

FACT SHEET

CLEAN ELECTRICITY NORTH CAROLINA: HOW FEDERAL POLICY CAN DELIVER CLEAN ELECTRICITY AND CLEAN AIR FOR NORTH CAROLINA

With existing state and federal policies, plus proposed federal regulations, North Carolina is on the road to a cleaner electricity system, one that will create new economic opportunities, increase in-state generation, and lower power-related carbon dioxide emissions. Strong carbon pollution standards from the Environmental Protection Agency (EPA) are now needed to ensure that North Carolina's future electricity system also cuts pollution and protects people's health.

NRDC modeling predicts that, with its state goals, the historic investments passed by Congress in 2022 with the Inflation Reduction Act (IRA), and the proposed EPA pollution standards, by 2040 North Carolina could see:

- Renewable energy providing 72 percent of the state's power
- Carbon emissions from electricity falling to 85 percent below 2005 levels
- Reduced smog and particulate pollution, saving up to 410 premature deaths a year

Clean energy is poised to take off in North Carolina.

North Carolina's clean energy workforce currently ranks ninth among all states, with 105,370 jobs. There are also signs of growth, as new clean energy and clean vehicles projects are being announced frequently.¹ The clean energy projected in NRDC's analysis represents over \$30 billion of new investments in the state over the next 20 years.²

Clean energy is already delivering economic benefits for North Carolina; now EPA standards can help ensure the state also benefits from accelerated emissions reduction and better health. North Carolina is poised to reap the benefits of cleaner electricity and cleaner air, which will protect health and save lives.

NRDC modeling finds that existing state and federal policies, plus proposed EPA regulations, will spur large investments in local clean energy. The state's wind and solar energy

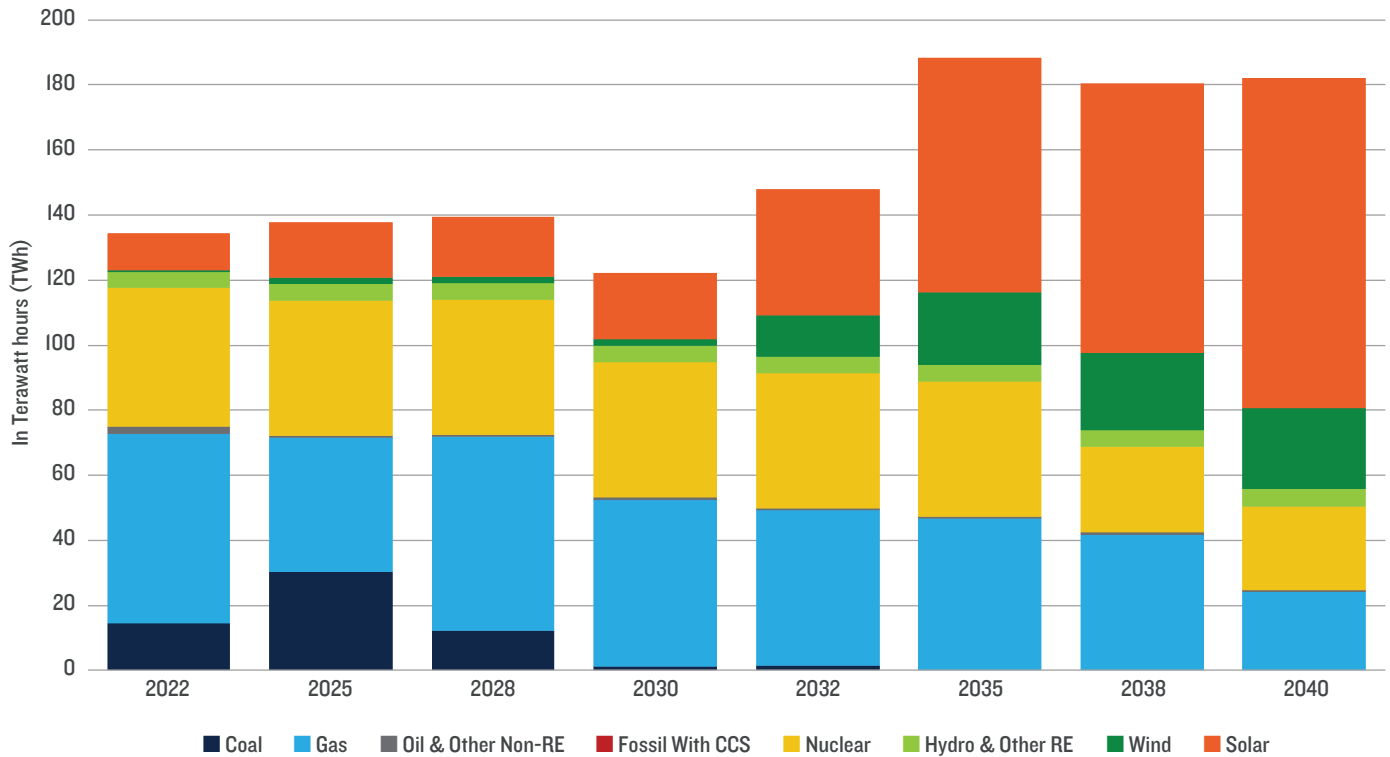
and battery storage capacity is expected to grow more than fourfold over the next several years, from 6.3 gigawatts today to 26.2 gigawatts by 2032.³ That means the total capacity of renewable energy in the state will be more than what coal and gas capacity is today. Wind, solar, and battery will become the state's main source of power before 2040.

