

## Distributed Energy Resource (DER) and Aggregation Participation Model

### Introduction to the DER and Aggregation Participation Model

#### **1. What are the main advantages of the DER and Aggregation Participation Model?**

The DER and Aggregation participation model offers DER the opportunity to participate in the NYISO-administered markets through a new set of market rules and operating and planning requirements. In this participation model a Market Participant, also known as the Aggregator, may combine individual DER as small as 10 kW and located on the transmission or distribution system as a single unit (an Aggregation) to participate in the NYISO-administered wholesale energy, ancillary services and ICAP markets. The DER and Aggregation participation model allows for additional opportunities and more flexibility for facilities to participate in the NYISO markets.

#### **2. What are the permissible types of Aggregations that can take part in the DER and Aggregation Participation Model? What is the difference between a single Resource type Aggregation and a DER Aggregation?**

An Aggregation may contain DER that are electrically located in the New York Control Area (“NYCA”), connected to the same Transmission Node, and meet the following criteria: (i) a facility comprising two or more different technology types located behind a single point of interconnection with a maximum Injection Limit of 20 MW, (ii) a Demand Side Resource, or (iii) a Generator with a maximum Injection Limit of 20 MW.

An Aggregation is a Resource, comprised of two or more individual Generators or Distributed Energy Resources, or one or more individual Demand Side Resources, at separate points of interconnection and that are grouped and dispatched as a single unit by the ISO, and for which Energy injections, withdrawals and Demand Reductions are modeled at a single Transmission Node.

A “DER Aggregation” is a particular type of Aggregation that contains either (i) all Demand Side Resources, or (ii) a heterogeneous mix of Demand Side Resources, DER, and/or Generators. For example, a DER Aggregation may be composed of 3 Demand Side Resources, or it can be composed of two Intermittent Power Resources (IPRs) and one Energy Storage Resource (ESR).

A “Single Resource type Aggregation” is a homogeneous Aggregation containing only one single Resource type (e.g., Generator, ESR, Limited Energy Storage Resource (LESR), Wind, Solar, Landfill Gas). For example, an Aggregation containing only ESRs or an Aggregation containing only Solar resources.

### **3. Why does NYISO require a minimum capability of 10 kW?**

Pursuant to [Services Tariff Section 4.1.10](#), each DER (including Demand Side Resources) must have a minimum capability of 10 kW. Where an individual DER includes multiple assets, which are defined by the NYISO as different technologies located at the facility, each individual asset must have a minimum capability of 10 kW. The 10 kW minimum balances the need for efficient administration of the NYISO-administered wholesale markets with the value that small facilities can reliably provide the bulk power system and is essential to the efficient implementation of the DER and Aggregation participation model. The NYISO also offers the Emergency Demand Response Program (EDRP) and Special Case Resource (SCR) program; these programs allow participation of Resources below 10 kW through load reduction by curtailment or a Local Generator.

### **4. Can a facility contain only 1 DR asset?**

A facility may contain two or more technology types behind a single point of interconnection, such as Demand Side Resources, Energy Storage Resources, Generators or IPRs, with an injection limit of 20 MW or less. A facility can only have a single point of interconnection with the grid and a single utility account number (please review [Aggregation Manual Section 2.1.1](#) if there are multiple utility account numbers behind a single point of interconnection with the grid). When there is a single utility account number, all Load consumed by a facility will be associated with that utility account, even if there are multiple sources of electric consumption at a given location. Therefore, each facility will only have one “Demand Side Resource” asset (as described above, a facility may comprise other assets, such as Generators). A DER Aggregation may have multiple facilities that include Demand Reductions by Demand Side Resources.

### **5. Does the NYISO share Aggregator information and DER Participation Model metrics with market participants?**

Aggregators who agree to share their contact information can be located under [Distribution Utility and Aggregator Contact Information >> General Info >> <https://www.nyiso.com/der-aggregations>](#).

### **6. Why are BTM:NG Resources unable to participate as a DER?**

A defining characteristic of the BTM:NG Resource model is that it routinely serves its host load with an on-site Generation source, and this precludes a BTM:NG Resource from the DER participation model. A BTM:NG Resource that transitions to become a DER must thereafter routinely serve its host load by withdrawing from the grid, rather than primarily from the on-site generation source. For additional details, refer to [Aggregation Manual Section 4.3.3](#).

