



# Draft Proposed Rulemaking

## Chapter 145. Interstate Pollution Transport Reduction Subchapter E. CO<sub>2</sub> Budget Trading Program

Small Business Compliance Advisory Committee  
July 22, 2020

Tom Wolf, Governor

Patrick McDonnell, Secretary

# Climate Impacts in Pennsylvania

Changing climate patterns have caused and will continue to cause impacts in Pennsylvania to public health, infrastructure, emergency services, and major economic contributors like agriculture, tourism, and recreation.



*PennDOT has experienced record breaking impacts from floods and landslides that have **cost over \$125.7 million extra for infrastructure replacement in 2018 alone.***



*Higher temperatures lead to higher concentrations of ground-level ozone, which can lead to increased asthma rates.*



*Farmers are already experiencing direct crop damage from increasingly intense precipitation events. Heat stress may lead to declines in dairy production and summer flowering crop yields.*



*Pennsylvania already has the highest number of cases of Lyme disease in the nation, triple the number from just 10 years ago. This increase is possibly due to the western expansion of Lyme-bearing ticks and warmer winters that are leading to higher tick populations.*

# Impact of Greenhouse Gas Effect

The global warming due to increased greenhouse gases has already impacted communities around the world and is threatening to cause many more changes to the global climate now – and for decades to come.

**We're already seeing temperature and precipitation changes here in Pennsylvania.**



*Temperatures in Pennsylvania have increased 1.8° F in the last century and are expected to increase another 5.4° by 2050.*

*“Mid-century temperatures in the Philadelphia area are projected to be similar to temperatures in Richmond, VA while Pittsburgh will resemble the temperatures in the Baltimore-Washington area.”*

*- DEP Climate Change Impacts Assessment*



*Between 1958 and 2010, the Northeast U.S. saw more than a 70% increase in precipitation falling in very heavy rain events. Pennsylvania's overall precipitation is expected to increase another 8% by 2050.*

# RGGI & Climate Change Goals

## **Executive Order 2019-1 *Commonwealth Leadership in Addressing Climate Change and Promoting Energy Conservation and Sustainable Governance***



### **Pennsylvania GHG Reduction Goals**

- 26% reduction in net GHG emissions by 2025 (from 2005 levels)
- 80% reduction in net GHG emissions by 2050 (from 2005 levels)

## **Executive Order 2019-7 *Commonwealth Leadership in Addressing Climate Change through Electric Sector Emissions Reductions***



**2005 – Baseline GHG Emissions- 289.43 MMTCO<sub>2</sub>e**

**2016 – 19% reduction in GHG Emissions - 235.05 MMTCO<sub>2</sub>e**

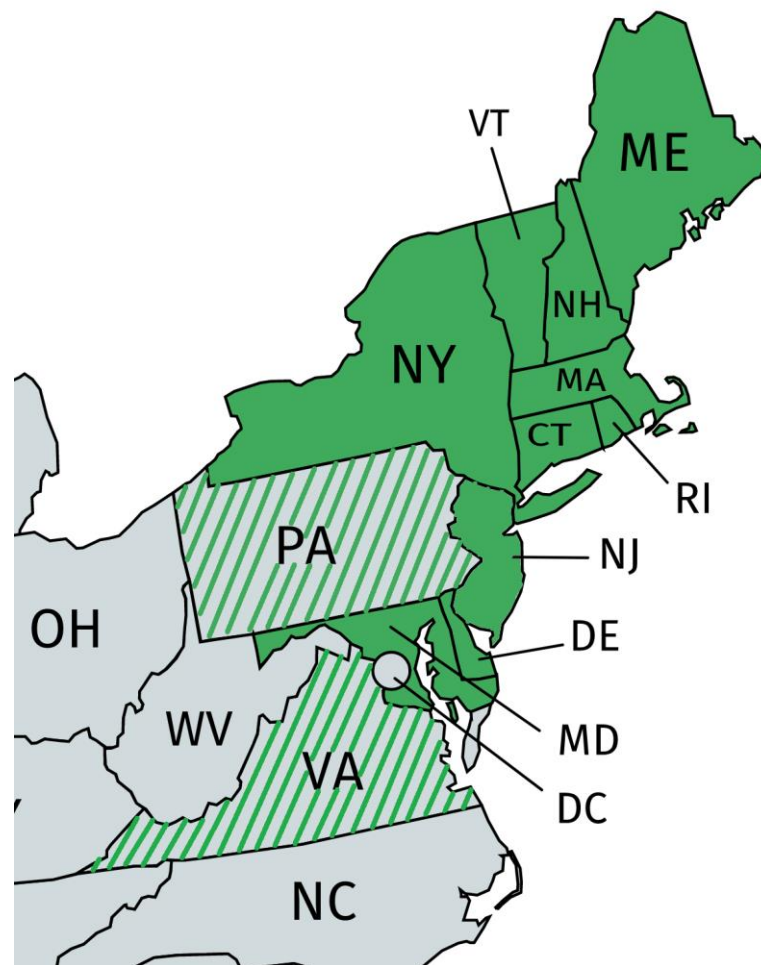
**\*20.87 MMTCO<sub>2</sub>e more required to reach the 2025 goal**