This new, cost-effective clean energy will replace old, expensive, and dirty coal plants. To maximize climate benefits, coal power needs to be replaced with clean energy, not just with a few new gas plants, as Duke Energy has proposed.⁴ Regardless, cheaper renewable energy will mean decreased gas generation as gas plants run less frequently. By 2040, renewables are also projected to provide more electricity than gas in the state, accounting for more than 70 percent of the state's electricity grid (Figure 1), compared to about 12 percent today. This all is projected to happen while total electricity capacity almost triples between today and 2040.

This transition to clean energy would have been unthinkable just a few years ago. Now, this change is underway thanks to four main drivers.

First, the economics of solar, wind, and battery technology have upended the electricity industry across the United States. The cost of installing new wind turbines has fallen by nearly 63 percent since 2009 and solar panels by a whopping 83 percent.⁵ Installing new renewable energy is already typically cheaper than building a gas plant,

Figure 1: Projected In-State Generation in North Carolina With the IRA and EPA Standards



Notes: CCS = carbon capture and sequestration. Oil & Other Non-RE (nonrenewable energy) includes oil/gas steam, biomass, and other waste fuels. Other RE refers to geothermal and landfill gas.

which is why solar, wind, and batteries are set to account for 94 percent of the new power capacity installed across the country this year.⁶

Second, North Carolina’s existing clean energy laws set the state up well for EPA carbon pollution standards.

According to NRDC modeling, the state can achieve a 70 percent reduction in carbon emissions from 2005 levels by 2030 with no electricity bill impacts for households from complying with the EPA carbon pollution rules before 2035, and with an average annual electricity rate impact of just 0.7 percent between now and 2042.

Third, the IRA, which President Biden signed into law in August 2022, is providing extraordinary federal investment in clean energy.

This historic climate law includes unprecedented incentives for wind, solar, battery storage, and other low-carbon energy sources, in addition to tax credits for electric vehicle manufacturing and purchase. This measure will accelerate the trends already underway, putting the nation—and North Carolina—on track for the fastest and most sustained build-out of renewable energy in the country’s history. Figure 2 shows all of North Carolina’s clean energy projects currently in development that will benefit from the law’s clean energy tax credits.

Fourth, and finally, the EPA is now in the process of setting new standards that will ensure utilities and states cut their carbon pollution from power plants.

