New York ISO
Independent System Operator

Balancing Intermittency: Tariff Revisions Set 2

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ICAPWG/MIWG

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Agenda

- Background
- Tariff Revisions Set 2
- Next Steps

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Background

Previous Presentations

Date	Working Group	Discussion Points and Links to Materials
08-01-2024	ICAPWG/MIWG	Balancing Intermittency: Locational Examples and Initial Tariff Revisions https://www.nyiso.com/documents/20142/46161626/6%20Balancing%20Intermittency_MIWG_08012024_draft.pdf/fa2c5571-b3b8-7714-5265-16a1ccf4e6ea
06-25-2024	ICAPWG/MIWG	Balancing Intermittency: Market Design Update https://www.nyiso.com/documents/20142/45442995/Balancing%20Intermittency_MIWG_06252024_final.pdf/dad8a46e-1713-bb43-9151-f136147745ff
03-04-2024	ICAPWG/MIWG	Balancing Intermittency: Percentiles and Shortage Pricing Curves https://www.nyiso.com/documents/20142/43315080/BI%202024%20MIWG_03042024_final.pdf/bbd5e0a7-3205-89b7-ed25-3672358fa761
01-25-2024	ICAPWG/MIWG	Balancing Intermittency 2024 Kick-off: https://www.nyiso.com/documents/20142/42590322/BI%202024%20MIWG%20Kick%20Off_final.pdf/ac2f0112-f542-f4da-3c9c-f43d0309868f
11-10-2023	ICAPWG/MIWG	Market Design Concept Proposed: https://www.nyiso.com/documents/20142/41130653/Balancing%20Intermittency_MDCP%20Presentation_final.pdf/ab912240-d021-0e7a-a02a-987a94928bf7

Previous Presentations

Date	Working Group	Discussion Points and Links to Materials
10-12-2023	ICAPWG/MIWG	1hr notification/4hr sustainability Reserves Product: https://www.nyiso.com/documents/20142/40342797/Balancing%20Intermittency_100323%20ICAPWG_MIWG_final.pdf/71269f5b-1e84-4bda-3219-b36a71a9be24
10-03-2023	ICAPWG/MIWG	Introductory Analysis regarding Uncertainty Reserve product : https://www.nyiso.com/documents/20142/40342797/Balancing%20Intermittency_100323%20ICAPWG_MIWG_final.pdf/71269f5b-1e84-4bda-3219-b36a71a9be24
09-18-2023	ICAPWG/MIWG	Analysis and proposal regarding Uncertainty Reserve requirement locational distribution: https://www.nyiso.com/documents/20142/40044890/3%20Balancing%20Intermittency_09182023%20ICAPWG_MIWG.pdf/0d0e82b7-1d3a-7af0-fef7-237dbf5c1b77
09-05-2023	ICAPWG/MIWG	Analysis and proposal regarding Uncertainty Reserve requirement calculation methodology: https://www.nyiso.com/documents/20142/39768278/6%20Balancing%20Intermittency_ICAPWG_MIWG_090523.pdf/23391d26-0559-5757-1289-d043e833e16c
07-19-2023	ICAPWG/MIWG	Initial analysis regarding the need to address net load uncertainty: https://www.nyiso.com/documents/20142/38852999/Balancing%20Intermittency%20Initial%20Analyses_ICAPWG_MIWG_071923_Final.pdf/c4adb509-3c09-0361-7f52-b52cae880997

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Tariff Revisions Set 2

Proposed Tariff Section Revisions

- **MST 15.4.7 – Operating Reserve Demand Curves**
  - Uncertainty Reserve Requirement Calculation Methodology
  - Scarcity Pricing for NYCA, EAST, SENY, N.Y.C., and Long Island 30-Minute Reserves.

