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To Build a Clean Power Sector, Pennsylvania Needs All the Tools

Modeling by the Natural Resources Defense Council shows that Pennsylvania can build a cleaner power sector and stronger economy if it caps carbon pollution from power plants, raises renewable energy targets, and increases energy efficiency. The modeling highlights that:

- *Without limits on carbon pollution, emissions from the state's power plants are likely to rise over the next two decades as gas power plants replace not just coal, but also nuclear plants.*
- *Carbon limits must be accompanied by stronger incentives for renewables; otherwise, compliance with the limits is likely to be achieved between now and 2030 mainly by accelerating coal-to-gas switching and exporting less electricity to other states.*
- *Together, carbon limits, a 30% renewable energy standard, and stronger efficiency programs would reduce the use of the dirtiest power plants, keep in-state generation high, lower energy bills, and drive investments in local clean power resources.*

Modeling conducted for NRDC by consulting firm ICF shows that Pennsylvania can build a stronger and cleaner economy while remaining a large electricity exporter. However, this won't happen unless state policymakers take decisive action both to establish declining carbon limits for the power sector and to incentive more renewable energy. And if Pennsylvania increases energy efficiency in the process, it can lower consumers' electricity bills.

NRDC's analysis finds that without carbon limits, carbon dioxide emissions from the state's power plants will increase over the next two decades, reversing a decade of decreases. This is because gas plants would replace more non-emitting nuclear generation than higher-emitting coal generation.

The analysis further finds that for Pennsylvania to drive new renewable energy development – and enjoy the economic benefits of that development – the Commonwealth must also increase the renewable energy goals in the state's Alternative Energy Portfolio Standards Act of 2004 (AEPS).

NRDC's analysis is timely because even as Pennsylvania policymakers are increasingly interested in the Regional Greenhouse Gas Initiative (RGGI), a "cap and invest" policy for cutting carbon pollution, some think RGGI should *replace* the AEPS, arguing that having both policies would be "duplicative."

In fact, carbon limits and technology incentives serve different purposes: the former ensures emission reductions, while the latter lowers technology costs and drives economic development. And NRDC's modeling shows that Pennsylvania needs both.

Modeling: A Planning Tool for the Power Sector

NRDC worked with ICF to model three different policy scenarios using ICF's Integrated Planning Model (IPM®), including:

1. **A "business-as-usual" (BAU)** scenario in which Pennsylvania's energy policies remain unchanged between now and 2040.
2. A **"RGGI-only" scenario** in which Pennsylvania joins RGGI, capping the state's pollution at 91.7 million tons in 2021 and then requiring reductions of 3% per year through 2030.
3. A **"RGGI + Clean Energy" scenario** in which Pennsylvania not only joins RGGI, but also raises the renewables goal in the AEPS to 30% in 2030, including 10% from in-state solar, and increases energy efficiency savings gradually to 1.5 percent per year (achieved by 2025 and each year thereafter).

For all scenarios, NRDC used assumptions about fuel costs, electricity demand, and technology performance and costs based on the latest projections by the U.S. Department of Energy's Energy Information Administration (EIA) and National Labs.

