GREENHOUSE GAS ACCOUNTING IN EASTERN MARKETS

Eastern states' distinctive model for greenhouse gas accounting (the "East Coast Model") combines production- and consumption-based accounting frameworks in parallel fashion within three independent system operators (ISOs): PJM, New York ISO, and ISO New England.



What is the Regional Greenhouse Gas Initiative?

The Regional Greenhouse Gas Initiative is a mandatory cap and trade program for electric generation above 25 megawatts capacity, and many East Coast states are members of the program. This mass-based emission pricing program requires the purchase of emissions allowances equal to an electric generating unit's carbon-dioxide emissions over a three-year period. As such, the program serves as a de facto production-based greenhouse gas accounting mechanism, since all thermal generation must be accounted for using an emissions allowance. This necessitates strict record keeping of the greenhouse gas emissions for electric generating units in the program's member states.

What is the working logic of the program and its greenhouse gases pricing?

The program's quarterly emissions allowance auctions create a carbon pricing mechanism, internalizing the price of emissions into thermal electricity generation. For independent system operators whose footprint includes the program's member states, greenhouse gas pricing is indirectly included in the operator's resource costs for thermal sources.

Key features of the East Coast Model:

- Utilities' membership in an independent system operator
- State membership in the Regional Greenhouse Gas Initiative

What is the classic model for greenhouse gas accounting?

The classic model is when all states with jurisdictional utilities in an independent system operator are subject to compliance with the Regional Greenhouse Gas Initiative.

How does greenhouse gas accounting work in the classic model?

The classic model allows for ease of greenhouse gas accounting while minimizing internal shuffling of resources. This is due to all energy resources produced within an independent system operator complying with the regional initiative's carbon pricing. The purchase of carbon emissions allowances by an electric generating unit allows those units to indirectly report and therefore track their emissions.

What is the hybrid model for greenhouse gas accounting?

The hybrid model occurs when there is a mix of Regional Greenhouse Gas Initiative complying and non-complying states with jurisdictional utilities in an independent system operator.

How does greenhouse gas accounting work in the hybrid model?

The mix of compliance statuses creates inconsistency of prices for thermal generation based on the regional program's compliance obligations or lack thereof by participating utilities. For two equally greenhouse gas-intensive thermal resources, one from a non-complying state and the other from a participating state, all else being equal, the non-complying resource would be lower cost. This reordering of resource prices can disincentivize dispatch of resources subject to the regional program's requirements. In terms of greenhouse gas accounting, the hybrid model does not have the same encompassing quality of the classic model, in which all generators within the independent system operator must purchase emissions allowances, resulting in complete production-based accounting for generation within the operator's footprint.

Classic and Hybrid "East Coast Models"

Are all states with utilities participating in an independent system operator members of the Regional Greenhouse Gas Initiative?

Classic "East Coast Model"

Yes

The classic model is unique in allowing for ease of greenhouse gas accounting while minimizing internal resource shuffling. All resources within the independent system operator, comprising the bulk of dispatch, are subject to regional program's pricing. In states complying with the program, the clearing price for an emissions allowance is fully reflected in the marginal cost of thermal resources to be dispatched and, as such, is automatically incorporated into the independent system operator's order of dispatch. This can potentially raise the cost of these resources and reorder the resource dispatch. The purchase of carbon emissions allowances by an electric generating unit allows those units to indirectly report their emissions and therefore track those emissions. Such a greenhouse gas accounting protocol, when undertaken on a state-by-state basis, offers a holistic picture of production-based greenhouse gas emissions in a state. The classic model is exemplified by ISO New England and ISO New York.

Hybrid "East Coast Model"

No

There is a mix of RGGI complying and noncomplying states with jurisdictional utilities in an ISO. This mix creates inconsistency of prices for thermal generation based on the RGGI compliance obligations or lack thereof by participating utilities. Thermal generation located in non-RGGI complying states can have a distinct comparative advantage to generation from RGGI complying states, creating price distortions. For two equally GHG-intensive thermal resources, one from a non-RGGI state and the other from a RGGI state, all else being equal, the non-RGGI resource would be lower cost. This reordering of resource prices can disincentivize dispatch of RGGI-subjected resources. Additionally, in terms of GHG accounting, the hybrid model does not have the same encompassing quality of the classic model, in which all generators internal to the ISO must purchase emissions allowances, resulting in complete productionbased accounting for generation within the ISO footprint. The hybrid model is exemplified by PJM.

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