

# Pennsylvania's RGGI Odyssey

## Six Years of Lost Investment Underline Danger of New State Energy Taxes

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### SUMMARY

From 2019 to 2025, the looming implementation of the Regional Greenhouse Gas Initiative (RGGI) chilled investment in Pennsylvania's electric grid. For six years, Pennsylvania teetered on fully implementing RGGI's multistate cap-and-trade program, which imposes a carbon tax on power producers. New generation proposals plummeted by 38 percent, and generation projects fueled by natural gas collapsed by 65 percent—even as neighboring Ohio's project pipeline grew. Developers who had proposed billions of dollars in new generation during the Marcellus Shale boom stopped developing new projects, while few of the existing proposals reached operation.

Despite strong opposition to RGGI, Gov. Josh Shapiro continues to champion a similar approach through the Lightning Plan, whose Pennsylvania Climate Emissions Reduction Act (PACER) and Pennsylvania Reliable Energy Sustainability Standard (PRESS) programs would cost Pennsylvania \$157.2 billion and more than double residential electricity bills.

### KEY POINTS

- Developers proposed 38 percent less new generation capacity in Pennsylvania (2019–24 vs. 2013–18), while Ohio's project pipeline surged 33 percent. Generation proposals fueled by natural gas collapsed by 65 percent.
- Pennsylvania experienced a significant uptick in proposed projects failing to convert to operable generation. The conversion rate fell from 73 percent to 9 percent during the RGGI period. Ohio's conversion rate declined modestly, from 62 percent to 48 percent.
- Pennsylvania forfeited an estimated 3,833 megawatts (MW) of generation capacity during the RGGI period. That loss exceeds the PJM Interconnection's first-ever reliability shortfall by more than 80 percent.
- The Lightning Plan would be far more costly to ratepayers than RGGI, imposing \$157.2 billion in new electricity costs and more than doubling residential bills.
- Shapiro's claim that the Lightning Plan will reduce costs relies on similar flawed assumptions that led the previous administration to underestimate the cost of RGGI by a factor of seven.

## PART I: THE RGGI EXPERIENCE (2019–25)

Pennsylvania's entry into RGGI began with executive overreach. In October 2019, then-Gov. Tom Wolf issued [Executive Order 2019-07](#) directing the Pennsylvania Department of Environmental Protection (DEP) to start procedures to join RGGI.<sup>1</sup> This launched six years of regulatory uncertainty, which [Act 45](#) ended in November 2025. The finalized 2025–26 state budget abrogated RGGI provisions, namely the “[CO<sub>2</sub> Budget Trading Program](#),” as part of the omnibus Fiscal Code amendments.<sup>2</sup>

### Timeline of RGGI Adoption in Pennsylvania

- **October 2019:** Wolf issues Executive Order 2019-07 directing DEP to join RGGI.
- **2019–21:** DEP regulatory development and public comment period.
- **April 2022:** Environmental Quality Board finalizes CO<sub>2</sub> Budget Trading Program.
- **July 2022:** Commonwealth Court issues preliminary injunction blocking RGGI.
- **November 2023:** Commonwealth Court rules RGGI regulation unconstitutional.
- **December 2023:** Shapiro appeals the Commonwealth Court ruling to the Pennsylvania Supreme Court.
- **February 2025:** Pennsylvania Senate passes bipartisan legislation to repeal RGGI.
- **November 2025:** Act 45 ends Pennsylvania's RGGI participation.
- **January 2026:** Pennsylvania Supreme Court dismisses all pending appeals as moot.<sup>3</sup>

Pennsylvania entered RGGI through the DEP rulemaking process, but the Commonwealth Court's [2022 injunction](#) and subsequent [2023 ruling](#) that RGGI imposed an “illegal” tax preempted auction participation.<sup>4</sup> No in-state generator purchased carbon allowances, no company paid carbon prices, and the state collected no revenue. Yet, RGGI membership proved devastating to generation investment.

Developers commit billions of dollars upfront for power plant projects that generate revenue in five to ten years. When the regulatory environment becomes unstable and threatening, the rational response is to wait or to build elsewhere. Pennsylvania's six years of RGGI litigation caused developers to shift investment to neighboring states, like Ohio, where the regulatory environment is relatively friendly, clear, and predictable.

### The Investment Collapse

U.S. Energy Information Administration (EIA) Form 860 data reveal the scale of Pennsylvania's investment collapse.<sup>5</sup> The chart below compares genuinely new projects entering each state's proposal pipeline across two matched six-year periods. Ohio shares Pennsylvania's key characteristics: PJM membership, Marcellus and Utica Shale gas access, a comparable coal-to-gas fuel transition, and exposure to the same wholesale electricity market, commodity prices, and federal regulations. The critical difference: Ohio did not face RGGI.

# Pennsylvania vs Ohio: New Power Plant Proposals

Maximum rated capacity; all generation types

State	Metric	2013-2018 MW	2019-2024	Change
Pennsylvania	Projects	186	101	-46%
	MW Proposed	13232	8202	-38%
Ohio	Projects	85	82	-3.5%
	MW Proposed	8406	11213	33%

