New York ISO
Independent System Operator

Large Scale Solar on Dispatch Tariff Revisions

Cameron McPherson

Analyst, Operations Analysis & Services

Business Issues Committee

September 9, 2020

Agenda

- **Background**
  - Project Overview
  - Benefits
- **Tariff Revisions**
- **Next Steps**
- **Appendix**

New York ISO

Background

Strategic Initiatives and Key Themes

Grid Reliability and Resilience

	Grid Reliability and Resilience	Description
	Incentives for Flexible Dispatch	
1	Reserves for Resource Flexibility	Proposes to expand the procurement of operating reserves in the Southeastern New York (SENY) reserve region
2	Large-Scale Solar On Dispatch	The NYISO recommends that front-of-the-meter solar resources be treated similarly to wind resources. This would require solar plants to submit flexible offers that indicate their willingness to generate at various price levels, and to receive and respond to economic dispatch instructions to curtail output.
	Future Infrastructure Upgrades	
3	Enhancements to Resource Adequacy Models	Evaluate the robustness of these models in the NYISO markets, and making updates as needed to reflect emerging technologies and changing system dynamics.
4	Reliability Planning Process	Part of the Reliability Planning Process ("RPP"), assesses the reliability of the New York State Bulk Power Transmission Facilities ("BPTF") in accordance with applicable Reliability Criteria.
5	Short-Term Planning Process	The Short-Term Planning Process ("STRP") was approved by the NYISO Board in January 2020 and filed with FERC in February. The STRP builds on the existing Generator Deactivation process by not only evaluating and addressing Reliability Needs on the BPTF resulting from Generator Deactivations, but also resulting from other changes on the electric grid such as load and transmission changes.
	Climate Change Impacts	
6	Climate Change Impact and Resiliency Study	Contemplates the impacts of climate change itself on the reliability of the future grid.

New York ISO

Project Overview

- **Existing market rules applied to Intermittent Power Resources (IPRs) with wind as their fuel would be extended to include IPRs with solar energy as their fuel.**
  - Solar IPRs would submit flexible offers indicating their willingness to generate at various price levels.
  - They would also receive, and be expected to respond to, NYISO economic dispatch instructions (down only) when prices are below their offer.
- **Applicable Dispatchable Solar (and Wind) market rules:**
  - Submit flexible day-ahead and real-time offers
  - Not eligible for DAMAP
  - Must be able to respond to economic curtailment signals from the NYISO (via their Transmission Owner)
  - Eligible for over-generation charges when subject to economic curtailment signals

New York ISO

Benefits of the Proposed Revisions and Timeline

- The proposed revisions leverage a set of existing rules and processes that require only incremental changes in order to accommodate solar IPRs.
- Accommodating solar IPRs is a prerequisite to deploying the Co-located Storage Resource (CSR) market design within the Hybrid Storage Model.
- Promptly filing tariff revisions would provide timely information to new solar resources as they seek to interconnect, and participate in, NYISO markets.
- Additional resource flexibility will improve NYISO's ability to accommodate increased levels of Intermittent Power Resources.
- Solar IPRs will be able to signal their economic willingness to generate, minimizing the need for out-of-market curtailments and self-directed curtailments.

New York ISO

Tariff Revisions

MST Section 2: Definitions

- **The following definitions, as they apply to Intermittent Power Resources (IPRs) with wind as their fuel, would also apply to IPRs with solar energy as their fuel**
- **Compensable Overgeneration**
  - All energy injected by wind **and solar** IPRs in excess of real-time schedules, except when the Wind and Solar Output Limit is in effect
- **Wind and Solar Energy Forecast**
  - Forecast of supplied energy used in NYISO's economic commitment and dispatch
- **Wind and Solar Output Limit**
  - Flag directing the resource to not exceed its Base Point Signal

New York ISO

MST Section 4
Market Services: Rights and Obligations

- **Intermittent Power Resources that depend on wind or solar energy as their fuel would adhere to the following when submitting Day-Ahead and Real-Time market bids to supply energy:**
  - Bid ISO-Committed Flexible
  - Submit Minimum Generation Bid of zero MW and zero costs
  - Submit Start-Up Bid of zero cost

