

ISSUE BRIEF

THE EPA'S POWER PLANT CARBON RULES CAN BE BUILT TO LAST

The EPA has a firm legal basis for strong power sector standards that will accelerate the sector's ongoing reduction of carbon pollution and help meet the urgent threat of climate change.

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The Environmental Protection Agency (EPA) is set to propose new standards for carbon pollution from power plants in the coming weeks.

These standards have been a long time coming.

Fourteen years ago, the EPA determined that carbon dioxide and other greenhouse gases that cause climate change “endanger public health or welfare.”¹ That finding triggered Clean Air Act obligations to issue safeguards for climate pollution. So far, the agency has set limits on greenhouse gases from cars and trucks and from oil and gas infrastructure. But power plants—the second-largest source of climate pollution, after transportation—have faced virtually no federal limits. Thanks to coal industry lawsuits, standards that the EPA issued in 2015 never went into effect.²

Last year's Supreme Court decision in *West Virginia v. EPA* clarified the bounds of the EPA's Clean Air Act authority to set carbon standards for power plants.³ And Congress's landmark climate legislation, the Inflation Reduction Act, reaffirmed the EPA's authority and directed the agency to move ahead with such standards.⁴

Setting effective, affordable power plant carbon standards under the Clean Air Act now can ensure that the power industry delivers the emissions reductions needed to help meet the climate crisis.

Time is of the essence. The EPA needs to move expeditiously, proposing power plant carbon standards soon as promised and finalizing them by early next year. This will allow states



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and power companies to get to work on implementing them, so we can curb this dangerous pollution and safeguard the climate as soon as possible.

This Issue Brief explains:

- the robust legal basis for power plant carbon standards;
- why EPA can set standards based on carbon capture and storage;
- the process for states and companies to comply once the rules are set;
- the background on the transition underway in the power sector;
- the impact of the Inflation Reduction Act; and
- why these carbon standards are necessary.

THE EPA HAS THE AUTHORITY AND RESPONSIBILITY TO ACT

The Clean Air Act has long authorized—indeed, required—the EPA to establish limits on carbon dioxide from new and existing fossil fuel-fired power plants.⁵ The agency first set rules for existing power plants in the 2015 Clean Power Plan; however, these rules never took effect because the Supreme Court first stayed them and then the Trump administration repealed them.⁶

Then, in 2022 in *West Virginia v. EPA*, the Supreme Court held that the Clean Power Plan went beyond the agency’s authority because it was based not on what is achievable through pollution controls but on “shifting generation”—i.e., replacing coal and gas plants with wind and solar power.

The Court made clear, however, that the EPA retains its “traditional” authority to base standards on technology that “caus[es] plants to operate more cleanly” and “ensur[es] the efficient pollution performance of each regulated source.”⁷

CLEAN AIR ACT STANDARDS ON FOSSIL FUEL-FIRED POWER PLANTS

Under Clean Air Act Section III(b), the EPA sets standards for new plants; these federal standards apply directly to new plants. Under Section III(d), the agency sets the emission rate that existing plants must meet; these standards are met through state plans. These emission-rate limits must be based on the emission reductions achievable by the “best system of emission reduction” that is available to the plants as evaluated by the EPA, taking into account technical feasibility, cost, and other factors.⁸

Soon after the Supreme Court decision, Congress passed the Inflation Reduction Act, which has three critical features that will affect the upcoming carbon regulations.⁹ The act:

- offers significant tax incentives and grants for clean energy;
- expressly designates carbon dioxide and other greenhouse gases as “air pollutants” under the Clean Air Act; and
- amends the Clean Air Act to reaffirm the EPA’s authority and direct the agency to issue new standards for power plant carbon dioxide emissions while taking into account the new tax incentives and grants.

One of the technologies supported by the Inflation Reduction Act’s tax incentives is carbon capture and storage, which keeps carbon out of the atmosphere by removing it from a plant’s smokestack and disposing of it deep underground. As a pollution control technology that makes power plants operate more cleanly, carbon capture and storage falls squarely within the bounds of what the *West Virginia* decision allows EPA to consider in establishing carbon pollution standards. Carbon capture is similar to sulfur dioxide scrubbers and other pollution controls on which the EPA has been basing standards for decades.