**2022 – 16.6 million metric tons by 2025 via RGGI participation**

**2025 – 26% reduction in GHG Emissions - 214.17 MMTCO<sub>2</sub>e**

# Regional Greenhouse Gas Initiative

- 10 Independent State Programs
  - PA and VA not yet participating
- Cap on CO<sub>2</sub> emissions from power sector
- Most allowances sold at auction
- Auction proceeds fund air pollution reduction programs
- Markets are Linked through:
  - Consistent Regulations
  - Reciprocal Acceptance of Allowances
- No central RGGI Authority
  - States oversee program jointly
    - DEP & PUC on Executive Board
  - RGGI Inc. does most administrative and technical functions



# Cap and Trade vs. Cap and Invest (RGGI)

**Require sources to turn in allowances for CO<sub>2</sub> emissions.**

**Only issue a specific number of allowances.**

**Allow sources to trade allowances.**

**Invest proceeds from allowance auctions into air pollution reduction programs.**

**Cap and Trade**

**Cap and Invest**

# Draft Proposed Annex

# Advisory Committee Participation

## Additional Public Webinars

- ✓ *Benefits of RGGI- Tentatively July 30<sup>th</sup> 2020*
- ✓ AQTAC and CAC- on April 23<sup>rd</sup> 2020

## Draft Proposed Annex discussed with Advisory Committees

- ✓ Air Quality Technical Advisory Committee – February 13<sup>th</sup> and May 7<sup>th</sup> 2020
- ✓ Citizen's Advisory Council – February 18<sup>th</sup> and May 19<sup>th</sup> 2020
- ✓ Climate Change Advisory Committee – February 25<sup>th</sup> 2020
- ✓ Small Business Compliance Advisory Committee – April 22<sup>nd</sup> and July 22<sup>nd</sup> 2020
- ✓ Environmental Justice Advisory Board – May 21<sup>st</sup> 2020

## Proposed Concepts discussed with Advisory Committees

- ✓ Air Quality Technical Advisory Committee – December 12<sup>th</sup> 2019
- ✓ Small Business Compliance Advisory Committee – January 22<sup>nd</sup> 2020
- ✓ Citizen's Advisory Council – November 19<sup>th</sup> 2019



# Changes Made Since Preliminary Draft

## **§ 145.302: Amended Definition of Legacy Emissions**

- Amends calculation and value of the waste coal set-aside.

## **§ 145.341: Added the PA CO<sub>2</sub> Budget Trading Program Base Budget**

- Establishes Allowance Base Budget at 78 M tons CO<sub>2</sub>.
- Declines annually matching stringency of current RGGI program.

## **§ 145.342: Added additional Allowance Allocations**

- Added two new Set-Aside Accounts
  - Strategic Use Set-Aside Account
  - Cogeneration Set-Aside Account
- Modified allowance allocation methodology for waste coal facilities

**§§ 145.393 – 145.397:** Removed Abandoned well plugging as an offset project option

# §145.304 Applicability & Covered Sources

## What does the CO<sub>2</sub> Budget Trading Program Establish?

Creates a cap-and-invest program for CO<sub>2</sub> emissions from the power sector.

## What are the Affected Sources §145.304 ?

Fossil fuel-fired Electric Generating Units (power plants)

- 25 MW or more nameplate capacity AND
- Sends >10% of gross generation to the grid.

## Limited Exemptions for CHP §145.305

- An otherwise qualifying EGU (25 MW+) that supplies  $\leq 10\%$  of its gross generation to any entity.
- An otherwise qualifying co-generation EGU (25 MW+) that supplies  $\leq 15\%$  of its annual total useful energy to any entity- not including energy sent to an interconnected manufacturing facility.

