

Attachment I

4.1 Market Services - General Rules

4.1.1 Overview

Market Services include all services and functions performed by the ISO under this Tariff related to the sale and purchase of Energy, Capacity or Demand Reductions, and the payment to Suppliers who provide Ancillary Services in the ISO Administered Markets.

4.1.2 Independent System Operator Authority

The ISO shall provide all Market Services in accordance with the terms of the ISO Services Tariff and the ISO Related Agreements. The ISO shall be the sole point of Application for all Market Services provided in the NYCA. Each Market Participant that sells or purchases Energy, including Special Case Resources and Emergency Demand Response Program participants, sells or purchases Capacity, or provides Ancillary Services in the ISO Administered Markets utilizes Market Services and must take service as a Customer under this Tariff and enter into a Service Agreement under the Tariff, as set forth in Attachment A; each entity that withdraws Energy to supply Load within the NYCA or provides Installed Capacity to an LSE serving Load within the NYCA utilizes the Control Area Services provided by the ISO and benefits from the reliability achieved as a result of ISO Control Area Services, must take service as a Customer under this Tariff and enter into a Service Agreement under this Tariff, as set forth in Attachment A; and each entity that has its virtual bids accepted and thereby engages in Virtual Transactions and each entity that purchases Transmission Congestion Contracts, excluding Transmission Congestion Contracts that are created prior to January 1, 2010, utilizes Market Services and must take service as a Customer under this Tariff and enter into a Services Agreement under this Tariff, as set forth in Attachment A. Each Customer that utilizes Market Services also utilizes Transmission Service and shall obtain Transmission Service under the ISO

OATT.

4.1.3 Informational and Reporting Requirements

4.1.3.1 The ISO shall operate and maintain an OASIS, including a Bid/Post System that will facilitate the posting of Bids to supply Energy and Ancillary Services by Suppliers for use by the ISO and the posting of Locational Based Marginal Prices (“LBMP”) and schedules for accepted Bids for Energy and Ancillary Services. The Bid/Post System will be used to post schedules for Bilateral Transactions. The ISO will provide historical data regarding Energy and Capacity market clearing prices in addition to Congestion Costs on a publicly accessible portion of its OASIS.

4.1.3.2 Zonal Uplift Report. The ISO shall post on a publicly accessible portion of its website, in machine-readable format, a report on total daily uplift dollars paid to (a) Generators and Demand Side Resources located in Load Zones H, I and J collectively, (b) Generators and Demand Side Resources located in each of the other NYCA Load Zones, and (c) Suppliers scheduling Imports at a Proxy Generator Bus, no more than 20 calendar days after the conclusion of each month. The report shall be updated at the time the Resource-Specific Uplift Report is posted, and again approximately 120 days after an initial invoice was issued for a month, to incorporate updated information. The report shall provide the uplift paid for each month, by day and by billing category.

Costs that the ISO will report as uplift include: (1) Day-Ahead and real-time Bid Production Cost guarantee payments to Generators and to Demand Side Resource aggregations; (2) Day-Ahead Bid Production Cost guarantee payments

to Suppliers that schedule Imports; (3) Day-Ahead Margin Assurance Payments; (4) cost recovery for units responding to Local Reliability Rules addressing loss of Generator gas supply; (5) Import Curtailment Guarantee Payments to Suppliers that schedule Imports in real-time; and (6) Lost Opportunity Cost payments to Suppliers of Voltage Support Service.

4.1.3.3 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, 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 or aggregation 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.

4.1.3.4 Operator-Initiated Commitment Report. The ISO shall post on a publicly accessible portion of its website, in machine-readable format, commitments made after the Day-Ahead Market for a reason other than minimizing the total production cost of serving load.

For each reported commitment, the ISO shall provide the following information:

- (a) commitment size: provide both the resource's UOL_N and the quantity of MW committed;
- (b) location: the Load Zone in which the resource is located;

- (c) commitment reason: (i) system-wide capacity need, or (ii) constraint management, or (iii) voltage support; and
- (d) commitment start time.

Operator-initiated commitments are ordinarily posted in real-time as they occur. All operator-initiated commitments for a calendar month will be available no more than 30 days after the conclusion of that month. Operator-initiated commitment postings may later be updated to improve accuracy.

4.1.4 Scheduling Prerequisites

Pursuant to ISO Procedures, each Transaction offered in the Energy, Installed Capacity, Ancillary Services or Transmission Congestion Contract market shall be subject to a minimum size of one (1) megawatt (“MW”); provided however, the minimum size of each Transaction offered in the Energy, Installed Capacity or Ancillary Services market on behalf of Energy Storage Resources and Aggregations shall be one tenth (0.1) of one MW. Regulation Service may be offered in tenths of a MW. Pursuant to ISO Procedures, Special Case Resources may offer a minimum of 100 kW of Unforced Capacity in the Installed Capacity Market.

Transactions that exceed one (1) megawatt may be scheduled in tenths of a megawatt provided, however, that Bilateral Transactions and External Transactions in the LBMP Market must always be bid and scheduled in increments of one (1) megawatt.

4.1.5 Communication Requirements for Market Services

Customers and Transmission Customers shall utilize Internet service providers to access the ISO’s OASIS and bid/post system. Customers shall arrange for and maintain all communications facilities for the purpose of communication of commercial data to the ISO.

Each Customer shall be the customer of record for the telecommunications facilities and services

its uses and shall assume all duties and responsibilities associated with the procurement, installation and maintenance of the subject equipment and software.

4.1.6 Customer Responsibilities

All purchasers in the Day-Ahead or Real-Time Markets who withdraw Energy within the NYCA to serve Load or at an NYCA Interconnection with another Control Area must obtain Transmission Service under the ISO OATT. All Customers requesting service under the ISO Services Tariff to engage in Virtual Transactions must obtain Transmission Service under the ISO OATT.

All LSEs serving Load in the NYCA must comply with the Installed Capacity requirements set forth in Article 5 of this ISO Services Tariff.

All Customers taking service under the ISO Services Tariff must pay the Market Administration and Control Area Services Charge, as specified in Rate Schedule 1 of this ISO Services Tariff.

