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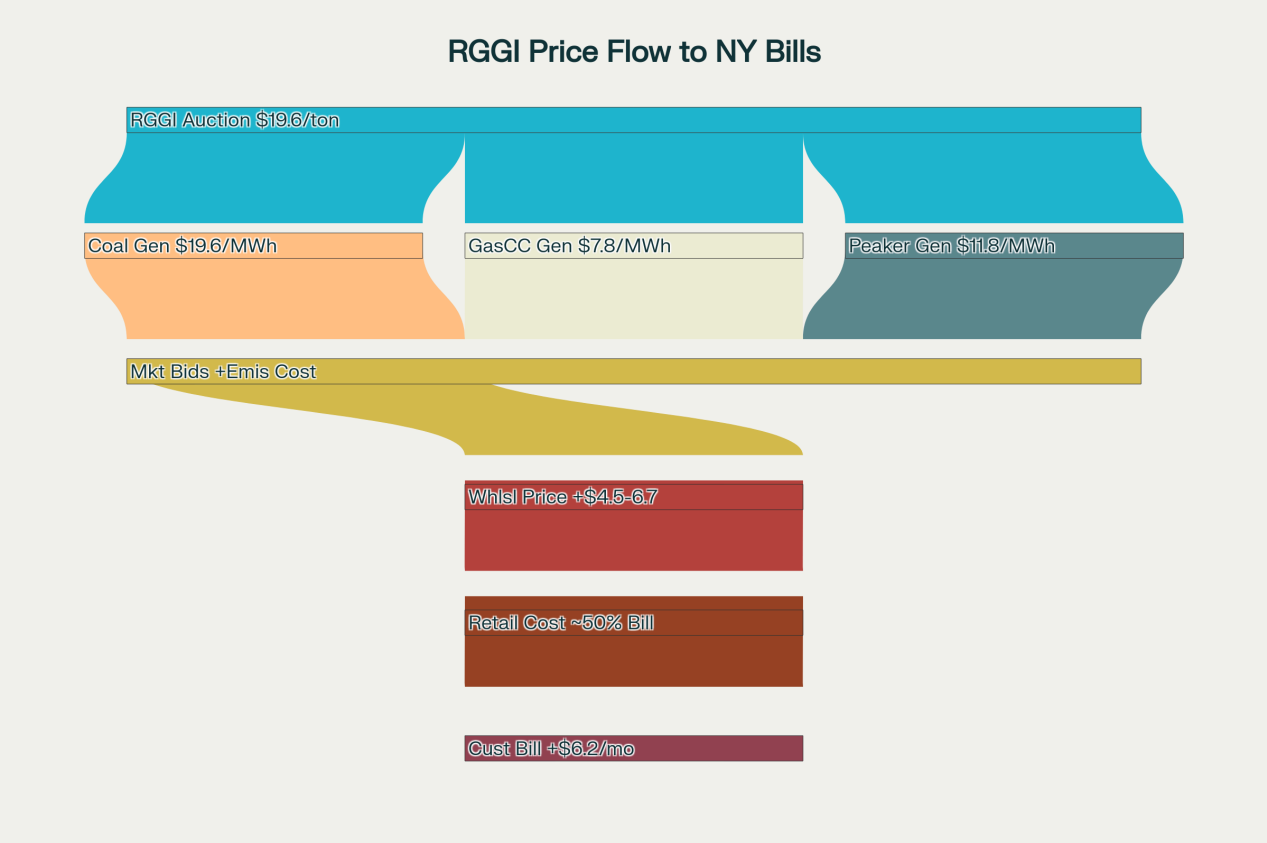
How RGGI Allowance Prices Impact New York Electricity Costs

RGGI allowance prices in New York translate into higher electricity costs through a **multi-stage cost transmission mechanism** that flows from carbon allowance auctions through generators to wholesale markets and ultimately to consumer bills. The impact varies significantly based on generator type, market conditions, and the specific components of electricity pricing.



Flow of RGGI Allowance Costs from Auctions to Consumer Bills in New York

The Cost Transmission Process

RGGI allowance costs flow through six distinct stages from auction to consumer bills. Power generators must purchase CO2 allowances for each ton they emit, with recent auction prices averaging around **$19.59 per ton** [1] [2] [3]. These costs are then incorporated into generators' energy market bids at rates that depend on their emission intensity.