↑  
Addition to the Model Rule



52 Power Plants  
9 Waste Coal Plants  
1 Industrial Plant

**Pennsylvania 2022**

# Small Business Analysis

## Small Business Definition - 13 CFR Chapter 1, Part 121

*The size standards are expressed in either millions of dollars (or number of employees). Size standards are the average annual receipts or the average employment of a firm. A size standard is the largest that a facility can be and still qualify as a small business. Size standards vary by NAICS codes.*

NAICS Codes	NAICS U.S. Industry Title	Size Standards (# of employees)
<b>221112</b>	<b>Fossil Fuel Electric Power Generation</b>	<b>750</b>
<b>221118</b>	<b>Other Electric Power Generation</b>	<b>250</b>
221121	Electric Bulk Power Transmission and Control	500
322121	Paper (except Newsprint) Mills	1,250

# Small Business Analysis (cont.)

**Step #1**  
Site Analysis

**Step #2**  
Parent Analysis

**Step #3**  
Determination

**20 Potential Sites**

**13 Potential Sites**  
**(-7)**

**10 Potential Sites**  
**(-3)**

**10 Potentially Affected Sources May Qualify as Small Businesses  
per the U.S. Small Business Administration Definition**

**7 Waste Coal Facilities**

**3 Other Facilities**

# Calculating Allowance Budget \$145.341

Year	Budget	Decline (Tonnage)	Annual Decline (Percentage)
2020			
2021			
2022	78,000,000		
2023	75,510,630	2,489,370	-3.19%
2024	73,021,260	2,489,370	-3.30%
2025	70,531,890	2,489,370	-3.41%
2026	68,042,520	2,489,370	-3.53%
2027	65,553,150	2,489,370	-3.66%
2028	63,063,780	2,489,370	-3.80%
2029	60,574,410	2,489,370	-3.95%
2030	58,085,040	2,489,370	-4.11%
<b>2022-2030 Total Reduction:</b>		<b>19,914,960</b>	<b>-25.532%</b>
<b>25.532% reduction from 2022:</b>	<b>58,085,040</b>		
<b>Total tonnage reduction:</b>	<b>19,914,960</b>		
<b>Annual tonnage reduction:</b>	<b>2,489,370</b>		

# Proposed Set-Aside Accounts

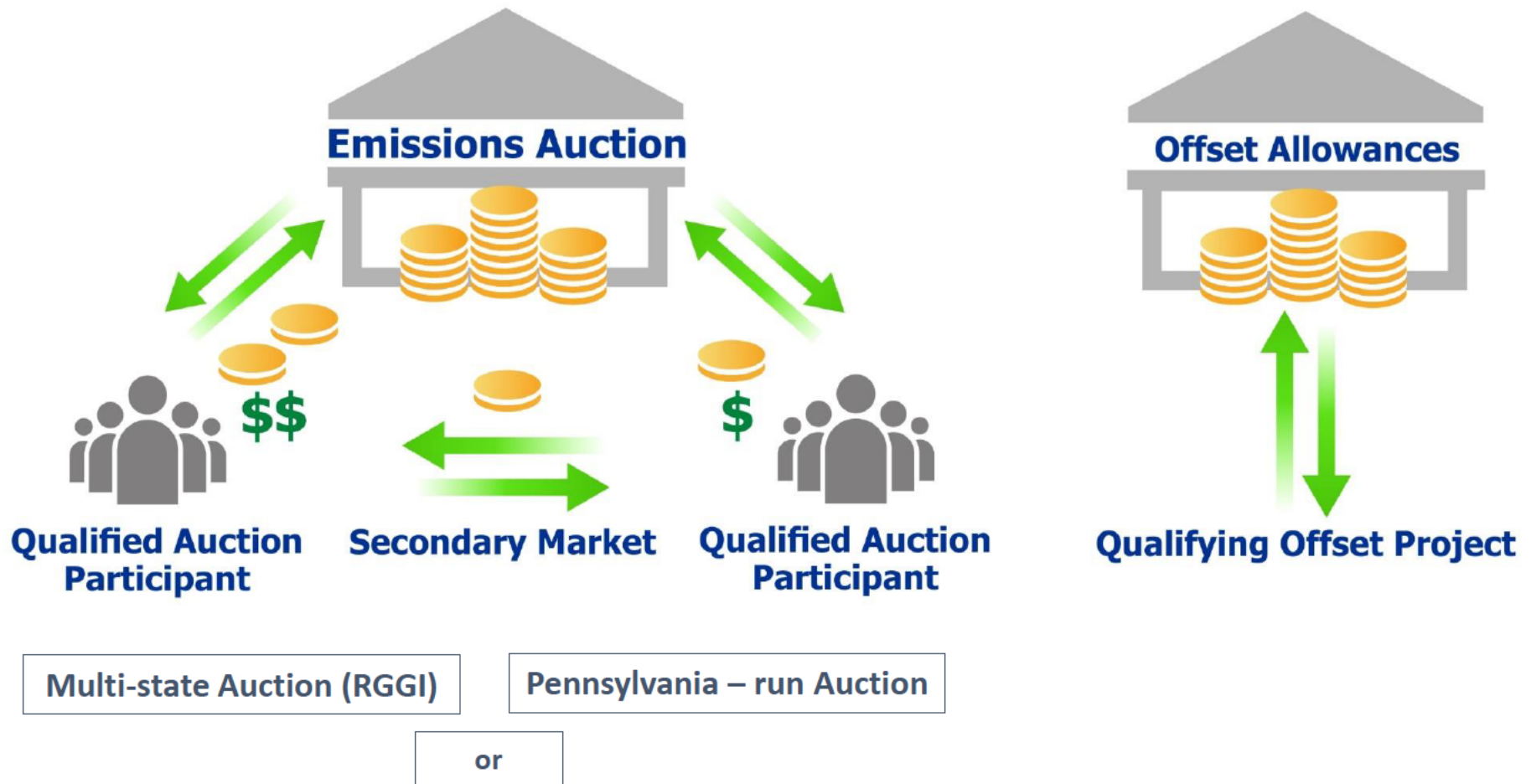
*Set-Aside Accounts are general accounts established by the Department for the allocation of CO<sub>2</sub> allowances. They are a tool to advance policy objectives, and tailor regulations to the needs of particular states.*