**7. If a DER engages in dual participation and is operating the DER to meet non-ISO commitments, is it the responsibility of the Aggregator to notify the NYISO?**

An Aggregation containing one or more DER that participates in programs or markets operated to meet the needs of distribution systems located in the NYCA, is required to notify the NYISO of its dual participation upon enrollment (as described in the Market Participant User's Guide). Additionally, the Aggregation's offers in the NYISO-administered markets must be made in such a way that the Aggregation is scheduled by the NYISO when it operates to meet any non-wholesale commitments (as described in [Services Tariff Section 4.1.11](#)). Please note that the requirements for dual participation will change once the NYISO implements its Order 2222-compliant tariff, which is currently scheduled for the end of 2026.

**8. Does reporting of "dual participation" include participation in utility programs, such as CSRP/DLRP/DLM?**

Dual Participation encompasses programs or markets operated to meet any non-wholesale system needs located in the NYCA. The Commercial System Relief Program (CSRP), Distribution Load Relief Program (DLRP), and Dynamic Load Management (DLM) are included under this categorization.

## **DER Onboarding**

**9. Interconnection process: Which new Aggregations/assets need CRIS rights to get installed capacity (if provided DMNC data)?**

For a DER participating in the NYISO's markets to participate in the Installed Capacity market as a Supplier, it must obtain CRIS. CRIS can be obtained for individual DER if (1) the DER is found deliverable in an Expedited Deliverability Study; (2) the DER is evaluated for deliverability in a Cluster Study and is found deliverable or accepts cost responsibility for any required deliverability upgrades; or (3) via a CRIS Transfer. A DER 2 MW or less can obtain CRIS without going through a deliverability study. DER that are interconnected through a non-NYISO interconnection procedure must also be studied for deliverability by the NYISO in order to obtain CRIS unless the DER is smaller than 2 MW.

**10. Metering Requirements: Do revenue grade meters follow the distribution utility's standards or the NYISO's requirements?**

The Revenue Quality Metering requirements utilized by both the NYISO and New York's electric utilities can be found in the New York State Electric Meter Engineers' Committee Guide for Uniform Practices in Revenue Quality Metering. This documentation is available in the [\(Manuals, Tech Bulletins & Guides - NYISO\)](#) section of the NYISO website, under the "Additional manuals" tab.

## **11. Can an MSE provide metering and meter data for a single Demand Side Resource?**

Aggregators must obtain wholesale metering and/or meter data services from a Meter Authority. The Meter Authority must be identified during enrollment of individual DER, as well as each Aggregation. For a DER Aggregation the Meter Authority may be: (i) an authorized Meter Services Entity that the ISO has determined complies with the eligibility requirements pursuant to [Services Tariff Section 13.3.2.1](#), (ii) the municipal electric utility for the municipality in which the DER within the Aggregation is electrically located, and/or (iii) the Member System in which Transmission District the Aggregation is located. An Aggregator may be its own Meter Services Entity if it meets the qualifications identified in Services Tariff Section 13.3.2. Single Resource Type Aggregations may only obtain wholesale metering and/or meter data services from the applicable municipal electric utility or Member System.

A Meter Services Entity may provide wholesale metering and/or meter data services for a single Demand Side Resource; however, the Aggregation can only use a single Meter Authority for the entire Aggregation.

## **12. Metering Requirements: What are the 6 second-telemetry requirements for participation in the NYISO markets and services as an Aggregation?**

Aggregations participating in the NYISO-administered wholesale markets must comply with the telemetry and metering standards identified in [Services Tariff Sections 4 and 13](#), including but not limited to the provision of six-second real-time telemetry and hourly revenue quality meter data to the NYISO. Revenue grade metering systems are necessary to provide hourly, revenue quality meter data used for settlement and billing must meet the reliability and accuracy standards described in the Revenue Metering Requirements manual available in the [\(Manuals, Tech Bulletins & Guides - NYISO\)](#) section of the NYISO website.

Six-second telemetry is required for each Aggregation. Aggregators must receive real-time communication from each individual DER, which real-time data must be aggregated and sent to the TO and NYISO in one of two possible configurations as further discussed below. DER and Aggregation Metering and Telemetry requirements are available in [Services Tariff Sections 4.1.10.4 and 13](#), as well as the Aggregation Manual.

## **13. Metering Requirements: Is there a published list of telemetry experts with whom MPs can coordinate for each of the Member Systems?**

Telemetry subject matter experts, as well as other relevant contacts, for each Member System are provided as part of the *Distribution Utility & Aggregator Contact Information* document available in the [\(DER & Aggregation Participation Model - NYISO\)](#) section of the NYISO website.

