



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of Air Quality



Final Rulemaking - CO₂ Budget Trading Program 25 Pa. Code Chapter 145, Subchapter E

Environmental Quality Board
July 13, 2021

Tom Wolf, Governor

Patrick McDonnell, Secretary

Purpose of the Final-Form Rulemaking

- The purpose of this final-form rulemaking is to reduce emissions of carbon dioxide (CO₂), a greenhouse gas and major contributor to climate change impacts, in a manner that is protective of public health, welfare and the environment.
- The Department projects that 97 - 227 million short tons of CO₂ that would have been emitted over the next decade in this Commonwealth would be avoided by implementing this final-form rulemaking.
- This final-form rulemaking is a significant component in achieving Pennsylvania's goals to reduce greenhouse gas emissions. Although this final-form rulemaking will not solve global climate change, it will aid this Commonwealth in addressing its share of the impact, joining other states and countries that are addressing their own contributions.

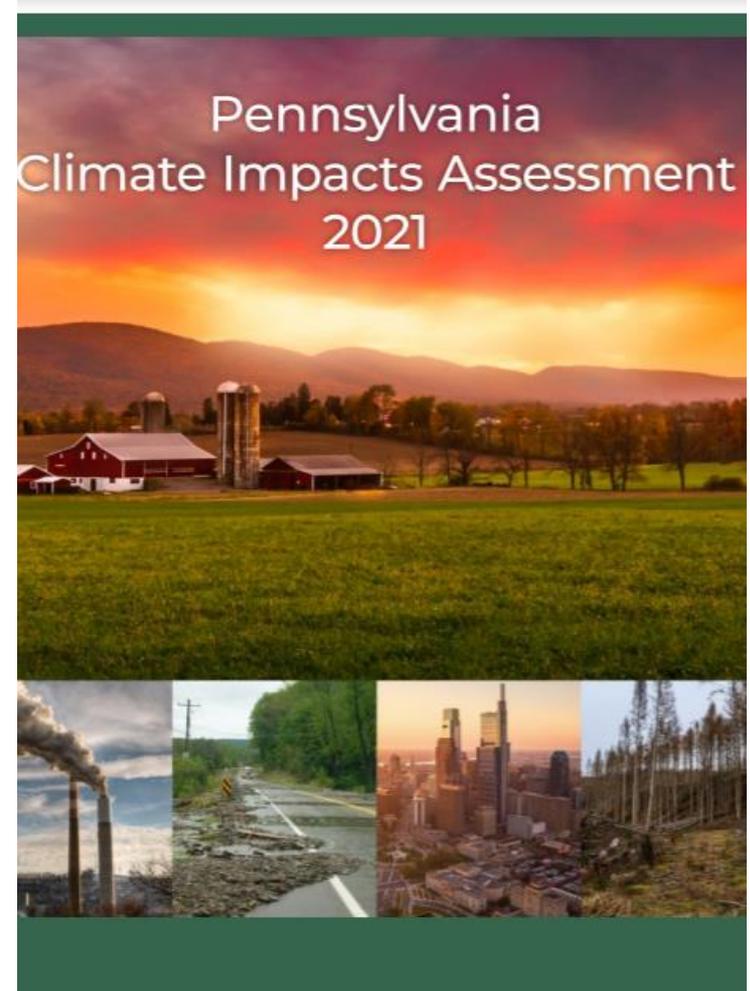
Significance of CO₂ Emissions

- According to the most recent data from the United States Energy Information Administration, Pennsylvania's electricity generation sector is one of the top five in CO₂ emissions in the country.
- In 2018, Pennsylvania generated net greenhouse gas emissions equal to 241.12 million metric tons CO₂ equivalent Statewide, the vast majority of which are CO₂ emissions.
- In the context of the world, Pennsylvania's electricity generation sector alone emits more CO₂ than many entire countries including Greece, Sweden, Israel, Singapore, Austria, Peru and Portugal.

According to the 2019 Yale Climate National Survey: 72% of Pennsylvanians support regulating CO₂ as a pollutant.

