

DER Eligibility and Performance Obligations

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Purpose of Today's Meeting

- DER Overview
- New Proposed Definition
- DER & Non-DER Aggregations
- DER Examples
- Application of Order 745 Methodology in DER Aggregations
- DER Mitigation Measures
- Substitution
- Appendix

Background

Date	Working Group	Discussion points and links to materials
02-02-17	Posted	Distributed Energy Resources Roadmap for New York's Wholesale Electricity Market
02-28-17	Market Issues Working Group (MIWG)	DER Roadmap: Aggregation Participation Model
04-28-17	Market Issues Working Group (MIWG)	DER Roadmap: Aggregation Participation Model
05-23-17	Market Issues Working Group (MIWG)	DER Roadmap: Measurement & Verification, Monitoring & Control and Meter Data Study
06-21-17	Market Issues Working Group (MIWG)	DER Roadmap: Eligibility and Performance Obligations
07-31-17	Market Issues Working Group (MIWG)	DER Roadmap: Eligibility and Performance Obligations

Purpose of the DER Roadmap Effort

- Develop a Dispatchable DER Participation Model for the NYISO-administered wholesale markets
- Create a model that supports the **NYISO Market Design Vision** - *Attract and retain the most efficient resources to meet NY's reliability needs.*

DER Roadmap Concepts

- **NYISO is developing the following concepts through the stakeholder process:**
 - Aggregations (Feb. 28 & Apr. 28, 2017)
 - Measurement and Verification (May 23, 2017)
 - Real-Time (RT) & Day-Ahead (DA) Eligibility Criteria and Performance Obligations (Jun. 21, 2017 and Jul. 28, 2017)
 - RT Operational Requirements and Resource Obligations
 - DA Operational Requirements and Resource Obligations
 - Installed Capacity Eligibility Criteria and Performance Obligations
 - Dual participation in wholesale markets and retail programs
- **NYISO will present a full market design to stakeholders after these concepts have been finalized**

DER – New Proposed Definition

- **Distributed Energy Resource: A Supplier whose nameplate capability is 20 MW or less that participates in a [DER Aggregation] of (i) one or more Demand Side Resources, or (ii) a combination of two or more of the following resource types: Demand Side Resources, energy storage resources, Generators, and Intermittent Power Resources.**

DER and Non-DER Aggregations

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Aggregation Rules – Homogeneous Aggregations

- **Homogeneous Aggregations**
 - Suppliers can choose to aggregate as a homogeneous aggregation of:
 - Demand Reduction
 - Energy Storage
 - Intermittent Generation

Aggregation Rules – Heterogeneous Aggregations

- **Only DER may enroll in a heterogeneous aggregation**
 - DER can choose to aggregate any combination of the following:
 - Demand Response (Dispatchable)
 - Energy Storage
 - Generation
 - Intermittent Generation

Aggregation Rules – Homogeneous Aggregations

- All Suppliers may choose to aggregate as a homogeneous aggregation of:
 - Energy Storage
 - Intermittent Generation
 - Demand Response
- These aggregations would participate using the applicable models for:
 - Energy Storage Resource (ESR) integration model (market design ongoing) OR
 - Existing Intermittent Generation Models (including upcoming revised Solar model) OR
 - Existing Special Case Resource and Emergency Demand Response Programs

Aggregation Rules – All Suppliers

- **All aggregations (homogeneous and heterogeneous) must be:**
 - Minimum 100 kW in size; and
 - Will be mapped to the electrically appropriate sub-zonal transmission node (see Granular Pricing presentation)
 - All aggregations (homogeneous and heterogeneous) will leverage the same minimum size thresholds, transmission node and mapping methodologies as DER

Interconnection

- **The NYISO is currently evaluating the following:**
 - Will individual DER be subject to the NYISO's existing interconnection rules, or will new rules be required
 - Unlike generators, DCEAs will have the ability to modify the aggregations and “change size” on a periodic basis

DER Examples

DER Examples

- 1) facility with a large (20 MW) gen and large(19.1 MW) load
- 2) microgrid that has non-traditional generation
- 3) facility that could qualify for BTM:NG except that it has non-traditional generation
- 4) load facility that can provide energy and ancillary services
- 5) facility with a load (20 MW) plus battery and/or generation
- ~~6) aggregation of 2mw in front of the meter solar facilities (These facilities can participate through the revised Solar model)~~
 - ~~a) totaling 6mw~~
 - ~~b) totaling 100mw~~
- 7) aggregation of rooftop solar totaling 1.5mw
 - Has to be Dispatchable
 - The facilities are BTM
- 8) small (900kw) residential DR aggregation that can provide energy only
- 9) aggregation of 5 - 2mw batteries and 5 - 5mw gens
 - a) with no load
 - b) with 20mw of load
 - c) with 40mw of load
- ~~10) Aggregation with a count of 6 - 50kW batteries, totaling .3 MW (These facilities can participate through the revised Energy Storage Resource model)~~

