International Carbon Action Partnership

USA - Regional Greenhouse Gas Initiative (RGGI)

General Information

ETS Description

The Regional Greenhouse Gas Initiative (RGGI) launched in 2009 and is the first mandatory GHG ETS in the United States. It started operating with ten states (**Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island**, and **Vermont**). RGGI's development was based on the "2005 RGGI Memorandum of Understanding" (MOU) and on the "2006 RGGI Model Rule". Through statutes or regulations based on the Model Rule, each state then established individual CO_2 budget trading programs. New Jersey withdrew from RGGI at the end of the first phase, or "control period" (see 'Compliance' section) in December 2011 and later rejoined in 2020, while **Virginia** joined in 2021 and has left as of 2024.

RGGI covers power sector emissions in participating states. In 2020, it covered around 14% of the aggregate participant states' emissions; in 2021, 228 facilities were covered by the state regulations. The aggregate cap will decrease by 30% compared to 2020 between 2021 and 2030. Under the ETS, covered entities must surrender allowances for all their covered emissions. Covered entities obtain most of their allowances through regular auctions, while some states have "set-aside" accounts from which they may transfer a limited number of allowances to entities' compliance accounts.

RGGI has undergone two review processes that updated the Model Rule and enshrined tighter caps and adjustments to system design. RGGI's third review process is currently ongoing.

ETS Status

in force

Jurisdictions

Connecticut
Delaware
Maine
Maryland
Massachusetts
New Hampshire
New Jersey
Rhode Island
Vermont
New York

Year in Review

The RGGI states initiated the Third Program Review in summer 2021 to analyze the program's successes, impacts, potential additional reductions to the cap post-2030, and other design elements.

As part of the process, in September, the RGGI states presented the Spring Modelling Framework, which originally considered five illustrative allowance supply scenarios:

1. Current RGGI trajectory (baseline): with a flat cap post-2030

2. Extend reduction: extends the reduction trajectory post-2030
3. Zero by 2040: the cap trajectory goes to zero between 2030 and 2040
4. Zero by 2040: start in 2026: the cap trajectory goes to zero between 2026 and 2040
5. Zero by 2035: the cap goes to zero by 2035.

The states will update the baseline scenario and not pursue the "extend reduction" scenario. The model thus analyzes the "zero by 2040" and "zero by 2035" scenarios. The model considered three sets of assumptions, in which more renewables and electrification are modelled, and presented results on RGGI-affected emissions, allowance price projections, and capacity mix, in the period 2025 to 2035.

The RGGI states also presented the draft RGGI emissions dashboard for review and public comment. RGGI's third review process is currently ongoing.

Virginia repealed its CO2 Budget Trading Program following executive action started by the state's administration in 2022. The repealing regulation was approved by the state's Air Pollution Control Board in June and became effective by the end of August. The state thus stopped participating in RGGI in December.

Sectoral coverage

Power

Revenue usage

Climate mitigation
Assistance for individuals, households, and businesses

Emissions & Targets

Overall GHG Emissions excl. LULUCF (MtCO2e)

631.8 MtCO_2e (2021)*

* This value includes Virginia but not Pennsylvania. Values presented here are taken from the "Inventory of U.S. Greenhouse Gas Emissions and Sinks by State" by the Environmental Protection Agency (EPA, available here), aggregated for the RGGI states. While each state publishes official inventory data and the values published by the EPA should not be viewed as official state data, the EPA estimates are presented here to ensure the methodological consistency of data collection and aggregation for inventory categories across RGGI states, as well as to ensure a common reporting year in the data. There may be differences between the EPA estimates and the official state inventories.

GHG reduction targets

By 2030: 30% reduction in power sector emissions compared to the 2020 CO_2 emissions cap (2017 Model Rule)

Note: Participating states have their own emission targets; economy-wide targets are not defined at the level of RGGI.

