stringent than EPA's presumptive standards. It is appropriate, as EPA recognized in its recent section 111(d) implementing regulations proposal, for EPA to defer to a state's decision to impose more stringent standards.⁴¹² In the context of that governing standard of review, we agree that a state would have the burden of showing that the standard of performance is more stringent than the presumptive standard, but need not do a source-specific best system evaluation.

EPA provides a list of factors a state may consider in determining whether to impose a more stringent standard of performance based on remaining useful life and other factors, including: effects on local communities, availability of control technologies that allow a particular source to achieve a more stringent standard, and local or state policies and requirements.⁴¹³ We agree that these factors are appropriate for such decision making, and further agree that the list is not exhaustive, so that consideration of other relevant factors may be appropriate depending on the circumstances. EPA has authority to require that any such more stringent standards of performance be federally enforceable and meet any other applicable legal requirements.

C. Additional EPA Information to Assist State Plan Development

The Attorneys General have two additional requests for modification of the Proposed Rule to assist states as they develop their section 111(d) plans. First, we respectfully request that, for each state, EPA provide a list of existing facilities subject to the Proposed Rule's emission guidelines for existing sources. In prior rulemakings establishing requirements for existing facilities, such as the Cross State Air Pollution Rule, the Acid Rain Program, the NO_x SIP Call, and the Clean Air Interstate Rule, EPA provided a list of sources that were subject to the new requirements. Doing so for those rules made implementation of the new

⁴¹² See 87 Fed. Reg. 79,176, 79,204 (Dec. 23, 2022).

⁴¹³ 88 Fed. Reg. at 33,386.

requirements by the states much more efficient, and doing so for this Proposed Rule would have the same benefit for state plan development.

Second, the Attorneys General respectfully ask that EPA develop a model section 111(d) state plan for states to use as they develop their own plans incorporating the Proposed Rule's requirements. This will not only assist state agencies, but will also streamline stakeholder involvement if there is a model plan available to serve as the basis for discussion.

CONCLUSION

The Proposed Rule is an important step forward in finally putting in place meaningful carbon pollution limits on new and existing fossil-fueled power plants. The proposal adheres to the Supreme Court's interpretation of the statute set forth in the *West Virginia v. EPA* decision. The Proposed Rule also faithfully implements the Clean Air Act amendments passed as part of last year's Inflation Reduction Act: In developing the rule's emission limits, EPA factored in the economic incentives Congress enacted to encourage certain pollution control technologies. And the agency followed Congress's directive that EPA use its existing authority under section 111 to ensure that power plants substantially reduce their CO₂ emissions.

As discussed in detail above, the Attorneys General support the Proposed Rule as legally sound and necessary to address carbon pollution from power plants that endanger public health and welfare. We also have provided some suggestions for ways in which the Proposed Rule can be strengthened to achieve additional emission reductions while avoiding disproportionate impacts and respecting state authority. With these suggestions in mind, we urge EPA to move promptly to finalize the rule and also to initiate a supplemental rulemaking to limit CO₂ emissions from power plants not regulated in this rulemaking.

Respectfully Submitted,

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