In May 2023, the EPA proposed carbon emissions limits on

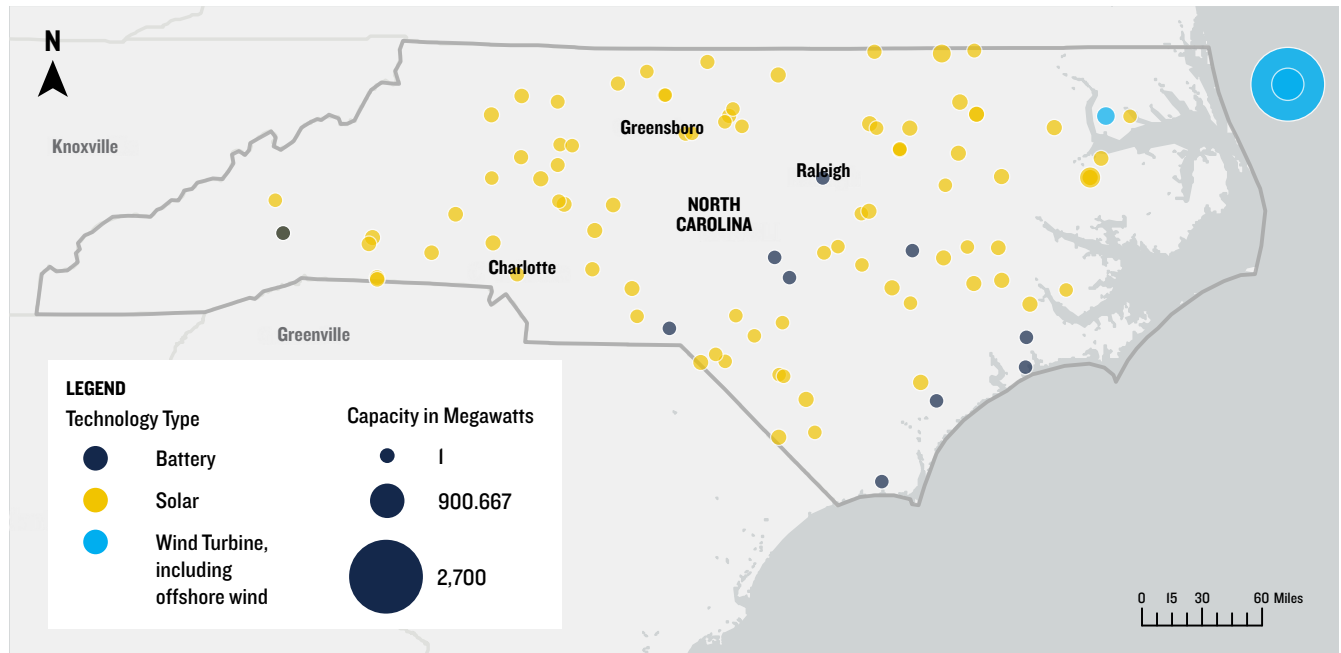
coal and gas plants based on efficient and reduced operations, the capabilities of carbon capture and sequestration, and clean hydrogen. Once finalized, the standards will set the emissions level that power plants must meet but will give companies and states broad flexibility to adopt strategies that achieve those results. Given the changes underway in its electricity sector, North Carolina is in a strong position to comply with these standards and garner additional climate, economic, and public health benefits.

NRDC modeling projects that industry trends and the IRA will deliver a 67 percent reduction in power sector emissions nationwide (relative to 2005 levels) by 2030; with the right EPA rules in place, emissions could be cut further, to a 73 percent reduction.



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Figure 2: Clean Energy Projects in North Carolina



Source: S&P Global Power Plant Units

HOW THE EPA STANDARDS WILL WORK IN NORTH CAROLINA

In May 2023, the EPA proposed national carbon reduction standards for fossil fuel power plants. The standards would cover existing coal plants and new and existing gas plants (new coal plants are already covered by earlier standards). The standards are legally sound: the EPA is following the Supreme Court’s decision in *West Virginia v. EPA* by proposing standards that will “cause regulated sources to operate more cleanly” and will “improve the pollution performance of individual sources.”⁷

Under the Clean Air Act, the EPA sets the emissions performance levels that sources must meet based on the “best system of emission reduction.” The EPA’s proposed emissions limits are based on the capabilities of efficient generation, carbon capture and sequestration, and clean hydrogen technologies. Depending on the type of plant, including the size and how often it runs, plants have different dates and rules for compliance. In most cases, the emissions standards start to kick in by 2032, and all are fully in place by 2040. States and plant owners have broad flexibility to adopt any strategies that achieve the required emissions reductions.⁸

The EPA is planning to finalize these standards by April 2024, and that will start the next process for states to develop plans to achieve the emissions reductions the agency has laid out. Under the proposed rules, states will have two more years to develop their plans, and then the EPA has a year to consider, review, and approve or reject each plan (Figure 3).

Figure 3: Expected Timeline for State Planning and Compliance with EPA Carbon Rules

