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RGGI Allowance Costs and Their Impact on Electricity Prices

The Regional Greenhouse Gas Initiative (RGGI) attaches a carbon price to each short-ton of CO_2 emitted by fossil-fuel power plants in eleven participating states. Generators recover this compliance cost through wholesale market offers that flow through to retail rates and riders. This report explains how those allowance prices translate into higher wholesale prices, retail surcharges, and ultimately consumer bills.

Overview of RGGI Allowance Prices (2021-2025)

Auction	Date	Clearing price $/ton	Annual average $/ton
54	2021-12-01	$13.00 [1]	–
60	2023-06-07	$12.73 [2]	$12.77 [2]
64	2024-06-05	$21.03 [3]	$19.28 [2]
67	2025-03-12	$19.76 [2]	$20.15 (YTD) [2]

The tripling of prices since 2020 means each MWh produced from gas or oil now carries $8-$11 of carbon compliance cost, up from $2-$4 five years ago.

How Allowance Costs Flow Into Wholesale Prices

1. Generator Cost Adder

The incremental production cost for a fossil unit equals:
$ Adder = \frac{Emission Rate (lb/kWh)}{2,000} \times RGGI Price $

Examples at recent auction prices:

Fuel & Heat-Rate Scenario	Emission rate lb/kWh	Cost adder @ $19.63/ton	Cost adder @ $25.75/ton
Efficient CCGT (0.8)	0.8	0.79 ¢/kWh	1.03 ¢/kWh
Average CCGT (0.9)	0.9	0.88 ¢/kWh	1.16 ¢/kWh
Modern CT (1.0)	1.0	0.98 ¢/kWh	1.29 ¢/kWh
Coal (2.2)	2.2	2.16 ¢/kWh	2.83 ¢/kWh

(Derived from allowance prices in Auction 68, 64, 65) [2]

2. Observed Impact on Locational Marginal Prices (LMPs)

ISO-NE monitoring shows carbon costs are an expanding share of production costs:

Season	Avg. RGGI price $/ton	RGGI share of CC-gas production cost
Fall 2023	$14.38 [4]	27% [4]
Fall 2024	$21.97 [4]	40% [4]

The same analysis found the jump in RGGI prices lifted natural-gas production costs by $3.46/MWh year-over-year and added roughly **$8/MWh to the average day-ahead energy price** in 2024 [5] [4].

3. Summer 2024 Case Study

ISO-NE's Summer 2024 report calculated that the combination of lower gas prices and higher RGGI prices still netted a **$1/MWh increase** in gas-fired generation costs relative to Summer 2023 [6].

Retail Pass-Through Mechanisms

1. **Rider/Surcharge on Each kWh** – Utilities in restructured states recover carbon costs through an automatic adjustment.
   - Rockland Electric (NJ): **0.4631 ¢/kWh** RGGI surcharge effective January 2025 [7].
   - Delaware investor-owned utilities file similar riders quarterly; current tariffs show line-items between 0.40 ¢ and 0.50 ¢/kWh in 2024-2025 dockets [8].
2. **Embedded in Energy Supply Charge** – Default service providers include RGGI prices in their standard offer supply (SOS) procurement.
3. **Wholesale-to-Retail Translation in Vertically Integrated Systems** – Municipal and cooperative utilities incorporate the allowance cost into their power-cost adjustment factors (PCA). Example: Delaware Electric Cooperative's PCA is $0.03069/kWh as of 2025 and explicitly lists RGGI compliance in its board minutes [9].

Illustrative Monthly Bill Effects

Jurisdiction	Typical usage (kWh)	RGGI rider/embedded cost	Monthly cost adder	% of total bill
Rockland Electric (NJ)	808 kWh	0.4631 ¢/kWh [7]	$3.74	0.4% (on $942/yr bill) [7]
Delmarva Power (DE)	925 kWh	0.45 ¢/kWh (Docket 24-1197) [8]	$4.16	0.4% (on $2,494/yr bill) [10]
ISO-NE Hub (wholesale)	–	$8/MWh increment from RGGI [5]	$0.80 ¢/kWh wholesale	~9% of Hub LMP ($87/MWh 2024) [5]

Why the Retail Adder Is Smaller Than the Wholesale Adder

1. Retail rates recover generation, capacity, transmission, distribution, and non-bypassable public-policy riders. Even a $10/MWh wholesale carbon adder equals **1 ¢/kWh**, typically <5% of an all-in residential tariff.
2. Energy efficiency, direct bill credits, and behind-the-meter solar funded with auction proceeds offset part of the price effect. Analysis Group found that for 2018-2020 the net impact of RGGI on consumer bills was **positive** (–$15 per capita) after accounting for reinvestment benefits[11] [12].

Long-Run Net Cost to Ratepayers

Compliance Period	Net economic impact to RGGI states	Job-years added	Effect on average bills
2018-2020	+$669 million [11]	+7,874 [11]	Bills down after 2022 as EE savings exceed carbon costs [12]
2024 (preliminary)	Wholesale costs +$910 million from CO_2 [5]	–	Reinvestment data pending

The **initial increase in prices** from higher allowance costs is **largely offset** over subsequent years as auction revenues are plowed back into efficiency, renewables, and low-income bill assistance. RGGI states invested $364 million in 2022 alone, yielding $1.8 billion in lifetime bill savings to participants[13].

Key Takeaways

Wholesale Market

- Every $1/ton change in allowance price moves the marginal cost of a typical CCGT by ~$0.05/MWh.
- At 2025 clearing prices (~$20/ton), gas-fired generation embeds **0.9–1.2 ¢/kWh** of carbon cost; coal embeds ~2.3 ¢/kWh.

Retail Bills

- Current retail riders in NJ and DE range **0.40–0.50 ¢/kWh**, adding $3–$5 to an average monthly bill—well below other volatility drivers such as natural-gas commodity swings or capacity-market resets[7] [10].
- ISO-NE's monitoring shows RGGI added **$8/MWh** ($0.8 ¢/kWh) to wholesale costs in 2024, translating to ~1 ¢/kWh retail when fully passed through[5].

Long-Term Consumer Impact

- RGGI's reinvestment strategy keeps net rate impacts small or negative over multi-year horizons; energy-efficiency spending funded by auctions lowers load and suppresses future LMPs[12] [13].

Conclusion

RGGI raises electricity costs mainly through higher wholesale clearing prices that generators pass on. In today's $20-25/ton market, the direct carbon cost embedded in a natural-gas-fired MWh is **$9-12/MWh (≈1 ¢/kWh)**. Retail riders in participating states lie in the same range, typically adding **0.3-0.5%** to a residential bill. However, auction proceeds recycled into efficiency and bill-assistance programs offset much of this burden, so the long-run effect on consumers remains modest while facilitating significant CO_2 reductions and ancillary economic benefits.

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1. https://www.iso-ne.com/static-assets/documents/100024/2025-winter-quarterly-markets-report.pdf
2. https://www.rggi.org/sites/default/files/Uploads/Electricity-Monitoring-Reports/2021_Elec_Monitoring_Report.pdf
3. https://www.cato.org/cato-journal/winter-2018/review-regional-greenhouse-gas-initiative
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