Climate Change Impacts in Pennsylvania

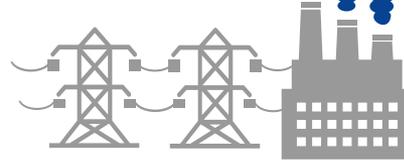
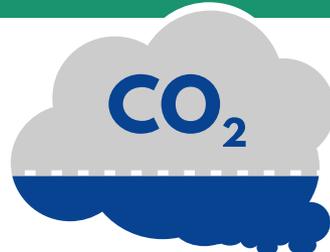
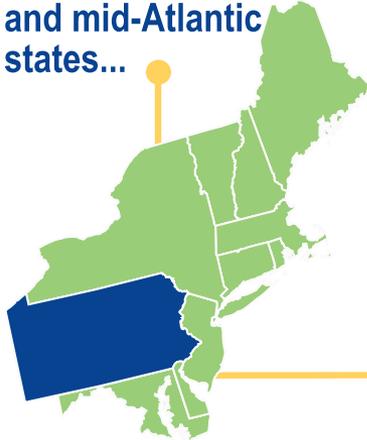
- **Flooding is currently the highest-risk hazard** facing Pennsylvania, and flood risks are projected to increase; at the same time, risks from **increasing average temperatures and heat waves** could rise to be as high as flooding is today by mid-century
- **Heat waves will become increasingly common** and will create particular health and economic risks for vulnerable populations
- **All hazards could affect public health negatively**—especially heat waves, increasing temperatures, and flooding
- **Climate change will not affect all Pennsylvanians equally.** Some may be more at risk because of their location (and inability to relocate), income, housing, health, or other factors
- **Landslides and sea level rise can cause severe impacts in the locations where they occur**, but pose relatively low risks statewide
- **Severe tropical storms, flooding, and landslides already pose risks**, and these could become more likely or severe in the future



PA Participation in the

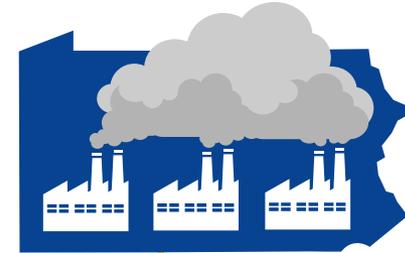
Regional Greenhouse Gas Initiative (RGGI)

RGGI is a partnership between Northeastern and mid-Atlantic states...



...Designed to cap and reduce carbon emissions from fossil fuel fired power plants.

The electricity sector is the 2nd leading source of Greenhouse Gas Emissions in PA.



Since 2005, RGGI states have significantly reduced their power sector CO₂ pollution.



By 2025

Participating in RGGI will help PA reach our greenhouse gas emissions goals...



By 2050

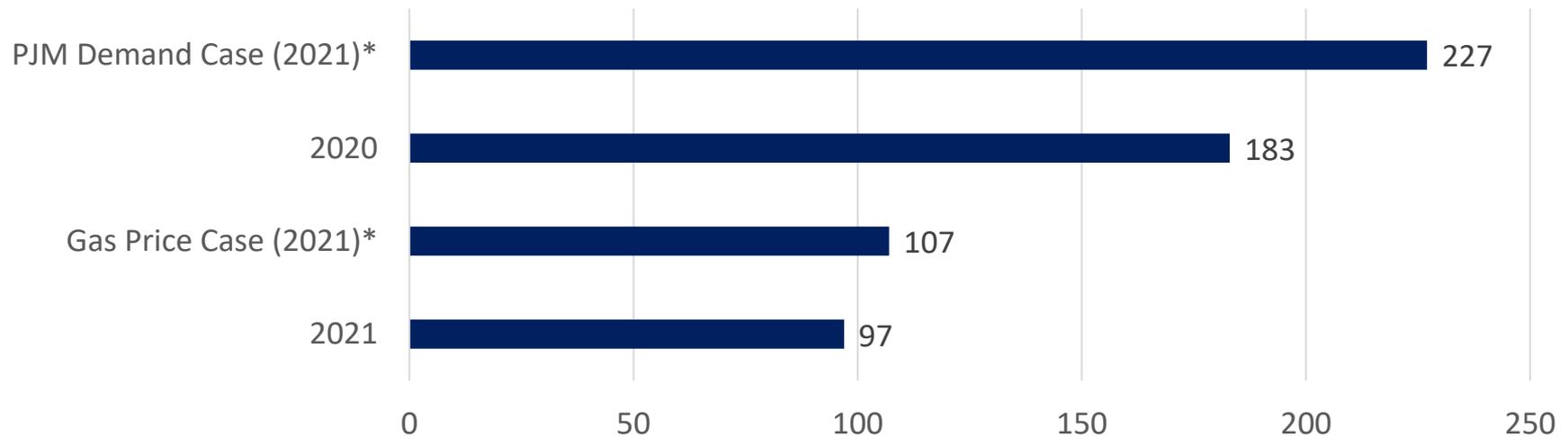
...And help PA combat climate change.



