LITTLE KNOWN PROGRAM COSTS NEW YORKERS $1-2 BILLION ON ELECTRIC BILLS

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May 18, 2026

Affordability of electric utility service has become a prominent issue as New Yorkers have seen their electric bills increase dramatically in the past few years. The price of electricity in the wholesale markets administered by the New York Independent System Operator, Inc. ("NYISO") is an item that can meaningfully impact customer bills. One little understood cost that is embedded in the wholesale price of electricity is the cost of carbon dioxide allowances ("CO2 Allowances") that suppliers of energy in New York must acquire under a program known as the Regional Greenhouse Gas Initiative ("RGGI"). Based on recent prices suppliers paid for RGGI CO2 Allowances, this costs New Yorkers between $.006/kWh and $.011/kWh on their electricity bills.

Founded in 2009, RGGI is a market-based, cap-and-trade program among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont and Virginia (starting in June 2026) to cap and reduce CO2 emissions from the power sector. Under the program, electric generators that use fossil fuels must have one RGGI CO2 Allowance for each ton of CO2 they emit to produce electricity. Generators can purchase RGGI CO2 Allowances through quarterly auctions conducted by RGGI or on the secondary market. RGGI places caps on the number of allowances that are auctioned. The program has mechanisms that place some controls on price increases, such as cost containment and banking in the event RGGI CO2 Allowances become scarce.

The theory behind cap-and-trade programs like RGGI is that they increase the production cost of fossil fuel units causing them to be displaced by the lower emitting resources (changing the dispatch so lower emitting units are activated first) and provide power plant developers with financial incentives to build low or no emitting resources. Historically, RGGI contributed to emission reductions in New York State through resource redispatch and supporting new, market-based investment in highly efficient natural gas plants and renewable projects. In addition, the RGGI states share in auction revenues to fund programs such as energy efficiency, renewable energy, beneficial electrification, and greenhouse gas abatement. In New York State, the New York State Energy and Research Development Authority ("NYSERDA") administers these funds.

There is no question that New York State is too dependent on natural gas for power production; this is particularly true in the Downstate Region (Lower Hudson Valley, New York City and Long Island).[2] According to the NYISO 2025 Gold Book, 52% of New York State's electric energy is produced by fossil

[1] The authors each have over 35 years' experience in the energy industry, including in the utility industry and natural gas, power and environmental products markets. In this capacity, they have supported the development of carbon emission markets. For example, on November 18, 2018, as an employee of Shell Energy North America (US), L.P., Mr. Picardi filed comments supporting NYISO's effort to develop a well-designed carbon pricing program. They are available at: 1914a92e-3cba-df84-e26e-c22754aa9fd8. Both authors are retired. The comments contained in this paper do not reflect the views of any of Mr. Picardi's or Mr. Cifaratta's former employers.

[2] *See* "2025 Power Trends, The New York ISO Annual Grid and Market Report," ("2025 Power Trends") New York Independent System Operator, Inc., at 45, where NYISO refers to the Downstate Region as Zones F-K, available at: 2025 Power Trends Report.

fuel units.[3] The vast majority is from natural gas with a small amount from oil primarily in New York City. Oil units tend to be activated when natural gas pipeline constraints restrict supply into the region and/or cause natural gas prices to rise significantly. The Downstate Region of New York State relies on fossil fuels for electric supply 90% of the time, again predominately natural gas.[4]

The electricity markets in New York State have changed significantly in the last five years, largely driven by well-intended state policies to reduce carbon emissions and diversify the supply mix. However, it is these very policies that undermine the value of RGGI, and given concerns about affordability, the State should reconsider how it is applied. Specifically, RGGI's ability to support two of the main objectives of a cap-and-trade program, new investment and redispatch of resources on the grid to reduce carbon emissions has diminished, making it essentially a tax on the production of electric energy. This tax is passed on to customers through higher wholesale prices for electricity. And, because of the way the energy market is administered, customers' bills reflect RGGI costs that can significantly exceed the total cost all generators incur to acquire RGGI CO2 Allowances.

