**ATTACHMENT I**

**Responses of the New York Independent System Operator, Inc.**

**Question 1.a.**

Section 5.12.7 of the Services Tariff states that “each Installed Capacity Supplier shall, *except as noted in Section 5.12.11 of this Tariff, on a daily basis…ii) Bid Energy in each hour of the Day-Ahead Market*” (emphasis added). You also propose new language in section 5.12.7 of the Services Tariff stating that “Installed Capacity Suppliers with Energy Duration Limitations corresponding to a Duration Adjustment Factor *as described in Section 5.12.14* below, must on a daily basis *during the Peak Load Window and for the number of consecutive hours that correspond to its Energy Duration Limitation, or for the entirety of the Peak Load Window for an Energy Storage Resource…ii) Bid Energy in the Day-Ahead Market*” (emphasis added).

1. Would an Installed Capacity Supplier with Energy Duration Limitations corresponding to a Duration Adjustment Factor be required to Bid Energy during all hours of the Day-Ahead Market, or only during the applicable Peak Load Window?

**Response**

Market Administration and Control Area Services Tariff (“Services Tariff”) Section 5.12.7 requires Installed Capacity Suppliers (with limited exception) to, on a daily basis and for the Installed Capacity equivalent of Unforced Capacity sold, (i) schedule a Bilateral Transaction, (ii) Bid Energy in each hour of the Day-Ahead Market, or (iii) notify the NYISO of an outage (commonly known as the Bid/Schedule/Notify requirement). The June 27 Filing proposed to revise Section 5.12.7 to require an Installed Capacity Supplier with an Energy Duration Limitation (except for Energy Storage Resources\*) to Bid Energy in the Day-Ahead Market only during the applicable Peak Load Window, for at least the number of consecutive hours corresponding to the Resource’s Energy Duration Limitation.

For example, consider a Resource with an Energy Duration Limitation (that is not an Energy Storage Resource) of four (4) hours that sold 10 MW of Unforced Capacity (“UCAP”) in the month of July. In this example, the Resource would be required to Bid (offer into the Day-Ahead Market) the ICAP equivalent of the 10 MW UCAP sold for four (4) consecutive hours during the Summer Capability Period Peak Load Window, which runs from Hour Beginning 13 through Hour Beginning 18.[[1]](#footnote-1)

\*Energy Storage Resources and Aggregations comprised entirely of Energy Storage Resources will be required to Bid (offer into the Day-Ahead Market) the ICAP equivalent of the UCAP sold, to schedule a Bilateral Transaction or to notify the NYISO of an outage for all hours of the applicable Peak Load Window, without regard to the Energy Storage Resource’s or Aggregation’s applicable Energy Duration Limitation. This requirement is appropriate because, for such ICAP Suppliers, the NYISO will manage such a Resource’s or Aggregation’s Energy Level to prevent it from receiving an infeasible schedule in the Day-Ahead Market.

**Questions 2.a through 2.d.**

In your filing, you propose to establish a new section 4.1.11 of the Services Tariff requiring that “Generators, Demand Side Resources, and Distributed Energy Resources operating to meet an obligation outside the ISO-Administered 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).”

1. Please define what NYISO will consider “an obligation outside the ISO-Administered Markets” for the purposes of this requirement.

**Response**

For the purposes of compliance with proposed Services Tariff Section 4.1.11, “an obligation outside the ISO-Administered Markets” is a direction from a New York Control Area (“NYCA”) Transmission Owner or distribution system operator to operate a facility in a particular manner to meet a distribution system need, and/or provision of a service for which a facility is compensated by the Transmission Owner or distribution system operator. Obligations outside the ISO-Administered Markets can include providing products or services that roughly correspond to Installed Capacity obligations, directions to inject Energy or reduce demand, or to provide Ancillary Services such as Operating Reserves or frequency response in the markets that the NYISO administers. A Generator, Demand Side Resource, or Distributed Energy Resource located in the NYCA that is simultaneously participating in the ISO-Administered Markets and in programs or markets operated to meet the needs of a local distribution system, must Bid in a manner that ensures it will be dispatched by the NYISO consistent with the direction given to the dual participating Generator, Demand Side Resource, or Distributed Energy Resource by the NYCA Transmission Owner or other distribution system operator.[[2]](#footnote-2) This response also applies to dual participating Generators, Demand Side Resources and Distributed Energy Resources that are in an Aggregation.

1. How would a Demand Side Resource that reduces a retail customer’s load to avoid retail electric utility demand charges be required to Bid in a manner that ensures it will be dispatched accordingly by NYISO for the market intervals during which it reduces load?