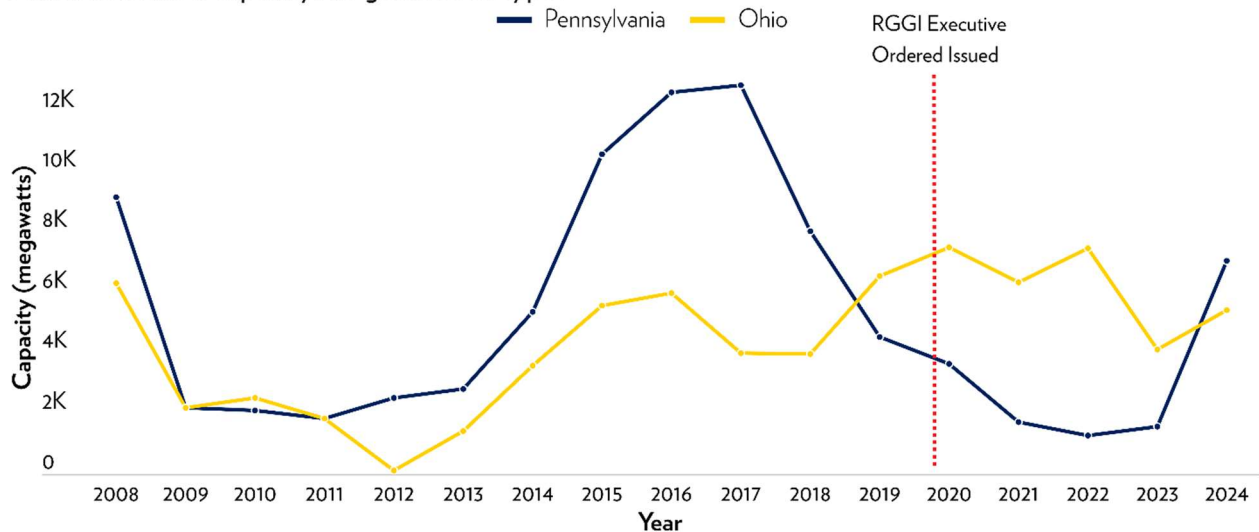
Source: EIA Form 860, New Proposed Generators

Both states experienced elevated project activity from 2013 to 2018, as developers rushed to capitalize on the Marcellus Shale boom. Some decline from that peak was natural. But Ohio's new proposal pipeline grew 33 percent while Pennsylvania's fell 38 percent—a 71-percentage-point swing in investment momentum. The difference: Pennsylvania's RGGI opt-in and the ensuing legal battle transformed a natural market maturation into an investment drought. Natural gas proposals, the dispatchable generation that Pennsylvania needs for grid reliability, fell 65 percent. From 2019 through 2023, just 40 MW of new natural gas generation entered Pennsylvania's pipeline, while Ohio added thousands of megawatts over the same period.<sup>6</sup>

The year-by-year pattern makes the damage unmistakable. From 2019 through 2023, just 2,257 MW of genuinely new generation of all types entered Pennsylvania's proposal pipeline, averaging 451 MW per year against the 2,205 MW per year in the prior period. Then, in 2024, after the Commonwealth Court rejected RGGI and data center demand emerged, new investment surged—5,944 MW entered in a single year. Ohio, by contrast, maintained steady new entries of 1,000 to 2,700 MW per year throughout the RGGI period, with no comparable dead zone.

# Power Plant Proposals (2008–2024)

Maximum rated capacity; all generation types



Source: EIA Form 860 (2008–2024). Proposed generators

Several factors beyond RGGI could explain Pennsylvania’s investment decline: falling natural gas prices, natural maturation of the shale boom, PJM capacity market rule changes, and the PJM queue backlog. However, each of these applied equally to both states. Henry Hub natural gas prices, the benchmark U.S. natural gas pricing point, averaged virtually the same across the pre-RGGI period, \$3.24 per million British thermal units (MMBtu), and the RGGI period, \$3.28/MMBtu.<sup>7</sup> For PJM, the largest U.S. regional grid serving 13 states plus the District of Columbia, capacity auction prices fell as low as \$28.92/MW-day, but Ohio developers faced the same depressed prices. The Ohio comparison controls for these shared conditions.

## The Conversion Freeze

The collapse was not just a matter of fewer proposals. Announced projects increasingly failed to come online or convert to operable generation.

During the pre-RGGI period, Pennsylvania’s proposal pipeline for all generation types operated at a 73 percent conversion rate: 9,709 MW of the 13,232 MW proposed reached operable status. During the RGGI period, that rate collapsed to 9 percent, with just 764 MW of 8,202 MW reaching operation. Ohio’s conversion rate declined modestly, from 62 percent to 48 percent, reflecting real headwinds like the PJM interconnection queue backlog, but nothing approaching Pennsylvania’s freefall.

This distinction matters because the Shapiro administration has argued that the PJM queue backlog impeded new generation’s ability to respond to market signals. Shapiro filed a [complaint](#) with the Federal Energy Regulatory Commission (FERC) in December 2024, making exactly that claim.<sup>8</sup> But Ohio’s conversion rate directly disproves that the queue was the binding constraint. The queue was a headwind for all PJM states; it was only fatal in a state whose policies suppressed generation investment.

For natural gas and grid dispatchable energy capacity specifically, the new generation collapse picture is even starker. Pennsylvania’s gas conversion rate fell from 75 percent (9,562 MW converted) to less than

one percent (40 MW, consisting entirely of small, distributed projects, the largest just 6 MW). The low rate largely reflects 4,398 MW of the period's 4,438 MW in gas proposals. The Homer City repowering, which entered the pipeline in 2024, could come online as early as 2027. But that timing is itself the finding: there was no utility-scale natural gas generation proposed in Pennsylvania from 2019 through 2023. The investment decisions to bring generation online in the early 2020's never happened. Meanwhile, Ohio's natural gas conversion rate rose from 61 percent to 78 percent, with 3,265 MW converting during the RGGI period. Pennsylvania's state policy discouraged the market signal for more gas generation.

Industry leaders confirmed what the data shows.