Current Allowance Price (per t/CO2e)

USD 12.81 (weighted average auction price in 2023; updated prices available here)

Size & Phases

Covered emissions (2021)

14.00%

Verified ETS Emissions

96.80MtCO_2e

GHGs covered

CO2

Phases

FIRST PHASE: 2009 to 2011

SECOND PHASE: 2012 to 2014

THIRD PHASE: 2015 to 2017

FOURTH PHASE: 2018 to 2020

FIFTH PHASE: 2021 to 2023

SIXTH PHASE: 2024 to 2026

Cap or total emissions limit

A cap limits the total emissions allowed in the system. A cap trajectory until 2030 has been set.

Phases in RGGI are also known as “control periods”.

FIRST PHASE (2009-2011): 564 million short tons CO_2 or 512 $MtCO_2$ (188 million short tons CO_2 or 171 $MtCO_2$ per year)

SECOND PHASE (2012-2014): 413 million short tons CO_2 or 374 $MtCO_2$

2012 and 2013: 165 million short tons CO_2 or 150 $MtCO_2$ per year

2014:83 million short tons CO_2 or 75 $MtCO_2$

THIRD PHASE (2015-2017): 194 million short tons CO_2 or 176 $MtCO_2$

2015: 67 million short tons CO_2 or 61 $MtCO_2$

2016: 65 million short tons CO_2 or 59 $MtCO_2$

2017: 62 million short tons CO_2 or 57 $MtCO_2$

FOURTH PHASE (2018-2020): 193 million short tons CO_2 or 175 $MtCO_2$

2018: 60 million short tons CO_2 or 55 $MtCO_2$

2019: 58 million short tons CO_2 or 53 $MtCO_2$

2020: 74 million short tons CO_2 or 67 $MtCO_2$

FIFTH PHASE (2021-2023):* 291 million short tons CO_2 or 264 $MtCO_2$

2021: 101 million short tons CO_2 or 91 $MtCO_2$

2022: 97 million short tons CO_2 or 88 $MtCO_2$

2023: 93 million short tons CO_2 or 85 $MtCO_2$

SIXTH PHASE (2024-2026):**

2024: 69 million short tons CO_2 or 63 $MtCO_2$

By 2012, verified emissions under RGGI were more than 40% below the cap, so the states tightened the cap in 2014. There was a 2.5% annual reduction factor from 2015 through 2018. The revised regulations extended the 2.5% annual reduction factor through 2020.

The RGGI states further adjusted the caps between 2014 and 2020 to account for banked CO_2 allowances from the first and second phases. The annual reduction factor between 2021 and 2030 as set out in the “2017 Model Rule” is ~3% of the 2020 cap.

The caps above include New Jersey from 2020 and Virginia from 2021, but the latter only until 2023.

* These values do not include Pennsylvania.

** These values do not include Pennsylvania nor Virginia.

Sectors and thresholds

SECTORS: Fossil fuel electric generating units (i.e., fossil fuel-fired stationary boilers, combustion turbines, or combined cycle systems). Sources (i.e., governmental, institutional, commercial, or industrial structures, installations, plants, buildings, or facilities that emit or have the potential to emit any air pollutant) that include one or more units.

INCLUSION THRESHOLDS: Most RGGI states cover units with capacity equal to or greater than 25 MW.

In New York, since January 2021, the program applies to power plants that have nameplate capacity equal to or above 15 MW and reside at a covered generating unit or near two or more units of the same source.

Point of regulation

Point source (power sector)

Type of entities

Units that serve an electricity generator with the nameplate capacity defined in the regulation.

Number of entities

195* (current control period)

* This value does not include Pennsylvania or Virginia.

Allowance Allocation & Revenue

Allowance allocation

CO_2 allowances issued by each RGGI state are distributed through quarterly auctions. States hold a limited amount in “set-aside” accounts and distribute them according to state-specific regulations.

Of the 93 million 2023 allowances (after the adjustment for banked allowances), 92% were sold at auction and a minimum amount were sold at fixed price. The remainder were either transferred from, retired, or remained in set-aside accounts. No offset allowances were awarded. Additionally, 5 and a half million allowances from the cost containment reserve were sold (see ‘Market Stability Provisions’ section).