**Response**

In many hours of the day, an Aggregator for a Demand Side Resource that is participating in the NYISO’s markets in an Aggregation that desires to reduce its load in order to avoid retail electric utility demand charges will not be required to submit Bids to the NYISO when the Load of those Demand Side Resources in an Aggregation modulates as a result of normal day-to-day activity (*e.g.,* Load changes resulting from routine changes in electricity consumption due to the end of the work day or weekends), or when a Demand Side Resource reduces its Load for its own business purposes (*e.g.,* when reducing its Load for the purposes of its own demand charge management). However, during the hours that such a Demand Side Resource is required to submit Bids, it would be expected to either self-schedule its Demand Reductions via its Bids to achieve (at least) the desired schedule, or submit price-taking Bids to achieve (at least) the desired schedule.

As described above in the NYISO’s response to question 2.a, the Aggregator must ensure that the Demand Side Resource is scheduled in the NYISO markets for non-wholesale activity only when it is directed to operate by the applicable Transmission Owner or distribution system operator.

1. If an Installed Capacity Supplier with Energy Duration Limitations corresponding to a Duration Adjustment Factor provides a service outside the NYISO markets, how should the Installed Capacity Supplier Bid to ensure it complies with the Day-Ahead Market must-offer requirements laid out in question 1 above as well as with bidding guidelines proposed in section 4.1.11 of the Services Tariff? Would an Installed Capacity Supplier with Energy Duration Limitations corresponding to a Duration Adjustment Factor be required to Bid such an obligation if it occurs outside the applicable Peak Load Window?

**Response**

An Installed Capacity Supplier with an Energy Duration Limitation must satisfy the Day-Ahead Market bidding obligations identified in Services Tariff Section 5.12 as described in response to question 1.a above. All dual participating Resources, including a Resource that is part of an Aggregation that is an Installed Capacity Supplier with an Energy Duration Limitation, must Bid in a manner such that it is dispatched in the NYISO’s Real-Time Market consistent with its operation to meet the direction of the applicable NYCA Transmission Owner or distribution system operator. As explained in response to Question 2(b) above, the Resource could self-schedule in the Day-Ahead Market consistent with its retail obligations, or it could submit price-sensitive Bids that reflect the Resource’s retail obligations.

If a dual participating Resource with an Energy Duration Limitation is directed by the applicable Transmission Owner or distribution system operator to provide a service during hours outside the Peak Load Window, it must Bid in a manner such that it is dispatched in the NYISO’s Real-Time Market consistent with its operation to meet the direction of the applicable NYCA Transmission Owner or distribution system operator. This response differs from the response to Question 2(b) because in this question the Resource was **directed** by the applicable Transmission Owner or distribution system operator.

1. Would a Resource that is not an Installed Capacity Supplier be required to Bid in a manner that ensures it will be dispatched accordingly by NYISO for the market intervals during which it provides the external service?

**Response**

Pursuant to proposed Services Tariff Section 4.1.11, ***all*** Generators, Demand Side Resources, and Distributed Energy Resources simultaneously participating in the ISO-administered wholesale markets and in programs or markets operated to meet the needs of distribution systems located in the NYISO will be required, when operating to meet the need of such a distribution system, to Bid in a manner that ensures they will be dispatched by the ISO for the market intervals. The NYISO proposed this requirement to enable system operators and the dispatch software (the Real-Time Commitment, and Real-Time Dispatch software) to account for the operation of dual participating facilities when determining the schedule and dispatch for other Resources.

**Question 3.a.**

In your response to question 4a in the Commission’s August 23, 2019 deficiency letter, you explain that an Aggregator can offer its Demand Reduction capability at a value greater than or equal to the Monthly Net Benefit Threshold to ensure that its Demand Reduction does not respond to NYISO dispatch when the LBMP is less than the Monthly Net Benefit Threshold. At the same time, you state in your filing that:

NYISO proposes to establish that when the Energy market Bid for a DER Aggregation incorporates both Energy supply (which includes Demand Reductions by Demand Side Resources and Distributed Energy Resources) and Energy withdrawals by a Withdrawal-Eligible Generator that is a component of the Aggregation, each point of the DER Aggregation’s Bid Curve (or, for a Self-Committed Fixed Bid, the DER Aggregation’s Bid) shall reflect the net offer, such that any expected Energy withdrawals reduce the Energy that the Aggregation is capable of supplying.

1. Given that the Bid Curve for a DER Aggregation consisting of Energy injections, Demand Reductions, and Energy withdrawals will reflect the net capability of the Aggregation, the owner of such a DER Aggregation might specify a price point in its Bid Curve below the Monthly Net Benefit Threshold. How would the owner of such a DER Aggregation ensure that only the components of its Aggregation not subject to the Monthly Net Benefit Threshold respond if the portion of its Bid Curve below the Monthly Net Benefit Threshold clears?

**Response**

Pursuant to proposed Services Tariff Section 4.1.10, an Aggregator shall offer each Aggregation as a single unit, and will be dispatched by the NYISO as a single unit. The Aggregator will be responsible for determining how the individual facilities operate to meet a dispatch signal. The Aggregator will be able to use one or more of the eleven monotonically increasing, constant cost incremental Energy steps of its Bid to offer Demand Reductions at or above the Monthly Net Benefit Threshold.