*Since RGGI was proposed, there has not been a new natural gas-powered plant built in Pennsylvania, but some of the surrounding states have built plants and drawn jobs out of the commonwealth.*

[Shawn Steffee](#), Boilermakers Local 154 (May 2025)<sup>9</sup>

*RGGI created uncertainty for our energy infrastructure—and that caused plant owners to hesitate on investments, delay upgrades, postpone maintenance, shelve new projects, and ultimately minimize employment opportunities. For the Building Trades, this resulted in fewer jobs for our members.*

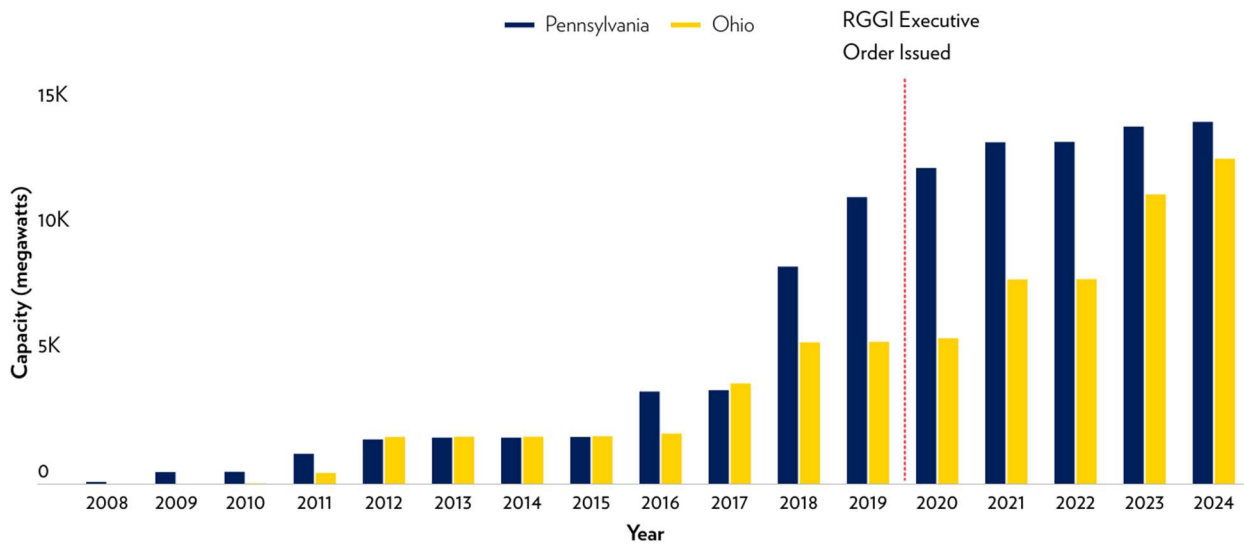
[Jim Enders](#), UA Local 520 Plumbers and Pipefitters (November 2025)<sup>10</sup>

### New Generation Completed

The cumulative chart below tracks all new generation capacity that came online from 2008 through 2024. Both states began building aggressively following the Marcellus Shale boom, with Pennsylvania initially far ahead.<sup>11</sup>

## Cumulative Completed New Generation

Maximum rated capacity; all generation types



Source: [EIA Form 860, Operable generators \(2008–2024\)](#):

By 2018, Pennsylvania had built over 8,000 MW of new generation—enough to power four million homes—compared to Ohio's 5,000 MW. Then the trajectories diverged. Pennsylvania's buildout stalled during the RGGI years; meanwhile, Ohio added capacity at a steady pace, nearly closing the gap by 2024.

For example, Bechtel, the same company that cancelled the \$1 billion [Renovo Energy Center](#) in Pennsylvania after years of litigation and permitting battles,<sup>12</sup> built the [\\$1.3 billion](#) South Field Energy plant just across the border in Columbiana County, Ohio, where it came online in 2021.<sup>13</sup>

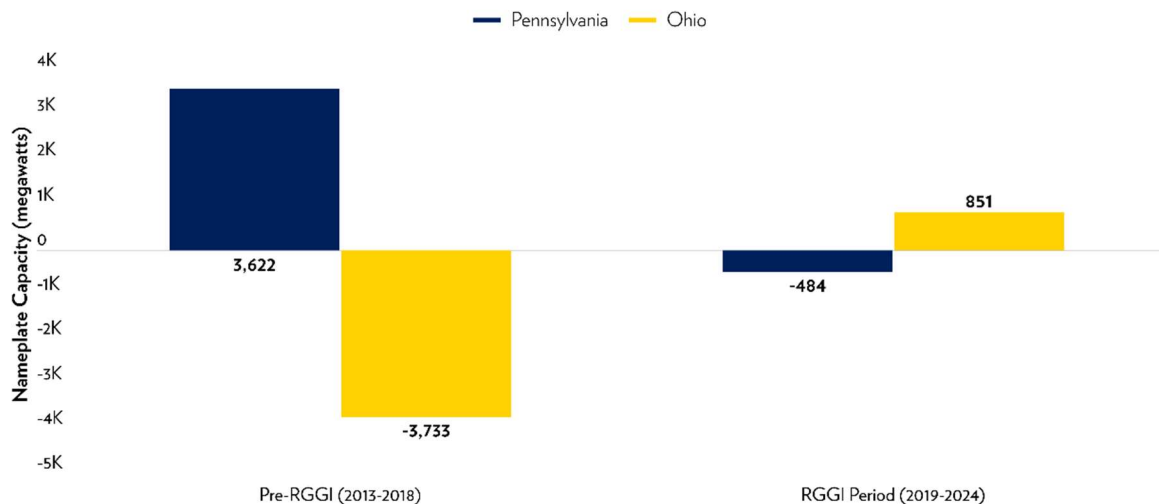
The explanation is straightforward: while Pennsylvania debated, litigated, and delayed over carbon tax policy, Ohio provided developers with a predictable regulatory environment to commit billions in capital. Projects that might have started in Pennsylvania went to Ohio or never got built at all.

### Net Change in Operable Capacity

When accounting for plant retirements alongside new builds, Pennsylvania's position deteriorated sharply. During the pre-RGGI period (2013–18), the commonwealth's total operable capacity grew by 3,622 MW—enough additional power for 1.8 million homes—as new natural gas plants more than offset coal retirements. During the RGGI period, Pennsylvania's operable capacity fell by 484 MW, even as Ohio's grew by 851 MW.