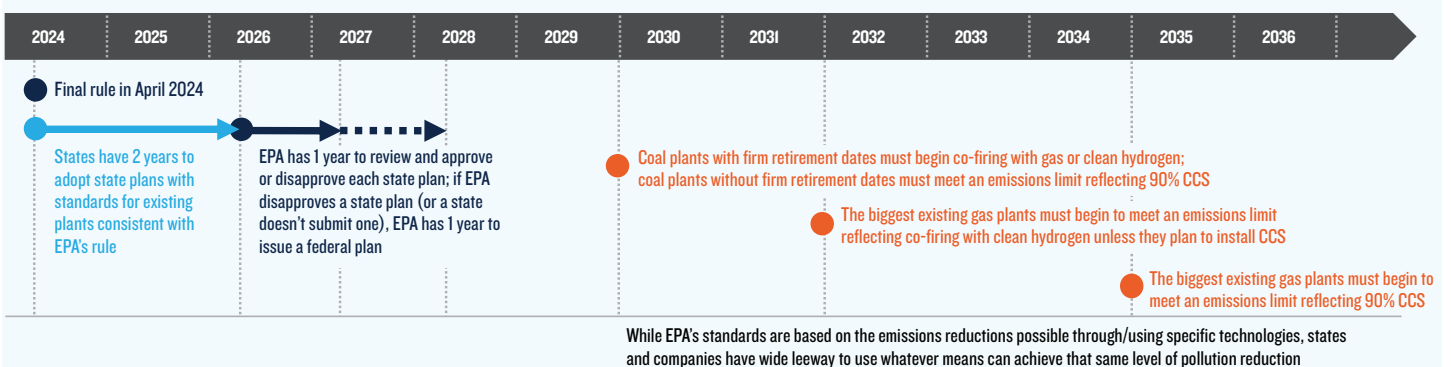
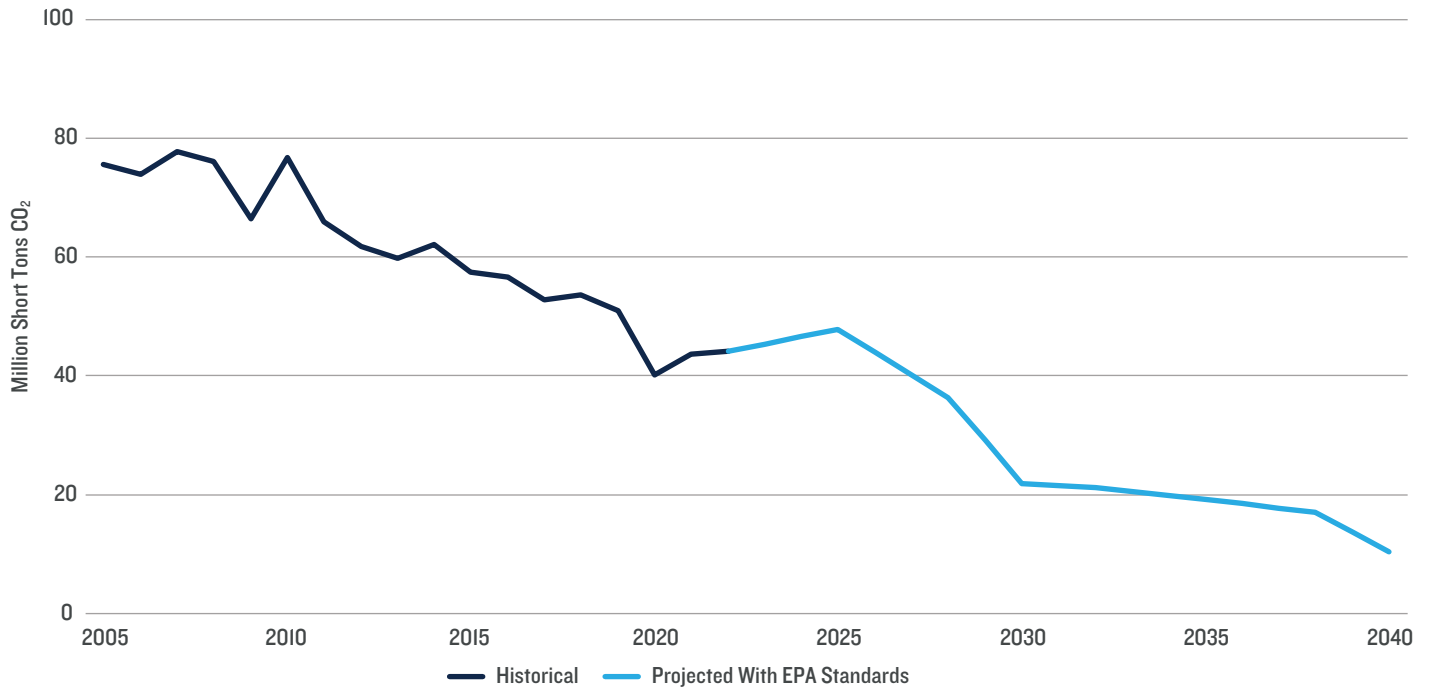


