

DER Energy Market Design Tariff Edits

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Agenda

- **Review of Incremental Edits**

- MST 4 & 4.5

- **New Edits**

- **MST 2 & OATT 1**
 - New and updated definitions
- **MST 7**
 - Billing and Payments
- **MST 15**
 - Rate Schedules
- **MST 18**
 - BPCG
- **MST 23**
 - Mitigation

- **New Edits, con't**

- **MST 25**
 - DAMAP
- **MST 30**
 - Market Monitoring Plan
- **OATT 2**
 - Common Service Provisions
- **OATT 6**
 - NYISO Annual Budget
- **OATT 24**
 - Cost Allocation

Background

Date	Working Group	Discussion points and links to materials
06-19-18	Market Issues Working Group (MIWG)	<u>DER Market Design: Updates</u>
07-26-18	Market Issues Working Group (MIWG)	<u>DER Market Design Updates: Energy Market Bid to Bill Examples</u>
10-09-18	Market Issues Working Group (MIWG)	<u>DER Market Design Update: Wholesale Obligations for Dual Participation</u>
10-10-18	Market Issues Working Group (MIWG)	<u>DER Market Design Update</u>
11-05-18	Market Issues Working Group (MIWG)	<u>DER Market Design Updates</u>
12-18-18	Market Issues Working Group (MIWG)	<u>DER Overall Energy Market Design Review</u>
02-04-19	Market Issues Working Group (MIWG)	<u>DER Overall Energy Market Design Review Part I</u>
02-06-19	Market Issues Working Group (MIWG)	<u>DER Overall Energy Market Design Review Part II</u>
02-28-19	Market Issues Working Group (MIWG)	<u>DER Energy Market Design Dual Participation</u>
03-18-19	Market Issues Working Group (MIWG)	<u>DER Energy Market Design DR Cost Allocation</u>

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Overview & Purpose

Purpose of the DER Roadmap Effort

- Develop and enhance participation opportunities for DER in the NYISO-administered wholesale markets by creating:
 - A Dispatchable DER Participation Model; and
 - Dispatchable Homogenous Aggregations of DER
- Create a model that supports the **NYISO Market Design Vision - *Attract and retain*** the most efficient resources *to meet NY's reliability needs.*

Purpose of this Presentation

- Review previous topics discussed with stakeholders to enable and enhance the participation of DER in the NYISO Wholesale Energy, Capacity & Ancillary Services Market
- Identify the Market Administration and Control Area Services Tariff (Services Tariff) sections affected by the topic discussed for draft Tariff that has been posted
 - There are ministerial edits throughout the tariff to add in, “and Aggregations” where appropriate
 - Sections of tariff have been removed throughout for language pertaining specifically to the Day-Ahead Demand Response Program (DADRP) and Demand-Side Ancillary Services Program (DSASP)

DER Definition for the Market Design

- **Distributed Energy Resource (“DER”):** (i) a facility, electrically located in the NYCA, comprising two or more resource types (e.g., Generator and Demand Side Resource) behind a single point of interconnection with an Injection Limit of 20 MW or less; (ii) a Demand Side Resource; and (iii) a Generator electrically located in the NYCA with an Interconnection Limit of 20 MW or less.
- Dispatchable DER are a subset of DER that are capable of responding in real-time to NYISO dispatch instructions.

Review of Incremental Edits

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Edits – Overview

- **The following pertains to all posted documents:**
 - Text in black and highlighted in grey are the edits filed December 3, 2018 with the ESR filing
 - Text shown in red and not highlighted in grey are the tariff edits proposed for the DER filing
 - Red text highlighted in yellow is an incremental edit over previously posted tariff edits, in some of the more substantive sections

MST 4 & 4.5 – Market Services – Rights & Obligations

Dual Participation – MST 4.1.9.6

- Effective May 1, 2020, Generators and Demand Side Resources electrically located in the NYCA may simultaneously participate in the ISO-administered wholesale markets and in programs or markets operated to meet the needs of distribution systems located in the NYCA.
- Generators and Demand Side Resources engaged in dual participation must meet all applicable rules and obligations set forth in the ISO's OATT and Services Tariff.
- Generators and Demand Side Resources operating to meet an obligation outside of the ISO-administered wholesale markets must be dispatched by the ISO for the applicable market intervals.
- The ISO and Transmission Owners shall coordinate scheduling and dispatch for all Generators and Demand Side Resources engaged in Dual Participation in accordance with ISO Procedures.