## **Types of Set-Aside Accounts**

1. *Waste Coal- for the allocation of CO<sub>2</sub> allowances in an amount sufficient to provide CO<sub>2</sub> allowances equal to the legacy emissions from all waste coal-fired units under § 145.342(i).*
2. *Strategic Use - for the distribution of CO<sub>2</sub> allowances to encourage energy efficiency measures, promotion of renewable or noncarbon-emitting energy, and carbon emissions abatement.*
3. *Co-generation - for the allocation of allowances for retirement in an amount equal to the adjustment of the compliance obligation of a cogeneration unit.*

# Compliance Options

# Options for Compliance





# Quarterly Regional Auctions

## 2020 RGGI Regional Auction Dates

<b>Auction #47</b>	<b>March 11, 2020</b>	<b>\$5.65</b>
<b>Auction #48</b>	<b>June 3, 2020</b>	<b>\$5.75</b>
<b>Auction #49</b>	<b>September 2, 2020</b>	
<b>Auction #50</b>	<b>December 2, 2020</b>	

**RGGI Inc.**



## MARKET MONITOR REPORT FOR AUCTION 47

**Prepared for:**

**on behalf of the RGGI Participating States**

*Bids were submitted across a wide range of prices in the auction and the clearing price of \$5.65 was relatively consistent with average bid prices submitted.*

The following table reports several statistics regarding the bid prices for bids submitted in Auction 47. The median and mean bid prices are weighted by the quantity of each bid.

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<b>Bid Prices:</b>	
<b>Minimum</b>	<b>\$2.32</b>
<b>Maximum</b>	<b>\$6.75</b>
<b>Average (Median)</b>	<b>\$5.55</b>
<b>Average (Mean)</b>	<b>\$5.18</b>
<b>Clearing Price:</b>	<b>\$5.65</b>

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# Compliance Requirements §145.304

1. Title V Permit Modifications
2. Establish CO<sub>2</sub> Allowance Tracking System (COATS) Account
3. Emissions Monitoring (EPA's CAMD)
4. Recordkeeping & Reporting
5. Application for Allowances from Qualifying Set-Asides (optional)
6. Transfer of Required Allowances to Budget Unit Compliance Account
  - a) 50% during interim control periods
  - b) 100% at the close of the control period

**Allowance Transfer Deadline:** *Midnight of March 1<sup>st</sup> the deadline by which CO<sub>2</sub> allowances must be submitted for recordation in a CO<sub>2</sub> budget source's compliance account in order for the source to meet the CO<sub>2</sub> requirements of § 145.306(c).*

