# Impacts of RGGI and an Expanded AEPS in Pennsylvania

*Integrated Planning Modeling (IPM) Results*


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# *Executive Summary*

New NRDC modeling shows that by:

(1) Implementing DEP's **RGGI** regulation, and

(2) Raising the renewables target in the state's **AEPS**…

Pennsylvania will *both*:

**(1) cut pollution** from its electric power sector

(2) drive significantly **more renewable energy development** in the near- and medium-terms.

- Business-as-usual is **insufficient** – **emissions *rise*** and ***renewable development remains stunted*** without either policy.
- ***Now*** is a critical window of opportunity for both policies.
- Results are consistent with previous modeling and real-world trends.

# *Scenarios Considered*

NRDC modeled* the following scenarios to capture the impacts of both keeping Pennsylvania in the ***Regional Greenhouse Gas Initiative (RGGI)*** and expanding the state's existing ***Alternative Energy Portfolio Standard (AEPS)*** to raise the Tier 1 renewables goal to 30 percent by 2030.

| *Scenario* | *Description* |
|---|---|
| **Reference** | Business-as-usual cost, performance, and system assumptions, *including* implementation of the Inflation Reduction Act** of 2022, where PA is not included in RGGI and does not expand its existing AEPS. |
| **RGGI Only** | Same assumptions as the Reference case, except PA *is* included in RGGI. |
| **Expanded AEPS Only** | Same assumptions as the Reference case, except PA *does* expand its AEPS by ***raising the Tier 1 renewables goal to 30 percent by 2030***, with 10 percent from in-state solar projects (as proposed by Senate Bill 300 from the 2021-22 legislative session) |
| **RGGI *and* Expanded AEPS** | PA both expands its AEPS *and* is included in RGGI. |

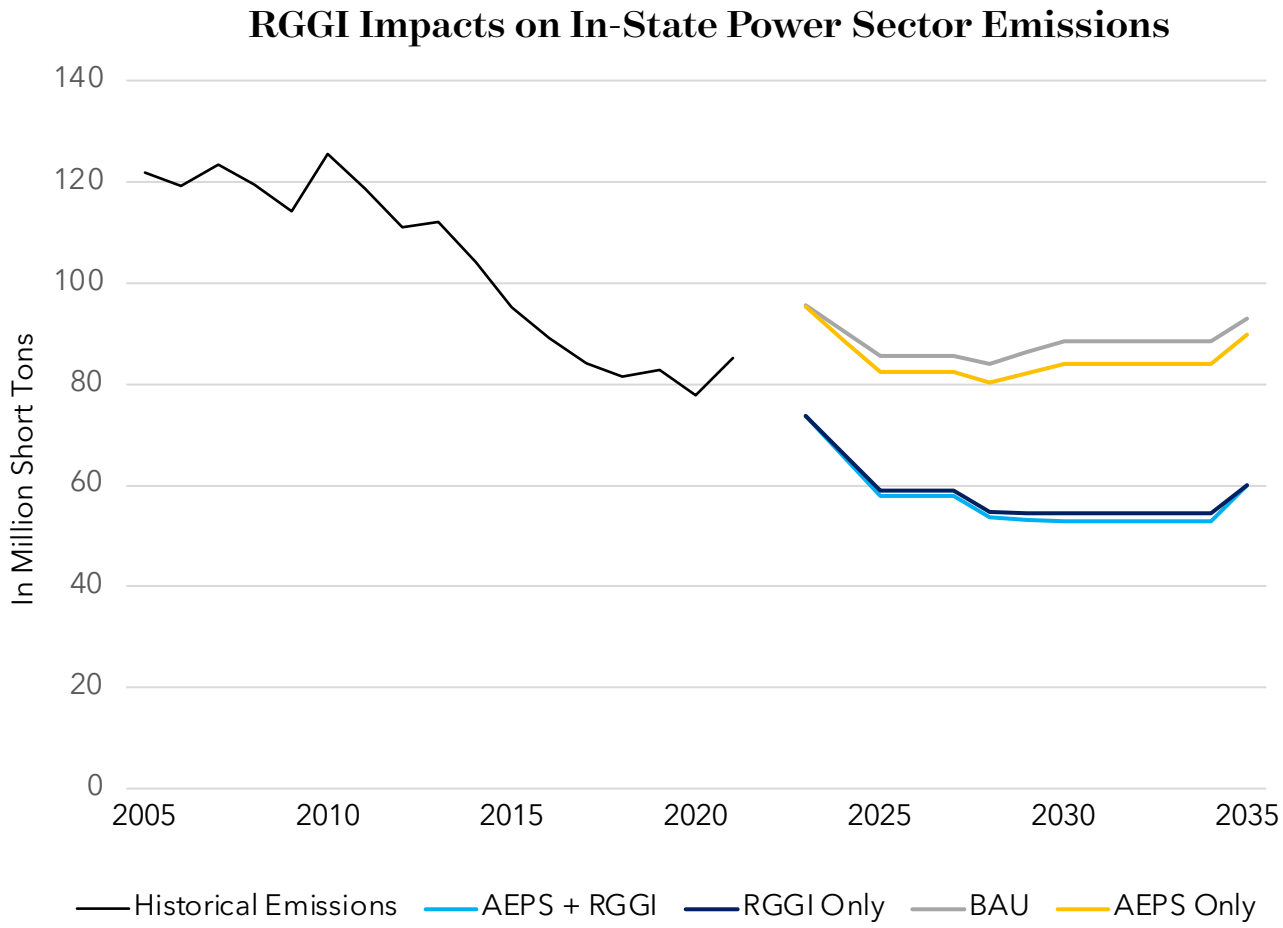
- * This modeling was conducted using ICF's ***Integrated Planning Model (IPM),*** the same electricity system planning model used by EPA. More on IPM can be found in the Appendix of this deck.
- ** More details on how the IRA was modeled in the Reference case can be found in the Appendix. All assumptions can be found in the Technical Appendix of NRDC's "IRA Clean Electricity Tax Credits" report.