Given the EPA’s legal authority as defined by the Supreme Court, and the tax incentives and other support enacted by Congress in the Inflation Reduction Act, NRDC is urging the EPA to set standards for both new and existing coal and gas plants based on the emission reductions that can be achieved through carbon capture and storage technology.

Carbon capture and storage can cut power plant carbon dioxide emissions by 90 percent or more—greater than other options such as improving combustion efficiency or co-firing with a lower-carbon fuel.¹⁰

The EPA’s limits should apply to all coal and gas power plants that produce electricity on a regular basis. Standards for existing plants will likely be phased in over a number of years. The EPA could also set less stringent standards for plants that are slated to close in the next few years, and for those that operate infrequently, such as when electricity demand spikes. As explained below, while the EPA should base its standards on the emission limits achievable using carbon capture and storage, each state and each company will have the option to comply in other ways.

HOW CARBON CAPTURE AND STORAGE WORKS

Carbon capture and storage involves three steps: capture, transport, and storage. Pollution control equipment installed on power plants or other industrial facilities (such as ethanol or cement plants) removes carbon dioxide from the flue gases that would otherwise go out the smokestack. Once captured, that carbon dioxide is transported by pipeline for safe, permanent disposal in deep underground geological formations.

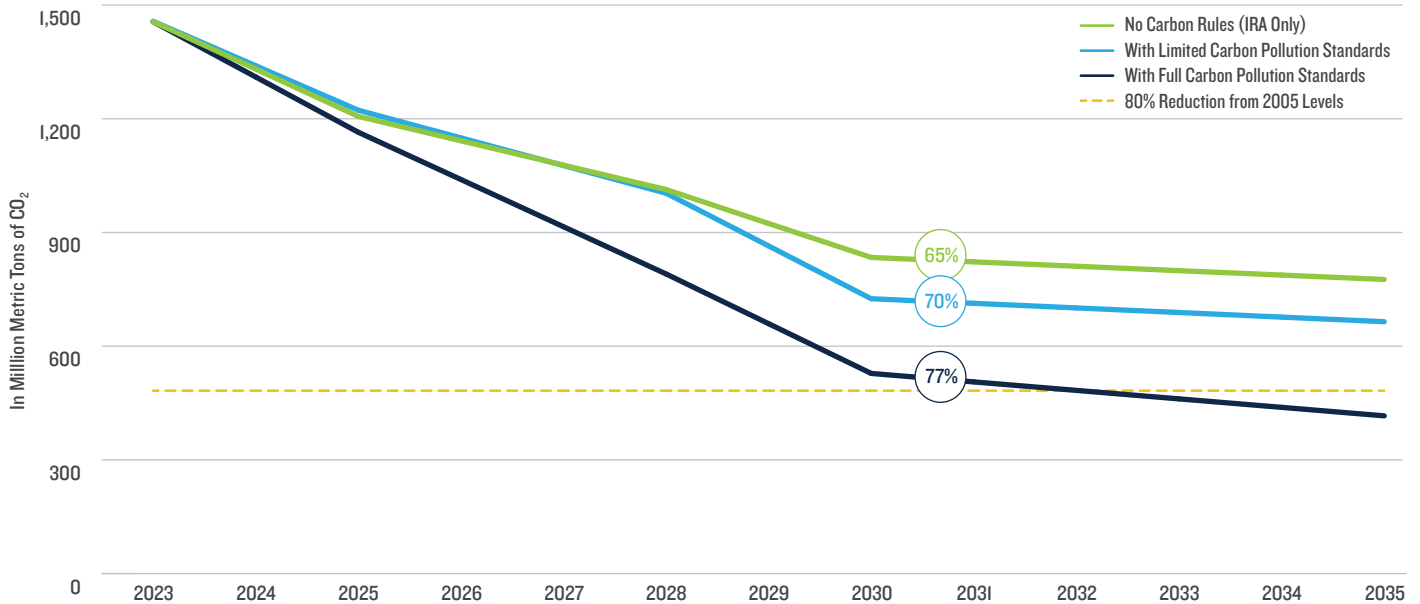
While the technology to capture carbon dioxide has existed for decades, few power plants have used it because there are no limits on their carbon emissions. As new carbon capture and storage projects come online, new rules will also be needed to ensure the safety and soundness of carbon dioxide pipelines and storage sites.