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# Auction Proceeds

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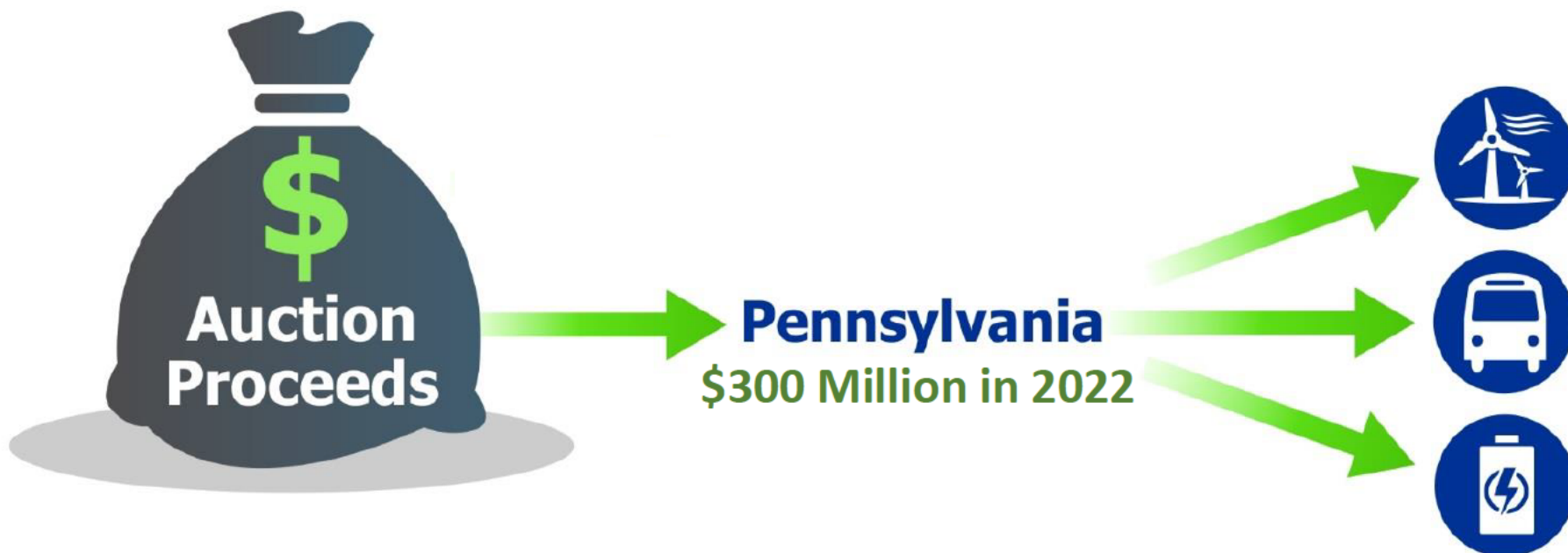
# Distributing PA Allowances



**Allowance distributed into  
auction marketplace**

**Set Asides**

# Pennsylvania Auction Proceeds

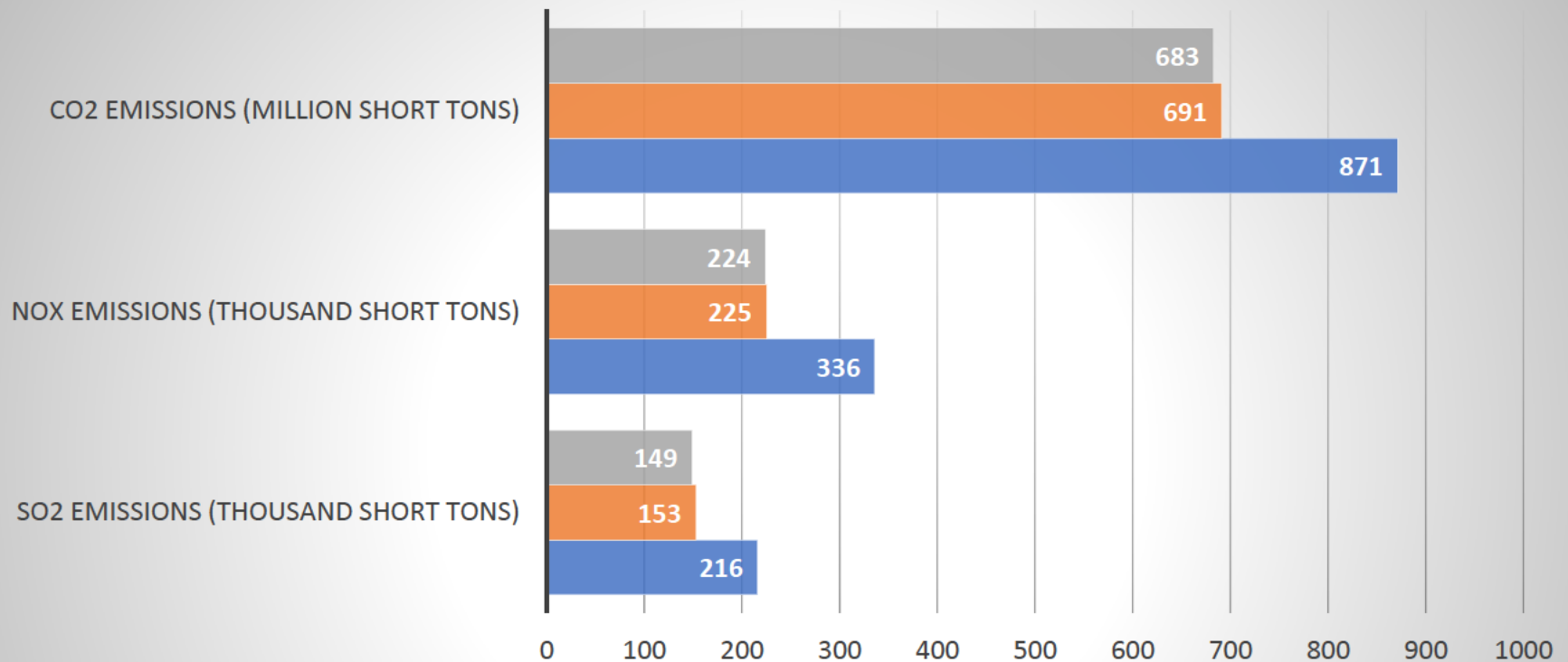


Estimated PA Annual RGGI Program Revenue (millions)									
	2022	2023	2024	2025	2026	2027	2028	2029	2030
Annual Revenue	\$320	\$318	\$315	\$311	\$274	\$240	\$207	\$193	\$179