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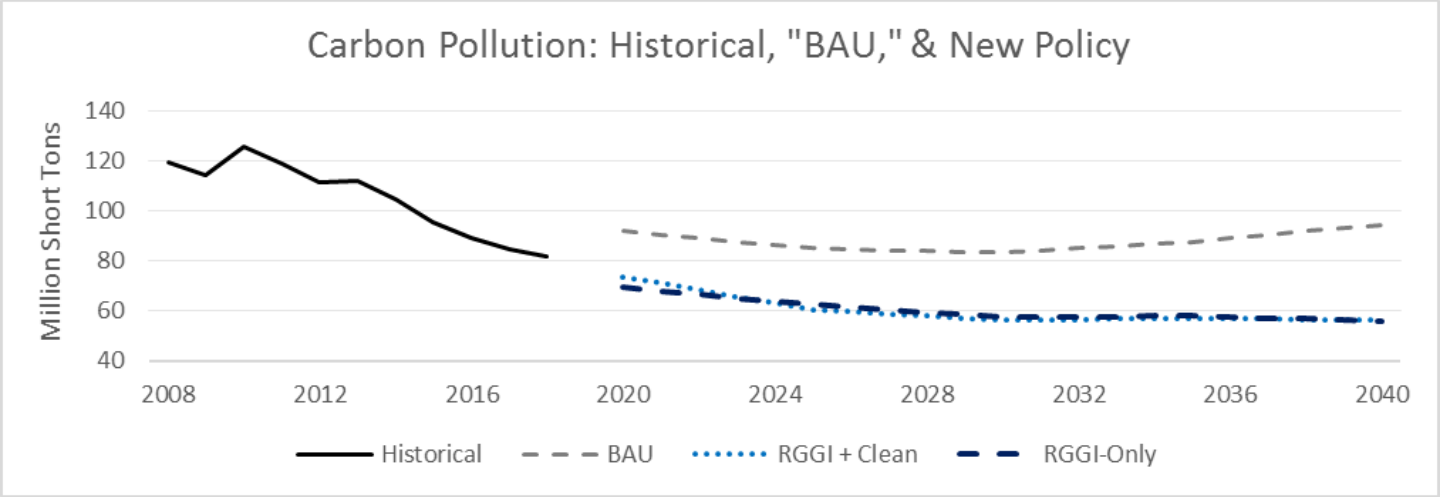
What NRDC's Modeling Shows



Continuing current policies means over-dependence on gas, higher emissions

NRDC's modeling finds that if Pennsylvania continues with its current policies, generation from gas power plants doubles between now and 2030, to almost 70 percent of all in-state generation. This is because fracking has made gas cheap; Pennsylvania does not limit or price carbon pollution from power plants; and the PJM Interconnection's electricity market rules favor natural gas plants over other generation sources.

In this scenario, carbon dioxide emissions from the state's power sector increase from about 81 million tons in 2018 to more than 83 million tons in 2030 and 94 million tons in 2040.

RGGI without higher renewables targets

Participating in RGGI ensures emissions reductions of 3 percent per year. However, the modeling finds that if RGGI is implemented without an increase in renewable energy goals, emissions reductions are achieved mainly by accelerating the coal-to-gas switching that Pennsylvania's power sector is experiencing now. Generation from in-state renewables rises only slightly, from 3% now to 5% in 2030.

RGGI with more renewables

When Pennsylvania increases the renewables goals in the AEPS to 30% in addition to joining RGGI, it gets roughly the same carbon reductions, but also other benefits. These include greater cuts of in-state sulfur dioxide (SO_2) and nitrogen oxide (NO_2) emissions, which contribute to asthma and other health problems, and less emissions "leakage" than in a RGGI-only approach. (Leakage describes how, when one state adopts carbon limits, power generation and emissions can shift, or "leak," from that state to states that do not have limits).

As we know from the annual *Clean Jobs Pennsylvania* reports issued by Environmental Entrepreneurs, advancing renewable energy and energy efficiency also creates good-paying jobs and boosts economic development and local tax bases (including in more rural areas of the state).

The importance of energy efficiency

The least appreciated way to cut carbon pollution is to use electricity more efficiently (and so avoid the need to generate as much of it). NRDC's modeling highlights how much efficiency can also lower electricity bills. It finds that if Pennsylvania reduces its electricity usage by 1.5% annually (about two times the savings currently being achieved by utility-run efficiency programs) the average Pennsylvania household's electricity bill would decrease by about $12 a year in 2030 and $25 a year in 2040, compared to "business-as-usual."

Conclusion

Some in Harrisburg argue that carbon limits, renewables targets, and energy efficiency programs are "duplicative" policies. NRDC's modeling shows that they are in fact complementary – and that if Pennsylvania implements all of them together, it can cut power plant pollution, create jobs, improve health, and lower electricity bills. Adopting carbon limits – e.g., through RGGI – would ensure emission reductions. But all of the RGGI states have strong renewables and efficiency policies, as well as RGGI programs. Pennsylvania should too.

For more information, see "PA Needs CO2 Limits – and Strong Renewables Policy, Too" at www.nrdc.org/experts/mark-szybist