#### **14. Metering Requirements: How will the NYISO, Aggregator, and DER(s) communicate?**

The NYISO will send Base Point Signals for an Aggregation, not for the individual DER facilities. This two-way communication of operational data will be established between the Aggregator's control center and the NYISO through the applicable Member System, or alternatively between the Aggregator and the NYISO and Member System in parallel. It is the responsibility of the Aggregator to facilitate the dispatch of their individual DER, which may include integration with devices such as smart thermostats, smart plugs, or other remote equipment.

#### **15. Testing and Validation prior to start of participation in NYISO markets: Is end-to-end testing required anytime a new aggregation is enrolled? Can a new DER be added to an aggregation without testing?**

End-to-End Communication Testing is required to vet Aggregation level telemetry pathways between the Aggregator's Control Center, the Member System, and the NYISO for each new Aggregation Enrollment. Updates to existing Aggregations do not require formal End-to-End Communication Testing; however, the Aggregator is responsible for ensuring that telemetry is established for any new DER included within the updated Aggregation Enrollment.

### **Energy and Ancillary Services Participation**

#### **16. Why are Aggregations called "dispatch only"?**

Aggregations will not be permitted to submit commitment parameters as part of their Energy market offers. An explanation of Aggregation bidding, including a description of the use of commitment parameters is outlined in [Section 7.4 of the Market Participant User's Guide \(MPUG\)](#).

#### **17. What is the "real-time" capability requirement when responding to NYISO dispatch instructions? Are all Aggregations 24/7/365?**

Aggregators must be available for real-time operational communication with the applicable Distribution Utility, Transmission Owner, and NYISO twenty-four hours a day, seven days a week, to maintain distribution and transmission system safety and reliability. There are also Day-Ahead Market bidding requirements for Aggregations that are ICAP Suppliers, see the "Installed Capacity Market Participation" section below.

## **18. Where can the Grid Operations Coordination Portal (GOCP) be accessed on the NYISO website?**

The NYISO's Grid Operations Coordination Portal (GOCP) can be accessed via the Outage Management System (OMS) User Login link located in the [\(Market Access - NYISO\)](#) section of the NYISO website. Additional information regarding the GOCP can be found in the *Grid Operations Coordination Portal User's Guide* located in the [\(Manuals, Tech Bulletins & Guides - NYISO\)](#) section of the NYISO website.

## **19. How are Aggregations settled for Energy?**

Each Aggregation and individual DER will be assigned an applicable Transmission Node, which reflects a collection of designated load buses on the NYS Transmission System at which Locational Based Marginal Prices ("LBMP") will be calculated for Aggregations. The NYISO's Security Constrained Unit Commitment, Real-Time Commitment and Real-Time Dispatch software will calculate a LBMP for each Transmission Node. Each Aggregation located at a Transmission Node will be settled at the applicable Transmission Node LBMP. The Transmission Node LBMP shall be calculated consistent with the [Services Tariff Section 17](#) bus calculation method. End-user electricity consumption is billed by the applicable Load Serving Entity. Additionally, any Energy withdrawals by Withdrawal Eligible Generators is considered "negative generation."

## **20. Following an event or dispatch call, what is the timeline for meter data submission and what are the deadlines?**

Hourly revenue quality meter data should be provided to the NYISO by noon one business day after the service day. Additional information regarding meter data submission timelines can be found in the *Accounting and Billing Manual* located in the [\(Manuals, Tech Bulletins & Guides - NYISO\)](#) section of the NYISO website.

## **Installed Capacity Market Participation**

### **21. Is participation in the NYISO's Installed Capacity Market at the DER or Aggregation level?**

All ICAP market offers and awards are for an Aggregation, not the individual DER within the Aggregation. An Aggregation's ability to participate in the ICAP market is based on the capabilities of the individual DER that comprise the Aggregation. Aggregators must indicate ICAP market participation at both the Aggregation level and the DER level via the Aggregation Capacity attribute and DER Capacity attribute during enrollment in the NYISO's Agg System. In order for an Aggregation to participate in the capacity market, at least one DER within the Aggregation must be participating in the capacity market.

**22. Can an Aggregator voluntarily choose to participate only in the ICAP market and not participate in the energy/ancillary services market? If yes, does the Aggregation only need to fulfill the ICAP enrollment requirements?**

Aggregations that want to participate in the ICAP market are also required to participate in the Energy market. An Aggregator cannot voluntarily choose to participate only in the ICAP market without also participating in the Energy market.