Environmental Benefits of RGGI

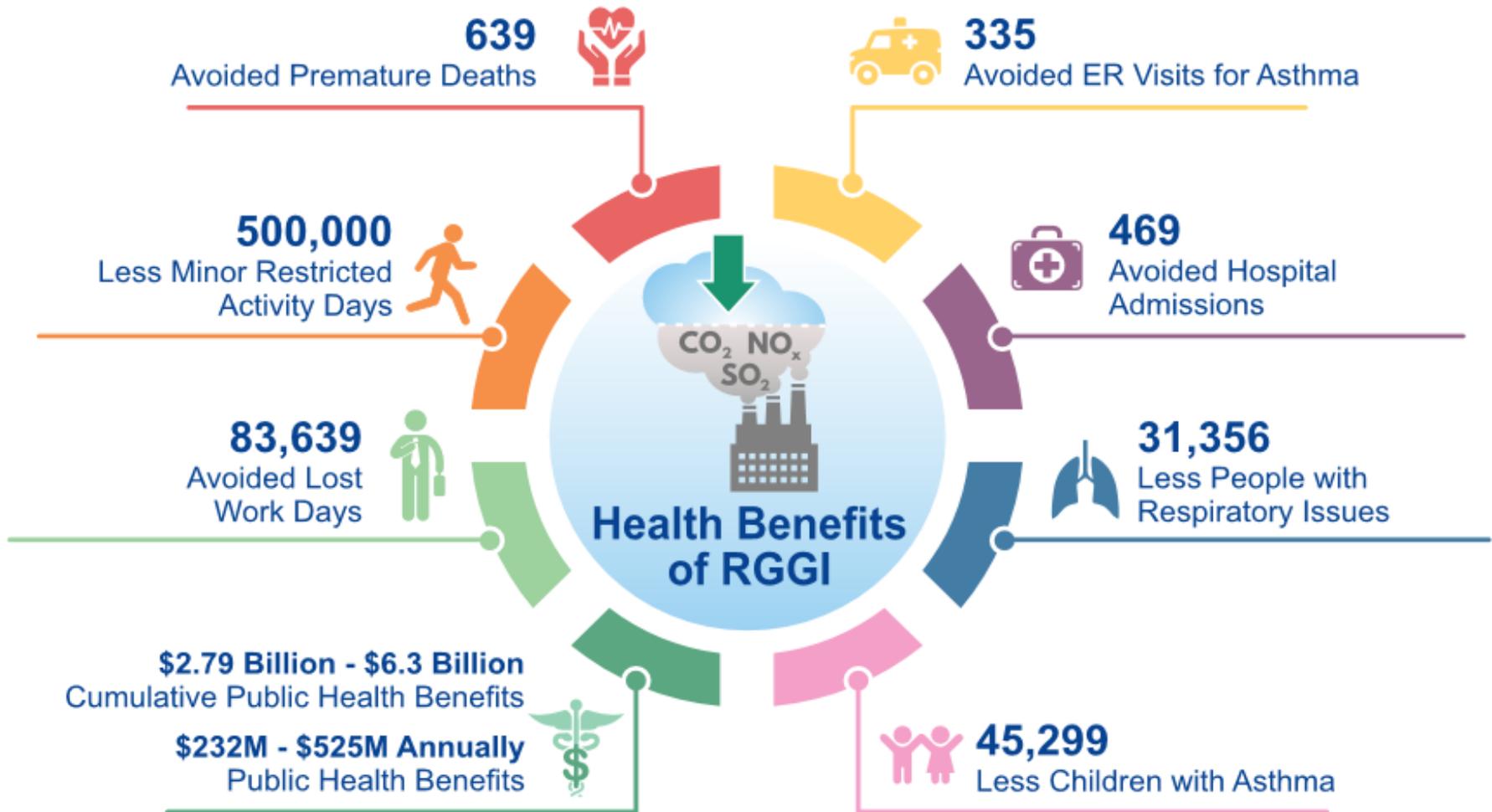
- The Department's modeling confirmed significant avoided CO₂ emissions for Pennsylvania resulting from RGGI participation— ranging from nearly 100 million to 225 millions tons reduced between now and 2030.
- Updated modeling results heavily impacted by Alternative Energy Portfolio Standards Act legislation relating to Tier II requirements, decreased regional electricity demand, and fluctuating natural gas prices.

