Application of the Carbon Price to External Transactions

Nathaniel Gilbraith

NYISO

IPPTF

July 9, 2018, KCC, Rensselaer, NY

Agenda

- Presentation objective
- Design considerations
- Review of options
- NYISO proposal
- Questions and feedback

Presentation objective

- Summarize the NYISO's proposed application of the carbon price to external transactions, including market design considerations and the rationale for the proposal

Certain considerations in applying carbon pricing to imports/exports

- Avoid distorting import/export incentives
  - For example, avoid creating an incentive to shuffle or redispatch external resources with the potential to increase overall emissions
  - Carbon charge proposal is not designed to re-fashion the current external transaction paradigm
- Transparency
- Practicability

NYISO Straw Proposal

- **Proposed design**
  - "Apply carbon charges to external transaction such that they compete with internal resources on a status quo basis"
    - This was the approach termed "Option 1" in The Brattle Group's 4/9/18 IPPTF presentation
- **Alternative considered**
  - "An alternative approach that was considered would charge/credit external transactions based on the marginal emissions rate of the source/destination markets."
    - This was the approach termed "Option 2" in The Brattle Group's 4/9/18 IPPTF presentation

Review of options

Straw proposal ("Option 1")
Externals compete on a status quo basis

- Importers would be paid the full LBMP and charged the carbon component of LBMP
- Exporters would be charged the full LBMP and paid the carbon component of LBMP
  - NY exporters will continue to pay for their carbon emissions
  - However, due to the carbon payment at the border, NY resources would not be dis-incentivized from exporting due to NY's carbon policy
- Wheel-through transactions would be charged the carbon component at the import interface and receive a credit for the carbon component at the export interface
  - Similar to assessment of congestion and marginal losses today
- Functionally, the proposal maintains the incentive to import and export based on economic calculus that excludes the carbon charge (i.e., on a 'brown power'/status quo basis)

Straw proposal ("Option 1") cont'd

- **Market Participants would know the applicable import/export charge at each interface in advance of the bid window closing**
  - How the NYISO proposes to calculate the carbon component of LBMP is covered in the July 9, 2018 IPPTF "LBMP Carbon Impact" presentation
    - The timing of these postings would likely be developed during the market design phase, that is, likely won't be decided in this proposal
    - The NYISO welcomes feedback on the design of these postings

Straw proposal ("Option 1") cont'd

- **Benefits**
  - Creates a level playing field for imports/exports (status quo basis)
  - Prevents distortions from the status quo
  - Transparent
  - Relatively simple
  - Sends price signals within NY consistent with NY's value of carbon
- **Drawbacks**
  - Doesn't incentivize cost-effective carbon abatement outside of NY

Straw alternative considered ("Option 2")

Externals charged based on external market marginal emissions

- Importers would be paid the full LBMP and charged for the carbon emissions of the marginal resource in the neighboring market
- Exporters would be charged the full LBMP and paid the carbon component of LBMP
  - NY exporters will continue to pay for their carbon emissions
  - However, due to the carbon payment at the border, NY resources would not be dis-incentivized from exporting due to NY's carbon policy
- Wheel-through transactions would be charged at the import interface for the carbon emissions of the marginal resource in the neighboring market and receive a credit for the carbon component at the export interface
  - Similar to assessment of congestion and marginal losses today
- Functionally, the proposal allows imports/exports to compete on a green power basis that includes NY's view of the carbon costs of electricity generation (i.e., on a 'green power' basis)

Straw alternative considered ("Option 2)"

- **Market Participants would know the applicable import/export charge at each interface in advance of the closing of the bids**
  - How the NYISO proposes to calculate the carbon component of LBMP is covered in the July 9, 2018 IPPTF "LBMP Carbon Impact" presentation
    - The timing of these postings would likely be developed during the market design phase, that is, likely won't be decided in this proposal
    - The NYISO welcomes feedback on the design of these postings
- **Additionally, the NYISO would need to calculate the marginal emission rate of neighboring markets**

Straw proposal ("Option 2") cont'd

- **Benefits**
  - Potential to incentivize cost-effective carbon abatement outside of NY
  - Creates a level playing field for imports/exports ('green power' basis)
  - Approach used in other carbon policies (California, Ontario, Quebec)
    - Leakage concerns continue to exist, e.g., CA: http://www.caiso.com/Documents/ThirdRevisedDraftFinalProposal-EnergyImbalanceMarketGreenhouseGasEnhancements.pdf

