New York ISO
Independent System Operator

DER 205 Filing

Harris Eisenhardt

Market Design Specialist, New Resource Integration

Management Committee

February 22, 2023

Agenda

- Background & Overview
- Draft Tariff Review
- DER Deployment and Next Steps

New York ISO

Background & Overview

- The NYISO filed its DER Market Design on June 27, 2019.
- FERC accepted the NYISO's proposed DER Market Design in January 2020.
- Throughout the implementation process, the NYISO has identified areas in its previously accepted tariff where revisions are necessary to:
  - Clarify previously accepted concepts
  - Align the tariff with the NYISO's software implementation
- NYISO will submit a FPA 205 filing to FERC containing these revisions to become effective simultaneously with the scheduled deployment of DER in 2023.
- Today's presentation will review the draft tariff language that will be included in the upcoming FPA Sec. 205 filing.

New York ISO

Draft Tariff Review

DER Minimum Capability

- **The NYISO proposes to add the following paragraph to Services Tariff Sec. 4.1.10.1:**
  - "The minimum capability of each individual Resource participating in an Aggregation shall be 10 kW. For the purposes of this Services Tariff Section 4.1.10.1, (i) the capability of a Demand Side Resource is the Resource's enrolled one-hour Demand Reduction capability, and (ii) the capability of a Generator is its nameplate ~~capability~~ rating."

New York ISO

DER Minimum Capability

- **The NYISO proposes to modify the definition of "Energy Storage Resource" in Services Tariff Sec. 2.5 as follows:**
  - "Energy Storage Resource ("ESR"): Generators that receive Energy from the grid at a specified location, and are capable of storing that Energy, for later injection back onto the grid at the same location. Resources that cannot inject Energy onto the grid cannot be Energy Storage Resources. In order to qualify for wholesale market participation, Energy Storage Resources must be able to inject at a rate of at least 0.1 MW for a period of at least one hour~~.~~, except that Energy Storage Resources operating as part of an Aggregation need only be able to inject at a rate of at least 0.01 MW for a period of at least one hour. Energy Storage Resources are Withdrawal-Eligible Generators."

New York ISO

SCR Transition – Performance Data

- **NYISO proposes to add the following language to Services Tariff Sec. 5.12.11.1:**
  - "Each Special Case Resource enrolled in a Capability Period shall demonstrate its maximum enrolled megawatt value at least once in the Capability Period via performance in a mandatory event or performance test in accordance with Installed Capacity Manual Section 4.12. When a Special Case Resource is enrolled in a Capability Period and transitions to become a Distributed Energy Resource within that same Capability Period, it shall demonstrate its maximum enrolled megawatt value via performance in a mandatory event or in a performance test, provided, however, that if no such mandatory event occurs prior to the Special Case Resource becoming a Distributed Energy Resource, the Distributed Energy Resource shall participate in a performance test in accordance with the ISO's Aggregation Manual. Responsible Interface Parties are not eligible to receive Energy payments, as described in this Services Tariff Section 5.12.11.1, for Demand Reductions caused by Distributed Energy Resources performing in a performance test. When a Demand Side Resource that is participating, or has participated, in a DER Aggregation and seeks to become a Special Case Resource, the Resource's Average Coincident Load shall be calculated in accordance with the provisions of Services Tariff Section 5.12.11.1 and its subparts."