Cumulative Avoided Emissions (million tons CO₂) 2021-2030



**These avoided emissions results were based on the difference between a reference case and a policy case that were the same as the 2021 case, except with a different electricity demand or natural gas price assumption.*

Health Benefits of RGGI



Economic Benefits of RGGI

1. **Significant Avoided Emissions through RGGI participation:** Department's modeling shows that PA would experience significant CO₂ reductions.
2. **Generates Jobs:** Net increase of over 30,000 jobs in PA by 2030.
3. **Grows the Economy:** Gross State Product (GSP) increases by \$1.9 billion by 2030.
4. **Lower energy bills:** Slight increase in the short-term with greater energy bill savings in the future.
5. **PA Remains a Leading Energy Exporter:** Updated modeling showing a smaller impact on exports due to RGGI participation.
6. **Slight Decrease in Disposable Household Income*:** on the order of a decline of .017% by 2030 – and then an increase by 2033.

**Not inclusive of the health or other societal benefits related to emissions reductions.*

Applicability and Covered Sources

What does the CO₂ Budget Trading Program Establish?

Creates a cap-and-invest program for CO₂ emissions from the power sector.

What are the Affected Sources?

Fossil fuel-fired Electric Generating Units (EGUs)

- 25 MWe or more nameplate capacity AND
- Sends >10% of gross generation to the grid.
- Limited Exemption for EGUs that supply ≤ 15% of annual total useful energy to any entity- not including energy sent to an interconnected industrial, institutional or commercial facility.

How do the Affected Sources Comply?

Affected sources must obtain one CO₂ allowance for every ton of CO₂ emitted.



EGU Compliance Requirements

1. Title V Permit Modifications
2. Establish CO₂ Allowance Tracking System (COATS) Account
3. Emissions Monitoring (EPA's Clean Air Market Division)
4. Recordkeeping & Reporting
5. Application for CO₂ Allowances from Qualifying Set-Asides (optional)
6. Obtain necessary CO₂ Allowances (via auction, secondary market or offset projects)
7. Transfer of Required CO₂ Allowances to Compliance Account
 - a) 50% during interim control periods
 - b) 100% at the close of the control period

Allowance Transfer Deadline: *Midnight of March 1st is the deadline by which CO₂ allowances must be submitted for recordation in a CO₂ budget source's compliance account in order for the source to meet the CO₂ requirements of § 145.306(c).*

Public Comment Period

- The Public Comment Period opened on November 7, 2020 and ten public hearings were held to gather input on the proposed regulation. Two hearings were held on each of these dates:
 - December 8, 2020 – 82 testifiers
 - December 9, 2020 – 81 testifiers
 - December 10, 2020 – 91 testifiers
 - December 11, 2020 – 94 testifiers
 - December 14, 2020 – 101 testifiers
- The public comment period closed on January 14, 2021- with 14,038 comments received.
- The comment period for the [Independent Regulatory Review Commission \(IRRC\)](#) closed on February 16, 2021.