## Net Change in Operable Capacity

Maximum rated capacity



Source: EIA Form 860, Operable generators (2012–2024)

### Counterfactual: Pennsylvania's Lost Generation

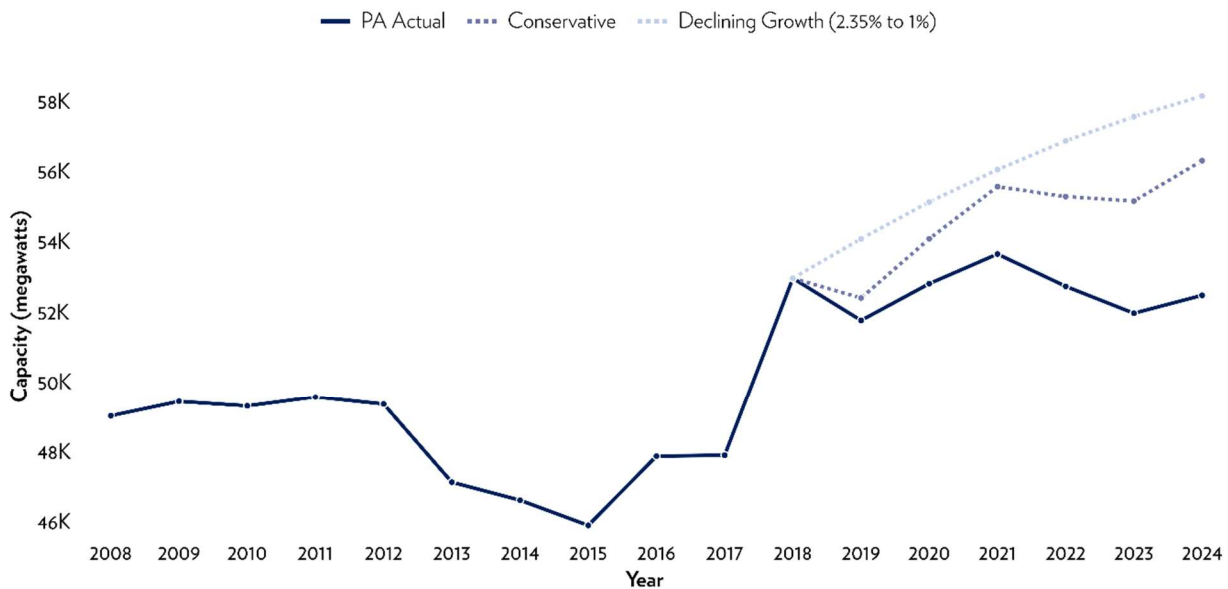
A conservative counterfactual estimates Pennsylvania lost approximately 3,833 MW of operable capacity by 2024, or enough to power roughly 1.9 million homes. This estimate combines the operator-cited closure of Homer City Generating Station (1,888 MW),<sup>14</sup> with three cancelled natural gas projects—Renovo Energy Center (1,026 MW), Robinson Power/Beech Hollow (1,000 MW), and Allegheny Energy Center (639 MW)—discounted by Pennsylvania's pre-RGGI natural gas conversion rate of 73 percent. The discount accounts for projects that would have failed to reach commercial operation for reasons unrelated to RGGI, even under a healthy regulatory environment. A separate trajectory-based approach that accounts for natural market

maturity estimates a larger gap of approximately 5,700 MW. At typical construction costs of about \$1,000 per kilowatt, Pennsylvania forfeited approximately \$4 to \$5.5 billion in investment.

Under the conservative estimate, Pennsylvania’s 3,833 MW of forfeited capacity exceeds PJM’s 2027/2028 Base Residual Auction (BRA) reliability shortfall by more than 80 percent. The 2,100 MW shortfall, revised from an initial 6,623 MW after improved load forecasting, marked the first time in PJM’s history that a capacity auction failed to meet the grid operator’s reliability requirement.<sup>15</sup>

## Pennsylvania Counterfactual Operable Capacity

Actual capacity alongside Non-RGGI Counterfactuals



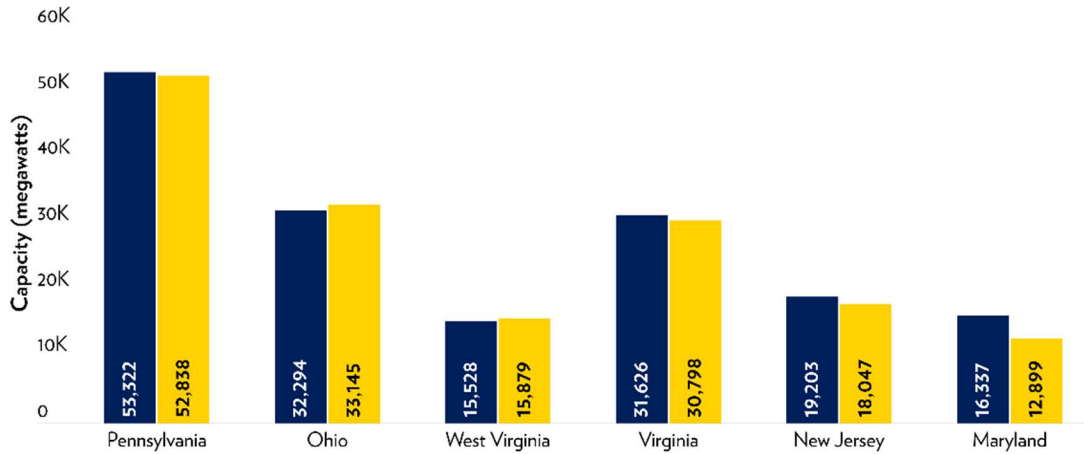
Source: EIA Form 860 (2008–2024); Commonwealth Foundation analysis, see Appendix: Counterfactual Methodology

### Regional Trends

The Keystone State is the largest power-producing state in the PJM region and the largest energy exporter in the country, thanks to its geography, abundant natural resources, and decades of investment in reliable generation.<sup>16</sup> Yet, Pennsylvania is one of only a handful of PJM states that lost operable capacity between 2018 and 2024. Non-RGGI states like Ohio and West Virginia gained capacity, while RGGI members Maryland, New Jersey, and Pennsylvania saw declines.