Auctioning share

94%

Total Revenue

USD 7,160 million since the beginning of the program

USD 1,265 million in 2023
2023

Use of Revenues

Revenues from the quarterly auctions are returned to the RGGI states and have been primarily invested in the following consumer benefit programs: energy efficiency, direct bill assistance, beneficial electrification, GHG abatement, and clean and renewable energy. A report released in June 2023 found that the direct lifetime benefits of RGGI investments made in 2021 include USD 1.2 billion in lifetime energy bill savings and 4.4 million short tons of CO_2 (4 $MtCO_2$) emissions avoided.

The distribution of RGGI investments in 2020 was: energy efficiency (51%); direct bill assistance (13%); beneficial electrification* (13%); greenhouse gas abatement** (11%); and clean and renewable energy (4%).

* Programs implementing or facilitating replacement of fossil fuel use with electric power.

** Programs promoting the research and development of advanced energy technologies, the reduction of vehicle miles traveled, GHG reductions in the power generation sector, tree-planting projects designed to increase carbon sequestration, and other initiatives to reduce GHGs.

Flexibility & Linking

Offset credits

The use of offsets is allowed.

QUALITATIVE LIMIT: Currently, the program allows offset credits from three offset types located in RGGI states:

1. landfill methane capture and destruction;
2. sequestration of carbon due to reforestation, improved forest management, or avoided conversion; and
3. avoidance of methane emissions from agricultural manure management operations.

Some states have discontinued specific offset protocols, but all accept offset allowances issued by any participating state. To date, only one offset project (landfill methane capture and destruction) has been approved under RGGI.

QUANTITATIVE LIMIT: 3.3% of an entity's liability may be covered by offset credits. This share will remain unchanged between 2021 and 2030.

Between the first and the fourth control periods (2009 to 2020), no CO2 offset allowances were deducted. As of the 2022 interim compliance summary report, no CO2 offset allowances had been deducted in the fifth control period (2021 to 2023).

Banking and borrowing

Banking is allowed without restrictions. Current regulations include provisions to adjust the cap to address the aggregate bank, so that allowances available for auction are reduced by the number of allowances not used for compliance in previous control periods (see also 'Cap' section above). The RGGI states are currently implementing the third adjustment for banked allowances, which runs until 2025. As part of the RGGI review process, RGGI states are considering whether to address or adjust for banked allowances into the future if a bank of surplus allowances remains in circulation after 2025.

Borrowing is not allowed.

Links with other Systems

RGGI is a cooperative effort between participating states. Each state establishes an individual CO_2 budget trading program based on the RGGI Model Rule. Covered sources in each participating state can surrender allowances issued by any participating state for compliance and participating states use joint auctions.

Compliance

Compliance mechanism

Covered entities must surrender one allowance per short ton of CO2 emitted.

Compliance Period

Three years. Compliance is evaluated at the end of each three-year phase (control period). From the third phase, covered entities must surrender allowances corresponding to 50% of their verified emissions in each of the first two years of a phase. They must cover 100% of the remaining allowances at the end of the three-year phase.

As part of the third RGGI review process, RGGI states are considering whether to modify the control period so that covered entities need to surrender allowances for 100% of their regulated emissions every year.

Monitoring, Reporting, Verification (MRV)

REPORTING FREQUENCY: Quarterly

VERIFICATION: Emission data reports and their underlying data are required to undergo periodic quality assurance and quality control procedures in accordance with US Environmental Protection Authority (EPA) regulations.

FRAMEWORK: Emissions data are recorded in the US EPA's Clean Air Markets Division database in accordance with state CO_2 budget trading program regulations and agency regulations. Provisions are based on the US EPA monitoring provisions. Data are then automatically transferred to the electronic platform of the RGGI CO_2 Allowance Tracking System (COATS), which is publicly accessible.

Enforcement

In cases of excess emissions (i.e., if entities do not surrender all required allowances), allowances equivalent to three times the amount of excess emissions must be surrendered. Furthermore, covered entities may also be subject to specific penalties imposed by the RGGI state where it is located.