## *Key Results*

**Pennsylvania needs *both* RGGI and stronger renewables requirements to cut emissions *and* drive renewable growth.**

- *Without RGGI, existing policies fail to meaningfully cut carbon emissions and criteria pollution from power plants.*
- *PA's existing AEPS is not ambitious enough to drive substantial new renewables development over the decade.*
- ***Stronger together:** By complementing RGGI with more ambitious renewables goals, Pennsylvania can diversify its power sector and reduce Pennsylvanians' exposure to fossil fuel volatility.*

# RGGI Drives Significant Carbon Emissions Reductions

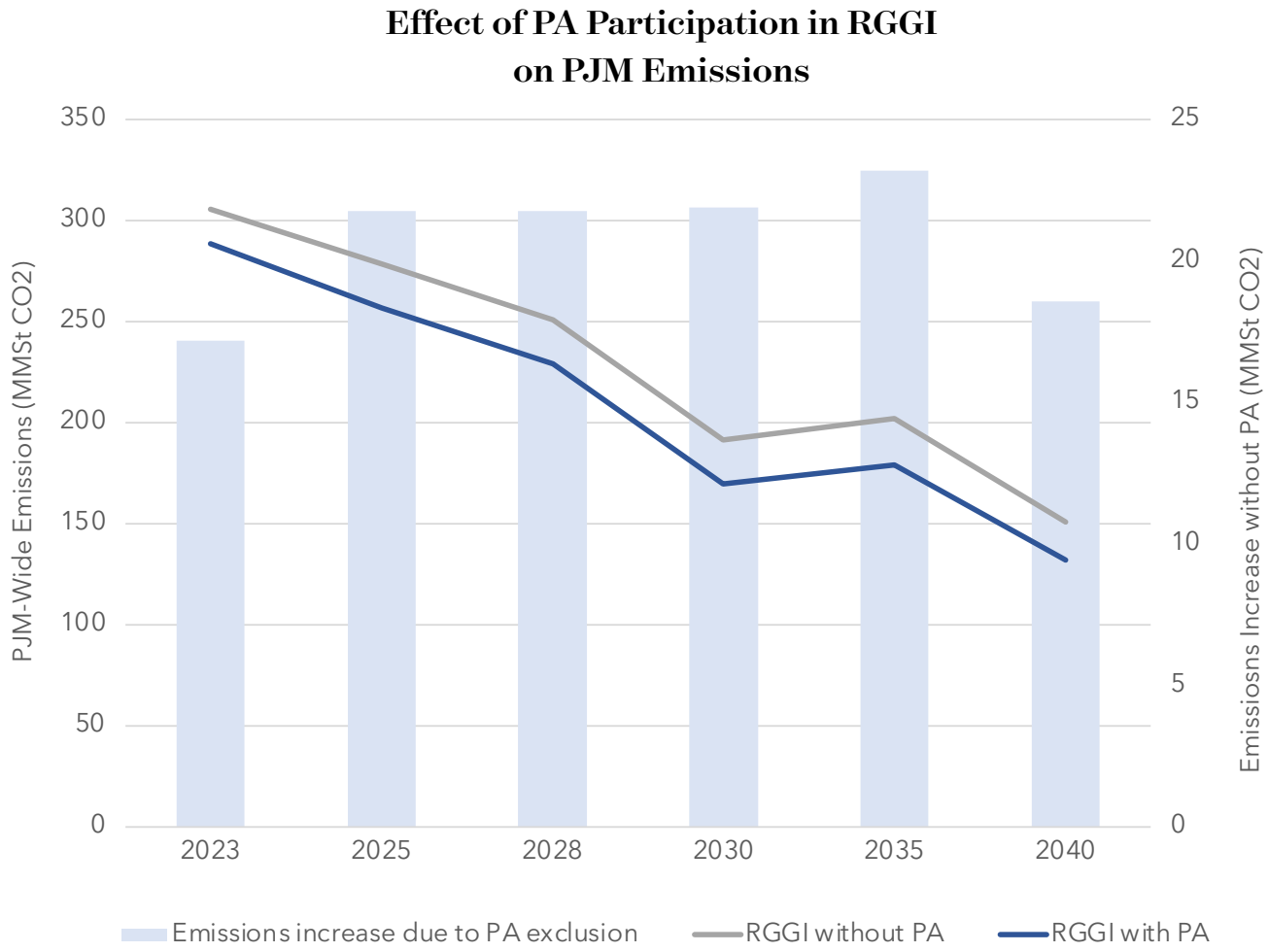



*Without PA in RGGI*

*With PA in RGGI*

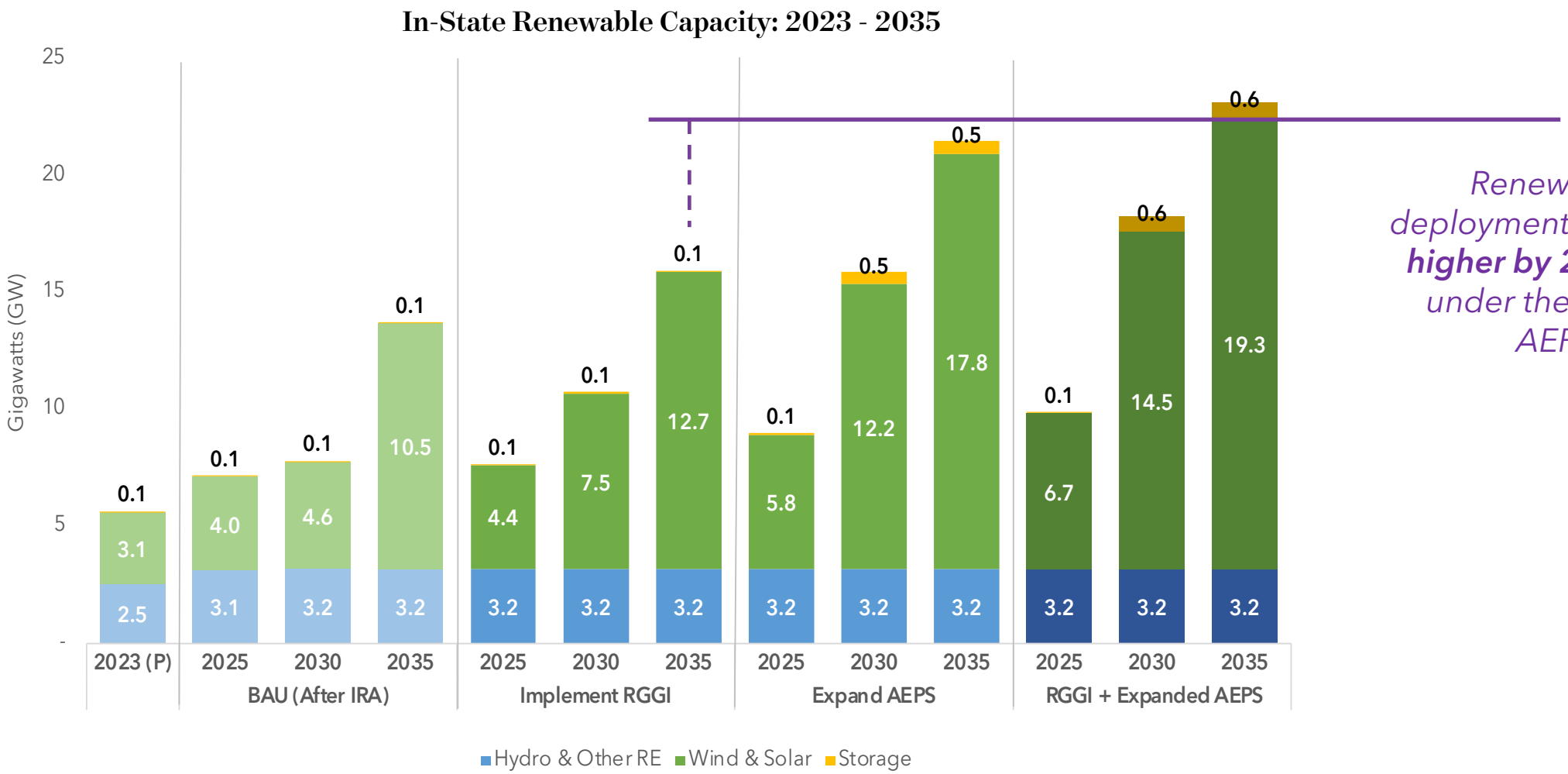
PA saves at least **340 MMSt in cumulative emissions through 2035** by staying in RGGI.

