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Independent System Operator

Constraint Specific Transmission Shortage Pricing : Pricing Proposal for “Multiple Active Transmission Constraints”

Reposted Revisions are in Green Font

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Agenda

- Project Background
- Proposal Summary
- Proposed Tariff Revisions
- Next Steps

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Previous Presentations

Date	Working Group	Discussion Points and Links to Materials
05-03-2022	ICAPWG/MIWG	Constraint Specific Transmission Shortage Pricing : Multiple Active Transmission Constraints https://www.nyiso.com/documents/20142/30342744/CSTSP%20-%20MATC%20Same%20Facility%20Proposal%2005032022%20MIWG%20Draft%20v5_final%20(002).pdf
04-5-2022	ICAPWG/MIWG	Constraint Specific Transmission Shortage Pricing : Multiple Active Transmission Constraints https://www.nyiso.com/documents/20142/29688278/CSTSP%20-%20MATC%20Topology%20Proposal%2004052022%20MIWG_final.pdf
01-20-2022	ICAPWG/MIWG	Constraint Specific Transmission Shortage Pricing : Introduction on Multiple Active Transmission Constraints https://www.nyiso.com/documents/20142/27799605/20220120%20NYISO%20-%20CSTSP%20Managing%20Multiple%20Transmission%20Constraints%20vFinal.pdf
10-27-2021	MC	Constraint Specific Transmission Shortage Pricing : Market Design Proposal https://www.nyiso.com/documents/20142/25598577/06%20CSTSP.pdf
10-13-2021	BIC	Constraint Specific Transmission Shortage Pricing : Market Design Proposal https://www.nyiso.com/documents/20142/25263575/6%20CSTSP%20BIC%2010132021%20presentation.pdf

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Background

Project Background

- **The Constraint Specific Transmission Shortage Pricing project seeks to develop enhancements to the current transmission constraint pricing logic to enable the NYISO's market software to re-dispatch suppliers efficiently in the short term to alleviate constraints, as well as incentivize long-term investment in locations where suppliers could provide the greatest benefits.**
  - Stakeholders approved proposed enhancements to the current transmission constraint pricing logic as part of the 2021 project effort (see October 27, 2021 presentation at the Management Committee)
- **This project will also include exploring enhancements to address "Multiple Active Transmission Constraints" (MATCs) issue**
  - Given the expanded scope of graduated transmission demand curves envisioned by the stakeholder approved Constraint Specific Transmission Shortage Pricing proposal, the NYISO believes it is prudent to implement the enhancements developed for these efforts together
- **Project Deliverable for 2022:**
  - Develop Functional Requirement Specifications

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Multiple Active Transmission Constraints

- **MATCs can occur for two main reasons:**
  - Topology - Same transmission line represented as multiple segments in the network topology (long radial lines) or parallel line segments
    - Also referred as "Lines in Series/Lines in Parallel" or "MATCs due to topology"
  - Contingency Evaluation - Transmission facilities that are constrained in multiple scenarios (base case and contingency case scenarios) being evaluated
    - Referred as "MATCs on the same facility"
- **Today's discussion provides a summary of proposal for addressing the MATCs pricing issue and associated draft tariff revisions**
  - The proposed approach for "MATCs due to topology" issue was discussed at the April 5, 2022 ICAPWG/MIWG meeting.
  - The proposed approach for "MATCs on the same facility" issue was discussed at the May 3, 2022 ICAPWG/MIWG meeting

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Proposal Summary

Proposal for MATCs due to Topology

- **The NYISO is proposing to develop functionality in the market software to identify redundant constraints across in-series and parallel transmission facilities.**
  - The most limiting constraint amongst the redundant transmission constraints would be binding and utilized for pricing purposes in application of the transmission demand curve mechanism (TDC).
  - The remaining of such redundant transmission constraints would be non-binding and not utilized for pricing purposes in application of the TDC.
  - Seeks to provide greater consistency in treatment for the use of physical resources versus the TDC in solving transmission constraints.

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Proposal for MATCs due to Topology (cont'd)

- **Identification of redundant constraints shall be performed by comparing the shift factors of different resources across all transmission constraints.**
  - Shift factor for resources that are "off/unavailable" or "Self-Committed Fixed" for a dispatch run would not be compared.
- **Shift factor of a resource on the constraint represents the MW impact that 1 MW of injection/withdrawal by that resource has on the constraint.**
  - Example: If the shift factor for a generator were 0.5 on Central-East, it would take 2 MW of generation from this unit to relieve Central-East by 1 MW.
  - Injection from a resource at a location electrically close to a constraint would have a bigger impact on the constraint compared to resources that are electrically far.

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Proposal for MATCs on the Same Facility

- **The NYISO proposes to apply the TDC in a manner that considers the binding transmission constraints, collectively, for a given facility rather than applying the TDC individually to each binding transmission constraint on the same facility**
  - This approach is referred as "TDC by Facility" approach
  - The shadow price is determined based on the worst overload across multiple constraints on the same facility

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Proposal for MATCs on the Same Facility (cont'd)

- **Under the proposed approach, any resource capacity from the TDC shall be simultaneously applicable to all binding transmission constraints across the same transmission facility**
  - The TDC acts similar to a physical resource that has a shift factor of 1 for all binding transmission constraints across a transmission facility
- **The proposed solution seeks to provide better alignment between the use of physical resources versus the TDC in solving transmission constraints.**
  - It also aligns with the operational philosophy that relieving the worst/most limiting constraint across a transmission facility would generally alleviate other transmission constraints across the facility

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Proposed Tariff Revisions

Proposed Tariff Revisions

- **The NYISO proposes revisions to Market Administration and Control Area Services Tariff (MST) Section 17.1.4 to address pricing of MATCs**
  - Redlined version of draft tariff revisions are posted with today's meeting materials
    - Posted document also reflects the revisions previously approved by stakeholders at the October 27, 2021 Management Committee meeting
    - Incremental changes related to MATCs pricing are highlighted in yellow
    - Incremental changes from the materials presented at May 24th ICAPWG/MIWG meeting are highlighted in Green.
- **Proposed revisions include describing the "TDC by facility" approach for applying the TDC to address multiple binding transmission constraints on the same facility**
  - The TDC shall be applied in a manner that considers, collectively, all constraints associated with a transmission facility or Interface, rather than applying a distinct TDC to each such constraint

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Proposed Tariff Revisions (cont'd)

- **Proposed revisions also include describing the pricing of redundant transmission constraints on in-series or parallel transmission facilities**
  - Among redundant transmission constraints on in-series or parallel transmission facilities, only the most limiting of such redundant constraints shall be deemed binding and used for determining the applicable shadow price
  - The less limiting of such redundant transmission constraints shall be deemed non-binding and assigned a shadow price of $0
- **Incremental changes in Proposed tariff revisions from the materials presented at May 24th ICAPWG/MIWG meeting are:**
  - Describing the rounding convention for MW values associated with the "steps" of the transmission demand curves
  - Minor formatting edits (insertion of commas)in the paragraphs describing the transmission demand curves
- **Please send any feedback to kupadhyay@nyiso.com by 6/3/2022**

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Next Steps

Next Steps

- **Q2/Q3 2022**
  - Seek stakeholder approval at BIC and MC of proposed enhancements for addressing MATCs pricing

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Our Mission & Vision

Mission

Ensure power system reliability and competitive markets for New York in a clean energy future

Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation

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Questions?