Transmission Constraint Pricing

A Demand Curve Approach

Market Rules Assessment Team
New York Independent System Operator

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Outline of Today's Presentation

- Existing Transmission Constraint Pricing Issue
- Transmission Constraint Pricing Considerations
- Benefits/Next Steps

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Existing Transmission Constraint Pricing Issue

- Most transmission constraint pricing issues occur in RTS as a result of unexpected operational conditions including the following:
  - ✓ *Unexpected transmission or generation operating conditions*
  - ✓ *NYC Area Thunderstorm Watch activations*
- Unexpected operating conditions can result in temporary constraint violations since generation scheduling is subject to unit ramping limitations and/or the commitment of resources.
- In recognition of the timing required for unit ramping and commitment, operating practices allow for temporary violations of transmission facility normal and contingency loadings, corresponding to defined operating criteria that require certain operator actions.

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Existing Transmission Shortage Pricing Issue

- The scheduling and pricing models in SCUC and RTS have always included a demand curve for transmission constraints.
- The existing demand curve is represented as very high penalty cost included in the objective function and is a multiplier of the highest energy supplier's costs.
- Penalty costs allow transmission constraints to be violated when sufficient resources are not available to obtain feasible solutions.
- Penalty costs are considered to be too high if they result in ineffective generation re-dispatch in response to transmission constraints given established operating practices and capabilities.

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Existing Transmission Constraint Pricing Issue

- A recalibration of the penalty costs for transmission constraints will improve the consistency between current operational practices and efficient generation resource scheduling during unexpected operating conditions.

- Efficient generation resource scheduling means that the dispatch of generating resources to address transmission constraints should be operationally effective, rational, and minimize operator intervention.

- Revised transmission constraint pricing in the ISO Day-Ahead and Real-Time Markets is consistent with the ISO Market Advisor's recommendation in his Six Month Assessment of the NYISO Markets Under SMD2:

  - ✓ *"Transmission demand curves could be used to prevent costly re-dispatch in situations where there is little or no reliability benefit."*

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Benefits / Next Steps

- Operations / Market Benefits

  - ✓ *Reduced need for operator intervention to address ineffective dispatches*
  - ✓ *Reduced Balancing Market Residuals as a result of more efficient generation resource scheduling during unexpected operating conditions*
  - ✓ *Reduced need for price corrections due to fewer operationally ineffective dispatches*

- Next Steps

  - ✓ *Review historical transmission constraint pricing outcomes*
  - ✓ *Investigate operational and market impact of revised constraint penalty costs*
  - ✓ *Propose recommendation for revised transmission constraint penalty costs*

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