New York ISO

Resource Transition to DER –Maximum ICAP Allocations

- **NYISO proposes to add the following concepts to Services Tariff Sec. 5.12.13.1:**
  - A qualified Installed Capacity Supplier, which meets the requirements to participate in an Aggregation, may enter an Aggregation pursuant to the rules set forth in Services Tariff Section 4.1.10.3.
    - Minor corresponding updates to Services Tariff Sec. 4.1.10.3.
  - When an Installed Capacity Supplier that is a Special Case Resource enters an Aggregation to become a Distributed Energy Resource within the same Capability Period, the maximum Installed Capacity that an Aggregator can declare for the Distributed Energy Resource shall be the upper limit of Installed Capacity calculated for the Special Case Resource in accordance with Services Tariff Section 5.12.11.1.1. When an existing Special Case Resource enters an Aggregation and becomes a Distributed Energy Resource at the beginning of a Capability Period (i.e., begins participating as a Distributed Energy Resource on May 1 or November 1), the maximum Installed Capacity that an Aggregator can declare for that Distributed Energy Resource shall be the upper limit of Installed Capacity calculated for the Special Case Resource for the immediately prior like Capability Period, calculated in accordance with Services Tariff Section 5.12.11.1.1, if such value was calculated.
  - When a Generator with an approved in-period DMNC rating enters an Aggregation to become a Distributed Energy Resource, the maximum Installed Capacity that an Aggregator can declare for the Distributed Energy Resource shall be the minimum of the Generator's approved in-period DMNC rating and the Generator's CRIS.

New York ISO

DER Interconnection Agreements

- **The NYISO proposes to add the following clause to Services Tariff Sec. 4.1.10.1:**
  - "Aggregators shall ensure that Aggregation operating parameters submitted to the ISO are consistent with the combined operating parameters and applicable interconnection agreements of each individual Resource in the Aggregation."

New York ISO

NYISO Provision of DER Data to the Distribution Utility

- **The NYISO proposes to add the following paragraph to Services Tariff Sec. 4.1.10:**
  - "A Distribution Utility shall have the opportunity to review the reliability and safety impacts of each Distributed Energy Resource or group of Distributed Energy Resources that are connected to the Distribution Utility's electric facilities. Such review shall take place prior to each Distributed Energy Resource's enrollment in the ISO Administered Markets, and whenever there is a material modification to a Distributed Energy Resource that changes its physical or operational characteristics that were previously evaluated by the applicable distribution utility. The ISO shall collect applicable physical and operational information for each Distributed Energy Resource and provide that information to the applicable Distribution Utility. An Aggregator is required to provide the physical and operational characteristics identified in the Aggregation System User Guide or Aggregation Manual for each Distributed Energy Resource."

New York ISO

Telemetry Data

- **The NYISO proposes to modify Services Tariff Sec. 4.1.10.4 as follows:**
  - "Real-time telemetry data and revenue-quality meter data shall be submitted for each Aggregation. Real-time telemetry for DER Aggregations shall consist of ~~three~~ four parts: (i) ~~the net of~~ Energy injections, ~~and~~ (ii) Energy withdrawals by Withdrawal Eligible Generators, (iii) Demand Reductions,~~;~~ and (~~iii~~ iv) the sum of ~~both~~(i), (ii) and (iii). Revenue-quality meter data for each DER Aggregation shall consist of three parts: (i) Energy injections; (ii) Energy withdrawals by Withdrawal-Eligible Generators; and (iii) Demand Reductions. Aggregations of other Resource types shall submit meter data in accordance with Services Tariff Section 13 and the ISO Procedures."

New York ISO

Station Power

- **The NYISO proposes a minor modification to Services Tariff Sec. 2.19 to clarify that the Energy used by a Resource in any Aggregation is not considered Station Power:**
  - "Station Power does not include any Energy: (i) used to power synchronous condensers; (ii) used for pumping at a pumped storage facility or for charging Limited Energy Storage Resources and Energy Storage Resources when that Energy is stored for later injection back to the grid; (iii) provided during a Black Start restoration by Generators that provide Black Start Capability Service; or (iv) used by a Resource in an ~~DER~~ Aggregation."

New York ISO

Removal of DSASP and DADRP

- In 2019 the NYISO proposed to eliminate the DSASP and DADRP tariff language, but certain provisions were not marked as removed when filed.
- NYISO proposes to remove the DSASP and DADRP provisions in the following sections consistent with the intent of the 2019 filing:
  - MST 4.5.2.4;
  - MST 2.13; and
  - MST 13.3

New York ISO

Resources Changing Aggregations

- **The NYISO proposes a minor modification to Services Tariff Sec. 5.12.13.1 to clarify the rules related to DER changing Aggregations, not how an Aggregation can change its type:**
  - "An individual resource within an Aggregation ~~and/or an Aggregation~~ may only change from participating in a homogenous Aggregation that is not a DER Aggregation to participating in a DER Aggregation at the beginning of a Capability Year, provided that the Aggregation notifies the ISO by August 1 of the year prior to the beginning of the Capability Year. An individual resource within an Aggregation ~~and/or an Aggregation~~ may only change from participating in a DER Aggregation to participating in a homogeneous Aggregation that is not a DER Aggregation at the beginning of a Capability Year, provided that the Aggregation notifies the ISO by August 1 of the year prior to the beginning of the Capability Year."