A Supplier with a Generator or Aggregation with a real time physical operating problem that makes it impossible for the Generator or Demand Side Resource (a) to operate in the bidding mode in which it was scheduled, or (b) to provide all of the Energy or Ancillary Services offered in its Bids, or (c) to achieve or comply with applicable operating parameters or other requirements, shall notify the ISO.

4.1.7 Customer Compliance with Laws, Regulations and Orders

All Customers shall comply with all applicable federal, state and local laws, regulations and orders, including orders from the ISO.

4.1.7.1 Violations of FERC's orders, rules and regulations also violate this

Section 4.1.7 of the ISO Services Tariff. In particular, if FERC or a court of

competent jurisdiction determines there has been a violation of FERC's regulations related to electric energy market manipulation (see 18 C.F.R. Section 1c.2, or any successor provision thereto), such violation is also a violation of this ISO Services Tariff if such violation affects or is related to the ISO Administered Markets.

4.1.7.2 If the ISO becomes aware that a Customer may be engaging in, or might have engaged in, electric energy market manipulation, it shall promptly inform its Market Monitoring Unit.

4.1.7.3 This Section 4.1.7 of the ISO Services Tariff does not independently empower the ISO or its Market Monitoring Unit to impose penalties for, or to provide a remedy for, violations of FERC's prohibition against electric energy market manipulation, or for other violations of the ISO's Tariffs.

4.1.8 Commitment for Reliability

Suppliers with generating units committed by the ISO for service to ensure NYCA reliability or local system reliability, that are eligible to submit start-up and minimum generation Bids, will recover startup and minimum generation costs that were not bid, that were not known before the close of the Real-Time Scheduling Window, and that were not recovered in the Dispatch Day, provided however, eligibility to recover such additional costs shall not be available for megawatts scheduled Day-Ahead. Payment for such costs shall be determined, as if bid, pursuant to the provisions of Attachment C of this Tariff. Energy Storage Resources, Aggregations that include Withdrawal-Eligible Generator(s), and Behind-the-Meter Net Generation Resources dispatched by the ISO for service to ensure NYCA reliability or local system reliability will recover incremental energy costs that were not bid, that were not known

before the close of the Real-Time Scheduling Window, and that were not recovered in the Dispatch Day, provided however, eligibility to recover such additional costs shall not be available for megawatts scheduled Day-Ahead. Payments for securing NYCA reliability and local system reliability shall be recovered by the ISO in accordance with Rate Schedule 1 of the ISO OATT.

External Installed Capacity Suppliers that respond to an SRE request are eligible to recover the ISO-verified costs they incur to respond to the SRE request to the extent such costs exceed the ISO-verified market revenues the External Installed Capacity Supplier receives. It is the obligation of the External Installed Capacity Supplier to demonstrate its costs and revenues to the ISO's satisfaction. In verifying the costs of External Installed Capacity Suppliers that respond to an SRE, the ISO will consider the incremental net costs the Market Party incurred to respond to the SRE. Recoverable costs could include, but are not limited to, incremental costs of generating to supply Energy using the requested Installed Capacity, and the incremental costs incurred by the Market Party to transmit Energy from the External Installed Capacity Supplier's resource to the NYCA, including the opportunity cost associated with lost expected revenue. However, losses resulting from the difference in External Transaction settlement prices between an External Control Area and the NYCA will only be recoverable if and to the extent the following conditions are satisfied: (a) the losses are demonstrated to be reasonably related to responding to the SRE request; and (b)(i) a counterflow Export from the NYCA offered by the Market Party at the External Interface where the Capacity delivery obligation applies is not scheduled due to NYCA reliability concerns or is curtailed to address NYCA reliability concerns, or (ii) no opportunity exists to schedule a counterflow Export from the NYCA at the External Interface where the Capacity delivery obligation applies. Payments for securing NYCA

reliability and local system reliability shall be recovered by the ISO as *DisputeResolutionCosts* in accordance with Section 6.1.13 of Rate Schedule 1 of the ISO OATT.

Re-dispatching costs incurred as a result of reductions in Transfer Capability caused by Storm Watch (“Storm Watch Costs”) shall be aggregated and recovered on a monthly basis by the ISO exclusively from Transmission Customers in Load Zone J. The ISO shall calculate Storm Watch Costs by multiplying the real-time Shadow Price of any binding constraint associated with a Storm Watch, by the higher of (a) zero; or (b) the scheduled Day-Ahead flow across the constraint minus the actual real-time flow across the constraint.

4.1.9 Cost Recovery for Units Responding to Local Reliability Rules Addressing Loss of Generator Gas Supply

4.1.9.1 Eligibility for Cost Recovery

Generating units designated pursuant to the New York State Reliability Council’s Local Reliability Rule addressing the Loss of Generator Gas Supply for Generators located in New York City or the Local Reliability Rule addressing the Loss of Generator Gas Supply for Generators located on Long Island, as being required either to burn an alternate fuel at designated minimum levels, or to activate their auto-swap capability, based on forecast Load levels in Load Zones J and K (for purposes of this Section 4.1.9, “Eligible Units”), shall be eligible to recover costs associated with burning the required alternate fuel when one of the specified Local Reliability Rules is invoked. For purposes of this Section 4.1.9, the periods of time in which the Eligible Unit burns the alternate fuel only because one of the Local Reliability Rules addressing the loss of gas supply for Generators located in New York City or on Long Island has been invoked, including that period of time required for an Eligible Unit to move into and out of compliance with a Local Reliability Rule addressing the Loss of Generator Gas Supply, shall be referred to as the “Eligibility Period.”

4.1.9.1.1 Obligation to Test Automatic Fuel Swap Capability and Eligibility to Recover Costs of Performing Fuel Swap Tests

Combined cycle Generating units designated pursuant to the New York State Reliability Council's Local Reliability Rules addressing the Loss of Generator Gas Supply for Generators located in New York City, which have the ability to automatically swap from natural gas to a liquid fuel source in the event of the sudden interruption of gas fuel supply or loss of gas pressure or the unavailability of gas supply to the Generator, shall:

- (a) develop test procedures that are consistent with the requirements of the applicable Local Reliability Rule and ISO Procedures; and
- (b) successfully test to demonstrate that the designated combined cycle units are able to automatically swap from natural gas to a liquid fuel source each Capability Period.