Generator-Level Cost Impacts

Different generator types face varying cost impacts based on their CO2 emission rates. Coal-fired power plants, with emission rates of approximately 1.0 short ton per MWh, face the highest impact at **$19.59 per MWh**[4] [5]. Gas-fired combined cycle plants, with emission rates around 0.4 short tons per MWh, experience a more moderate impact of **$7.83 per MWh**[4] [5]. Gas-fired peaking plants, with emission rates of 0.6 short tons per MWh, face an intermediate impact of **$11.75 per MWh**[4] [5].

Wholesale Market Price Effects

RGGI costs directly influence wholesale electricity prices in New York's energy markets. Analysis shows that RGGI participation increases wholesale electricity prices by **$4.5 to $6.7 per MWh** in eastern PJM zones, with impacts reaching up to **$11.4 per MWh** during peak summer periods[4]. The total cost to PJM consumers from RGGI participation is estimated at **$1.8 billion annually**[4].

Historical data indicates that **direct RGGI allowance costs added $0.85 per MWh** to electricity bills between 2008 and 2014[6] [7]. However, this represented only about half of the total price differential, with indirect costs from transmission congestion and capacity markets adding additional expenses[6].

Retail Bill Translation

RGGI costs appear in the supply portion of retail electricity bills. The wholesale cost of electricity typically represents about **50% of total retail electricity costs**[8] [9], with the remainder consisting of delivery charges for transmission and distribution that are unaffected by RGGI participation[9].

For residential customers, the historical average annual household cost from RGGI was approximately **$6.46 per year**, or about **$0.54 per month**[6] [7]. However, with current allowance prices significantly higher than historical averages, the estimated current impact is approximately **$74.44 annually** or **$6.20 monthly** for an average residential customer using 7,600 kWh per year[6] [7].

Regional Variations and Surcharges

Some utilities implement direct RGGI surcharges on customer bills. For example, Virginia's Dominion Energy customers faced a **$4.44 monthly surcharge** for customers using 1,000 kWh, representing $0.444 per MWh[10]. This demonstrates how utilities can recover RGGI compliance costs through explicit surcharges rather than incorporating them into general supply rates.

Offsetting Mechanisms

RGGI's cost impacts are partially offset by auction revenue investments. States invest auction proceeds in energy efficiency programs, renewable energy projects, and direct bill assistance that can reduce overall electricity costs[11] [12]. Analysis shows that **energy efficiency programs**

funded by RGGI can reduce wholesale electricity prices by lowering regional electricity demand[11] [12].

The **Analysis Group found that RGGI investments in energy efficiency and renewable energy offset the impact on electricity prices** resulting from CO2 allowance costs over time[11] [12]. Local investment of RGGI dollars helps counter the initial increase in wholesale electricity prices from carbon pricing[11] [12].

Cost-Effectiveness Considerations

The cost-effectiveness of RGGI investments varies significantly. NYSERDA's RGGI-funded programs achieved emission reductions at a cost of **$552 per ton**[13], which exceeds the social cost of carbon estimates of $57.25 to $430.75 per ton depending on the discount rate used[13]. This suggests that while RGGI raises significant revenue, the cost-effectiveness of emission reductions through auction proceed investments may be limited[13].

Market Design Considerations

New York's electricity market structure influences how RGGI costs are transmitted. The wholesale electricity markets operated by NYISO are designed to provide electricity reliably and cost-effectively, but carbon costs are only partially internalized through the relatively low RGGI price[14]. This has led to discussions about implementing additional carbon pricing mechanisms within wholesale markets to better align market signals with the state's decarbonization goals[14].

The **cost pass-through mechanism ensures that RGGI compliance costs are ultimately borne by electricity consumers**, making the program function effectively as a carbon tax on electricity consumption[6] [7]. This design feature ensures that the carbon pricing signal reaches end users, potentially encouraging conservation and efficiency improvements[6] [7].

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1. https://www.statista.com/statistics/1487692/carbon-allowance-auction-prices-for-rggi/
2. https://www.rggi.org/sites/default/files/Uploads/Auction-Materials/68/PR060625_Auction68.pdf
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