RGGI + Investment Scenario			
	Energy Efficiency	Clean and Renewable Energy	Greenhouse Gas Abatement
Revenue Percentage	31%	32%	31%

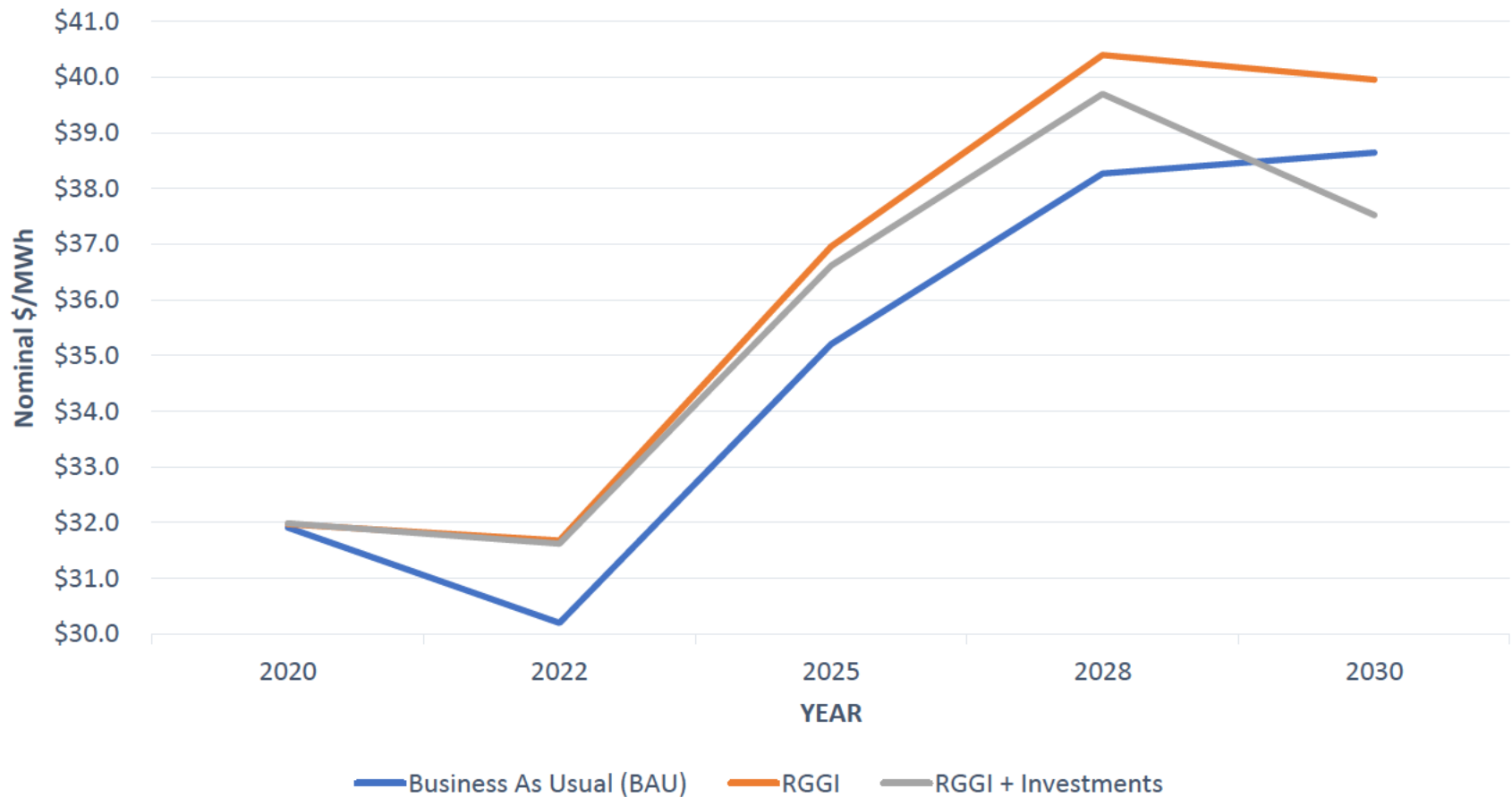
# Modeling Insights

# Environmental Benefits Through 2030