How Has the Redispatch and Investment Propositions Changed

In terms of redispatch, RGGI can cause lower cost but higher emitting resources not to be dispatched first thereby reducing CO2 emissions. This happens when the cost of RGGI CO2 Allowances for a higher emitting unit causes its production costs to increase to the point where it becomes the more expensive unit and is pushed back in the dispatch order. For example, if natural gas prices increase, a coal or oil-fired generator could become less expensive and would operate ahead of a natural gas plant despite its worse emissions profile. With RGGI, the coal or oil generator must acquire more RGGI CO2 Allowances than the natural gas generator, increasing its costs, allowing the natural gas generator to produce ahead of the higher emitting coal or oil generator. This dynamic has diminished in New York since there are no coal plants (last one retired in 2020)[5] and the in-state oil plants operate infrequently as natural gas tends to be the more competitive fuel source, except during extreme weather conditions when natural gas is in strong demand. Under normal operating conditions, renewable resources, nuclear and then the most efficient fossil fuel units will be dispatched by NYISO ahead of less efficient higher emitting generators, regardless of RGGI.

There are other complexities in the way resources are economically selected to operate by NYISO, such as the cost of congestion or the price of power between two locations. NYISO has the capacity to evaluate these dynamics and provide guidance on how the system performs under various scenarios. However, given the way the topography of the system has changed since RGGI was enacted, the redispatch value of RGGI has probably diminished significantly.

The other way RGGI could have an impact on the resource mix is by supporting market-based investments in carbon free resources. It drives up the wholesale price of energy, making investments in renewable resources more attractive. However, the State is not relying on market-based investments to support the investment in renewable resources to meet its Climate Leadership and Consumer Protection

[3] *See "*2025 Load & Capacity Data, A Report by The New York Independent System Operator, Inc., Gold Book" at 108. The report is available at: 088438e1-02f1-5316-211b-dbca17c01b4b.
[4] *See* 2025 Power Trends at 45 showing energy production by source for the Upstate and Downstate Regions.
[5] Kintigh Generating Station, also known as the Somerset Station shutdown March 31, 2020.

Act of 2019 goals. Instead, NYDERDA enters into long-term contracts with project developers.[6] This is not a market-based investment as the contracts underpin the investment decision, not the willingness of the developer to take risk in the competitive wholesale electricity market. It also leaves electricity ratepayers assuming the risk and costs for projects developed with state contracts for the 20-to-30-year life of these contracts.

How RGGI Costs Impact Customer Bills

Understanding the way these costs flow through wholesale electricity markets demonstrate how RGGI impacts customers' bills. When selling power into the wholesale markets, fossil fuel generators include the cost of these RGGI CO2 Allowances in their offer prices. Prices in the wholesale electricity market are set based on the marginal unit; that is the cost of energy from the last, most expensive unit needed to serve electric load. Less efficient natural gas generators produce more CO2 and therefore have a higher cost of CO2 embedded in their offer prices. Wholesale electricity prices that make their way into customer bills reflect the RGGI CO2 Allowance cost of the least efficient power generator chosen.

The efficiency of a natural gas generator and its emissions profile are measured by its heat rate. The lower the heat rate, the more efficient the plant is. Assume CO2 allowances cost $30/ton, five natural gas generators with a heat rate of 7 mmBtu/MWh and one natural gas generator with a heat rate of 9 mmBtu/MWh are dispatched to meet customer load requirements. The generators with a 7-heat rate have CO2 costs of $13.65/MWh and the generator with a 9-heat rate have CO2 costs of $17.55/MWh. The generator with the 9-heat rate sets the clearing price resulting in all customer loads paying for energy based only on the higher CO2 cost, in this case $17.55/MWh added to the price of energy. The result of this is that RGGI costs to customers will almost always be higher than RGGI auction revenues that the State collects to fund programs.

According to RGGI, the clearing price for its most recent auction for CO2 allowances conducted in March 2026 was $25/ton.[7] Also, RGGI CO2 Allowances trade in secondary markets such as futures markets. The price for these allowances will exceed RGGI auction clearing prices when demand for these allowances increases.