**23. What is the timing of the DMNC test needed to sell Installed Capacity?**

DMNC tests should be conducted in accordance with the ICAP Manual DMNC Test Periods, as outlined in [ICAP Manual Section 4.2.1](#). DMNC tests must be submitted into the Aggregation System in accordance with the applicable deadlines as outlined in the ICAP Manual and Event Calendar. At the earliest, a DMNC can be submitted into the Aggregation System with a Start Date for the following month, subject to NYISO approval. Existing ICAP suppliers may be eligible to use a provisional DMNC to allow for ICAP market participation in the first month when transitioning into the DER and Aggregation Participation Model. New ICAP suppliers must participate for at least one month in the Energy market before being eligible to also participate in the ICAP market. For additional details on participation model transitions to and from DER, refer to [Services Tariff Section 5.12.13.1 and Aggregation Manual Section 4.3.3](#). For additional details on ICAP Market Participation for DER, refer to [Aggregation Manual Section 2.2.5](#).

**24. Which types of Aggregations are subject to a DMNC test?**

All Aggregations that intend to participate in Capacity must conduct a DMNC test. Required DMNC test duration is based on Aggregation participation type. Single Resource type Aggregations will be subject to the rules applicable to that Resource type. Refer to [ICAP Manual Section 4.2.2](#) for resource specific test conditions.

**25. What is an example of operating data that can be submitted in lieu of a DMNC test?**

As outlined in [ICAP Manual Section 4.2](#), in order for a Resource to establish a DMNC, ICAP Suppliers must submit results from a DMNC test or data from actual operation from within the DMNC test periods as outlined in the ICAP Event Calendar. The NYISO must be able to validate the data received against NYISO billing information. For example, a single Resource type Generator Aggregation participating in the Energy and Installed Capacity markets would be permitted to submit operating data, in accordance with the applicable test periods and submission deadlines as outlined in the ICAP Event Calendar, for the DMNC submission into the Aggregation System.

**26. Will capacity offered by DERs be sold and settled in the Spot Market Auction or will a separate auction be conducted?**

Aggregators may qualify Aggregations as ICAP Suppliers in the NYISO market. Aggregation participation in the NYISO-administered Installed Capacity market is based on the capabilities of the individual facilities that comprise Aggregations. Aggregations may offer into the Strip, Monthly, and Spot Market Auctions.

**27. If an Aggregation participates in the ICAP market, are hourly energy market offers required?**

On any day for which it supplies Unforced Capacity, each Installed Capacity Supplier must schedule a bilateral transaction, bid into the Day-Ahead Market, or declare to be unavailable an amount of Energy that is not less than the Installed Capacity Equivalent of the amount of Unforced Capacity it is supplying to the NYCA. That capacity must come from each Resource that it uses to supply Unforced Capacity. For additional details refer to [ICAP Manual Section 4.8](#).

**28. Are planned outages considered similar to forced outages and would they impact UCAP?**

On an ongoing basis, the Aggregator will submit forced outage and planned outage notifications to the NYISO. The Aggregator is responsible for submitting outage information, both planned and unplanned, for all Aggregations in its portfolio. The Derating Factor for a given Aggregation is calculated consistent with the type of Aggregation. For details on UCAP calculations for Aggregations, refer to [ICAP Manual Attachment J](#).

**29. If an ICAP supplier does not clear energy in the Day Ahead Market, are they required to also offer in the real time market?**

For every hour of any day for which Aggregations supply Unforced Capacity, they must provide the Installed Capacity Equivalent of the amount of Unforced Capacity they are supplying to the NYCA through a combination of scheduling a bilateral transaction or Bidding in the Day-Ahead Market, or in accordance with the notification procedures as outlined in the ICAP Manual. Obligations for the Real-Time Market are determined by the Day-Ahead Market schedule. For additional details refer to [ICAP Manual Section 4.8](#).

**Participation to and from the DER Participation Model**

**30. How can a resource transition from the SCR program to the DER Participation model?**

Resources that are active participants in the SCR program may initiate the transition to the DER participation model on a monthly basis. The SCR must be separated in DRIS prior to the close of the Certification period for the applicable auction month, before it can begin participation as a DER. An SCR must satisfy all performance testing obligations during and after its transition to the DER participation



model as described in [Services Tariff Section 5.12.11.1](#). An Aggregator transitioning an SCR to the DER participation model, seeking to continue uninterrupted Installed Capacity Market participation, may be eligible to submit a provisional DMNC to the NYISO that will be used to establish the amount of capacity the resource will be able to sell as a DER in its first month of participation. For additional details on participation model transitions to and from DER, refer to [Services Tariff Section 5.12.13.1 and Aggregation Manual Section 4.3.3](#).