Update

- **Added language to denote that the source of a Bilateral Transaction shall not be a DER Aggregation containing one or more Demand Side Resources.**
 - MST 4.2.1.7
- **Added language to denote that Aggregations will be treated as online and available for dispatch in the Supplemental Resource Evaluation**
 - MST 4.2.3.1 & MST 4.2.4
- **Added language and new variables to include Demand Side Resources in DER Aggregations as part of the Energy balancing equations**
 - MST 4.5
- **Removed reference to Market Mitigation and Analysis Department MST 4.5.2.2 and MST 4.5.3.2**

New Tariff Edits

MST 2 & OATT 1 - Definitions

MST 2 & OATT 1 - Updates

■ Clarifying updates to existing language:

- Removal of references to DADRP and DADRP-related items
- Changed “Generator” to “Supplier” where applicable to denote inclusion of both Generators and Aggregations
 - Sometimes appropriate to use “Generators and Aggregations” instead of replacing with “Supplier”
- Changed “Produce” to “Provide” where applicable to denote that Demand Side Resources and ESRs do not produce energy
- Edits to as-filed ESR definitions to incorporate Aggregations which contain ESRs
- Changed “Monthly Net Benefit Offer Floor” to “Monthly Net Benefit Offer Threshold”
- Added appropriate instances of either “Aggregation” or “DER Aggregation” to qualifying clauses in some definitions, where applicable
- Added clarifying language for what types of Aggregations can provide which reserve products
- Injection Limit updated as part of DER effort
- Removal of terms as part of DER effort
 - ACL of an SCR Aggregation

MST 2 & OATT 1 – New Definitions

■ MST 2

- Actual Demand Reductions
- Adjusted Installed Capacity
- Aggregation
- Aggregator
- DER Aggregation
- Distributed Energy resource (DER)
- Duration Adjustment Factor
- Energy Duration Limitation
- Meter Services Entity
- Peak Load Window

■ MST 2, con't

- Resource with Energy Duration Limitation
- Transmission Node

■ OATT 1

- Update to definition of Injection Billing Units to incorporate DER

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MST 7 – Billing and Payments

Revisions To MST 7.4

- Ministerial edits were made to incorporate the concept of Aggregations where Generators are currently referenced
 - Adding “...and Aggregations...”

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MST 15 – Other Updates – Rate Schedules

MST 15 – Updates

- **Clarifying updates to existing language:**
 - Added the appropriate instance of “Aggregation” or “DER” Aggregation, where applicable
 - Added clarifying language for what types of Aggregations can provide which reserve products
 - Language was removed pertaining to DADRP and DADRP related items
 - Changed “Produce” or “Inject” to “Provide” where applicable to denote that Demand Side Resources and ESRs do not produce energy
 - Changed “Generator” to “Supplier” where applicable to denote inclusion of both Generators and Aggregations
 - Sometimes appropriate to use “Generators and Aggregations” instead of replacing with “Supplier”

MST 15 – New Language

- Aggregations of resources are not eligible to provide Voltage Support Service (VSS)
- Aggregations of resources are not eligible to provide synchronous products when there are non-ESR generation resources in the Aggregation
- Edits to incorporate Aggregations of only ESRs
- Demand Side Resources are only eligible for Energy payments when providing regulation service when the LBMPs for the interval are equal to or above the applicable Monthly NBT Threshold

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MST 18 – Bid Production Cost Guarantee

MST 18 – Updates

- **Clarifying updates to existing language:**
 - Added the appropriate instance of “Aggregation” or “DER” Aggregation, where applicable
 - Edits to incorporate Aggregations of only ESRs
 - Calculations were removed pertaining to DADRP/DSASP and related items
 - Changed “Produce” or “Inject” to “Provide” where applicable to denote that Demand Side Resources and ESRs do not produce energy
 - Changed “Generator” to “Supplier” where applicable to denote inclusion of both Generators and Aggregations
 - “Generators and Aggregations” appears where applicable to describe the appropriate set of Suppliers

MST 18 – New Language

- Section to denote DER Aggregations are eligible for a Bid Production Cost guarantee payment when dispatched for reliability
 - MST 18.4.1.2.4
- New variable ADRIU to incorporate Demand Side Resources in DER Aggregations into calculations
- Language to clarify which calculations pertain to DER Aggregations with or without Withdrawal-Eligible Generators or ESRs

MST 23 – Energy Market Mitigation

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MST 23 – Updates

- **Added language to ensure tariff rules reference Aggregations where appropriate**
 - “Aggregations”, “Aggregations consisting solely of Energy Storage Resources”, “Aggregations that contain one or more Energy Storage Resources”, “Aggregations containing Withdrawal Eligible Generators”, “components of an Aggregation”
- **Adjusted Reference Level Hierarchy for Aggregations that contain an Energy Storage Resource**
 - Cannot develop bid-based or LBMP-based Reference Levels
- **Adjusted thresholds used to assess bids that the ISO evaluates as a price spread**
 - Current threshold is lower of 300% or \$100/MWh
 - Updated threshold is lower of 300% or \$100/MWh, not to be less than \$75/MWh
 - This prevents near zero thresholds when there is only a small difference between injection and withdrawal Reference Levels