The requirement to perform a test each Capability Period can be met by performing a real-time automatic fuel swap, if that fuel swap was successful and occurred during the relevant Capability Period. The scheduling of a test to demonstrate that a designated combined cycle unit is able to automatically swap from natural gas to a liquid fuel source in real-time operations shall be coordinated with the ISO and with the Transmission Owner in whose subzone the Generator is located, consistent with ISO Procedures.

The period during which combined cycle Eligible Units are performing scheduled automatic fuel swap testing, including that period of time required for an Eligible Unit to move into and out of compliance with a Local Reliability Rule addressing the Loss of Generator Gas Supply, is an "Eligibility Period."

4.1.9.2 Variable Operating Cost Recovery

For Eligibility Periods, Eligible Units burning an alternate fuel that would not have been

burned but for Local Reliability Rules addressing the loss of gas supply for Generators located in New York City or on Long Island being invoked and Eligible Units burning an alternate fuel because they activated their auto-swap capability and experienced a swap to the alternate fuel that would not have occurred but for the operation of the auto-swap capability in accordance with the implementation of the Local Reliability Rules addressing the loss of gas supply for Generators located in New York City or on Long Island shall recover costs that vary with the amount of alternate fuel burned (“variable operating costs”) if: (i) such costs are not reflected in the reference level for that Eligible Unit for the hours included in the Eligibility Period, pursuant to ISO Procedures, and (ii) the hour is one for which the commodity cost of the alternate fuel including taxes and emission allowance costs is greater than the commodity cost for natural gas, including taxes and emission allowance costs, as determined by the ISO. These relative commodity cost determinations shall use the same indices used by the ISO to establish daily Reference Levels. Variable operating costs shall include the commodity cost, associated taxes and emission allowance costs, of the required alternate fuel burned during an Eligibility Period pursuant to Local Reliability Rules addressing the loss of gas supply for Generators located in New York City or on Long Island. The owner or bidder of an Eligible Unit shall notify the ISO when variable operating costs change due to a change in tax rates.

4.1.9.3 Additional Cost Recovery

An Eligible Unit that seeks to recover costs incurred in connection with its compliance with Local Reliability Rules addressing the loss of gas supply for Generators located in New York City or on Long Island, in addition to the commodity cost, associated taxes and emission allowance cost recovery specified in Section 4.1.9.2, shall negotiate an Implementation Agreement with the ISO. The Eligible Unit and the ISO shall consult with and consider the input

of the New York State Public Service Commission, and the Transmission Owner designated by the applicable Local Reliability Rule addressing the loss of gas supply for Generators located in New York City or on Long Island. Such Implementation Agreements shall specify, among other terms and conditions, the facilities (or portions of facilities) used to meet obligations under the Local Reliability Rule addressing the loss of gas supply for Generators located in New York City or on Long Island. The Implementation Agreement shall indicate the rate to be charged during the period of the Implementation Agreement to recover such additional costs.

The Implementation Agreement may also include costs in addition to commodity cost, associated taxes and emission allowance costs of the alternate fuel incurred in connection with compliance with Local Reliability Rules addressing the loss of gas supply for Generators located in New York City or on Long Island that vary with the amount of alternate fuel burned because a Local Reliability Rule addressing the loss of gas supply was invoked. These variable costs shall be paid pursuant to Section 4.1.9.2 as variable operating costs so as to not duplicate payments.

Each such Implementation Agreement shall have a duration of one or more Capability Periods and shall commence at the beginning of a Capability Period unless another date is approved by the Commission. If the Eligible Unit and the ISO reach agreement on the terms and conditions of the Implementation Agreement, the ISO shall file it with the Commission for its review and acceptance.

In the event that the Eligible Unit and the ISO have not come to an agreement six months prior to the beginning of the Capability Period that the Implementation Agreement is intended to govern, then either one of them may request the assistance of the Commission's Dispute Resolution Service. If the Dispute Resolution Service agrees to provide its assistance the Eligible Unit and the ISO shall participate in whatever dispute resolution process the Dispute

Resolution Service may recommend. The Commission's Dispute Resolution Service may include other stakeholders to the extent confidentiality protections are in place. If, however, there is no agreement four months prior to the beginning of the relevant Capability Period then the Eligible Unit and the ISO may each file an unexecuted Implementation Agreement for the Commission's review and acceptance.

In the event that any provisions of this Section 4.1.9 are modified prior to the termination date of any Commission-accepted Implementation Agreement, such Implementation Agreement will remain in full force and effect until it expires in accordance with its contractual terms and conditions.

Rules for establishing Eligibility Periods shall be specified in ISO Procedures.

4.1.9.4 Billing

Payments made by the ISO to the Eligible Unit to pay variable operating costs and to pay the rate established by the Implementation Agreement pursuant to this Section 4.1.9 shall be in addition to any LBMP, Ancillary Service or other revenues received as a result of the Eligible Unit's Day-Ahead or Real-Time dispatch for that day. Payment by the ISO of variable operating costs pursuant to Section 4.1.9.2 shall be based on the Eligibility Period, quantity of alternate fuel burned, and relative costs of alternate fuel compared to natural gas. Payment by the ISO of the rate established in the Implementation Agreement for costs incurred other than variable operating costs shall be made as part of the ISO billing cycle regardless of which Local Reliability Rule addressing the loss of gas supply an alternate fuel is burned pursuant to, and regardless of the relative cost of the alternate fuel compared to natural gas reflected in reference levels.

4.1.9.5 Other Provisions

The ISO shall make available for the Transmission Owner in whose subzone the Generator is located: (i) the identity of Generators determined by the ISO to be eligible to recover the costs associated with burning the required alternate fuel pursuant to the provisions of this Section 4.1.9; (ii) the start and stop hours for each claimed Eligibility Period and (iii) the amount of alternate fuel for which the Generator has sought to recover variable operating costs.