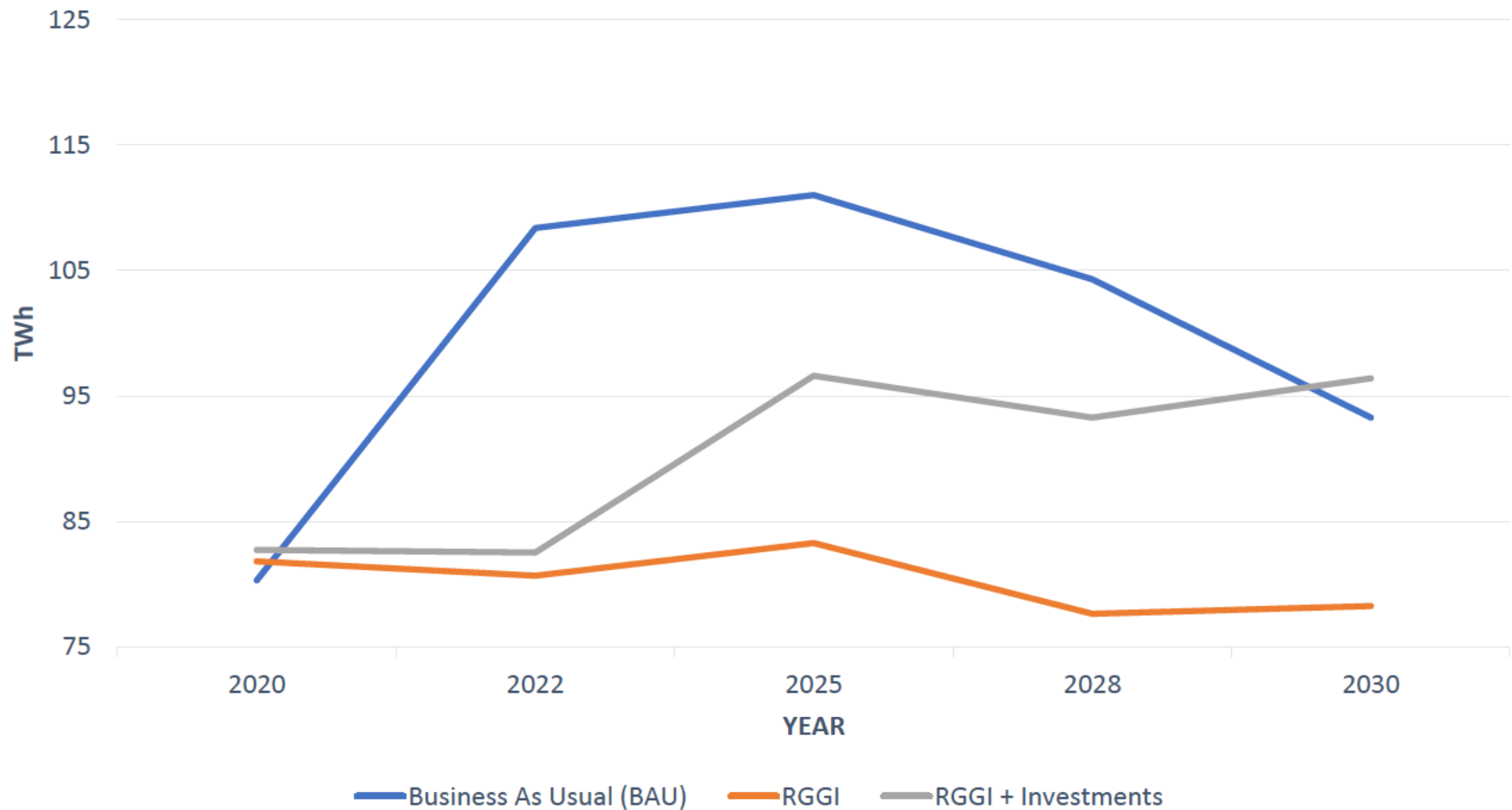
	SO2 Emissions (Thousand Short Tons)	NOx Emissions (Thousand Short Tons)	CO2 Emissions (Million Short Tons)
■ RGGI + Investments	149	224	683
■ RGGI	153	225	691
■ Business As Usual (BAU)	216	336	871