MST 25 – Day Ahead Margin Assurance Payment

MST 25 – Updates

- **Clarifying updates to existing language:**
 - Added the appropriate instance of “Aggregation” or “DER Aggregation”, where applicable
 - Calculations were removed pertaining to DADRP/DSASP and related items
 - Changed “Generator” to “Supplier” where applicable to denote inclusion of both Generators and Aggregations
 - “Generators and Aggregations” appears where applicable to describe the appropriate set of Suppliers

MST 25 – New Language

- Added variable for the inclusion of Actual Demand Reductions in calculations for DER Aggregations
 - “ADR”

MST 30 – Market Monitoring Plan

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MST 30.4 and 30.6 Updates

- **Clarifying updates to existing language:**
 - Added the appropriate instance of “Aggregation”, where applicable
 - Changed “generation” to “supply” where applicable to denote inclusion of both Generators and Aggregations
 - Updated numerical references
 - Ex: reference states 23.4 when should now 23.5, etc.

MST 30 – New Language

■ 30.4.6.2.6

- Addition of:
 - *“Except as set forth in Section 23.3.1.4.8.9 of the Market Mitigation Measures, the ISO may not retroactively revise a reference level to reflect accurate opportunity costs if a Market Party or its representative did not timely submit accurate opportunity cost information.”*
- Grammatical insertion of term “opportunity cost” to support addition in previous bullet

■ 30.4.6.3.1

- MMU Obligation – Capacity Study Review

OATT 2– Common Service Provisions

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Revisions To OATT 2

- Ministerial edits were made to incorporate the concept of Aggregations where Generators are currently referenced
 - Adding “...and Aggregations...”

OATT 6 – NYISO Annual Budget

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OATT 6 - Updates

- **Clarifying updates to existing language:**
 - Added the appropriate instance of “Demand Side Resource”, “Aggregation” or “DER” Aggregation, where applicable
 - Language was removed pertaining to DADRP/DSASP and related items

OATT 24– Cost Allocation for Demand Reductions by DER

OATT 24 - Updates

- **New calculation for the value used in the Cost Allocation methodology**
 - OATT 24.1.1
- **All other edits over previously posted version were ministerial**

Cost Allocation Methodology

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DER Aggregation Settlements and Application of Net Benefits Test

- **Day-Ahead DER Aggregation offers receiving a Day-Ahead Market schedule will be compensated at the DAM LBMP**
 - This includes offers/schedules that the Aggregator intends to meet in real-time using Injections and/or Demand Reductions
- **NYISO will apply Net Benefits Test against the Real-Time Market LBMPs**
 - Performance will be compensated based on LBMPs for the market in which the DER Aggregation was scheduled
 - DAM or RT

Demand Reduction Cost Allocation

Methodology

- **The NYISO will calculate the cost of demand response as compensable real-time Demand Reduction times the RT LBMP**
 - Compensable Demand Reductions are the lesser of Actual DR or the RT Schedule (after subtracting injections)(cannot be less than zero), when the RT LBMP passes the NBT.
- **Costs of demand response will continue to be allocated to the Loads that benefit from Demand Reductions, consistent with existing settlement structure submitted in compliance with Order No. 745**
- **Actual Demand Reductions occur in real-time**
 - FERC Order No. 745 is premised on the idea that the effects of demand response (i.e., the billing unit effect) appear only where actual demand reductions occur
 - The Cost Allocation methodology is more reflective of the financial value of the product delivered in real-time
 - This aligns the Cost Allocation with both the value of dispatching at or above the Monthly NBT Threshold and the costs Loads pay in real-time

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Demand Reductions Cost Allocation (con't)

- **The NYISO believes this approach allows for the greatest flexibility for Aggregators to select resources to meet its schedule**
 - The NYISO will not require Aggregators to identify the resources that will be used to satisfy the DAM or RT offer and;
 - Once the revenue grade meter data files are submitted, the NYISO will separately settle Injections and Demand Reductions

Demand Reduction Cost Allocation (con't)

- **The Load benefitting from Demand Reductions will pay the Real-Time cost of those Demand Reductions**
 - This occurs even in those circumstances when the DER Aggregation is compensated at the Day-Ahead LBMP
 - Any differences between money collected from Loads and the money paid to Suppliers (i.e., residuals) will be allocated pursuant to the existing rules
- **The NYISO does not believe this cost allocation proposal will result in a significant amount of residuals**
 - An Aggregation with a Day-Ahead schedule will only contribute to residuals when the Aggregation meets its schedule (in whole or in part) with Demand Reductions and the Real-Time LBMP is greater than or equal to the Monthly Net Benefit Threshold

Next Steps

- Review further topics or suggested Tariff edits based on Stakeholder feedback and additional NYISO review
- BIC vote on DER Market Design proposal

Feedback?

- Email additional feedback to:
DER_Feedback@nyiso.com



Don't forget the underscore

The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefits 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



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