Summary of Public Comments

- Climate Change & RGGI
- Statutory Authority
- Regulatory Review Act Requirements
- Applicability
- CO₂ Allowance Set-Aside Accounts
- Offset Projects
- Compliance Requirements
- Modeling & Data Analysis
- Special Considerations

Comments on Regulatory Language

Received numerous comments on specific regulatory changes, including:

- Allowance budget should be decreased if it is too high, with some recommending automatic mechanism to lower allowance budget.
- Combined Heat and Power set aside should be increased, decreased, or eliminated.
- Some commenters stated Waste Coal set aside should be decreased or removed, while others recommend an increase.
- Regulation should include Voluntary Renewable Energy set aside.
- Strategic Use set aside should remain independent of Waste Coal set aside.
- Regulation should include emissions impact monitoring.
- Air pollution permitting process should include more input.

Summary of Regulatory Changes

- Added Quarterly CO₂ Allowance Budgets for 2022 - § 145.341
- Made a slight modification to the Limited Exemption - § 145.305
- Expanded Cogeneration (now Combined Heat and Power) Set-Aside with Qualifiers - § 145.342
- Adjusted the value of the Waste Coal Set-Aside - § 145.342
- Refined and Clarified Strategic Use Set-Aside - § 145.342
- Added DEP Commitment to Annual Air Quality Impact Assessment - § 145.306
- Incorporated Equity Principles (preamble)

▶ Quarterly CO₂ Allowance Budget § 145.341

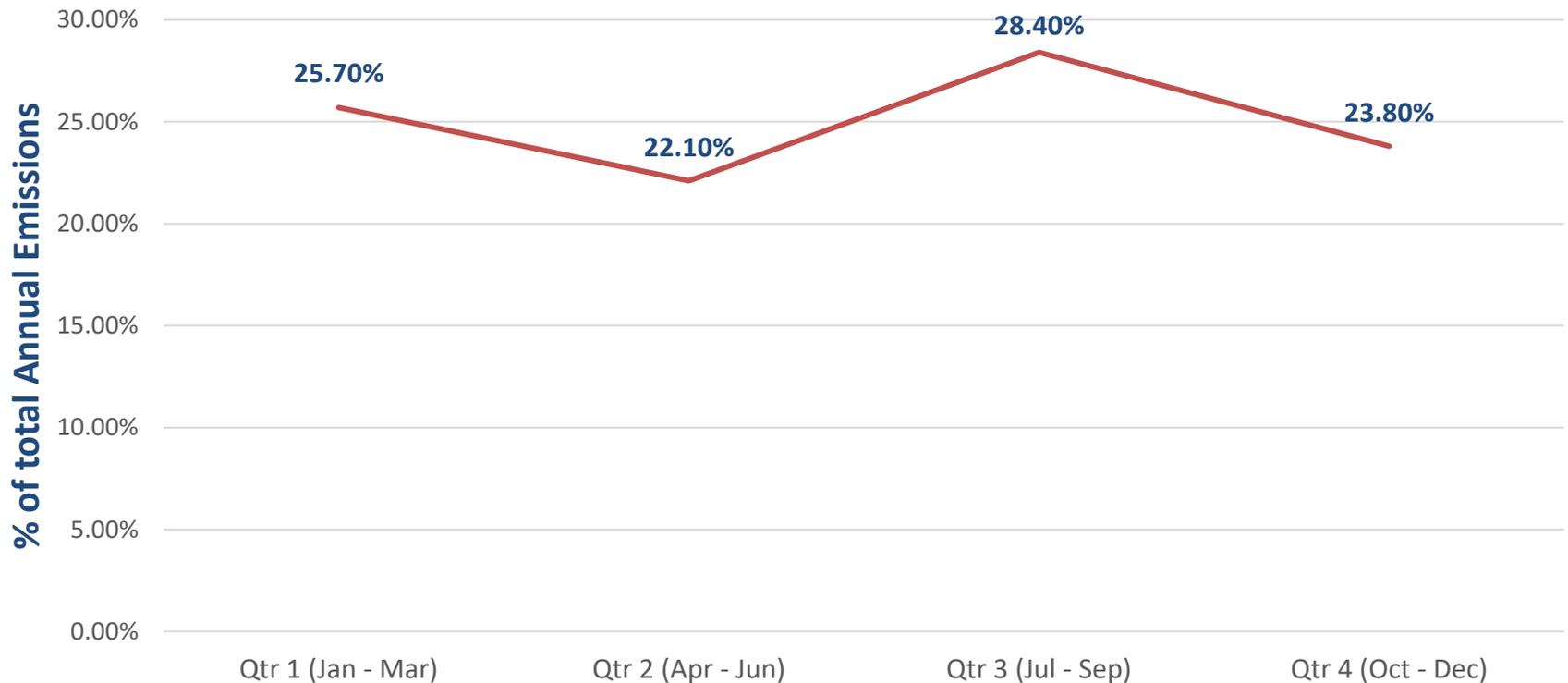
For 2022, if Pennsylvania is a participating state on January 1, 2022, the CO₂ Budget Trading Program base budget is 78,000,000 tons. If Pennsylvania is a participating state after January 1, 2022, then the CO₂ Budget Trading Program Base Budget for 2022 will be one of the following.