# Regional States Operable Capacity (2018 and 2024)

Maximum Rated Capacity



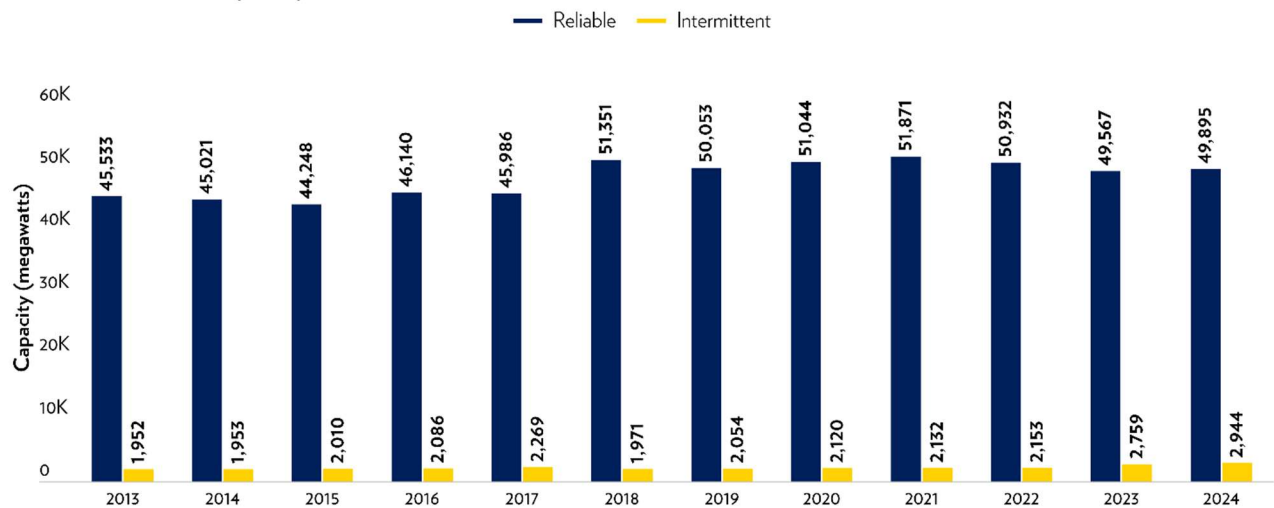
Source: EIA Form 860, Operable generators (2018, 2024)

## PART 2: RGGI AND GRID RELIABILITY THREATS

Breaking down Pennsylvania's capacity by generation type reveals the reliability dimension of the investment collapse. Intermittent sources like wind and solar grew modestly during the RGGI period, but the grid cannot run on intermittent power alone: dispatchable generation must be available to meet demand when the sun isn't shining, and the wind isn't blowing. Pennsylvania's reliable generation capacity decreased from 50,053 MW in 2019 to 49,895 MW in 2024, as coal retirements outpaced natural gas additions.

# Pennsylvania Generation Mix (2013 - 2024)

Maximum rated capacity



Source: EIA Form 860, Operable generators (2013-2024); Reliable includes natural gas, coal, nuclear, hydro, and oil/petroleum, intermittent includes wind and solar.

## Demand Is Accelerating

PJM's 2026 Long-Term Load Forecast, released January 2026, projects summer peak demand to climb roughly 66,000 MW over the next decade, from approximately 156,000 MW today to 222,000 MW by 2036, an annualized growth rate of 3.6 percent.<sup>17</sup> As recently as 2021, PJM projected just 0.3 percent annual growth. The shift is driven overwhelmingly by data center demand, with PJM's peak load forecast growing by approximately 5,100 to 5,400 MW year-over-year in each of the last two capacity auctions.

Pennsylvania is ground zero for this demand. [Announcements](#) for data center investment in the commonwealth have exceeded \$90 billion, and the PJM Interconnection queue contains over 46,000 MW of approved projects not yet built.<sup>18</sup> The question is not whether demand exists; it is whether Pennsylvania's regulatory environment will allow supply to meet it.

## Early Signs of Recovery

Today's elevated capacity prices and strong demand have begun attracting new investment, particularly as RGGI's repeal became certain through 2025. A wave of major generation announcements has emerged.

# New Generation Announcements

More than 13 GW and \$30 billion in announced investment in baseload and dispatchable capacity

Project	Capacity	Investment	Announced
Three Mile Island Restart	835 MW	\$1.6 billion (incl. \$1b DOE loan)	September 2024
Homer City Energy Campus	4.5 GW	\$10+ billion	April 2025
Bruce Mansfield Conversion	3.6 GW	\$3.2 billion	July 2025
South Mon (NextEra)	4.3 GW	\$17 billion	March 2026

Sources: [Constellation Energy](#), [Homer City Redevelopment](#), [Bruce Mansfield](#), [South Mon](#)

New demand drives these projects, but the benefits of new supply can extend to all ratepayers. New generation is the most direct path to alleviating capacity shortages and moderating electricity prices. The total announced dispatchable capacity exceeds 13 gigawatts (GW), representing more than \$30 billion in investment.

Critically, the 2019–24 proposal analysis does not include these projects, which compares equal six-year periods. The announced pipeline reflects the trajectory bending upward, as regulatory clarity returned and the legal environment became less restrictive to new generation. The contrast between Pennsylvania's six-year investment drought and the wave of announcements underscores the need for regulatory certainty; moreover, policies, like the Lightning Plan, would reintroduce the very hostility that suppressed investment.<sup>19</sup>