Figure 4: North Carolina's Power Sector CO₂ Emissions



THE IRA AND EPA STANDARDS WILL REDUCE CARBON POLLUTION IN NORTH CAROLINA

The retirement of coal plants and growth in new renewable energy will lead to cleaner air, dramatically less carbon emissions, and better health for the people of North Carolina. The combined impacts of the IRA, EPA carbon pollution standards, and state compliance actions are expected to be dramatic:

- According to NRDC modeling, by 2030, carbon emissions from electricity are projected to be 70 percent below 2005 levels. These cuts in climate pollution continue, with carbon emissions falling to 86 percent below 2005 levels by 2040 (Figure 4).
- In total, state policy, the IRA, and the new EPA standards are projected to cut in-state power sector carbon pollution by a total of 359 million tons compared to today's levels between now and 2042. This is more than eight times the annual pollution for the state's current power fleet.⁹

THE IRA AND EPA POLLUTION STANDARDS WILL IMPROVE HEALTH FOR ALL NORTH CAROLINIANS

The transition to cleaner energy will also save lives, prevent illness, and reduce health spending across the state. Nitrogen oxide and sulfur dioxide are two major health-harming

pollutants produced by fossil power plants; they contribute to local smog, particulate pollution, and ground-level ozone, which can lead to serious respiratory illness, asthma, stroke, lung cancer, and death. These pollutants also contribute to acid rain that damages ecosystems, agricultural lands, buildings, and wildlife by acidifying surface water and soil.

The retirement of coal plants will result in the full elimination of sulfur dioxide emissions from the state's power fleet by 2035. Nitrogen oxide emissions will be cut by 87 percent from current levels in the same time frame.

These reductions in health-harming pollution result in significant economic and public health benefits. In fact, it is estimated that the reduction in pollution from power plants could prevent more than 410 premature deaths in North Carolina *annually* by 2040.¹⁰

CONCLUSION

North Carolina is at the cusp of a clean energy boom. The closure of old, dirty fossil fuel plants and construction of new wind, solar, and energy storage projects is now set to usher in an age of energy abundance and economic growth for the state. Strong EPA standards on power plants will help ensure North Carolina—and the entire nation—can benefit as we address the climate crisis and cut air pollution.

Endnotes

- 1 E2, *Clean Jobs America 2023*, September 2023, <https://e2.org/reports/clean-jobs-america-2023/>.
- 2 Investment numbers represent levelized capital cost of investments.
- 3 Analysis was completed using the Integrated Planning Model (IPM). This is the same model used by the U.S. EPA for its own analysis of the proposed carbon pollution standards for power plants. More details on our analysis of the IRA and power plant standards can be found in NRDC and Clean Air Task Force, *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*, August 8, 2023 (comments to the EPA, docket no. EPA-HQ-OAR-2023-0072), <https://www.nrdc.org/sites/default/files/2023-08/comments-epa-power-plant-rule-nrdc-catf-20230808.pdf>.
- 4 Duke Energy, “Duke Energy Files Updated Carbon Plan to Serve the Growing Energy Needs of a Thriving North Carolina,” news release, *PR Newswire*, August 17, 2023, <https://www.prnewswire.com/news-releases/duke-energy-files-updated-carbon-plan-to-serve-the-growing-energy-needs-of-a-thriving-north-carolina-301904106.html>.
- 5 Lazard, *Levelized Cost of Energy Plus⁺*, April 12, 2023, <https://www.lazard.com/research-insights/2023-levelized-cost-of-energyplus/>.
- 6 U.S. Energy Information Administration (EIA), “Solar and battery storage to make up 81% of new U.S. electric-generating capacity in 2024,” *Today in Energy*, February 15, 2024, <https://www.eia.gov/todayinenergy/detail.php?id=61424>.
- 7 U.S. EPA, *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*, 88 Fed. Reg. 33,240, 33,269–33,270 (May 23, 2023), <https://www.govinfo.gov/content/pkg/FR-2023-05-23/pdf/2023-10141.pdf> (quoting West Virginia, 142 S.Ct. at 2610, 2614).
- 8 *Ibid.*, 33,243.
- 9 U.S. EIA, “Energy-Related CO₂ Emission Data Tables,” July 12, 2023, <https://www.eia.gov/environment/emissions/state/>.
- 10 Calculated using EPA’s benefit-per-ton values. U.S. EPA, “Estimating the Benefit per Ton of Reducing Directly-Emitted PM_{2.5}, PM_{2.5} Precursors and Ozone Precursors From 21 Sectors,” Benefits Mapping and Analysis Program, January 17, 2023, <https://www.epa.gov/benmap/estimating-benefit-ton-reducing-directly-emitted-pm25-pm25-precursors-and-ozone-precursors>.