If PA is a participating state after:

- January 1, 2022, but before or on April 1, 2022, then the CO₂ Budget Trading Program Base Budget is 57,954,000 tons.
- April 1, 2022, but before or on July 1, 2022, then the CO₂ Budget Trading Program Base Budget is 40,716,000 tons.
- July 1, 2022, but before or on October 1, 2022, then the CO₂ Budget Trading Program Base Budget is 18,564,000 tons.

2022 Quarterly Emissions Calculation

Average Annual Emissions by Quarter (2016- 2020)



➤ Changes to the Limited Exemption § 145.305

- An otherwise applicable EGU (25 MW+) that supplies $\leq 10\%$ of its annual gross generation to the electric grid.
- An otherwise applicable EGU (25 MW+) that supplies $\leq 15\%$ of its annual total useful energy to any entity- not including energy sent to an interconnected ~~manufacturing~~ **industrial, institutional or commercial** facility.
- Required to have a permit issued by the Department containing a condition restricting the supply of the CO₂ budget unit's annual electrical output to the electric grid in order to qualify for the limited exemption.

Combined Heat and Power Set-Aside Account

A general account established by the Department for the allocation of CO₂ allowances in an amount sufficient to retire CO₂ allowances equal to the CO₂ emissions from Combined Heat and Power units under § 145.342(k).

Set-Aside Eligibility Criteria for Applicable Facilities

1. Units must be located in PA and be subject to the CO₂ Budget Trading Program.
2. Must meet definition of Combined Heat and Power (CHP) unit per § 145.302.
 - An electric-generating unit that simultaneously produces both electricity and useful thermal energy.
3. CHP unit may request retirement of CO₂ allowances equal to one of the following:
 - Total amount of CO₂ emitted as a result of providing useful thermal energy or electricity, or both, during the allocation year, OR
 - Partial amount of CO₂ emitted as a result of supplying useful thermal energy or electricity, or both, to an interconnected industrial, institutional or commercial facility during the allocation year.
4. Department will retire allowances for applicable CHP units.

Waste Coal Set-Aside Account

A general account established by the Department for the allocation of CO₂ allowances in an amount sufficient to provide CO₂ allowances equal to the legacy emissions from all waste coal-fired units under § 145.342(i).

Defining Legacy Emissions

1. The amount of CO₂ emissions in tons equal to the highest year of CO₂ emissions from a waste coal-fired unit during the 10-year period beginning January 1, 2010 through December 31, 2019 as determined by the Department. § 145.302
2. **Legacy emissions increased from 9,300,000 tons to 12,800,000 tons of CO₂ emissions. § 145.342**
3. Any undistributed allowances are transferred to the Strategic Use set-aside account each year.