4.1.10 Supplier Aggregations

Suppliers may aggregate individual Resources electrically located in the NYCA to provide Energy, Capacity and Ancillary Services. Demand Side Resources participating in the Emergency Demand Response Program and Aggregations of Special Case Resources shall follow the rules set forth in Services Tariff Sections 22 (Att. G) and 5.12.11, respectively. Each Aggregation shall be offered as a single unit and all bidding and offer obligations under the ISO Tariffs apply to the Aggregation, or to the Aggregator, where appropriate, not to the individual Resources that comprise the Aggregation. An Aggregation that offers a combination of Energy injections, Energy withdrawals and/or Demand Reduction must be able to offer at least 100 kW of each.

Each Aggregation must meet the minimum eligibility and performance requirements to participate in the ISO Administered Markets. Unless otherwise noted, Resources within an Aggregation are not individually required to meet the minimum eligibility and performance requirements to participate in the ISO Administered Markets. Generators with PURPA contracts, Limited Control Run of River Resources, Behind-the-Meter Net Generation Resources, Municipally-owned Generation, System Resources and Control Area System Resources are ineligible to participate in an Aggregation. One Aggregation cannot participate in

another Aggregation, however, the individual Resources within an Aggregation may switch to a new Aggregation in accordance with Services Tariff Section 4.1.10.3.

For the purposes of Services Tariff Section 4.1.10 and its subsections, “Distribution Utility” is defined as “an entity, such as a Transmission Owner or Public Power Entity, that owns and operates facilities used for the retail distribution of electricity and provides retail service(s) under tariffs approved by the applicable Relevant Electric Retail Regulatory Authority.” For the purposes of Services Tariff Section 4.1.10 and its subsections, a “Small Utility” is defined as “a Distribution Utility that distributed less than or equal to four million MWh in the ISO’s immediately prior and completed fiscal year (which runs January 1 through December 31).” An individual Resource that is a customer of a Small Utility shall not be enrolled in an Aggregation for the forthcoming Capability Year, unless the Relevant Electric Retail Regulatory Authority affirmatively authorizes the customers of that Small Utility to participate in the ISO-administered markets in an Aggregation. For the purposes of this Services Tariff Section 4.1.10, and its subsections, “Relevant Electric Retail Regulatory Authority” shall mean “the entity that establishes the retail electric prices and competition policies for retail electric customers.”

An Aggregator shall, upon enrollment of each individual Resource and annually thereafter, (i) determine whether each Resource is a customer of a Small Utility and (ii) for each Resource that is a customer of a Small Utility, accurately attest that the Relevant Electric Retail Regulatory Authority has authorized the Small Utility’s customers to participate in an Aggregation. An attestation completed upon an individual Resource’s initial enrollment shall be effective until the end of the Capability Year in which the Resource was first enrolled. Each annual attestation shall be completed by April 1, and will be effective for the Capability Year beginning May 1 of that year. If the ISO does not receive an updated attestation by April 1, the

previously submitted attestation shall remain in effect, and the Aggregator shall be responsible for its accuracy.

If at any time during a Capability Year a Relevant Electric Retail Regulatory Authority (i) revokes its prior authorization for one or more customers of a Small Utility to participate in the ISO Administered Markets, and (ii) notifies the applicable Aggregator of such decision, the Aggregator shall notify the ISO as soon as practicable in accordance with the ISO's Aggregation Manual. Such notification to the ISO shall include identification of the specific Distributed Energy Resource(s) affected by the Relevant Electric Retail Regulatory Authority's determination and the Aggregation in which the Distributed Energy Resource(s) participates. If such notification is received by the ISO before April 1 of a calendar year, the ISO shall remove the identified Distributed Energy Resource(s) from its Aggregation for the forthcoming Capability Year. If such notification is received on or after April 1, but prior to May 1, the ISO shall remove the identified Distributed Energy Resource(s) from its Aggregation as of June 1, and for the remainder of the Capability Year.

An Aggregator may re-enroll a Distributed Energy Resource affected by the Relevant Electric Retail Regulatory Authority's determination if (i) the applicable Distribution Utility distributes greater than four million MWh in a subsequent completed ISO fiscal year (*i.e.*, when the Distribution Utility is no longer a Small Utility), or when the applicable Relevant Electric Retail Regulatory Authority re-authorizes participation of the affected Distributed Energy Resource(s).

4.1.10.1 Aggregation Composition

Aggregations must contain one or more Resources. The maximum physical injection capability for a Resource participating in an Aggregation is 20 MW. Resources with a nameplate

capability greater than 20 MW may participate in an Aggregation if the ISO determines sufficient physical protection and control schemes exist to limit the injection capability of the Resource to 20 MW or less. There is no maximum Demand Reduction capability for Demand Side Resources participating in an Aggregation. An Aggregator must identify each individual facility in an Aggregation in accordance with the ISO Procedures.

Aggregations may be comprised of a single Resource type or multiple Resource types. Except as otherwise provided in the ISO Tariffs and the ISO Procedures, Aggregations that are comprised of a single Resource type shall follow the rules associated with that Resource type (*e.g.*, an Aggregation of Energy Storage Resources shall follow the rules applicable to Energy Storage Resources). Aggregated (i) Intermittent Power Resources, (ii) Energy Limited Resources, (iii) Capacity Limited Resources, or (iv) Limited Energy Storage Resources shall constitute a single Resource type Aggregation only when the individual Resources in the Aggregation have the same Intermittent, energy limiting, or capacity limiting characteristic (*e.g.*, an Aggregation of only solar Resources, or an Aggregation of only pumped storage Resources). Provided, however, that Aggregations with multiple, different types of Intermittent Power Resources, Energy Limited Resources, Capacity Limited Resources, and Limited Energy Storage Resources shall follow the rules associated with DER Aggregations.

Aggregations that are comprised of more than one Resource type, and Aggregations comprised of only Demand Side Resources shall follow the rules associated with DER Aggregations.

Aggregations that include at least one Withdrawal-Eligible Generator may submit Bids to withdraw Energy. For the purpose of measuring Aggregation compliance with Base Point Signals, Aggregations that include at least one Withdrawal-Eligible Generator will be measured

based on their net performance; that is, Energy injections and Demand Reductions will be reduced by Energy withdrawals.

Aggregators shall not offer any Resource as part of an Aggregation that is participating in the ISO Administered Markets in a different Aggregation or as an individual Resource.