It is possible to estimate the total incremental cost RGGI adds to the energy market and how that translates to customer bills. First, the price of a ton of RGGI CO2 Allowances can be converted to an energy price that is added to the price of energy in wholesale electricity markets. It is the energy value associated with RGGI CO2 Allowances. Multiplying the energy value of the RGGI CO2 Allowances by the total NYISO Load then yields the total cost associated with RGGI CO2 Allowances flowing through the energy market and ultimately passed on to customers. Finally, converting this value to cents per kilowatt hour allows one to determine the percentage of the electric utility customer bill that can be attributed to RGGI.

There are several assumptions that go into the calculation. One must assume what the cost of RGGI CO2 Allowances are, the amount of time fossil fuels is on the margin, setting the clearing price for energy, and the average price retail customers pay for electricity.

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[6] *See e.g.,* NYSERDA description of competitive solicitations for offshore wind energy available at: New York's Offshore Wind Projects | NYSERDA.

[7] *See* RGGI Auction Results, Auction 71, available at: Auction Results | RGGI, Inc.

Starting with the assumption about the amount of time natural gas is on the margin, in a January 2026 report on "Electricity Prices in New York," NYISO notes, "In New York, gas-fired generators often set the market-clearing price for electricity, meaning their production costs heavily influence overall electricity prices."[8] Electricity market participants are very aware of the correlation between natural gas prices and electricity prices because natural gas units are on the margin so often. If fact natural-gas contracts, such as futures contracts are used as hedge for electricity prices in many places. A conservative assumption would be that fossil fuels are on the margin 52% of the time. This is based on the amount of energy produced by fossil fuels, predominately natural gas, in New York in 2024, according to NYISO's Gold Book.[9] This is conservative as it reflects total production hours, not the marginal megawatt used to set price. Only one megawatt of gas-fired generation needs to be online to set the price.

Second, $35/ton for carbon emissions seems reasonable as the last auction cleared at $25/ton and there was a recent trade in the secondary market for RGGI CO2 Allowances at $58/ton.[10] It is the secondary market prices that tend to be used in generator offers and are reflected in the energy clearing price.

The chart below shows the cost, in cents/kWh, that each New York electric customer pays for RGGI based on varying prices for RGGI CO2 Allowances. Applying the value of $35/ton for RGGI CO2 Allowances, the total cost is over $1.3 billion. Based on Energy Information Administration ("EIA") information about retail prices for electricity in New York for 2024 of $19.66 cents/kwh[11] this means that RGGI is approximately 4.54% of the average electric bill.

Estimated Annual Cost of RGGI on NY State Electricity Customers

Est RGGI Cost ($/ton)	NYISO Load (GWh)	Est RGGI Cost ($/MWh) for NY Nat Gas Generators	Estimated % of Time Natural Gas is Marginal Fuel	Est RGGI Cost ($/kWh) to NY Customers	Est RGGI Costs to Customers ($ Millions)	RGGI as a % of NY's total Retail Price
$ 25.00	155,460	$ 12.19	52%	$ 0.006	$ 985.23	3.2%
$ 30.00	155,460	$ 14.63	52%	$ 0.008	$ 1,182.27	3.9%
$ 35.00	155,460	$ 17.06	52%	$ 0.009	$ 1,379.32	4.5%
$ 40.00	155,460	$ 19.50	52%	$ 0.010	$ 1,576.36	5.2%
$ 45.00	155,460	$ 21.94	52%	$ 0.011	$ 1,773.41	5.8%
Total Annual Range		$12-$22		$.006-$.011	$985-$1773	3.2%-5.8%

Notes:

1. A typical gas plant emits .065 tons of CO2/mmbtu of natural gas.
2. Typical natural gas plants in New York have heat rates between 7 and 11 mmbtu/MWh. This calculation conservatively assumes 7.5 mmbtu/MWh
3. Calculation assumes that natural gas is on the margin 51% of the time. This is based on page 108 of NYISOs 2025 Gold book which states that the 2024 percentage of fossil plants was 52%.
4. According to EIA, the NY average retail electricity price was $.1966/kWh in 2024. Assuming a $35/ton RGGI cost, RGGI costs New Yorkers $1.3 Billion per year, or about 4.5% of NY's retail electricity price.