Strategic Use Set-Aside Account

*A general account established by the Department for the distribution of CO₂ allowances to **reduce greenhouse gas emissions through energy efficiency measures, renewable or noncarbon-emitting energy technologies, and greenhouse gas emissions abatement.** § 145.342(j)*

Allocation to Eligible Projects

1. Department will allocate undistributed CO₂ allowances to the strategic use set-aside account for each allocation year from the waste coal set-aside account.
2. Distributions may be made from the set-aside account to eligible projects located in Pennsylvania that result in a **Greenhouse Gas emission reduction** benefit including:
 - a) **Implementation** of energy efficiency measures.
 - b) **Implementation of** renewable and non-carbon emitting energy technologies.
 - c) **Development** of innovative **greenhouse gas emission abatement technologies with significant greenhouse gas reduction potential.**
3. Established set-aside application process and requirements.
4. CO₂ allowances distributed upon completion of the eligible project which cannot be legally required.

Annual Air Quality Impact Assessment

The Department of Environmental Protection is making an annual commitment to assess changes in emissions and air quality in Pennsylvania as it relates to implementation of this regulation. § 145.306

- The Department will use the emissions measurements recorded and reported under Article III to determine whether areas of this Commonwealth have been disproportionately impacted by increased air pollution as a result of implementation of this subchapter.
- The Department will publish notice of the availability of a report of the emissions measurements and the determination in the *Pennsylvania Bulletin* on an annual basis to include at a minimum:
 - Baseline air emissions data from each CO₂ budget unit for the calendar year prior to the year Pennsylvania becomes a participating state.
 - Annual emissions measurements recorded and reported to the Department from each CO₂ budget unit.

RGGI Equity Principles

Environmental justice ensures fair treatment and meaningful involvement of all people in development of environmental laws, regulations and policies and embodies the principle that populations should not be disproportionately exposed to environmental impacts.

DEP has developed and prioritized for implementation, a set of **RGGI Equity Principles** whereby the Department in development of this rulemaking and associated investment framework commits to :

- Inclusively gathering and considering input from the public related to decisions made under RGGI.
- Protecting public health and welfare, mitigating any adverse impacts on human health, especially in EJ communities.
- Working equitably and with intentional consideration to distribute environmental and economic benefits of the proceeds of allowance auctions.



RGGI Investment Framework

How are Auction Proceeds Invested?

- Invested in accordance with the Department's authority under the Air Pollution Control Act to further eliminate air pollution, particularly greenhouse gas emissions in support of the CO₂ Budget Trading Program.

Investment Plan:

- DEP is conducting a robust stakeholder engagement to consider a wide range of investments to reduce air pollution.
- Engaging with many different groups including workers, environmental justice groups, industrial groups, and many others.
- Committed to developing a draft investment plan that is posted for public comment to hear from as many Pennsylvanians as possible.
- Stakeholder engagement and plan development process will unfold throughout 2021 to allow ample time for input.

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.
- ✓ **Generates Jobs:** Reinvestment of RGGI proceeds into the economy will result in a net increase in jobs of over 30,000 in this Commonwealth by 2030.
- ✓ **Reduces Healthcare Costs:** Reductions in pollutants 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- especially for children.
- ✓ **Grows the Economy:** Gross State Product (GSP) in Pennsylvania by 2030 will increase by \$1.9 billion.

Advisory Committee Consultation

The Department consulted with the following advisory committees in preparation of this final-form rulemaking. All Advisory Committees voted to support the Department in advancing this final-form rulemaking to EQB.

- ✓ **Air Quality Technical Advisory Committee (AQTAC)**
 - April 8, 2021 & May 17, 2021
- ✓ **Citizens Advisory Council (CAC)**
 - April 20, 2021 & May 19, 2021
- ✓ **Small Business Compliance Advisory Committee (SBCAC)**
 - May 19, 2021
- ✓ **Environmental Justice Advisory Board (EJAB)**
 - May 20, 2021

Recommendation

The Department recommends the Board adopt this final-form rulemaking for publication in the *Pennsylvania Bulletin*.



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Hayley Book, hbook@pa.gov
Jennie Demjanick, jdemjanick@pa.gov
Allen Landis, allandis@pa.gov
Krishnan Ramamurthy, kramamurth@pa.gov

Visit the RGGI website @ www.dep.pa.gov/RGGI
Materiales también disponibles en español.

Email staff with additional questions @
ra-epclimate@pa.gov