4.1.10.2 Aggregation Electrical Location

The ISO shall establish a set of Transmission Nodes in the New York Control Area at which individual Resources may aggregate. Each Transmission Node shall be identified in the ISO Procedures. The ISO shall consult with the appropriate Member System prior to identifying a Transmission Node in accordance with ISO Procedures.

Transmission Nodes shall be initially identified, and evaluated annually thereafter, based on distribution system topology and the use of good utility practices. The factors that will be considered in identifying Transmission Nodes include: (i) transmission and/or distribution load pockets, (ii) thermal limits of lines and protective equipment, (iii) boundaries between Transmission Districts; (iv) concentration of load relative to total average system load; and (v) distribution system substation topology. The topology of each distribution system is unique and therefore additional factors may be identified by the applicable Member System that are specific to a particular distribution system.

Aggregators shall identify, after consultation with the interconnecting utility, the Transmission Node for each Aggregation. All Resources in an Aggregation must be electrically located in the New York Control Area, and electrically connected to the same ISO-identified Transmission Node. Multiple Aggregators may each enroll one or more Aggregations at a Transmission Node.

The ISO may modify the set of Transmission Nodes from time to time due to conditions

on the New York State Transmission System and the underlying distribution systems changing over time. The ISO shall also review and update (if needed) the identified Transmission Nodes on an annual basis, and will post a notice of any changes to the identified Transmission Nodes at least one hundred and fifty (150) days prior to the beginning of the Capability Year. Changes to the set of Transmission Nodes shall take effect on the first day of the Capability Year.

Aggregators shall certify, in accordance with ISO Procedures, that Aggregations affected by changes to Transmission Nodes meet all requirements of this Section pursuant to ISO Procedures.

4.1.10.3 Resources Changing Aggregations

Subject to the requirement that all of the Resources in an Aggregation must be electrically connected to the same ISO-identified Transmission Node, an individual Resource may leave its current Aggregation and/or join a new Aggregation to be effective at the start of a calendar month, but must provide at least ninety (90) calendar days' notice to the ISO of its intent to change Aggregations. An Individual Resource shall, to the extent possible, coordinate with its Aggregator to facilitate its exit from an Aggregation. Registration of Resources that leave or join an Aggregation shall be completed in accordance with ISO Procedures. The ISO must approve all Resource registrations before the Resource is allowed to participate in an Aggregation. An Aggregator shall update the list of individual Resources enrolled in an Aggregation as it changes, providing the ISO with at least ninety (90) calendar days' notice prior to the change becoming effective. When an Aggregator updates the list of individual Resources enrolled in an Aggregation it shall also update the associated information and data for the applicable Aggregation if the modification changes the Aggregation's performance.

Additional rules for Resources changing Aggregations, that participate in the ICAP

market are located in Services Tariff Section 5.12.13.1.

4.1.10.4 Aggregation Metering

Each Aggregation must meet the applicable metering standards identified in the ISO's Tariffs and in ISO Procedures. Aggregators may choose to have an ISO-authorized Meter Services Entity or the applicable Member System provide Aggregation metering services for wholesale market participation. *See Services Tariff § 13.*

Real-time telemetry data and revenue-quality meter data shall be submitted for each Aggregation. Each Aggregation's Meter Authority should submit the Aggregation's revenue-quality meter data to the ISO by noon of the business day following the delivery day, in accordance with Section 4 of the ISO's Revenue Metering Requirements Manual. All Aggregation settlements shall be subject to the Billing and Payment rules described in Section 7 of this ISO Services Tariff.

Real-time telemetry for DER Aggregations shall consist of three parts: (i) the net of Energy injections and Energy withdrawals by Withdrawal Eligible Generators, (ii) Demand Reductions; and (iii) the sum of both (i) and (ii). 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 Sections 7.2 and 13, OATT Section 2.7, and the ISO Procedures.

Each Aggregation shall maintain a secure telemetry connection to the Member System in whose footprint the Aggregation is electrically located, and, at the Aggregator's discretion, to the ISO. Aggregations are not required to provide telemetry and meter data to a Distribution Utility.

An Aggregator choosing to communicate telemetry information directly to the ISO may,

as an alternative to using Inter Control Center Communications Protocol (ICCP) over an MPLS network, utilize a Software-Defined Wide Area Network authorized by the ISO.

The communication of all telemetry and revenue quality meter data shall employ encryption and authentication practices no less rigorous than those expected of Generators. Internet Protocol Security (IPSEC) requirements and other information related to the ISO's telemetry and revenue quality metering requirements is available in the Control Center Requirements Manual and Direct Communications Procedure.

Additional details related to the ISO's metering and telemetry requirements can be found in the NYISO's Control Center Requirements Manual, Direct Communications Manual, Accounting and Billing Manual, and Revenue Metering Requirements Manual. The metering and telemetry requirements identified in those Manuals apply to Aggregations unless otherwise noted.

4.1.10.5 Qualification Requirements for Aggregators

Aggregators must be Customers. Aggregators must (i) comply with the registration requirements set forth in Services Tariff Section 9, and the ISO Procedures; (ii) designate one or more contact persons to receive ISO communications; and (iii) comply with the metering requirements set forth in Services Tariff Section 13 and the associated ISO Procedures. Prior to an Aggregation's participation in the wholesale market, and each individual facility's participation in an Aggregation, the Aggregator shall attest that the individual facility(ies) and Aggregation: (i) ~~have been authorized to participate in the ISO Administered Markets by the applicable Distribution Utility and Relevant Electric Retail Regulatory Authority,~~ (ii) will comply with all applicable tariffs and operating procedures of the Distribution Utility and/or Transmission Owner to whose electric facilities it interconnects, (iii) will comply with all

applicable rules and regulations of the Relevant Electric Retail Regulatory Authority for each of the Distributed Energy Resources it enrolls and (iii) will not provide the same service in the ISO Administered markets as it provides in a retail program or market in accordance with Services Tariff Sec. 4.1.10.6.

4.1.10.6 Double Counting of Services

A Resource participating in an Aggregation shall not be eligible to supply Energy, Operating Reserves, Regulation Service, or Installed Capacity in the ISO Administered Markets when the Resource provides the same service in a retail market or program.