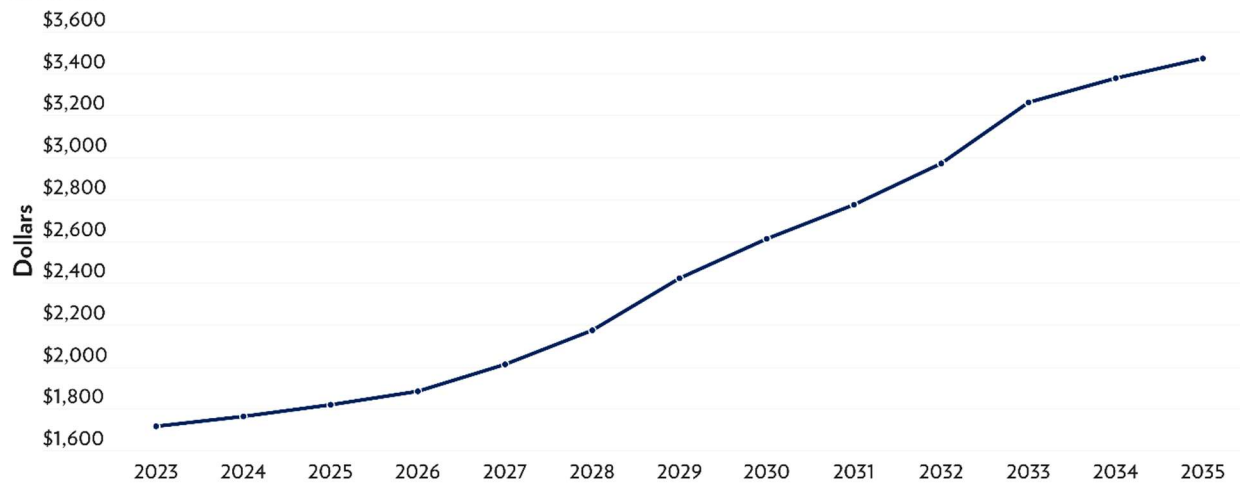
## PART 3: THE LIGHTNING PLAN

In November 2025, Act 45 formally ended Pennsylvania's RGGI participation. Yet, Shapiro continues to champion a state-only carbon tax as part of his Lightning Plan. The plan's two core pillars, PACER and PRESS, would institutionalize carbon taxes and supersize alternative energy mandates, threatening to replicate the investment-suppressing conditions that RGGI merely threatened.

Commonwealth Foundation commissioned Always On Energy Research to estimate the cost of PACER and PRESS. Over ten years, these policies would impose on Pennsylvanians **\$157.2 billion in new electricity costs**, and double residential electricity bills.<sup>20</sup>

## Annual Electricity Cost per Residential Customer

Under PACER and PRESS, average electricity costs for Pennsylvania families increases from \$1,717 to \$3,471 in 2035.



Source: Commonwealth Foundation. "Preventing Pennsylvania from Powering Down."

### PACER: A Carbon Tax by Another Name

PACER, or [House Bill \(HB\) 503](#),<sup>21</sup> is a cap-and-trade carbon tax on power plants producing more than 25 MW. The DEP would set annual emission caps, and plants exceeding the cap must purchase allowances. Seventy percent of the revenue from these allowances would go toward ratepayer rebates, but 30 percent would fund state programs, including energy assistance and investments in emerging technologies like carbon capture, hydrogen, and power plant upgrades. Even with the 70 percent rebate, estimates put the cost of PACER at \$2.2 billion over ten years.

Rebates do not solve the investment problem. For supply considerations, it does not matter if a portion of a tax goes back to consumers—the full tax burden deters investment. Developers making twenty-year capital commitments will weigh PACER's costs against building in states where no such costs exist. This is exactly the mechanism that drove investment out of Pennsylvania during RGGI: generators in competitive wholesale markets cannot simply pass imposed costs to captive ratepayers the way monopoly-regulated utilities can. Instead, these costs result in reduced output or uneconomic plants, wholesale prices rise, and then consumers receive a partial rebate on a bill that is already higher than it would have been without the tax.

### PRESS: Mandating What Cannot Be Built

PRESS, or [HB 501](#),<sup>22</sup> would increase Pennsylvania's alternative energy mandate from approximately 18 percent to 50 percent by 2035. Tier I (35 percent) covers solar, wind, low-impact hydropower, geothermal, advanced nuclear reactors, fusion, fuel cells, and biomass. Tier II (10 percent) covers in-state distributed generation, large hydropower, and battery storage. Tier III (5 percent) covers co-blended or low-emission natural gas.

Pennsylvania's current Alternative Energy Portfolio Standard (AEPS) requires **18 percent** (8 percent Tier I, 10 percent Tier II).<sup>23</sup> PRESS would nearly triple the AEPS mandate. This shift would require a tripling of capacity from 45.5 GW to 124 GW, with wind production increasing from 1,338 MW to 39,645 MW and solar from 290 MW to 36,202 MW. The intermittent nature of these resources means 40 percent of this capacity could be idle at any given time. The cost of PRESS mandates will reach \$155 billion over ten years.

The scale of PRESS's buildout demands enormous amounts of land. The cost-optimized portfolio modeled by Always On Energy Research estimates that growing Pennsylvania's wind capacity to the PRESS target would place project boundaries around 2.3 to 3.3 million acres, though the actual ground disturbed would be roughly 96,000 acres, or about 150 square miles. Under PRESS, the roughly 250,000 to 320,000 acres required for utility-scale solar would permanently convert an area three to four times the size of Philadelphia County to industrial energy production. Taken together, the land effectively removed from other uses (all solar acreage plus the direct physical footprint of wind infrastructure) totals 350,000 to 420,000 acres, or roughly 1.2 to 1.4 percent of Pennsylvania.

Even 1.2 to 1.4 percent understates the challenge. Renewable sources account for less than 3 percent of Pennsylvania's total electricity generation, ranking 48th among the 50 states and the District of Columbia according to EIA data.<sup>24</sup> The state's mountainous terrain, extensive forest cover (currently, **58 percent** of Pennsylvania),<sup>25</sup> and persistent local siting opposition make a buildout of this scale aspirational at best.

When developers cannot afford to build what the mandate requires, the market result is less generation with demand hiking rates.