[8] *See* "Electricity Prices in New York," NYISO, January 2026 at 2, available at: costs-behind-rising-electricity-prices-whitepaper.

[9] *Supra* note 3.

[10] *See* "Northeast states raise concerns about elevated carbon prices," Politico, Marie J. French, May 8, 2026.

[11] *See* New York Electricity Profile, Energy Information Administration, available at: https://www.eia.gov/electricity/state/newyork/.

RGGI CO2 Allowance Market Dynamics and the Third Program Review

There are ways the State can reduce the financial impact of RGGI on customers. The first step is to avoid making the program less affordable through the implementation of RGGI's just completed Third Program Review. Under program reviews, RGGI makes design changes to the Model Rule for the program. The Third Program Review was completed in July 2025 and presented to RGGI states for implementation.[12] Each RGGI state must change its regulations related to carbon emissions by adopting the modified Model Rule to go forward. New York State Department of Environmental Conservation has regulations pending that implement the Model Rule.[13] They are intended to go into effect January 1, 2027.

The proposed changes to the program will have a significant impact on the price of RGGI CO2 Allowances and cost consumers pay for electricity. The key changes relate to the total number of allowances that will be made available to the market and the cost containment provisions. The Third Program Review proposes a "Policy Update" or Base-Line Target that reduces the regional emissions cap in 2027 to 69,806,919 tons of CO_2 from 75,717,784 tons under the previous Model Rule.[14] Allowances decline by an average of 8,538,789 tons per year, which is approximately 10.5% of the 2025 budget, thereafter through 2033.[15] The fuel mix for the region and New York State must transition from fossil fuels to renewables at a yet to be achieved pace to meet these targets.[16]

Recognizing the near-term challenges of meeting the Base-Line Target, the proposal includes modified cost containment provisions to mitigate against the potential for huge price spikes. It adds a second cost containment reserve mechanism (CCR) and allows for the release of additional RGGI CO2 Allowances at levels significantly above the Base-Line targets from 2027 – 2030. The CCR increases the supply of allowances to "contain" the allowance price in an auction if demand is outstripping supply and driving up the price significantly.

Figure 1[17] below is a graph published by RGGI showing the trajectory of the cap and how the CCR mechanism works

[12] *See* July 3, 2025, Press Release from RGGI announcing the results of the Third Program Review available at: Press_Release_Program_Review_Announcement.pdf.

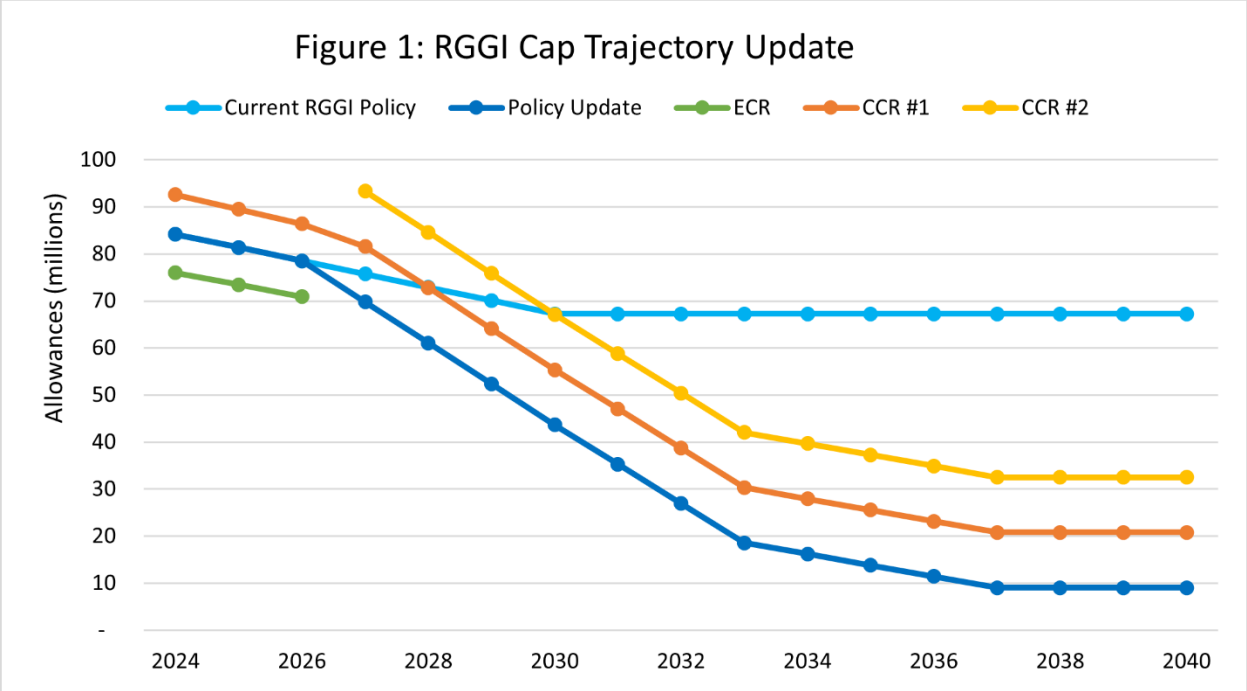
[13] NYSERDA Notice of proposed regulations implementing the Third Program Review Proposals, issued December 10, 2025, available at: Proposed Regulations Announced to Strengthen Regional Greenhouse Gas Initiative Program, Reduce Emissions | NYSERDA.