REAL BENEFITS, LOW COSTS

Modeling by NRDC projects that **with the Inflation Reduction Act’s clean energy investments plus ambitious but achievable EPA carbon pollution standards, the power sector could reach at least a 77 percent reduction in carbon dioxide emissions by 2030**, relative to the peak in 2005.¹¹ This is significantly greater than the roughly 65 percent reduction with market trends and tax incentives alone.¹²

Strong carbon pollution standards could bring the power sector very close to the 80 percent reduction target for 2030 that analysis suggests is necessary for the United States to stay on track to meet its climate commitments—and to curb dangerous climate change and protect public health and welfare.¹³

FIGURE I: PROJECTED U.S. POWER SECTOR EMISSIONS, 2023–2035, WITH FULL, LIMITED, AND NO CARBON STANDARDS



Carbon capture and storage has already been successfully demonstrated on multiple power plants and industrial facilities both in the United States and abroad.¹⁴ With tax incentives defraying a significant share of the cost of installing and operating this technology, NRDC’s modeling projects that the costs for power companies and their customers will be well within what is reasonable under the law.

Together with other air pollution standards for power plants, carbon rules will deliver reductions in soot, smog, and mercury, which could prevent hundreds of thousands of premature deaths and provide a huge public health benefit to communities across the nation.¹⁵

STATES AND COMPANIES WILL DECIDE HOW TO COMPLY

The EPA sets *performance* standards that establish the emission rate that plants have to meet, but does not specify the technology they have to use. So, while the EPA must base those standards on the most effective available technology that can be installed at individual plants—in this case, carbon capture and storage—states and companies are not required to use that technology but instead will have the flexibility to devise their own plans to meet those standards.

While federal standards for new plants apply right away, the Clean Air Act allows each state to adopt its own plan to implement the rules for existing plants. State plans will likely be required within 15 months following the finalization of the EPA’s standards. State plans will likely be required within 15 months following the finalization of the EPA’s standards, and then those state plans will phase in over the coming years.

The state planning process allows state leaders, utility regulators, companies, and the public to consider the best way to achieve emissions cuts. Some states and companies will choose to install carbon capture technology. Others will

decide it makes more sense to operate less frequently and comply with a less stringent standard, or to retire existing fossil plants and invest in new, cleaner (and often cheaper) solar, wind, or battery storage. This will be entirely their decision, not the EPA’s.

For plants that do comply with these standards using carbon capture, the EPA must provide for rigorous accounting of carbon pollution from the point of capture to the point of permanent storage, including monitoring of emissions and leaks at all stages and enforcement against any violations. In tandem, the EPA and the Biden administration should also take action to update regulatory safeguards for pipelines and underground storage to ensure that carbon capture and storage projects do not harm communities nearby.

THE POWER SECTOR IS ALREADY CHANGING

These standards will be built on trends already underway in the power sector. Even though the EPA standards reviewed in *West Virginia* never went into effect, the power sector has cut its carbon emissions by more than one-third from the peak level emitted in 2005.¹⁶ Just a decade ago, coal-fired plants generated nearly half the power in the United States, but as coal plants aged and cheaper options grew quickly, coal generation declined; it is now just 20 percent of the total and is likely to dwindle further.¹⁷

Wind, solar, and battery technologies continue to advance quickly as their costs have plummeted. In fact, renewable energy generated 22 percent of electricity in the United States last year, for the first time outpacing the market shares of both coal and nuclear energy.¹⁸ Solar and wind power are now cheaper to build and run than it is to continue running an old coal plant. In most cases they are also already cheaper than a new gas plant—and may soon be cheaper than existing ones, too.¹⁹

“With the right policies and technologies, a 100 percent clean energy future can be more than a goal; it can be a reality,” the Edison Electric Institute, which represents the nation’s investor-owned utilities, reported last year.²⁰ We think “the right policies and technologies” include these strong EPA standards.