New York ISO

MST Section 15.3A
Overgeneration Charges and Exemptions

- Intermittent Power Resources that depend on wind or solar energy as their fuel would be eligible for an overgeneration charge when they are subject to a Wind and Solar Output Limit

- IPRs with wind and solar energy as their fuel would continue to be exempt from persistent undergeneration charges

New York ISO

MST Section 17.1 : LBMP Calculation

- For Intermittent Power Resources that depend on wind or solar energy as their fuel, the Lower Dispatch Limit would be zero, and the Upper Dispatch Limit would be the Wind and Solar Energy Forecast.

- This would apply to both the Day-Ahead and Real-Time Markets.

New York ISO

MST Section 25
Eligibility for DAMAP Payments

- No Day-Ahead Margin Assurance (DAMAP) payments would be paid to Intermittent Power Resources that depend on wind or solar energy as their fuel.

New York ISO

Next Steps

- September 9th BIC - seek stakeholder approval
- September 23rd MC - seek stakeholder approval
- October/November – NYISO Board
- November/December – file proposed tariff revisions at FERC
- Project Implementation – 2021

New York ISO

Appendix

MST Sections for Proposed Revisions

- **MST Section 2 – Definitions**
  - 2.3 – C
  - 2.23 – W
- **MST Section 4.2 – Day-Ahead Markets and Schedules**
  - 4.2.1.3.2 – Bid Parameters
- **MST Section 4.4 – Real-Time Markets and Schedules**
  - 4.4.1.2.1 – Real-Time Bids to Supply Energy and Ancillary Services, other than External Transactions
- **MST Section 15.3A – Charges Applicable to Suppliers That Are Not Providing Regulation Service**
  - 15.3A.1.1 – Overgeneration Charges
  - 15.3A.2 – Exemptions
- **MST Section 17.1 – LBMP Calculation**
  - 17.1.2 – Real-Time LBMP Calculation Procedures – Upper and Lower Dispatch Limits
  - 17.1.3 – Day-Ahead LBMP Calculation Procedures – Pass 2 Steps
- **MST Section 25.2 – Eligibility for Receiving Day-Ahead Margin Assurance Payments**
  - 25.2.2.1 – Exceptions

New York ISO

Relevant Presentations

- On September 26, 2011 the NYISO presented on the treatment of solar resources in the DA and RT markets[1]
- On September 25, 2017 the NYISO presented on the integration of solar forecasts, for both FTM and Behind-the-Meter (BTM) resources[2]
- On May 31, 2018 the NYISO first presented its proposed market design concept for dispatchable solar[3]
- On June 13, 2018 FERC approved changes addressing solar forecasting fee recovery and meteorological data requirements[4]
- On June 18, 2020 the NYISO presented a Knowledge Session reviewing details of the project and timeline[5]
- On September 1, 2020 the NYISO proposed Tariff Revisions for dispatchable solar at MIWG[6]

1) https://www.nyiso.com/documents/20142/1399323/MIWG_Solar.pdf/410f201a-04a8-ad2a-2983-1f7dddbbc119
2) https://www.nyiso.com/documents/20142/1407644/Large%20Scale%20Solar%20Integration%209_25_2017_FINAL.pdf/d9e13766-1887-1f11-af5b-4bc50897bc17
3) https://www.nyiso.com/documents/20142/1399291/FTM%20Solar%20Integration%20-%20Solar%20on%20Dispatch%20MIWG%205_31_2018_vFINAL.pdf/ec21bb78-db5e-3a31-1c56-a91eef7daa5e
4) Docket No. ER18-1408-000
5) https://www.nyiso.com/documents/20142/13113011/02%2020200618_BPWG_Solar_On_Dispatch.pdf/a3d38846-a98a-11bc-004f-97b41d174563
6) https://www.nyiso.com/documents/20142/14935961/Large%20Scale%20Solar%20on%20Dispatch%20Tariff%20Revisions%20-%20Final.pdf/9e34ac56-46f3-c39f-4841-7809c44b3b1c

New York ISO

Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit 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 policymakers, stakeholders and investors in the power system

New York ISO