New York ISO

Meter Services Entity Definition

- **The NYISO will clarify, in MST 2.13 and MST 13.3, the definition of a 'Meter Services Entity' by removing the terms "DSASP Provider" and "Demand Reduction Provider."**
  - These terms are only applicable to the DSASP and DADRP programs, and will be retired at the end of the 12-month transition period
    - This tariff redline will have a later effective date due to the transition of DSASP/DADRP participants to the DER model

New York ISO

Energy Storage Resources Charging at a Retail Rate

- **The NYISO proposes to add the following rule to Services Tariff Section 4.1.10.1:**
  - "When an Aggregation contains one or more Energy Storage Resources, and the applicable Load Serving Entity requires the Energy Storage Resource to also pay a retail rate for its charging withdrawals, all Energy Storage Resources in the Aggregation shall be customers of the same Load Serving Entity and pay the Load Serving Entity's applicable retail rate. An Aggregation that includes one or more Energy Storage Resources that are required to pay a retail rate for its charging withdrawals is subject to the Services Tariff Section 7.2.8 settlement rules for Energy Storage Resources."
- **The NYISO also proposes to modify Services Tariff Section 7.2.8 to address Aggregations containing one or more Energy Storage Resources.**
  - E.g. "If a Load Serving Entity requires the Energy Storage Resource, or Aggregation containing one or more Energy Storage Resources, to also pay a retail rate for its charging withdrawals, then the ISO shall issue a credit to the affected Customer for the associated Actual Energy Withdrawals and assess a charge to this Load Serving Entity for the same Actual Energy Withdrawals.

New York ISO

Application of TSC/NTAC to Aggregations Containing Energy Storage Resources

- **NYISO proposes to modify OATT Sections 2.7.2.1.5 and 2.7.2.4.4 to clarify that Aggregations containing one or more Energy Storage Resources are subject to TSC and NTAC.**
  - An Aggregation containing one or more Energy Storage Resources shall pay a [TSC/NTAC] directly to the [Transmission Owner in whose Transmission District the Aggregation is located /NYISO] when (i) the Aggregation is not providing a service, and (ii) the sum of the Aggregation's Energy injections and Demand Reductions, less the Aggregation's Energy withdrawals, is negative.

New York ISO

Uplift Reporting

- **The NYISO proposes two modifications to the Resource-Specific Uplift Reporting requirements in Services Tariff Section 4.1.3.3:**
  - First, the NYISO proposes to add Aggregations
  - The NYISO will propose that this change become effective simultaneously with the 2019 DER and Aggregation participation model implementation in 2023
  - Second, the NYISO proposes to remove references to DSASP and DADRP Resources (identified in red below)
    - The NYISO will propose that this change become effective when the DSASP and DADRP are retired, after existing resources are transitioned to the DER model
  - "Resource-Specific Uplift Report. The ISO shall post on a publicly accessible portion of its website, in machine-readable format, a report on total uplift paid to Generators, Aggregations, ~~Demand Side Ancillary Service Program Resources, Day Ahead Demand Response Program resources or aggregations~~, and to Special Case Resource aggregations, on a monthly basis. The report shall provide the total uplift payment across all uplift categories paid to each Generator, Aggregation, or Special Case Resource aggregations ~~of Demand Side Resources~~. The report shall be posted no more than 90 calendar days after the conclusion of each month and shall be updated approximately 120 days after an initial invoice was issued for the month, to incorporate updated information."