### **The Cost Comparison**

The Wolf Administration projected that RGGI allowance prices would remain **near \$3.57 per ton** of CO<sub>2</sub>.<sup>26</sup> RGGI's March 2026 auction **clearing price** was a penny shy of \$25 per ton with the average on the last three auctions above \$24.65 per ton—a sevenfold underestimate.<sup>27</sup> At those prices, PJM's simulation found RGGI would increase Pennsylvania wholesale electricity costs by \$752 million per year while reducing regional emissions by just one percent.<sup>28</sup> The pattern of government cost underestimation should concern every Pennsylvania ratepayer evaluating the Lightning Plan's cost projections.

In 2025, Synapse Energy Economics published a report commissioned by Pennsylvania's DEP in partnership with the U.S. Department of Energy Grid Deployment Office, claiming the Lightning Plan would reduce residential bills by "\$1 per month."<sup>29</sup> The analysis relies on several unrealistic assumptions:

- The Synapse Report assumes a 75 percent PACER carbon tax revenue rebate to ratepayers, but the actual legislation specifies 70 percent, eliminating the savings to ratepayers.
- The model assumes no existing plants retire earlier in response to the carbon price, despite imposing approximately \$780 million per year in new compliance costs across 71 existing Pennsylvania generating facilities totaling approximately 36,000 MW.
- Identifies the PJM queue backlog as a primary barrier for solar and wind buildout until 2035. But PJM is not the only obstacle. As of March 2026, only 23 GW of the 103 GW approved by PJM are in service due to non-PJM factors the report does not address, such as permitting delays, local siting opposition, and supply chain constraints.<sup>30</sup>

- The model underestimates costs for Alternative Compliance Payments (the direct tax when Renewable Energy Credits, or RECs, are unavailable) by capping them at \$20 per megawatt-hour (MWh), but in the actual legislation, the payments are more than double at \$45 per MWh. RECs are transfer payments from thermal generation sources to renewable sources, imposed in proportion to the amount of CO<sub>2</sub> produced.
- The model assumes that \$3.4 billion in federal Inflation Reduction Act tax credits remain available through 2040, but these are uncertain and face active repeal efforts in Congress.

The Lightning Plan's cost projections deserve the same skepticism RGGI's did. Notably, the same agency that underestimated RGGI costs now forecasts that even larger supply restrictions will reduce consumer prices.

## CONCLUSION

Pennsylvania's RGGI experience threatened reliability and affordability. Six years of regulatory uncertainty drove a 38 percent decline in new generation proposals and a 65 percent collapse in natural gas proposals. Moreover, the RGGI carbon tax threat dropped the conversion rate of proposed projects to operable generation from 73 percent to 9 percent. The Lightning Plan would go further by imposing a carbon tax and mandating a restructuring of the grid, more than doubling residential electricity bills at a projected cost of \$157.2 billion.

But there is reason for optimism. Pennsylvania is ready for an energy breakout. The commonwealth sits atop the Marcellus Shale and possesses the transmission infrastructure, skilled workforce, and geographic position to lead the next era of energy investment. The wave of project announcements totaling more than 13 GW of new reliable generation demonstrates that when regulatory barriers fall, investment returns. Pennsylvania is positioned to be at the leading edge of the technology revolution, fulfilling the demand for reliable power. The question is whether Harrisburg will allow Pennsylvania to unlock its energy potential. RGGI's legacy is a cautionary tale. The Lightning Plan would repeat and magnify that mistake. Pennsylvania should pursue policies that welcome the investment its grid desperately needs.

## APPENDIX: COUNTERFACTUAL METHODOLOGY

The counterfactual estimates in this report draw on two approaches that bracket a credible range of generation capacity lost to RGGI uncertainty. Both use EIA Form 860 data (2008–2024) and take Pennsylvania's 2018 operable capacity of 53,322 MW as the pre-RGGI baseline.

### Conservative Counterfactual (3,833 MW gap by 2024)

The conservative approach sums capacity losses that one can directly attribute, at least in part, to RGGI uncertainty:

- Homer City Generating Station closure (1,888 MW): The operator cited RGGI regulatory uncertainty as a factor in the June 2023 closure decision.
- Three cancelled natural gas projects (2,665 MW gross): Renovo Energy Center (1,026 MW, cancelled April 2023), Robinson Power/Beech Hollow (1,000 MW, cancelled October 2021), and Allegheny Energy Center (639 MW, cancelled November 2023). These projects entered the EIA-860 proposed pipeline before or during the RGGI uncertainty period and then withdrawn before reaching operable status.
- Discount factor of 73 percent: The cancelled projects are weighted by Pennsylvania's pre-RGGI natural gas proposal-to-operable conversion rate (2013–18). This accounts for the possibility that some projects would have failed to reach commercial operation for reasons unrelated to RGGI, even under a healthy regulatory environment. After the discount, the three cancellations contribute 1,945 MW to the counterfactual gap.

Total: 1,888 MW + 1,945 MW = 3,833 MW. The linear distribution of the gap from 2019 to 2024 works as a smoothing convention, not a year-by-year attribution claim.

### Declining Growth Counterfactual (5,674 MW gap by 2024)

The declining growth approach is trajectory-based rather than component-based. It applies Pennsylvania's 2013–2018 compound annual growth rate of 2.35 percent to the 2018 operable capacity, tapering the growth rate linearly to 1.0 percent by 2024 to account for natural market maturation as the initial shale gas buildout slowed.

The rationale for tapering: Pennsylvania's 2013–2018 growth partly reflected a one-time Marcellus Shale buildout that would not have continued indefinitely. A flat 2.35 percent projection would overstate the counterfactual. Tapering to 1.0 percent by 2024 produces a more realistic trajectory representing organic growth from incremental gas additions and renewables without extraordinary buildout momentum.

The 2024 counterfactual value is approximately 58,512 MW, a gap of 5,674 MW from Pennsylvania's actual 52,838 MW.

### Limitations

- The conservative estimate excludes projects not proposed due to the regulatory environment. This selection bias regarding the visible pipeline likely understates the true gap.
- The declining growth estimate does not separately account for Three Mile Island Unit 1's closure (837 MW, September 2019), which is not directly attributable to RGGI. Adjusting for TMI-1 would reduce the declining growth gap to approximately 4,837 MW.