Market Regulation

Market Stability Provisions

AUCTION PRICE FLOOR: USD 2.56 per short ton in 2024, increasing by 2.5% per year (to reflect inflation).

RESERVES: Since 2014, RGGI has operated with a cost containment reserve (CCR), consisting of a number of allowances in addition to the cap held in reserve and only released to the market if certain trigger prices are reached. Beginning in 2021, allowances provided within the CCR are equal to 10% of the regional cap. The trigger price is USD 15.92 in 2024 and increases by 7% per year. It had previously increased by 2.5% annually between the years 2017 and 2020, from a starting value of USD 10.

Triggers: The CCR was triggered in 2014 and 2015, when all 15 million allowances it contained were sold. The CCR was also triggered in the last quarterly auction of 2021, where 3.9 million of the available 11.9 million allowances were sold. It was triggered again the final auction of 2023, with 5.6 million of the 11.2 million CCR units on offer sold.

In 2021, RGGI started implementing an emissions containment reserve (ECR). Under the ECR, allowances are withheld from auction if certain trigger prices are reached, up to an annual withholding limit of 10% of the emission budgets (i.e., the share of each state in the regional cap) of participating states. Allowances withheld will not be re-offered for sale, effectively adjusting the cap downward. In 2024, the trigger price is USD 7.35, increasing by 7% per year. Maine and New Hampshire are not participating in the ECR.

Market Design

MARKET PARTICIPATION: Compliance entities, non-compliance entities (domestic and international), and individuals can participate if they provide a financial security.

MARKET TYPES:

Primary: Most CO_2 allowances issued by each RGGI state are distributed through quarterly regional auctions. The RGGI COATS records and tracks data for each state's CO_2 budget trading program, including the transfer of allowances offered for sale by the states and purchased by the winning qualified bidders in the quarterly auctions. Auctions are open to all parties with financial security, with a maximum bid of 25% of the volume on offer per sale. There is no allowance holding limit. Auctions are managed by Enel X.

Secondary: The secondary market for RGGI CO_2 allowances comprises the trading of physical allowances and financial derivatives, including futures, forwards, call options, and put options. RGGI COATS facilitates participation in the secondary market and enables the public to view and download RGGI data and CO_2 allowance market activity reports. Financial derivatives are traded on the ICE platform.

Potomac Economics, an independent market monitor, monitors the performance and efficiency of the RGGI CO_2 allowance auctions and the secondary CO_2 allowance market.

LEGAL STATUS OF ALLOWANCES: The RGGI Model Rule specifies that allowances are limited authorizations by the participating state's regulatory agencies to emit up to one ton of CO_2.

Other Information

Institutions involved

Statutory and/or regulatory authority of each RGGI state: Each state implements the program under its particular statutory authority.

Environmental and energy agencies for each RGGI state: Agencies implementing the respective CO_2 budget trading programs.

RGGI Inc.: Non-profit cooperative supporting RGGI's development and implementation. This includes engaging contractors for various tasks such as allowance and emissions tracking, market monitoring, and management of the auctions.

Potomac Economics: Monitors the conduct of market participants in the auctions and in the secondary market to identify indications of anti-competitive conduct.

Enel X: Manages the auctions.

Regulatory Framework

2017 RGGI Model Rule

2017 RGGI Model Rule Updates (Summary)

RGGI States' Statutes & Regulations

RGGI Program Design

Evaluation / ETS review

The RGGI participating states periodically review the ETS to consider program successes, impacts, and design elements. The first program review process (known as the 2012 Program Review) was completed in early 2013. A second review process was completed in 2017, resulting in the "2017 Model Rule". Program reviews were accompanied by stakeholder meetings to facilitate stakeholder engagement and the submission of comments from interested parties.

The RGGI states initiated the third review in summer 2021 to analyze program successes, impacts, potential additional reductions to the cap post-2030, and other design elements. The review is ongoing.

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