# Pennsylvania Firm Power Prices

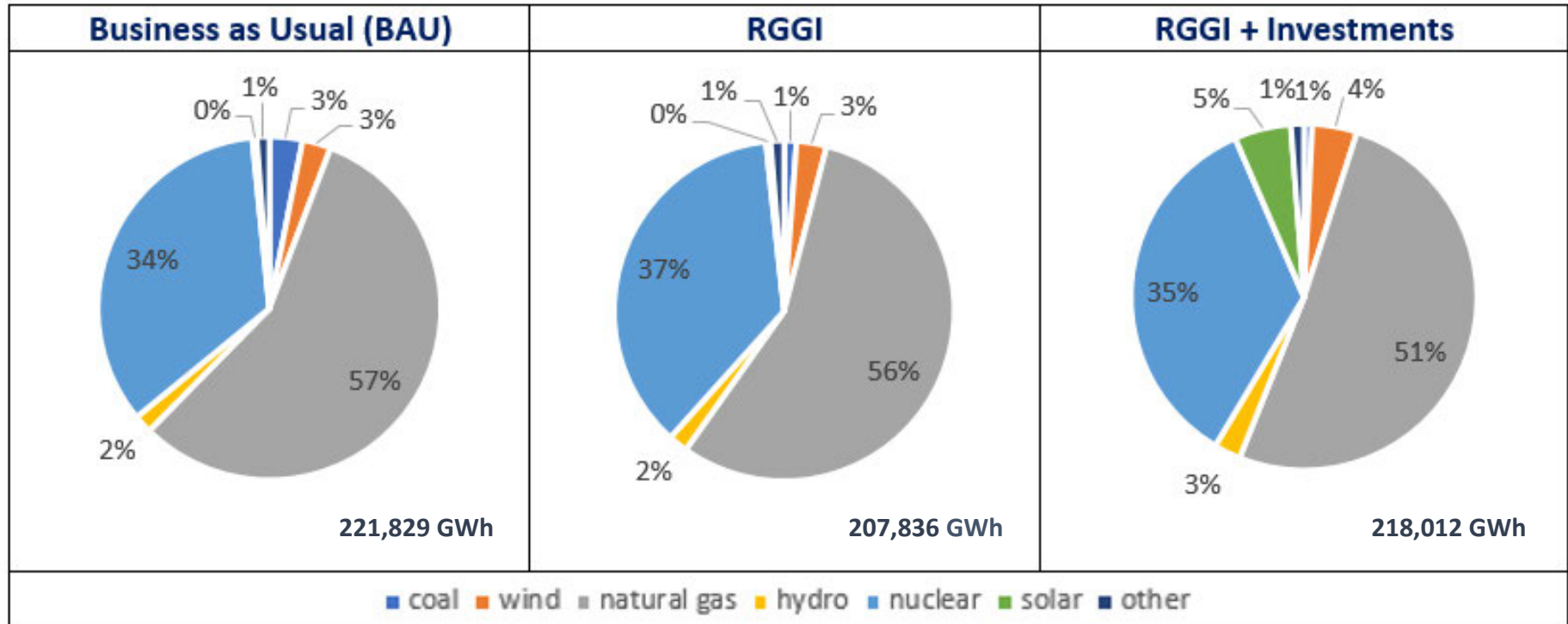




# PA Electricity Exports



# 2030 PA Energy Generation



# Health and Economic Benefits

# RGGI Public Health Benefits



**\$232 M - \$525 M Annually**  
Public Health Benefits

**\$2.79 Billion to \$6.3 Billion by 2030**  
Cumulative Public Health Benefits

**639**

Avoided Premature Deaths

**500,000**

Less Minor Restricted Activity Days

**469**

Avoided Hospital Admissions

**83,639**

Avoided Lost Work Days

**31,356**

Less People with Respiratory Issues

**45,299**

Less Children with Asthma

**335**

Avoided ER Visits for Asthma

# RGGI Benefits Pennsylvania

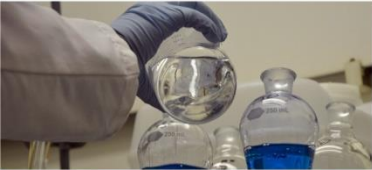
- ✓ ***Decreases Emissions:*** CO2 emissions will decrease by more than 10x when compared to future emissions without program participation.
- ✓ ***Lowers Electricity Prices:*** By 2030 electricity prices with RGGI participation will be lower than they would have been otherwise.
- ✓ ***Bolsters Energy Exports:*** By 2030 PA electricity exports exceed and continue to climb well above future export capabilities without RGGI.
- ✓ ***Reduces Healthcare Costs:*** Reductions in pollutant are estimated to save Pennsylvanians billions of dollars in avoided healthcare costs.
- ✓ ***Improves Quality of Life:*** Less deaths, hospitalizations and ER visits due to cardiac and respiratory issues exacerbated by poor air quality- esp for children.
- ✓ ***Generates Jobs:*** Reinvestment of RGGI proceeds into the economy will result in a net increase in jobs of 27,700 in this commonwealth by 2030.
- ✓ ***Grows the Economy:*** Gross State Product (GSP) in Pennsylvania by 2030 will increase by \$1.9 billion.

## SBCAC Action

The Department is requesting SBCAC's concurrence with the Department's recommendation to move the proposed rulemaking *Pennsylvania's CO<sub>2</sub> Budget Trading Program* forward to the EQB for consideration.

# Questions & Answers





**pennsylvania**  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



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