

# Aggregations and Dual Participation

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**Market Issues Working Group (MIWG)**

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# Purpose of Today's Meeting

- Clarification on DER Definition
- Aggregations of DER and Non-DER Resources
- Dual Participation

# Background

Date	Working Group	Discussion points and links to materials
02-02-17	Posted	<a href="#"><u>Distributed Energy Resources Roadmap for New York's Wholesale Electricity Market</u></a>
02-28-17	Market Issues Working Group (MIWG)	<a href="#"><u>DER Roadmap: Aggregation Participation Model</u></a>
04-28-17	Market Issues Working Group (MIWG)	<a href="#"><u>DER Roadmap: Aggregation Participation Model</u></a>
05-23-17	Market Issues Working Group (MIWG)	<a href="#"><u>DER Roadmap: Measurement &amp; Verification, Monitoring &amp; Control and Meter Data Study</u></a>
06-21-17	Market Issues Working Group (MIWG)	<a href="#"><u>DER Roadmap: Eligibility and Performance Obligations</u></a>
07-31-17	Market Issues Working Group (MIWG)	<a href="#"><u>DER Roadmap: Eligibility and Performance Obligations</u></a>
09-29-17	Market Issues Working Group (MIWG)	<a href="#"><u>DER Roadmap: Eligibility and Performance Obligations, Dual Participation, Meter Data Study, Granular Pricing, Pilot Program Application, Pilot Program Guide</u></a>

# DER Roadmap Concepts

- NYISO is developing the following concepts through the stakeholder process:
  - Aggregations (Feb. 28, Apr. 28, & Sept. 29, 2017)
  - Measurement and Verification (May 23 & Sept. 29, 2017)
  - Real-Time (RT) & Day-Ahead (DA) Eligibility Criteria and Performance Obligations (Jun. 21, Jul. 28, & Sept. 29, 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 (Sept. 29, 2017)
- NYISO will present a full market design concept by end of 2017

# DER Proposed Definition

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# DER Definition

- At the September 29, 2017 MIWG the NYISO proposed to define DER as “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 resources types: Demand Side Resources, energy storage resources, Generators, and Intermittent Power Resources.”
- We have received feedback on:
  - Limit to 20 MW “nameplate capability”
  - Inclusion of “DER Aggregations” in the definition
  - The purpose of including the different resource types

# DER Definition – 20 MW Nameplate Capability

- NYISO proposal for 20 MW maximum is aligned with the Small Generator Interconnection Procedures limit
- “Nameplate” was used for two reasons:
  - Provides an upper limit on what the NYISO defines as a small resource without determining what a DER can actually offer in the wholesale markets
    - The amount a DER may offer will depend on technology type, location on the system (in front of or behind an end-use customer’s meter), and whether it injects energy onto the system or it is a Load curtailment resource
  - Permits Demand Side Resources of any size to be DER because they do not have a “nameplate” capability
    - Capability of DER will be calculated similarly to existing calculations for NYISO Demand Response Programs

# DER Definition – “DER Aggregations”

- After receiving feedback and considering the implementation of aggregations for “traditional” resources, the NYISO is currently evaluating a definition for “Aggregations” that would permit all resources less than 20 MW and behind the same transmission node to aggregate.



# DER Definition – Resource Types

- The NYISO is open to all resource types participating in its markets as DER
  - All resources must meet applicable qualifications
- The new DER participation model is intended to supplement existing rules applicable to certain resource types (e.g., Generators, Intermittent Power Resources, and Energy Limited Resources), and future rules for energy storage resources
  - NYISO does not intend to eliminate existing participation models
- NYISO proposes that when resources of the same resource type aggregate (i.e., homogeneous aggregations; discussed in further detail on slides 12 through 24), the existing rules will apply
  - The sole exception to this general rule is that a homogeneous aggregation of Demand Side Resources may participate as DER
  - Homogeneous Energy Storage Resources will participate under the forthcoming ESR participation model

# Aggregations

# Aggregations

- **An aggregation is a combination of one or more Demand Side Resources, Generators, energy storage resources, or Intermittent Power Resources, that:**
  - Are located behind a single transmission node; and
  - Provide wholesale market services
- **Each individual resource in an aggregation must have a capability of 20 MW or less**

# Aggregations (cont'd)

- **Aggregations may be homogeneous or heterogeneous**
  - Except for Demand Side Resources, homogeneous aggregations will be subject to the rules of the particular resource type (i.e., Generator, energy storage resource, Intermittent Power Resource)
    - Dispatchable Demand Side Resources will be subject to DER rules; non-dispatchable Demand Side Resources may continue to participate in the EDRP or SCR Program
  - Heterogeneous aggregations will be subject to the DER rules

## Non-Dispatchable DR

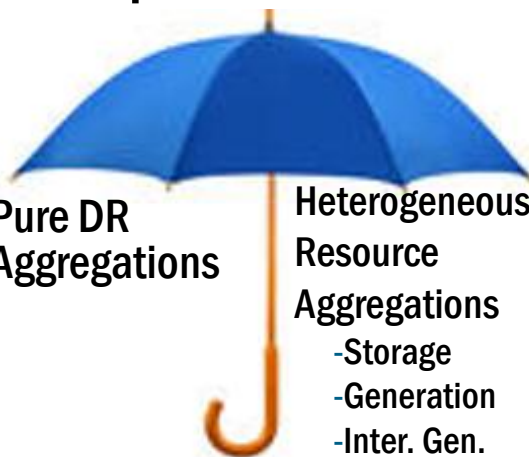


SCR EDRP

$\geq 100\text{kW}$

- |            |  |          |
|------------|--|----------|
| - Capacity |  | - Energy |
| - Energy   |  |          |

## Dispatchable DER



Pure DR  
Aggregations

Heterogeneous  
Resource  
Aggregations  
- Storage  
- Generation  
- Inter. Gen.  
- DR

$\geq 100\text{kW}$

- |            |  |            |
|------------|--|------------|
| - Capacity |  | - Capacity |
| - Energy   |  | - Energy   |

$\geq 1\text{MW}$

- |             |  |             |
|-------------|--|-------------|
| - Capacity  |  | - Capacity  |
| - Energy    |  | - Energy    |
| - Ancillary |  | - Ancillary |

## Not DER



Homogeneous  
Resource  
Aggregations  
- Storage  
- Generation  
- Inter. Gen.