New York ISO

Aggregation Meter Authority

- **The NYISO proposes to add new Services Tariff Section 13.3.1.4:**
  - "All individual Resources within an Aggregation must use the same Meter Authority. A DER Aggregation may use either the applicable Member System or a qualified Meter Services Entity as its Meter Authority. Single Resource Type Aggregations (e.g., an Aggregation comprised of only Energy Storage Resources) may only use the applicable Member System."

New York ISO

Wind and Solar Output Limit Definition

- **The NYISO proposes to modify Services Tariff Section 2.23 as follows:**
  - **Wind and Solar Output Limit:** A Base Point Signal calculated for an Intermittent Power Resource depending on wind or solar energy as its fuel and which, when sent to the Intermittent Power Resource, shall include a separate flag directing the Intermittent Power Resource not to exceed its Base Point Signal. ~~All~~ Intermittent Power Resources that depend ~~depending~~ on wind or solar energy as their fuel shall be eligible to receive a Wind and Solar Output Limit, ~~other than~~ except for those that depend on wind for their fuel and were in commercial operation as of January 1, 2002 with a name plate capacity of 12 MWs or fewer, and Resources depending on wind or solar energy as their fuel that participate in a DER Aggregation, ~~shall be eligible to receive a Wind and Solar Output Limit~~.

New York ISO

Derating and Removal of DER and Aggregations from the NYISO-Administered Markets

- **The NYISO proposes to modify Services Tariff Section 4.1.10 to authorize the full or partial derate of an individual DER or an Aggregation from the NYISO-administered markets to maintain safety and reliability.**
  - The ISO may fully or partially derate an individual Resource and/or an Aggregation if the ISO or applicable distribution utility determines that a Distributed Energy Resource or group of Distributed Energy Resources presents significant risk(s) to the safe and reliable operation of the Transmission System or distribution system. The Distributed Energy Resource or group of Distributed Energy Resources will not be permitted to resume operation until the ISO, distribution utility, and Aggregator are able to resolve the identified concerns. If an individual Resource and/or group of Resources is derated, the ISO shall notify the applicable Aggregator as soon as practicable of the derate and reason for derate. Additional detail related to notification and timing of derates is included in the ISO's Aggregation Manual.
- **An Aggregator may also remove an individual Resource and/or Aggregation from the ISO Administered Markets upon thirty (30) days' notice to the ISO, and such removal will become effective at the beginning of a calendar month.**

New York ISO

Cost-Based References for Aggregations

- **The NYISO proposes to modify Services Tariff Sec. 23.3.1.4 as follows:**
  - This section includes three subsections which describe the process calculations for Bid-, LBMP-, and Cost-based Reference Levels
  - In the 2019 filing, the term 'Aggregation' was included in all three subsections
    - 23.3.1.4.1.1
    - 23.3.1.4.1.2
    - 23.3.1.4.1.3
    - 23.3.1.4.3 – Additional since the January 26 ICAPWG discussion
      - Clarified that Aggregations are not eligible for New Unit references, ministerial update to reinforce Aggregation eligibility for cost-based references only
  - The NYISO will 'reject' the redlines that added Aggregations to the Bid- and LBMP- based subsections, MST 23.3.1.4.1.1 and MST 23.3.1.4.1.2
    - E.g., "The lower of the mean or the median of a Generator's ~~or an Aggregation's~~ accepted Bids or Bid components, in hour beginning 6 to hour beginning 21 but excluding weekend and designated holiday hours, in competitive periods over the most recent 90 day period for which the necessary input data are available to the ISO's reference level calculation systems, adjusted for changes in fuel prices consistent with Section 23.3.1.4.6, below."