### **31. Can one Resource participate as an SCR and a DER at the same time?**

A DER may not participate simultaneously in other NYISO programs. A resource cannot participate in both a NYISO Demand Response Program (e.g. SCR) and the DER participation model.

### **32. For transitioning SCRs, could an SCR test performance be conducted in lieu of a DMNC test?**

Transitioning SCRs may be eligible to utilize a provisional DMNC when transitioning to the DER participation model. Pursuant to [Services Tariff Section 5.12.13.1](#), a qualified ICAP Supplier that is an existing SCR that (i) meets the requirements to participate in an Aggregation, and (ii) is currently participating in the ICAP market or participated in the ICAP market in the prior like Capability Period, may be eligible to offer its capacity as a DER through an Aggregation without missing a month of ICAP market participation. SCRs can utilize a provisional DMNC when entering a DER Aggregation. The use of a provisional DMNC will be subject to NYISO review. An Aggregator may only use a Provisional DMNC for a DER upon that DER's transition to the DER participation model, and a provisional DMNC must be validated by an in-period DMNC test conducted by the Aggregation. For additional details, refer to [Aggregation Manual Section 2.2.5](#).

### **33. If an existing SCR enrolls with a provisional DMNC, how soon can this new DMNC be run and when would new demonstrated capacity be available for sale?**

An Aggregator with an Aggregation that may be eligible to utilize a provisional DMNC or single Resource type (SRT) transfer DMNC based on the Aggregation's composition should contact [DER@nyiso.com](mailto:DER@nyiso.com) to discuss the process requirements before submitting DER and Aggregation information for enrollment into the Aggregation System. If deemed eligible by the NYISO, the provisional DMNC must be submitted into the Aggregation System within the first 7 days of the month in which the enrollment is "pending NYISO review" in accordance with the deadline identified in the ICAP Calendar. A provisional DMNC must be submitted with a start date equal to the Aggregation enrollment start date. Pending NYISO approval of the DMNC prior to certification close, the DMNC will be available for use the first month in which the Aggregation is enrolled. For additional details, refer to [Aggregation Manual Section 2.2.5](#).

### **34. Can DERs that originally switched from an SCR model go back to being an SCR?**

ICAP Suppliers are subject to certain obligations to notify the NYISO when making changes to their operating capability or their participation in the NYISO-administered markets. A DER, whose capability contributed to an Aggregation's UCAP within a Capability Year, that wants to transition from the DER participation model to participate in the NYISO markets via a different participation model must elect to cease participation as a DER by August 1 of a calendar year, and provide notice to the NYISO and complete the update in the Aggregation System by removing the DER from the applicable Aggregation. The Resource will be eligible to participate in the SCR program beginning May 1 of the calendar year following the August 1 notice. For example, a DER whose capability contributed to an Aggregation's UCAP, starting in September 2024, must submit an annual election by August 1, 2025, in order to transition to a different participation model (e.g. SCR) effective beginning May 1, 2026. For additional details, refer to [Aggregation Manual Section 2.2.5](#)

### **35. The economic programs (DADRP, DSASP) are moving to the DER participation model. Are those programs now available under the DER participation model? Do the existing economic program's features and requirements remain the same?**

The NYISO plans to sunset the Day-Ahead Demand Response Program and Demand-Side Ancillary Services Program; however, Resources participating in these programs may transition to the DER and Aggregation participation model. Further information regarding the transition is provided in the [Aggregation Manual, Section 4.3.3](#).

DADRP allowed a Resource to provide Energy, while DSASP allowed a Resource to provide Operating Reserves and Regulation Service to the NYISO markets, provided that the Resources qualified to provide each of these products in their respective programs. These programs were mutually exclusive. In addition to participating in either DADRP or DSASP, a Resource could also participate in the SCR program to provide Capacity. The DER and Aggregation participation model offers Resources the opportunity to provide all these products (Energy, Operating Reserves, Regulation Service, and Installed Capacity), provided however that the Aggregation must qualify to provide each product.

## **Additional Market Training Materials**

1. Distributed Energy Resources (DER) Onboarding Suite
2. DER Aggregation System Training
3. Distributed Energy Resources (DER) Participation Model

These e-learning modules are located at <https://www.nyiso.com/online-learning>