[14] *See* summary of the changes associated with the RGGI Third Program Review at: Program Review | RGGI, Inc.

[15] Id.

[16] *See 2025* Power Trends where NYISO says, "Since the passage of the state's 2019 CLCPA, 4,315 MW have left the system while only 2,274 MW have been added" at 13. NYISO blocked the retirement of the Gowanus 2 & 3 and Narrows 1 & 2 generating units under New York State environmental regulations for reliability reasons showing how thin reliability margins are in the Downstate Region and the need to retain fossil fuel units, 2025 Power Trends at 20.

[17] *Supra* note 14.



The separation between the CCR #1 and CCR#2 Curves and the Base-Line Target show a degree of concern about the volume of RGGI CO2 Allowances the market will require at least until 2030. After 2030, these curves dive below the current RGGI Policy level.

If the market remains tight for RGGI CO2 Allowances, prices will be influenced by the CCR Trigger Prices authorized in the RGGI proposal. Under the Third Program Review Model Rule proposal, the CCR Tier 1 Trigger Price will match the current CCR's price trajectory of $19.50 in 2027, increasing by 7% annually thereafter. The CCR Tier 2 Trigger Price will be set at $29.25 in 2027, increasing by 7% annually thereafter. The chart below shows the actual price growth.[18] Participants in the secondary market see the trajectory of these prices and they influence how much they are willing to pay to mitigate compliance risk.[19]

Year	CCR Trigger Price Tier 1	CCR Trigger Price Tier 2
2027	$19.50	$29.25
2028	$20.87	$31.30
2029	$22.33	$33.39
2030	$23.89	$35.83
2031	$25.56	$38.34
2032	$27.35	$41.02
2033	$29.26	$43.89
2034	$31.31	$46.96
2035	$33.50	$50.25
2038	$35.85	$53.77
2037	$38.36	$57.53

[18] *Supra* note 14.

[19] Entities that fail to have enough RGGI CO2 Allowances to meet their compliance obligations must pay a penalty of three times the missing allowances, in addition to replacing them plus other potential penalties.

The problem is that the State's reliance on fossil fuels does not appear to be decreasing and may in fact increase to meet reliability criteria and projected new load.[20] The RGGI allowance secondary market is already sending a concerning price signal. According to a May 8, 2026, article in Politico, prices for RGGI CO2 Allowances in the secondary market rose to $58 per ton. Even though RGGI issued a statement that helped calm the secondary markets, prices were still trading well above the current CCR Trigger Price of $18.22 per ton. Market participants are probably rebalancing their RGGI CO2 Allowance portfolios after a cold winter in the northeast. At the same time, there is concern about the price impact of the entry of Virginia into the program in the second half of the year, and the trajectory of allowance prices under the Third Program Review.