Application of Order 745 Methodology, in DER Aggregations

FERC Order No. 745

- FERC Order No. 745 specified a set of rules related to the compensation of demand response resources participating in the wholesale energy markets (the Day-Ahead Demand Response Program (DADRP) in New York
- Beginning with the planned deployment in 2018:
 - The Net Benefits Test – monthly determination of the price threshold point at which the benefits of deploying demand response outweighs the costs
 - NYISO uses the threshold price point as the offer floor for DADRP resource bids
 - Measurement and Verification – NYISO uses an Economic Customer Baseline Load to measure demand reductions
 - Cost Allocation – the costs of DADRP are allocated to all transmission customers on the basis of their load-ratio share

FERC Order No. 745, (con't)

- **NYISO's current proposal is that all DER aggregations will be determined as either net-injections or net-curtailment**
 - Determination will be made at the aggregation level, and will measure the total load of all facilities in the aggregation versus the total injection of the aggregation
- **The NYISO proposes to apply the existing Net Benefits Test and Cost Allocation methodologies to all DER aggregations that are net-curtailment**

FERC Order No. 745, (con't)

- The Net Benefits Test and Cost Allocation methodologies for Order 745 *will not* be applied to DER aggregations that are net-injection
- Application of these Order No. 745 rules will apply regardless of technology mix within a heterogeneous net-curtailment aggregation

DER Mitigation Measures

Existing Measures Applicable to Wholesale Market Participants

- **Buyer Side Mitigation (BSM) / Class Year Study Process**
 - Participating in DER does not preclude individual resources from following the BSM and Class Year processes, if they would have otherwise been required
- **Pivotal Supplier**
 - MWs will count towards Suppliers Portfolio

Existing Measures Applicable to Wholesale Market Participants, con't

- **Physical Withholding** – rules applicable to DER will be based on existing rules, and subject to the final Market Rules design and their application to DER
- **Economic Withholding** – rules applicable to DER will be based on existing rules, and subject to the final Market Rules design and their application to DER
 - Will work to address:
 - Possible development of Reference Levels
 - Order 745
- **Uneconomic Production**
 - Monitoring and withholding rules in Attachment H would apply to any resource which is modeled as generation

Existing Measures Applicable to Wholesale Market Participants, con't

- Additional considerations being evaluated within the framework for DER:
 - Fuel Costs
 - Reference Levels
 - Bid Increments
 - Conduct
 - Threshold
 - Consultation
- These topics will be specifically addressed as Market Rules are developed and may require design changes, beyond current implementation

Substitution

Substitution

- Substitution refers to the concept that an aggregator may contract with an amount of resources with a total MW value greater than what they intend to enroll with
- Example:
 - DER Aggregator contracts with resources totaling 12MWs of capability
 - DER Aggregator enrolls aggregation with the NYISO at 10MWs
 - Additional 2MWs is “side-lined” for substitution in the event of lack of availability
 - Aggregator is thus possibly able to maintain a more favorable availability and/or performance rating

Substitution, (con't)

- The NYISO is currently evaluating the feasibility of substitution within DER Aggregations, as they pertain to:
 - Metering & Verification – Settlements Process
- If the NYISO were to allow substitution within DER aggregations, it would enforce substitution to:
 - Net Injection or Net Curtailment provided

Next Steps

- NYISO and the utilities continue to discuss coordination and operational procedures for aggregation mapping to the transmission network
- Continue to develop Measurement & Verification/Monitoring & Control concept
- Continue reviewing Performance Obligations concept
- Market Design Concept paper will be posted later this year

Feedback?

- To ensure all feedback is captured please email additional feedback to: DER_Feedback@nyiso.com

Reminder – All comments received will be posted on the NYISO Demand Response Programs [webpage](#)

Appendix A - Acronyms

- DER – Distributed Energy Resource
- DCE – DER Coordinator Entity
- DCEA – DCE Aggregation
- DSP – Distributed System Platform provider
- DR – Demand Response
- RT - Real-Time
- DA – Day-Ahead
- RTC – RT Commitment
- RTD – RT Dispatch
- DAM – DA Market
- RTM – RT Market

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 policy makers, stakeholders and investors in the power system



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