THE IRA WILL SPEED UP THE ENERGY TRANSITION

The Inflation Reduction Act, which President Biden signed into law last year, is the single most important climate legislation in the nation’s history. The biggest impact of the law’s clean energy investments will be in cutting emissions from the power sector. The bill contains more than \$100 billion in clean electricity tax incentives, including a 70 percent increase in the tax credit provided for each ton of carbon captured and sequestered.²¹

Overall, NRDC’s modeling found that the tax incentives in the Inflation Reduction Act could double the amount of renewable energy and other low-carbon capacity on the grid by 2030—the fastest and most sustained build-out of renewables and other clean electricity resources in U.S. history.²²

Private sector analysts agree. “The U.S. IRA provides the most supportive regulatory environment in clean tech history,” Goldman Sachs wrote in a March 2023 report that predicted \$3 trillion in private and public investments in the coming years.²³

Several major investor-owned utilities—including DTE Energy, Ameren Missouri, and Duke Energy—have already announced that they will accelerate their transition away from fossil fuels and toward renewable energy, all while saving consumers money.²⁴ Across the economy, the acceleration of clean energy investments will lower consumers’ electricity bills by \$60 billion over the next 15 years while adding as many as 169,000 good clean energy

jobs.²⁵ In the six months since the climate bill was passed, companies have announced more than 155 new investments in clean energy totaling \$75 billion, according to data compiled by Environmental Entrepreneurs. Those investments alone are expected to create more than 58,000 jobs.²⁶

EPA STANDARDS ARE NEEDED TO CUT CARBON

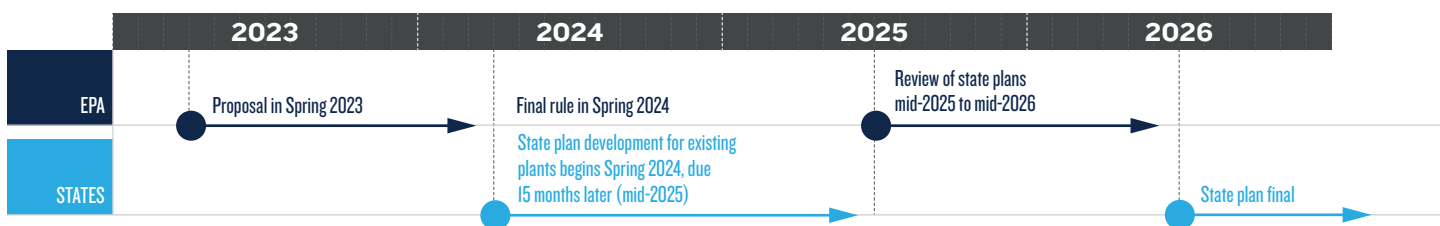
While the trend toward clean energy is clear, plants that continue to use fossil fuels must reduce their emissions commensurate with the best pollution controls available. EPA standards are essential to ensure sufficient reductions of harmful carbon pollution at the pace necessary to address the climate crisis.

These standards will ensure that the power industry is held accountable for their harmful carbon pollution and delivers the emission reductions needed to meet the climate crisis—made clear, once again, in the latest urgent warnings from the world’s preeminent climate scientists, the Intergovernmental Panel on Climate Change.²⁷

The carbon rules also will give states and companies both the flexibility and the certainty needed to figure out the best pathways to cut this pollution. Even though the standards themselves will be attainable through carbon capture and storage at the individual plant, states and companies will be free to look for the most cost-effective approaches. And clear standards will give industry the regulatory certainty it needs to guide future investment.

These carbon power plant standards will reinforce the changes already underway in the industry. And, together with the Inflation Reduction Act, they will deliver a cleaner grid that saves consumers money and grows the economy, while helping avert the most catastrophic impacts of climate change.

FIGURE 2: TIMELINE FOR EXISTING PLANTS COMPLIANCE



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