When a Resource participates in one or more retail markets or programs, an Aggregator may only register that Resource in an Aggregation that does not provide the same service in the ISO-administered markets. For example, if a Resource provides Installed Capacity to a retail market or program, the Aggregator shall not enroll the Resource in an Aggregation that also supplies Unforced Capacity in the ISO's Installed Capacity market. The Aggregator may, however, enroll the Resource in an Aggregation that only supplies Energy and Ancillary Services in the ISO-Administered Markets.

4.1.10.7 ISO – Utility Operational Coordination

4.1.10.7.1 Utility Review of Distributed Energy Resource Enrollment

4.1.10.7.1.1 Aggregators shall provide to the ISO all information and data identified in Section 4.1.10.7.1.4 of this ISO Services Tariff in order to support the safety and reliability review conducted by Distribution Utilities. All information shall be submitted to the ISO electronically in accordance with the ISO Procedures. Aggregators shall submit the required data at the time a Distributed Energy Resource enrolls in the wholesale markets. Aggregators shall also update a Distributed Energy Resource and/or Aggregation's submission when any of

the information or data changes in accordance with the ISO Procedures. Aggregators shall attest to the completeness and accuracy of the information and data provided upon submission.

4.1.10.7.1.2 The ISO shall provide to the Distribution Utility the physical and operational data collected for the Distributed Energy Resource upon the Resource's enrollment in the ISO-Administered markets in order to facilitate review. The ISO shall also provide to the Distribution Utility individual Distributed Energy Resource physical and operational data necessary to evaluate changes to an Aggregation.

4.1.10.7.1.3 A Distribution Utility shall have sixty (60) calendar days to review the reliability and safety impact of each Distributed Energy Resource or group of Distributed Energy Resources connecting or connected to its electric facilities upon each Distributed Energy Resource's initial enrollment to participate in the ISO Administered Markets, and when there is any change to an Aggregation. The Distribution Utility's sixty-day review period shall begin on the date the ISO transmits Distributed Energy Resource's operating and physical information to the Distribution Utility.

The Distribution Utility's review of Distributed Energy Resources and Aggregations that have been modified since their original enrollment in the ISO-Administered Markets shall be limited to only those safety and reliability impacts that have not been previously evaluated; that is, to the incremental impacts caused by a change to a Distributed Energy Resource's physical and/or operating characteristics, and any resulting changes to the Aggregation. The Distribution Utility shall not re-study the impacts of a Distributed Energy Resource that were previously assessed during the Distribution Utility's interconnection process, or provided to the Distribution Utility by the ISO upon the Distributed Energy Resource's initial enrollment.

Distribution Utilities shall evaluate Distributed Energy Resources using the categories of

information identified below. Each Distribution Utility may utilize additional criteria in its evaluation if such criteria assists in determining whether a particular Distributed Energy Resource may present significant risk(s) to the safe and reliable operation of its distribution system. Categories of information and data that will be evaluated by Distribution Utilities include:

- Information enabling the Distribution Utility to confirm the completeness and correctness of Distributed Energy Resource registration and enrollment data, including verification of Transmission Node mapping and the electrical location of the DER (*e.g.*, the specific circuit to which the Distributed Energy Resource connects, applicable Distribution Utility Tariff requirements, and whether the Distributed Energy Resource is providing service in one or more Distribution Utility programs).
- Information related to the Distributed Energy Resource's conformance with approved interconnection agreements (*e.g.*, nameplate ratings, upper and lower operating limits, distribution line voltage class, and metering and telemetry infrastructure).
- Aggregation operational limits (*e.g.*, do the individual DER as they operate in unison create any potential system impacts that require additional study or mitigation).

Each Distribution Utility may have its own review process, and its process may evolve over time. The illustrative criteria identified above is not considered a final or comprehensive list of review criteria used by a Distribution Utility. Additional information regarding the Distribution Utility review process is provided in the ISO Procedures, including the Aggregation Manual.

If a 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 its distribution system, it shall provide an articulable justification of the risk(s) in writing to the ISO and an explanation of the measures necessary to mitigate the identified concern(s). The ISO shall make available to the Aggregator the results of the Distribution Utility's review, including any identified significant risk(s) to the safe and reliable operation of the distribution system and the Distribution Utility's explanation of such risk(s) and measures necessary to mitigate the identified risk(s).

If a Distribution Utility notifies the ISO within sixty days that a Distributed Energy Resource's participation in the ISO Administered Markets poses a significant threat to the reliability and/or safety of the Distribution Utility's electric facilities, the ISO shall incorporate such finding(s) in the Aggregation registration process. The ISO, Distribution Utility, and Aggregator shall evaluate the reliability and/or safety concerns identified by the Distribution Utility, and attempt to implement appropriate measures to mitigate the reliability and/or safety concern(s).

The ISO shall limit the capacity and/or wholesale market services a Distributed Energy Resource is authorized to supply to address the reliability and/or safety concerns communicated in writing by the Distribution Utility to the ISO to the extent such concerns are not resolved to the satisfaction of the Distribution Utility through the course of the enrollment process. If the ISO does not receive timely notification from the Distribution Utility pursuant to this Services Tariff Section 4.1.10.7.1, then the ISO will assume that the operation of the Distributed Energy Resource will not have a material reliability and/or safety impact on the applicable distribution system.

The operation of this Section shall not prevent the Distribution Utility from derating or declaring a Resource to be unavailable in accordance with Section 4.1.10.7.2 below.