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Uncertainty Reserve Requirement Calculation Methodology

- Uncertainty Reserve Requirements are Operating Reserves needed to account for the forecast uncertainty of Load, Wind and Solar Energy Forecasts.
- Uncertainty Reserve Requirements shall be calculated for, and apply to, both the Day-Ahead and Real-Time Market; in both markets the requirements shall be calculated at the 95th percentile of forecast uncertainty.
- Uncertainty Reserve Requirements shall be calculated prior to the operating day using
  - (1) Historic measured forecast error and
  - (2) Forecast parameters (e.g., Load, Wind, and Solar) for the relevant Operating Day.
- In the Day-Ahead Market, the Uncertainty Reserves Requirement will only be calculated and required for the 30-Minute Reserve product for all the locations. In the Real-Time Market, the Uncertainty Reserves Requirement will be calculated separately for 10-Minute and 30-Minute Reserve product for all locations that have a locational Operating Reserves requirement.

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Uncertainty Reserve Requirement Calculation Methodology

- Uncertainty Reserve Requirements for the Day-Ahead Market are calculated for all the locations for each hour of the Dispatch Day before the Day-Ahead Market run.
- Day-Ahead Uncertainty Reserve Requirements are a function of annually determined NYCA Day-Ahead forecast error metrics for the prior year and the Day-Ahead Market forecast data for the relevant location.

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Uncertainty Reserve Requirement Calculation Methodology

- In the Real-Time Market, Uncertainty Reserve Requirements are calculated for the entire Dispatch Day for the 30-Minute Reserve product and the 10-Minute Reserve product for all locations that have a locational Operating Reserves requirement for that product.
- In the Real-Time Market, Uncertainty Reserve Requirements for the 30-Minute Reserve product are a function of annually determined NYCA 60-minute ahead forecast error metrics of the prior year and the Day-Ahead Market forecast data for the relevant location before the Day-Ahead Market run.
- In the Real-Time Market, Uncertainty Reserve Requirements for the 10-Minute Reserve product are a function of annually determined NYCA 30-minute ahead forecast error metrics of the prior year and the Day-Ahead Market forecast data for the relevant location before the Day-Ahead Market run.

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Scarcity Pricing Interaction with Uncertainty Reserves

- **Example 1: Scarcity Reserve Requirement Exceeds the NYCA RT 30-minute Uncertainty Reserve Requirement**
  - Contingency Reserve Reqt. = 2,620 MW, Scarcity Reserve Reqt. = 280 MW, RT 30-minute Uncertainty Reserve Reqt. = 200 MW
  - Revised 30-minute Reserve Reqt. = 2,620 + MAX(280, 200) = 2,900 MW
- **The NYCA 30-minute demand curve in RT during SCR/EDRP activations results in the following demand curve:**
  - $750/MWh "step" up to and including 1,965 MW
  - $625/MWh "step" beyond 1,965 through 2,020 MW
  - $500/MWh "step" beyond 2,020 MW through (2,620 + applicable Scarcity Reserve Reqt.) [beyond 2,020 MW through 2,900 MW]
- **Example 2: NYCA RT 30-minute Uncertainty Reserve Requirement Exceeds the Scarcity Reserve Requirement**
  - Contingency Reserve Reqt. = 2,620 MW, Scarcity Reserve Reqt. = 280 MW, RT 30-minute Uncertainty Reserve Reqt. = 380 MW
  - Revised 30-minute Reserve Requirement = 2,620 + MAX(280, 380) = 3,000 MW
- **The NYCA 30-minute demand curve in RT during SCR/EDRP activations results in the following demand curve:**
  - $750/MWh "step" up to and including 1,965 MW
  - $625/MWh "step" beyond 1,965 through 2,020 MW
  - $500/MWh "step" beyond 2,020 MW through (2,620 + applicable Scarcity Reserve Reqt.) [beyond 2,020 MW through 2,900 MW]
  - $20/MWh "step" beyond (2,620 + Scarcity Reserve Reqt.) through ((2,620+ Scarcity Reserve Reqt) + (NYCA RT 30-minute Uncertainty Reserve Reqt. - Scarcity Reserve Reqt.)) [beyond 2,900 MW up to and including 3,000 MW]

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Next Steps

Next Steps

- **Q3**
  - Consumer Impact Analysis Results
  - Final Tariff Revisions
  - BIC/MC Vote
- **Q4**
  - Filing date TBD pending tariff/BIC/MC/NYISO Board of Directors

Questions?

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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