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- <sup>1</sup> 50 Pa.B. 3406; André Béliveau, "State of RGGI: Past, Present, and Future," Commonwealth Foundation, December 5, 2024, <https://commonwealthfoundation.org/research/rggi-pa-backgrounder/>.
- <sup>2</sup> Rep. Tarik Khan, 2025 Act 45, P.L. 156 § 47 (House Bill 416), Pennsylvania General Assembly, Regular Session 2025–26, November 12, 2025, [https://www.palegis.us/statutes/unconsolidated/law-information/view-stature?txtType=PDF&SessYr=2025&ActNum=0045.&SessInd=0](https://www.palegis.us/statutes/unconsolidated/law-information/view-stature?txtType=PDF&SessYr=2025&ActNum=0045.&SessInd=0;); Nathan Benefield, "2025–2026 Pennsylvania State Budget Analysis," Commonwealth Foundation, November 12, 2025, <https://commonwealthfoundation.org/research/2025-2026-pennsylvania-state-budget-analysis/>. See also: 52 Pa.B. 2471.
- <sup>3</sup> Peter Hall, "Pa. Supreme Court Dismisses Appeals to Revive RGGI Carbon Credit Program," *Pennsylvania Capital-Star*, January 7, 2026, <https://penncapital-star.com/briefs/pa-supreme-court-dismisses-appeals-to-revive-rggi-carbon-credit-program/>.
- <sup>4</sup> Béliveau, "State of RGGI: Past, Present, and Future"; Kate Huangpu, "Pa. Court Strikes down a Key Climate Program, but Environmentalists Expect an Appeal," *Spotlight PA*, November 1, 2023, <https://www.spotlightpa.org/news/2023/11/regional-greenhouse-gas-rggi-struck-down-pennsylvania-climate-change-fossil-energy/>; Commonwealth Foundation, "Commonwealth Foundation Applauds Appellate Court Decision to Strike Down RGGI," news release, November 1, 2023, <https://commonwealthfoundation.org/2023/11/01/appellate-court-decision-rggi/>.
- <sup>5</sup> U.S. Energy Information Administration, Electricity: Form EIA-860 Detailed Data (2008–2024), September 9, 2025, <https://www.eia.gov/electricity/data/eia860/>.
- <sup>6</sup> Note: This analysis reviews generator proposals filed by developers with federal regulators. These are projects that developers intended to build. A separate, more advanced step is entering PJM's interconnection queue. By the end of 2024, only 370 MW of natural gas in Pennsylvania had reached PJM's queue—underscoring how few projects advanced beyond initial filings during the RGGI period.
- <sup>7</sup> Note: Calculations use U.S. Energy Information Administration, Henry Hub Natural Gas Spot Price (annual averages, 2013–2018 vs. 2019–2024), available at <https://www.eia.gov/dnav/ng/hist/rngwhhdA.htm>.
- <sup>8</sup> Pennsylvania Office of the Governor, "Pennsylvania Governor Josh Shapiro Files Lawsuit PJM to Prevent Energy Price Hikes, Fight for Pennsylvania Consumers," news release, December 30, 2024, <https://www.pa.gov/governor/newsroom/2024-press-releases/lawsuit-against-pjm-to-prevent-energy-price-hikes>; Complaint of Gov. Josh Shapiro and the Commonwealth of Pennsylvania, Docket No. EL25-46-000 the Federal Energy Regulatory Commission, [https://www.pa.gov/content/dam/copapwp-pagov/en/governor/documents/pjm-lawsuit/gov.%20shapiro%20and%20commonwealth%20of%20pa%20complaint\(119760108\).pdf](https://www.pa.gov/content/dam/copapwp-pagov/en/governor/documents/pjm-lawsuit/gov.%20shapiro%20and%20commonwealth%20of%20pa%20complaint(119760108).pdf). See also: Federal Energy Regulatory Commission eLibrary, Docket: EL25-46, "Complaint of Commonwealth of Pennsylvania v. PJM Interconnection, L.L.C.," accessed March 1, 2026, [https://elibrary.ferc.gov/eLibrary/docketsheet?docket\\_number=el25-46&sub\\_docket=all&dt\\_from=1960-01-01&dt\\_to=2025-02-09&chklegadata=false&pagenm=dsearch&date\\_range=custom&search\\_type=docket&date\\_type=dated\\_date&sub\\_docket\\_q=allsub](https://elibrary.ferc.gov/eLibrary/docketsheet?docket_number=el25-46&sub_docket=all&dt_from=1960-01-01&dt_to=2025-02-09&chklegadata=false&pagenm=dsearch&date_range=custom&search_type=docket&date_type=dated_date&sub_docket_q=allsub).
- <sup>9</sup> Hometown2, "PA Supreme Court to Hear Testimony Today on RGGI," WCCS Radio, May 13, 2025, <https://www.wccsradio.com/2025/05/13/pa-supreme-court-to-hear-testimony-today-on-rggi/>.
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- <sup>11</sup> Note: Charts in this section display nameplate or maximum rated capacity for simplicity. Nameplate capacity represents the maximum rated output of a generator under ideal conditions.
- <sup>12</sup> Chris Keating, "Plans for Clinton County Power Plant Abandoned," April 26, 2023, WNEP-TV, <https://www.wnep.com/article/news/local/clinton-county/plans-for-clinton-county-power-plant-abandoned-renovo-rail-yard-bechtel-corporation-wnep/523-a1cdf0cf-ce4f-40b3-9154-75d05cb4dc10>.
- <sup>13</sup> Bechtel, "Bechtel Completes Low-Carbon Energy Plant to Power More Than One Million Homes," press release, October 13, 2021, <https://www.bechtel.com/press-releases/bechtel-completes-low-carbon-energy-plant-to-power-more-than-one-million-homes/>.
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