Carbon Pricing

Straw Proposal Overview

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Introduction

- **This Straw Proposal is a draft document designed to facilitate deeper discussions of the concepts with stakeholders.**
- **The straw proposal**
  - Outlines a potential design for incorporating the cost of carbon emissions into the wholesale electricity markets (Straw Proposal).
  - Reflects stakeholder input and consideration of how a carbon price would interact with the existing NYISO wholesale energy market-related processes.
  - Aims to incorporate the cost of carbon in a manner that
    1. is economically efficient,
    2. avoids major cost shifts among New York customers,
    3. is transparent, and
    4. provides market/regulatory stability.

IPPTF Issue Tracks

- The IPPTF work plan identified five Issue Tracks focused on specific areas of stakeholder interest.
- Issue Track 1 required development of this straw proposal.
  - The straw proposal is a conceptual design for how to incorporate the cost of carbon into the NYISO-administered wholesale energy markets.
- This straw proposal will inform the other Issue Tracks.
- The other Issue Tracks will continue to examine variations on the straw-proposal for possible incorporation in the IPPTF's December proposal.

Concept for Carbon Pricing

- The cost of carbon emissions could be incorporated into the NYISO-administered wholesale energy markets using a carbon price in dollars per ton of CO_2 emissions.
  - The NYISO would apply a carbon price by debiting each energy supplier a carbon charge for its carbon emissions at the specified price as part of its settlement.
- Suppliers would embed these additional carbon charges in their energy offers (referred to as the supplier's carbon adder in $/MWh) and thus incorporate the carbon price into the commitment, dispatch, and price formation through the NYISO's existing processes.
- In addition to charging internal generators for their emissions, the NYISO would charge imports for emissions and credit exports for avoiding other emissions to prevent the carbon charges on internal generation from causing emissions leakage and costly distortions.
- The NYISO would debit the LBMP from LSEs for wholesale energy purchases, which would account for the carbon adder of the marginal units. The NYISO would credit the carbon charge residuals, which are the sum of the carbon charges debited from suppliers, to the LSEs.

Setting the Gross Social Cost of Carbon

- The New York Public Service Commission (PSC) would set the Gross Social Cost of Carbon (SCC) pursuant to the appropriate regulatory process.

Application of the Carbon Price to Internal Suppliers

- All internal suppliers participating in the wholesale energy markets would be subject to carbon charges in the wholesale energy market equal to the product of the applicable carbon price and their point-of-production carbon emissions.
- The applicable carbon price would be based on the PSC's Gross SCC with adjustments for RGGI allowance prices for those suppliers required to hold RGGI allowances.
  - Suppliers covered by RGGI would be charged the Gross SCC *minus* the most recently posted quarterly RGGI price.
  - Suppliers not covered by RGGI would incur a carbon price equal to the Gross SCC.

Application of the Carbon Price to External Transactions

- Applying a carbon charge to only internal resources would make them less competitive compared to external resources.
- To avoid creating such distortions, this Straw Proposal applies carbon charges to external transactions such that they compete with internal resources (and each other) on a status quo basis, as if the NYISO was not applying a carbon charge to internal suppliers.
  - Imports would earn the LBMP without the carbon effect, at the relevant border; similarly, exports would buy energy at the LBMP without the carbon effect.
    - This would apply to all external transactions, with no unit-specific or portfolio-specific exceptions for existing or new clean energy resources.
  - Wheel-through transactions would pass through without being subjected to carbon charges other than the difference between entry and exit points.
- Market participants would have to know the applicable charges/credits at each interface in advance of the day-ahead (DA) and real-time (RT) offer submission deadlines. This would allow them to incorporate the charges/credits into their offers/bids and compete with internal resources as intended.
  - The NYISO would determine and publish the effective carbon charge/credit for each external proxy generator bus.

Allocation of the Carbon Charge Residual to Loads

- **Load Serving Entities (LSEs) would be debited the full LBMP, including the effect of the carbon charge on LBMP, but they would be credited the carbon charge residuals collected from suppliers through a cost levelizing allocation.**
  - The cost levelizing allocation methodology would compensate for zonal differences in the carbon component of the LBMP.
  - This allocation implies that the net impacts of carbon pricing to loads upstate and downstate, on a $/MWh basis, would be generally the same.
  - LSEs would pay the net of the LBMP debits and carbon charge residual credits.

Levelizing Net Carbon Payments Example

			LSE A [a]	LSE B [b]	Totals [c]
LSE Description					
Location			Upstate	Downstate	
Load	*MWh*	[1]	10	15	25
MER	*tons/MWh*	[2]	0.3	0.4	
LSE Gross Carbon Payments					
Carbon Charge	*$/ton*	[3]	$50	$50	
$LBMP_c$	***$/MWh***	**[4] = [2] x [3]**	**$15.0**	**$20.0**	
Dollars	*$*	[5] = [4] x [1]	$150	$300	$450
LSE Allocated Revenues					
Total Dollars to Allocate	*$*	[6]			$200
Allocation to Levelize Net Payments	*$*	[7] = ([4b] - [4a]) x [1b]		$75	
Remaining Carbon Charges	*$*	[8] = [6] - [7]			$125
Allocation to Further Reduce Net Payments	*$*	[9] = [8] x [1] / ([1c])	$50	$75	
Allocated Refund	*$*	[10] = [7] + [9]	$50	$150	$200
Allocated Refund per MWh	***$/MWh***	**[11] = [10] / [1]**	**$5.0**	**$10.0**	
LSE Net Carbon Payments					
Net Carbon Payments	*$*	[12] = [5] - [10]	$100	$150	$250
Net Carbon Payments per MWh	***$/MWh***	**[13] = [12] / [1] = [4] - [11]**	**$10.0**	**$10.0**	

Changes to Other NYISO Markets and Planning Processes

- The NYISO capacity market and transmission planning processes will be impacted by the addition of carbon pricing into the energy market to the extent that the carbon charges result in different outcomes in terms of system dispatch and supplier net energy and ancillary services (E&AS) revenues.
- Most changes will automatically flow through the existing capacity market and transmission planning processes, but there are several changes that will be necessary to account for the changes in the energy market.
- Installed Capacity Market
  - The NYISO would adjust the demand curve to the extent that the charges impact the net E&AS revenues for the reference technology that is used to calculate the demand curve Reference Price.
  - The net E&AS revenue estimate for the reference technology is based on a historical simulation using the electricity, gas, and emissions prices from the previous three years.

Changes to Other NYISO Markets and Planning Processes (continued)

- **Transmission Planning**
  - The NYISO regularly performs economic analyses of new transmission facilities in its Congestion Analysis and Resource Integration (CARIS) studies and as necessary for its Public Policy Transmission Needs (PPTN) planning processes. The economic analyses include production cost simulations that model the NYISO and regional power system under future market conditions.
  - These studies already account for the RGGI price and can similarly incorporate the higher carbon charges on all internal suppliers.
  - The NYISO would adjust the study processes and any production cost modeling used in the public policy planning to include the applicable carbon price (gross or net as appropriate) set by PSC. The NYISO would also develop the necessary assumptions to model import charges and export credits properly that reflect the selected approach to account for external transactions.

Next Steps

- Continued work in the four other Issue Tracks to develop a Carbon Pricing Proposal

Feedback?

- Email additional feedback to: IPP_feedback@nyiso.com

The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefits to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policy makers, stakeholders and investors in the power system

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