4.1.10.7.1.4 An Aggregator shall submit to the ISO the information and data identified in the table below in accordance with Services Tariff Section 4.1.10.7.1.1 and the Aggregation Manual:

**Required Physical and
Operational Characteristics for
Aggregations**

Aggregation Attributes
Aggregation Short Name
Aggregation ID
Market Participant (MP)
MP Contact
MP Phone
MP Email
Status
Distribution Utility (DU) Approved - Aggregation
Enrollment Action
Start Date
End Date
Aggregation Type
Energy Limited Resource (ELR) (Aggregation)
Capacity Limited Resource (CLR) (Aggregation)
Transmission Owner (TO)
Load Zone
Subzone
Charging At Retail - Aggregation
Load Serving Entity (LSE) PTID – Aggregation
Transmission Node PTID
2 Year Outage Schedule Provided
Aggregation Meter Authority
Direct Communication to NYISO
Aggregation Communication Type
Aggregation Communication Protocol
Summer Total Supply Declared MW (UOL)
Summer Declared Injection MW
Summer Declared Demand Reduction MW
Summer Declared Withdrawal MW (LOL)
Winter Total Supply Declared MW (UOL)
Winter Declared Injection MW
Winter Declared Demand Reduction MW
Winter Declared Withdrawal MW (LOL)
Fixed Energy

**Required Physical and Operational
Characteristics for Individual Distributed
Energy Resources**

Individual DER Attributes
Facility ID
Facility Name
TO Account Number
Meter ID Number
Aggregation ID
Status
Start Date
End Date
Responsible Party Attestation
Facility Owner Name
Facility Owner Phone
Facility Owner Phone Extension
Facility Owner Email
DU Approved - Facility
Enrollment Action
Transmission Node PTID
TO
Zone
Subzone
Circuit ID
HB 0 Injection Limit; Withdrawal Limit
HB 1 Injection Limit; Withdrawal Limit
HB 2 Injection Limit; Withdrawal Limit
HB 3 Injection Limit; Withdrawal Limit
HB 4 Injection Limit; Withdrawal Limit
HB 5 Injection Limit; Withdrawal Limit
HB 6 Injection Limit; Withdrawal Limit
HB 7 Injection Limit; Withdrawal Limit
HB 8 Injection Limit; Withdrawal Limit
HB 9 Injection Limit; Withdrawal Limit
HB 10 Injection Limit; Withdrawal Limit
HB 11 Injection Limit; Withdrawal Limit
HB 12 Injection Limit; Withdrawal Limit
HB 13 Injection Limit; Withdrawal Limit

Fixed Energy Start Date
Fixed Energy End Date
Dispatched Energy
Dispatched Energy Start Date
Dispatched Energy End Date
Winter Regulation
Winter Regulation Start Date
Winter Regulation End Date
Summer Regulation
Summer Regulation Start Date
Summer Regulation End Date
10 Minute Spinning Reserves
10 Minute Spinning Reserves Start Date
10 Minute Spinning Reserves End Date
10 Minute Non-Spin Reserves
10 Minute Non-Spin Reserves Start Date
10 Minute Non-Spin Reserves End Date
30 Minute Synchronous Reserves
30 Minute Synchronous Reserves Start Date
30 Minute Synchronous Reserves End Date
30 Minute Non-Synchronous Reserves
30 Minute Non-Synchronous Reserves Start Date
30 Minute Non-Synchronous Reserves End Date
Capacity
Capacity Start Date
Capacity End Date
Aggregation Not in Outage State
Dual Participation
Alternate Telemetry
Emergency Response Rate (MW/min)
Max Reg Response Rate
Max Reg 6-Second Response Rate
Normal Response Rate 1 (MW/Min)
Normal Response Rate 2 (MW/Min)
Normal Response Rate 3 (MW/Min)
Normal MW Rate 1
Normal MW Rate 2
Physical Upper Storage Limit MWh
Physical Lower Storage Limit MWh
Energy Duration Limitation (EDL)
Round Trip Efficiency %
Fuel Reporting
Station Name

HB 14 Injection Limit; Withdrawal Limit
HB 15 Injection Limit; Withdrawal Limit
HB 16 Injection Limit; Withdrawal Limit
HB 17 Injection Limit; Withdrawal Limit
HB 18 Injection Limit; Withdrawal Limit
HB 19 Injection Limit; Withdrawal Limit
HB 20 Injection Limit; Withdrawal Limit
HB 21 Injection Limit; Withdrawal Limit
HB 22 Injection Limit; Withdrawal Limit
HB 23 Injection Limit; Withdrawal Limit
DER within Municipality?
Municipality Name
Charging At Retail – Facility
LSE PTID - Facility
FERC Order 2222 ‘Opt-In’
Former PTID Exists
Former PTID #
Former DRIS Resource Exists
Former DRIS Resource ID #
Street Address
City
State
Zip Code
Facility Meter Authority
Voltage Level
Distribution Utility
Alternate Telemetry
Alternate Telemetry Plan Name
Temperature Sensitivity
Summer Total Supply Declared MW
Summer Declared Injection MW
Summer Declared Demand Reduction MW
Summer Declared Withdrawal MW
Winter Total Supply Declared MW
Winter Declared Injection MW
Winter Declared Demand Reduction MW
Winter Declared Withdrawal MW
Fixed Energy
Dispatched Energy
Summer Regulation
Winter Regulation
10-Minute Spinning Reserves
10-Minute Non-Spin Reserves

Voltage Class
Aggregation Full Name
Temperature Sensitivity

30-Minute Synchronous Reserves
30-Minute Non-Synchronous Reserves
Capacity
Outage State Confirmation
Dual Participation
Duplicative Services Prohibition Attestation
Interconnection Agreement
Interconnection Type
NYISO Interconnection Queue Number
Summer ERIS MW
Winter ERIS MW
Total Max Summer Net MW
Total Max Winter Net M
CRIS Unique ID
Summer CRIS MW
Winter CRIS MW
ELR (Facility)
CLR (Facility)
Demand Side Resource Attributes (If Applicable)
• Asset ID
• Facility ID
• Aggregation ID
• Asset Source ID
• Source Type
• Source Fuel
• Response Type (DR)
• Local Supply Type
• Local Supply Inverter
• Nameplate MW Rating
• Nameplate Withdrawal MW Rating
• Compliance Question
• TO Voltage Level ID
Generator Attributes (If Applicable)
• Asset ID
• Facility ID
• Aggregation ID
• GADS Unit Shortname
• GADS Analysis Group
• Asset Source ID
• Non-NYISO Interconnection Unique ID
• Max Summer Net
• Max Winter Net