New York ISO

ECBL Proxy Load Calculation

- **The Economic Customer Baseline is the baseline used to calculate a Demand Side Resource's Demand Reduction**
  - The ECBL is calculated from historic metered load from the same time interval from ten previous like days
  - Measured Demand Reduction = ECBL – Measured Load
- **The Proxy Load is used as a stand in for historical Metered Load when the Demand Reduction is dispatched**
- **The NYISO will modify the tariff such that the Proxy Load is calculated as the sum of the Metered Load and the measured Demand Reduction**
  - This shortens the ECBL lookback period when the Demand Side Resource is dispatched regularly
- **If the Demand Side Resource reduces Load outside of NYISO direction or when LBMP is less than Monthly Net Benefits Threshold, measured Demand Reductions will not be included in the Proxy Load**
  - The ECBL will only add back previous performance when the Demand Reduction is undertaken at the direction of the ISO and the real-time LBMP is equal to or exceeds the Monthly Net Benefits Threshold

New York ISO

ECBL Proxy Load Calculation Cont'd

- **The NYISO proposes to modify the Services Tariff as follows:**
  - Sec. 24.2.1.1
    - Definition of ECBL In-Day Adjustment Factor:

a) Calculate the ECBL In-Day Adjustment by subtracting the average of the ECBL over the three five-minute intervals of the ECBL In-Day Adjustment Period from the average of the telemetered load for the same three five-minute intervals, provided that (i) the DER Aggregation was not dispatched for Energy and/or Regulation Service during any of the three five-minute intervals of the ECBL In-Day Adjustment Period, or (ii) the DER Aggregation was dispatched for Energy and/or Regulation Service during one or more of the three five-minute intervals of the ECBL In-Day Adjustment Period, but the LBMP for each of those interval~~(s)~~ was less than the applicable Monthly Net Benefits Threshold ~~in any of the three five-minute intervals of the ECBL In-Day Adjustment Period~~.

b) If the DER Aggregation was dispatched for Energy and/or Regulation Service during one or more of the three five-minute intervals of the ECBL In-Day Adjustment Period and the LBMP for the interval(s) was equal to or exceeded the applicable Monthly Net Benefits Threshold, calculate the ECBL In-Day Adjustment in step (a) above and add the measured Demand Reduction to the metered load as the Proxy Load value ~~by replacing the metered loads in step (a) above by the Proxy Load values~~ for one or more of the three five-minute intervals of the ECBL In-Day Adjustment Period in which the DER Aggregation was dispatched for Energy and/or Regulation Service.

New York ISO

ECBL Proxy Load Calculation (cont'd)

- **The NYISO proposes to modify the Services Tariff as follows:**
  - Sec. 24.2.1.1
    - Proxy Load: The Proxy Load for a five-minute interval is the ~~adjusted ECBL for that interval calculated as per the instructions in Section 24.2.1.2 or 24.2.1.3~~ telemetered Load plus measured Demand Reductions.
  - Sec. 24.2.1.2
    - b) clarified that that "telemetered" load value should be used.
    - c) For each five-minute interval of the ECBL Weekday Window where (i) the DER Aggregation was dispatched for Energy and/or Regulation Service, and (ii) the LBMP for the five-minute interval was greater than or equal to the Monthly Net Benefits Threshold, select the Proxy Load values for that five-minute interval and day in place of the actual metered load for that interval.
  - Sec. 24.2.1.3
    - c) For each five-minute interval of the ECBL Weekend Window where (i) the DER Aggregation was dispatched for Energy and/or Regulation Service, and (ii) the LBMP for the five-minute interval was greater than or equal to the Monthly Net Benefits Threshold, select the Proxy Load Value for that hour and day in place of the actual metered load for the interval.

New York ISO

BPCG Equation

- **The NYISO proposes to modify Services Tariff Sec. 18.4.2 as follows:**
  - Remove the expression for average Actual Demand Reductions by Supplier g in interval i (Given by ADR_{ig})
    - ADR_{ig} removed from the expression for EI^{RT}_{gi}
  - Revise AE_{ig} to reflect average Actual Demand Reductions in the net response of an Aggregation:
    - "…average Energy Injections plus average Demand Reductions minus average Energy withdrawals…"
  - Several additional ministerial changes align the remaining tariff language with this addition throughout the aforementioned sections

New York ISO

DAMAP Equation

- **The NYISO proposes to modify Services Tariff Sec. 25.3.3 as follows:**
  - Remove the expression for average Actual Demand Reductions by Supplier u in interval i (Given by ADR_{iu})
    - ADR_{iu} removed from the expressions for LI_{iu} and UI_{iu}
  - Revise AE_{iu} to reflect average Actual Demand Reductions in the net response of an Aggregation scheduled to withdraw or to be idle:
    - "…average Energy Injections plus average Demand Reductions minus average Energy withdrawals…"
  - Several additional ministerial changes align the remaining tariff language with this addition throughout the aforementioned sections