# Pennsylvania's Participation Impacts Rest of PJM Region




Cumulative PJM-wide emissions are **420 MMSt lower through 2040** when PA is in RGGI compared to without.

# PA's Renewables Industry Quickly Thrives under Expanded AEPS




*Renewables deployment is **40-50% higher by 2035** than under the existing AEPS.*

# How the IRA was modeled under the Reference case

The IRA clean electricity tax credits were modeled in IPM with the same underlying cost, performance, and system assumptions as NRDC's 2022 reference case. The tax package was modeled as:

| *Type of incentive in IRA* | *Value of incentive* |
|---|---|
| **Production Tax Credit (PTC) for Wind** | **2.5¢/kWh (2022$)** through 2024, tied to inflation |
| **Investment Tax Credit (ITC) for Solar** | **30%** through 2024 |
| **New PTC for New Zero-Emission Technologies ("45Y")*** (wind, solar, small hydro, and new nuclear) | **1.5¢/kWh (1992$),** tied to inflation, from 2025 until the later of 2032 or until power sector emissions are 75% below 2005 levels |
| **New ITC for Energy Storage** | **30%** across same phase-down schedule as the zero-emission technologies PTC |
| **Tax Credit for Power Plants with Carbon Sequestration ("45Q")** | **$85/ton** for geologic storage and **$60/ton (2022$)** for utilization through 2032, tied to inflation |
| **PTC for Existing Nuclear ("45U")** | **1.5¢/kWh (2022$),** from 2024 through 2032, tied to inflation, unless wholesale revenue is greater than 2.5¢/kWh, at which point the credit is reduced by 80% |

*Taxpayers can choose between the PTC (45Y) or ITC (48E).

# *How the IRA was modeled under the Reference case*

The modeled package differs from the tax package in the Inflation Reduction Act of 2022 in that it does not include:

| ***Incentives included in IRA but NOT included in this scenario*** |
|---|
| Additional 10% bonus credits for projects located in low-income or "energy" communities |
| Additional 10% bonus credits for meeting domestic manufacturing requirements for steel, iron, or other manufactured components |
| Incentives for clean energy technologies ***beyond the power sector**** |
| Investments in transmission permitting and siting improvements |
| Community program and clean energy investments outside of the tax credit format (e.g. grants) |

IRA includes more incentives for clean energy technologies across other sectors ***not modeled in this case***, including:

- **Industry**: The clean hydrogen PTC, advanced manufacturing PTC, and funding for industrial project emissions reductions
- **Transportation**: The clean fuel PTC, the sustainable aviation fuel credit, grants for clean heavy-duty vehicles, and biofuel incentives
- **Buildings:** Low-carbon materials procurement, residential clean energy credits, energy efficiency credits and rebates

Please see the Bipartisan Policy Center's factsheet for a summary of all of IRA's provisions.