• Source Type
• Source Fuel
• NERC Unit Code
• NERC Utility Code
• Nameplate MW Rating
• Compliance Question
Energy Storage Attributes (If Applicable)
• Asset ID
• Facility ID
• Aggregation ID
• GADS Unit Shortname
• Asset Source ID
• Non-NYISO Interconnection Unique ID
• Max Summer Net
• Max Winter Net
• Limited Energy Storage Resource (Facility)
• Energy Storage Direct Meter Attestation
• Source Type
• Source Fuel
• NERC Unit Code
• NERC Utility Code
• Compliance Question
• Asset Energy Duration (Energy Storage)
• Physical Upper Storage Limit MWh
• Physical Lower Storage Limit MWh
• Round trip Efficiency %
• Conversion Type
• Nameplate MW Rating
• Nameplate Withdrawal MW Rating
• Nameplate MWh Rating
Wind Attributes (If Applicable)
• Asset ID
• Facility ID
• Aggregation ID
• GADS Unit Shortname
• Asset Source ID
• Non-NYISO Interconnection Unique ID
• Max Summer Net

• Max Winter Net
• Source Type
• Source Fuel
• NERC Unit Code
• NERC Utility Code
• Nameplate MW Rating
Solar Attributes (If Applicable)
• Asset ID
• Facility ID
• Aggregation ID
• GADS Unit Shortname
• Asset Source ID
• Non-NYISO Interconnection Unique ID
• Max Summer Net
• Max Winter Net
• Source Type
• Source Fuel
• NERC Unit Code
• NERC Utility Code
• Nameplate MW Rating
Landfill Gas Attributes (If Applicable)
• Asset ID
• Facility ID
• Aggregation ID
• GADS Unit Shortname
• Asset Source ID
• Non-NYISO Interconnection Unique ID
• Max Summer Net
• Max Winter Net
• Source Type
• Source Fuel
• NERC Unit Code
• NERC Utility Code
• Nameplate MW Rating
• Compliance Attestation

4.1.10.7.2 Ongoing Operational Coordination

The ISO, Transmission Owner, Distribution Utility, and Aggregator shall coordinate scheduling and dispatch for all Generators, Demand Side Resources, and Distributed Energy Resources participating in the wholesale markets as part of an Aggregation in accordance with ISO Procedures. Such coordination shall be consistent with the requirements set forth in the ISO Procedures, including the Day-Ahead Scheduling Manual, Transmission and Dispatch Manual, Emergency Operations Manual, and Aggregation Manual.

4.1.10.7.2.1 The ISO shall issue schedules and dispatch instructions for Aggregations as described in Section 4 of this Services Tariff. After the ISO posts Day-Ahead Market Schedules, a day-ahead operating plan reflecting the schedules of Aggregations will be available for Transmission Owners. The ISO's Day-Ahead Market and Real-Time Market scheduling and dispatch processes are further described in the ISO Procedures, including the Day-Ahead Scheduling Manual and Transmission and Dispatch Operations Manual.

4.1.10.7.2.2 An Aggregator shall identify to the applicable Distribution Utility, and the Transmission Owner (if it is a different entity from the applicable Distribution Utility), the Generator(s), Demand Side Resource(s), and/or Distributed Energy Resource(s) within its Aggregation that will be operated to meet a NYISO-issued schedule prior to the dispatch of any Generator, Demand Side Resource or Distributed Energy Resource participating in an Aggregation in accordance with the Aggregation Manual.

When a Distribution Utility notifies an Aggregator that an individual Generator, Demand Side Resource or Distributed Energy Resource participating in its Aggregation must be derated or forced out of service, the Aggregator shall promptly update its Day-Ahead and/or Real-Time Market Bids, if necessary, in accordance with Services Tariff Sections 4.2 and 4.4, and the ISO

Procedures. If the Aggregator is not able to update its Day-Ahead and/or Real-Time Market Bids, it shall notify the ISO of a full or partial Forced Outage in accordance with Services Tariff Section 5.12 and Outage Scheduling Manual Section 3. Aggregations that are unable to operate to achieve the ISO's dispatch due to the direction of the Distribution Utility will remain subject to applicable penalties and charges, including those penalties described in Services Tariff Sections 5.12.12, 5.14.2, and 23.4, and charges described in Services Tariff Section 15.3A.

4.1.10.7.2.3 A Distribution Utility shall have the authority to derate, or declare as unavailable for dispatch, a Generator, Demand Side Resource, or Distributed Energy Resource that is interconnected to the Distribution Utility's electrical facilities when the utility determines that the Generator, Demand Side Resource, or Distributed Energy Resource is reasonably expected to pose a threat to the reliability of the electric facilities under the operational control of the Distribution Utility, and not under ISO operational control. When a Distribution Utility makes such determination, it shall notify the applicable Aggregator as soon as practicable.

4.1.10.7.3 Role of the Relevant Electric Retail Regulatory Authority

The ISO shall provide to each Distributed Energy Resource's Relevant Electric Retail Regulatory Authority the physical and operational data collected for the Distributed Energy Resource upon the Resource's enrollment in the ISO-Administered markets upon request. The Relevant Electric Retail Regulatory Authority shall have the opportunity to submit information to the ISO that will aid in the ISO's determination of the capacity and/or wholesale market services a Distributed Energy Resource is authorized to supply. The ISO shall consider information provided by the Relevant Electric Retail Regulatory Authority in its evaluation of a Distributed Energy Resource. All information submitted to the ISO by the Relevant Electric Retail Regulatory Authority related to a Distributed Energy Resource or Aggregation's

participation in the ISO-Administered markets shall be treated as confidential, and provided only to the applicable Aggregator during the Distributed Energy Resource's registration process.

4.1.11 Dual Participation

Effective May 1, 2020, Generators and Demand Side Resources, and Distributed Energy 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 and Distributed Energy Resources engaged in dual participation must meet all applicable rules and obligations set forth in the ISO Tariffs.

Generators, and Demand Side Resources, and Distributed Energy Resources operating to meet an obligation outside of the ISO-administered wholesale markets must Bid in a manner that ensures they will be dispatched by the ISO for the market intervals consistent with the manner in which the Resource operates to meet such obligation(s). The ISO and Transmission Owners shall coordinate scheduling and dispatch for all Generators, and Demand Side Resources, and Distributed Energy Resources engaged in Dual Participation in accordance with ISO Procedures.