Large Gen.

- Generation
- Inter. Gen
- ELR
- LESR

$\geq 100\text{kW}$

- |            |  |       |
|------------|--|-------|
| - Capacity |  | - N/A |
| - Energy   |  |       |

$\geq 1\text{MW}$

- |             |  |             |
|-------------|--|-------------|
| - Capacity  |  | - Capacity  |
| - Energy    |  | - Energy    |
| - Ancillary |  | - Ancillary |



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# All Aggregation Options

- **NYISO's current proposal will require all aggregations (DER and Non-DER) to meet the following requirements:**
  - Minimum 100 kW in aggregation size
  - No maximum aggregation cap
  - All individual resources in an aggregation will mapped to the same electrically appropriate sub-zonal transmission node (see Granular Pricing presentation)

# Non-DER Aggregations

- Permitting all resources with a capability of 20 MW or less and located at multiple interconnection points to aggregate to a single transmission node is a departure from the NYISO's existing rules
- Aggregation rules for non-DER resources will be developed in the stakeholder process beginning in Q1 2018

# DER Aggregation Rules – Miscellaneous

- **End-use customers participating in the NYPSC's VDER and Net-Metering programs will not be able to participate in DER Aggregations**
  - Existing programs currently have built in payment structures which represent approximations of both energy and capacity payments
  - With this overlap, the NYISO does not currently believe it can separate resource performance for VDER and Net-Metering from wholesale market participation, and therefore prevent double-counting and payment



# DER and Non-DER Dual Participation

# DER Dual Participation

- **The NYISO is currently working with the Joint Utilities to determine how to coordinate Dual Participation**
  - Dual participation will require significant coordination between utilities and NYISO across many business areas (operations, planning, registration, etc.)
  - NYISO has already met with the JU to discuss questions which came up during the September 29<sup>th</sup>, 2017 presentation

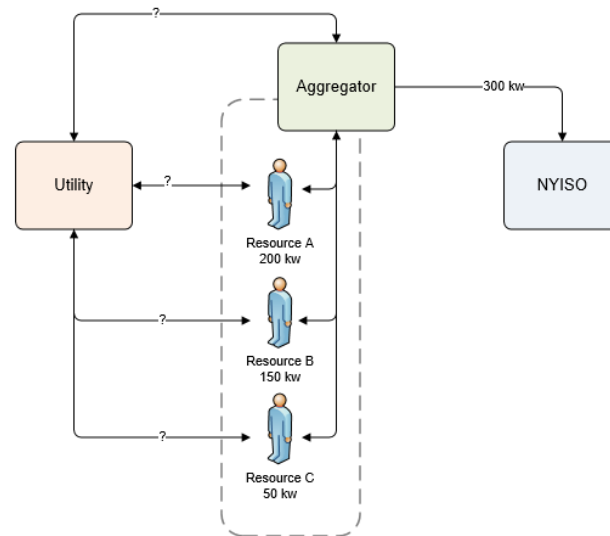
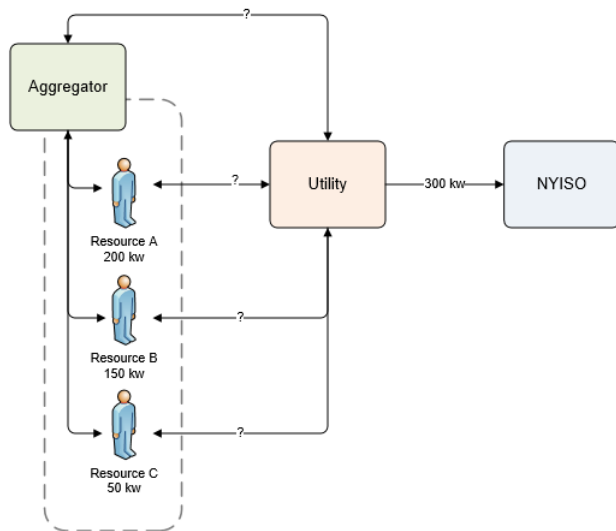
# DER Dual Participation

- **NYISO evaluating requiring aggregators to comply with all NYISO and Utility scheduling obligations instead of the Utility**
  - NYISO previously proposed that the Utility would coordinate wholesale dispatch of DER needed for distribution system reliability and non-reliability needs

# DER Dual Participation – Communication Flow

## ■ Prior proposal vs Current, revised proposal

- “?” – denotes possible communication paths, as of yet undecided, whether required or in which direction



# Dual Participation for Non-DER Aggregations

- The NYISO's focus is on creating a market design for Dual Participation of DER aggregations
- The NYISO understands that there is interest in Dual Participation for other resources
- The rules for Non-DER Dual Participation will be established once the NYISO has worked through DER Dual Participation

# 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](mailto: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
- DSPp – 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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