New York ISO

Telemetry Data Clarifications

- **The NYISO received feedback following the January 26 ICAPWG regarding consistency of terminology included throughout OATT 24.2 used to distinguish 6-second telemetry data and Revenue Quality Meter Data.**
  - The NYISO will accept the feedback, including several instances where, in the context of the ECBL calculation, "actual metered load" is re-written as "telemetered load."

New York ISO

Member System Clarifications

- The NYISO received feedback following the January 26 ICAPWG regarding the role of NYCA Member Systems to provide meter data services to Aggregators participating in the NYISO-administered markets – Services Tariff Sec. 13 includes Member Systems as an authorized entity to provide metering and meter data services to an Aggregator.
- The NYISO understands that the meter data service capabilities of each Member System may vary upon deployment of the DER participation model.
- The NYISO proposes to include the following clause, to provide flexibility to the relationship between an Aggregator and its Member System, and to establish that the aforementioned capabilities be the result of an agreement between the Member System and Aggregator:
  - "The Aggregator shall notify the ISO of the specific metering and meter data services the Meter Services Entity, municipal electric utility, or Member System has agreed to provide in accordance with the ISO Procedures"

New York ISO

DER Deployment & Next Steps

2023 DER Deployment Milestones

- Mid-April: NYISO expects to begin accepting Customer Registration for Aggregators.
- June/July: Tariff is expected to become effective; NYISO Aggregation System is anticipated to open for enrollment of DER and Aggregations.
  - Tentative 'Day 1' of the DSASP 12-month transition period
- Date of Enrollment + Workflow Reviews: Distribution Utility review and NYISO workflow begins upon submission of Aggregation and DER enrollment data to the Aggregation System; expected to take approximately 90 days.

New York ISO

Manuals and Guides

- **The NYISO will return to present the following remaining manuals throughout Q1 and Q2 in preparation for DER deployment:**
  - Aggregation Manual – remaining Parts
  - Reference Level Manual
  - Accounting and Billing Manual
  - Revenue Metering Requirements Manual
  - ICAP Manual
  - Load Forecasting Manual
  - DADRP Manual – Not to be updated until retirement of DSASP and DADRP
- **User's Guides are not typically reviewed in Working Groups and are instead published for a stakeholder review period prior to final publication.**
  - The NYISO intends to publish the following User's Guides throughout Q1-Q2:
    - Aggregation System User's Guide
    - Market Participant User's Guide
    - GOCP User's Guide
    - Wind and Solar Plant Data User's Guide
    - RLS User's Guide
    - AMS Automated Market User's Guide
    - DRIS User's Guide – Not to be updated until retirement of DSASP and DADRP
- **The Direct Communications Procedure (CEII) is updated and available for stakeholder request via stakeholder services online form request:**
  - https://nyiso.tfaforms.net/187

New York ISO

DER Training

- **NYISO Training Opportunities:**
  - Market Training
    - Comprehensive training programs for both DER Onboarding and DER Market Participation are currently under development and will be administered across late Q1 and into mid-Q2 2023
  - Operations Training
    - The Spring System Operator Training Seminar will include an overview of the DER participation model and operation of the Grid Operations Communication Portal (GOCP).

New York ISO

Next Steps

- **The NYISO seeks MC approval of the draft tariff revisions accompanying today's presentation.**
- **NYISO will submit the proposed tariff revisions to FERC after approval by stakeholders and the NYISO Board, with a proposed effective date that is consistent with the effective date for the 2019 Aggregation model.**
  - The NYISO will seek an effective date for the tariff changes that is consistent with the implementation schedule for the 2019 market design, except for the tariff revisions related to DADRP and DSASP, which changes will align with the planned retirement of those programs.
- **Please send any questions that were not addressed during this presentation to: DER_Feedback@nyiso.com**

New York ISO

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

New York ISO

Questions?