- **Drawbacks**
  - Potential short-run benefits are likely to be smaller than average emissions rates suggest (i.e., is existing low carbon energy being spilled for lack of a market price signal?)
  - Neighboring market marginal emission rates are likely to be difficult to accurately forecast
    - Inaccurate MERs could cause distortions
      - Assumed MER > Actual MER: reduce the economic attractiveness of imports to NY
      - Assumed MER < Actual MER: potential for wealth transfers without commensurate emissions benefits
    - Potentially increase implementation time
  - Doesn't recognize the patchwork nature of carbon policy/pricing

Proposed application of the carbon price to external transactions

NYISO Proposal

- **Apply carbon charges to external transactions such that they compete with internal resources on a status quo basis**
  - This was the proposed approach in the straw proposal (also termed “Option 1” in The Brattle Group’s 4/9/18 IPPTF presentation)
  - After implementing and gaining experience with the carbon charge, NYISO and stakeholders can review the external transaction component of the market design

Rationale for the proposal

- **The proposal would create a level playing field, on a status quo basis**
  - Imports/exports would compete on the same basis as imports/exports compete today
- **The benefits of the alternate proposal are likely smaller than they appear**
  - Option #2 short run benefits are based on differences between NYCA and external marginal emission rates
  - External marginal emission rates (likely NG CC in many intervals) are not the same as external average emissions rates (lower in some cases due to baseload hydro, nuclear, and other clean energy resources)
  - External marginal emission rates likely similar to NYCA marginal emission rates in many intervals, leaving few emissions savings to be captured

Rationale for the proposal (2)

- **Avoids the need to identify marginal emissions in neighboring markets**
  - Especially difficult for networked neighbors with storage and energy limited clean resources
  - The Brattle Group identified the potential for imperfect marginal emission information to cause substantial wealth transfers (without commensurate emissions reductions) from NY loads to external suppliers
    - See Brattle's 4/9/18 IPPTF, slide 14
    - http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_miwg_ipptf/meeting_materials/2018-04-09/2018-03-22%20External%20Transaction%20Charges%20IPPTF%20Presentation%20CORRECTED.pdf
  - The NYISO remains concerned about the sufficiency of external emissions information and the potential for wealth transfers without commensurate emissions benefits

Rationale for the proposal (3)

- **The proposal is more transparent than the alternative ("Option #2")**
  - The NYISO proposal requires evaluation of NY marginal emission rates
    - NYCA internal supplier characteristics, marginal resource information, and NYCA MERs have been presented to stakeholders
    - The proposal is to provide the Zonal carbon component of LBMP
  - The alternative requires evaluation of NY and external marginal emission rates
    - The NYISO does not have, nor could it readily obtain, sufficient information to precisely and confidently identify neighboring market marginal emission rates on hourly and interval level time-scales
      - External neighbors have networked systems, introducing geographic complexity and uncertainty
      - The ability to storage energy introduces temporal complexity and uncertainty

Rationale for the proposal (4)

- **The proposal is more practicable than the alternative**
  - The proposal neither punishes nor rewards external resources for NY's carbon policies
  - NY's neighbors have various carbon policies and pricing regimes, complicating the application of market specific carbon charges
    - RGGI, Western Climate Initiative, no carbon pricing
  - As discussed on the prior slide, NYCA resource data and calculations are more transparent than external resource data and calculations
    - Imprecise marginal emissions estimates have the potential to cause substantial wealth transfers without commensurate emissions benefits

Summary

- **The NYISO proposes to apply carbon charges to external transactions such that they compete on a status quo basis, as discussed above**
  - While the alternate proposal could potentially promote competition to provide incremental low cost clean resources, the likely implementation challenges and potential for wealth transfers (without commensurate emissions benefits) outweigh these potential benefits
  - After implementing and gaining experience with the carbon charge, NYISO and stakeholders can review the external transaction component of the market design

Questions?

We are here to help. Let us know if we can add anything.

Feedback?

- Questions and/or comments can be sent 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

NEW YORK INDEPENDENT SYSTEM OPERATOR

DRAFT – FOR DISCUSSION PURPOSES ONLY