Behind these market dynamics, the pending proposal locks in some high CCR Trigger Prices. On July 3, 2025, RGGI issued a press release announcing the changes for the Third Program Review. It refers to historical economic and emission reductions as support for the program for 2027 and beyond. In the release, RGGI says, "Independent research by the Analysis Group found that RGGI produced $5.7 billion in net economic benefits and added 48,000 job-years to RGGI states' economies between 2009 and 2020."[21] Circumstances are vastly different than during that period.

To borrow a phrase, past performance is no indication of future returns. First, during the period covered by the Analysis Group Study (2009 – 2020), in New York State and other RGGI States, new, efficient natural gas fired generation was displacing less efficient, higher emitting fossil fuel plants, such as coal facilities. Second, New York State set itself back significantly when it forced the full retirement of the Indian Point Nuclear Plant, completed in 2020. According to the EIA, Indian Point accounted for about 12% of total electricity generated from all sources in the State in 2015.[22] This zero-emission generating station was replaced with almost 2000 MW of natural gas-fired generation.[23]

The State's ability to avoid RGGI CO2 Allowance price increases under the more stringent RGGI targets depends on achieving very aggressive renewable energy targets. New York State is far from meeting its renewable energy targets[24]and its ability to stay close to the Base-Case trajectory depends on meeting and exceeding the targets. In addition, RGGI CO2 Allowance prices also depend on the actions of other RGGI states. Virginia is a state with significant fossil fuel resources, and it has plans to build more. Load growth has been growing in Virigina at an unprecedented rate given it is the epicenter for data center growth. The largest utility in Virginia, Dominion Energy, will be providing a report on the cost impact of

[20] *See* 2025-2034 Comprehensive Reliability Plan, NYISO, November 21, 2025, at 27. Figure 11 shows New York State's heavy reliance on fossil fuels until 2034. NYISO has suggested repowering as one way to meet the State's needs.

[21] *See* July 3, 2025, Press Release from RGGI announcing the results of the Third Program Review available at: Press_Release_Program_Review_Announcement.pdf.

[22] *See* EIA Report, "Indian Point, closest nuclear plant to New York City set to retire by 2021, February 1, 2017, available at: Indian Point, closest nuclear plant to New York City, set to retire by 2021 - U.S. Energy Information Administration (EIA).

[23] The plants are the CPV Valley Energy Center and Cricket Valley Energy Center.

[24] *See* The Climate Act Dashboard showing progress of various resources, including the slow progress on offshore wind which is the primary resource to offset fossil fuel production Downstate, available at: Climate Dashboard Visualizations.

RGGI for its customers.[25] It also has a long-term resource plan that proposes to reduce carbon emission over time, but it also includes natural gas fired power plants to meet its future needs.[26]

To avoid extreme price increases, New York must significantly accelerate the pace at which it adds carbon free resources. Also, New York relies on other RGGI states to improve their emission profiles. The State is placing a bet on the ability of the power sector in all RGGI states to decarbonize. If the bet is wrong, customers will pay significantly more for electricity than the actual cost to produce it.

Recommendations

New York State policy makers should consider providing short-term financial relief from RGGI as a way of making electricity more affordable. There is precedent to this type of action as the State suspended some gas taxes in 2022 when gasoline prices were approaching $5 per gallon.[27] This could be achieved by refunding some of the revenue the State receives from the RGGI auctions to customers. In addition, the State could lobby RGGI to change the trajectory of allowance reductions and cost containment pricing contained in the Third Program Review. While carbon pricing programs have tremendous value in a market-based system, public policy is not relying on markets for resource development anymore. New York and other RGGI states have regressed to a command-and-control approach managed through environmental regulations and state supported investments. In this environment, RGGI is simply a tax, one that needs to be reconsidered given its pronounced impact on customers' electricity bills.

[25] *Supra* note 10.

[26] *See* Virginia State Corporation Commission, Case No. PUR-2025-00184, Virginia Electric and Power Company's 2025 Updated to the 2024 Integrated Resource Plan filing pursuant to Va. Code § 56-597 et seq, October 15, 2025, available at: 2025-integrated-resource-plan-update.pdf.

[27] *See* Governor Hochul Announces Start of Statewide Gas and Diesel Tax Holiday | Governor Kathy Hochul | New York State.