For example, consider an Aggregation consisting of three facilities:  a 5 MW (5 MWh) Energy Storage Resource, a 10 MW gas turbine, and a 2 MW Demand Side Resource.  In this example the Aggregation does not have a Day-Ahead Schedule, but the Aggregator submits Bids for evaluation in the Real-Time Market.  Presuming that the Energy Storage Resource is at full capacity and there are no outages or derates to any of the facilities, the Aggregator may submit a Bid consisting of as little as two price/MW pairs in the Real-Time Market to ensure the Demand Side Resource is not scheduled unless the applicable Locational-Based Marginal Price (“LBMP”) equals or exceeds the Monthly Net Benefit Threshold price.  If the hypothetical Monthly Net Benefit Threshold price is $36, the Bid for the Aggregation could include a step to provide 15 MW at a price less than $36 and a second step to provide 2 MW at $36 or above.  This two-step Bid could be used by the Aggregator to ensure that the 2 MW of Demand Reductions would not be economically scheduled unless the applicable LBMP exceeded the Monthly Net Benefit Threshold price.

Continuing the example, if the applicable LBMP is $29/MWh, and the Aggregation receives a Real-Time Schedule for 15 MW.  The Aggregator can choose which individual facilities to operate to provide 15 MW, but the Aggregation would not be paid for any Demand Reductions it employs to achieve its 15 MW schedule because the applicable LBMP ($29/MWh) does not exceed the applicable Monthly Net Benefit Threshold price of $36/MWh.[[3]](#footnote-3)  The Aggregator may still deploy the Demand Side Resource to meet its Real-Time Schedule if another facility in the Aggregation experiences a derate.[[4]](#footnote-4)

**Question 4.**

Please explain how the timing requirements for submitting bidding parameters to NYISO will allow those market participants that have entered contracts to provide services unrelated to the NYISO markets to reflect those contractual commitments in their wholesale market offers. For example, in the case of a behind-the-meter energy storage resource that has an uncertain host load, how will NYISO’s existing requirement that a resource self-schedule 75 minutes in advance of the market interval allow such a resource to offer a reduction in usage that occurs less than 75 minutes in advance of the market interval?

**Response**

The Real-Time Scheduling Window is the period of time within which the NYISO accepts Bids to sell and purchase Energy and Ancillary Services in the Real-Time Market for a given hour. The Real-Time Scheduling Window closes seventy-five minutes before the start of that hour for all NYCA Resources. Dual participating Resources will be subject to the same Real-Time Scheduling Window as other Resources, and therefore must submit Bids reflecting a Transmission Owner or distribution system operator’s direction by 75 minutes prior to the start of the relevant dispatch hour. If a Transmission Owner requires additional Resources to be committed and/or dispatched by the ISO to meet Load and/or reliability requirements after the Real-Time Scheduling Window has closed, it may submit an Out-of-Merit request to the NYISO’s operators, consistent with the requirements of the NYISO tariffs.

In a situation where an Energy Storage Resource serves an uncertain, highly variable host Load behind a single meter, the Aggregator may be unable to offer Demand Reductions from the facility. The Economic Customer Baseline Load (“ECBL”) calculations are only an accurate representation of Demand Reduction capability if the Load of the facility is generally predictable based on historical consumption profiles. If the host load is highly variable, and there is a high degree of uncertainty regarding the total output of the facility, the ECBL will not be an accurate representation of the facility’s Load. If the NYISO cannot accurately represent the Load of the facility, and therefore its Demand Reduction capability, then it is not appropriate for the facility to offer Demand Reductions into the wholesale Energy and Ancillary Services markets.

The Energy Storage Resource, however, may still qualify to participate in the ISO-Administered Markets as a stand-alone Resource (via the Energy Storage Resource participation model), or in an Aggregation by installing metering facilities that separate the Load from the Energy Storage Resource. A separately metered Resource will be measured as the actual output of the Resource, rather than the net capability of the entire facility.

1. This example assumes that the Resource has not sold Energy in a bilateral transaction and does not have a full or partial outage. [↑](#footnote-ref-1)
2. A Generator, Demand Side Resource or Distributed Energy Resource may utilize the NYISO’s existing Self-Committed and ISO-Committed bidding modes in order to ensure dispatch to meet the obligation outside the ISO-Administered Markets. A Generator, Demand Side Resource or Distributed Energy Resource using the Self-Committed bid mode indicates to the NYISO that it wishes to be considered as self-committed by the Market Participant for the purpose of NYISO’s dispatch evaluation. [↑](#footnote-ref-2)
3. The NYISO’s proposed metering rules will require that Aggregators submit separate telemetry data for Energy injections and Demand Reductions, allowing the NYISO to determine the response type used by the Aggregator. [↑](#footnote-ref-3)
4. Aggregators will remain obligated to report all full or partial derates to the NYISO, and to bid according to the Aggregation’s capability. [↑](#footnote-ref-4)