ATTACHMENT I

Responses of the New York Independent System Operator, Inc.

Commission Question 1

NYISO states, "The tariff revisions submitted with this filing are not proposed in compliance with any one directive of Order No. 2222. These proposed tariff revisions modify and enhance the NYISO's 2019 DER and Aggregation participation model. Certain tariff revisions proposed herein (e.g., the distribution utility review process) will be superseded by the NYISO's Order No. 2222 compliance tariff revisions, when those revisions become effective." However, NYISO's transmittal does not clearly specify which tariff revisions will be superseded, if at all. Please identify all proposed tariff revisions, if any, that will be superseded by NYISO's Order No. 2222 compliance tariff revisions, when those revisions take effect.

NYISO Response

The revisions proposed in Market Administration and Control Area Services Tariff ("Services Tariff") Section 4.1.10 providing for distribution utility safety and reliability review of Distributed Energy Resources[1] ("DER") and Aggregations[2] will be superseded by the NYISO's Order No. 2222 compliance revisions when those revisions take effect.

The NYISO's June 1, 2023, filing in this docket ("June 1 Filing") proposed a set of tariff revisions that provide a distribution utility with the ability to review the safety and reliability impact of DER and Aggregations that are interconnected to their systems.[3] Specifically, the June 1 Filing proposed that:

(i) a distribution utility have the opportunity to review the reliability and safety impacts of each DER or group of DER connected to the utility's electric facilities prior to the DER's enrollment in the NYISO-administered markets and whenever there is a material modification to the DER,

(ii) the NYISO collect information for each DER, and provide that information to the applicable distribution utility,

(iii) an Aggregator provide DER physical and operational characteristics to the NYISO for each DER it enrolls,

[1] A Distributed Energy Resource is "(i) a facility comprising two or more Resource types behind a single point of interconnection with an Injection Limit of 20 MW or less; or (ii) a Demand Side Resource; or (iii) a Generator with an Injection Limit of 20 MW or less, that is electrically located in the NYCA." Accepted Services Tariff Sec. 2.4. Certain of the defined terms and market rules described in this response cite tariff language that was accepted by the Commission in Docket No. ER19-2276-000, *et al.*, but that has not yet become effective. Accepted tariff language that has not yet become effective is noted throughout this response as "accepted Services Tariff Section [X]" to differentiate from currently effective language.

[2] An Aggregation is a "Resource, comprised of two or more individual Generators, Demand Side Resources, 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." Accepted Services Tariff Sec. 2.1. Capitalized terms that are not defined in this response shall have the meaning specified in Section 2 of the Services Tariff and Section 1 of the OATT.

[3] New York Indep. Sys. Operator, Inc., Proposed Tariff Revisions Regarding the Participation of Distributed Energy Resources and Aggregations, Docket No. ER23-2040-000 at 4-5 (Jun. 1, 2023) ("June 1 Filing").

(iv) the NYISO have the ability to derate an individual DER or Aggregation when a determination is made that the DER or group of DER present significant risk to the safe and reliable operation of the Transmission System or distribution system (and that the DER and/or Aggregation may return to full capability, if possible), and

(v) that the NYISO must notify an Aggregator of any derate (and the reason for such derate) as soon as practicable.[4]

The distribution utility review provisions proposed in Services Tariff Section 4.1.10 and identified in items (i) through (iii) above will be superseded by the Order No. 2222-compliant distribution utility review processes in accepted Services Tariff Section 4.1.10.7 once the NYISO's Order No. 2222 compliance market rules become effective.[5]

Commission Questions 2.a through 2.d

NYISO proposes to establish a distribution utility review of individual DER interconnections and Aggregations. Proposed Services Tariff section 4.1.10 states:

> A distribution utility shall have the opportunity to review the reliability and safety impacts of each Distributed Energy Resource or group of Distributed Energy Resources that are connected to the distribution utility's electric facilities. Such review shall take place prior to each Distributed Energy Resource's enrollment in the ISO Administered Markets, and whenever there is a material modification to a Distributed Energy Resource that changes its physical or operational characteristics that were previously evaluated by the applicable distribution utility.

a. *Please describe the maximum number of days, if any, a distribution utility shall have to perform its review of the reliability and safety impacts of each DER or group of DERs and where such time period is stated. Please also describe when a distribution utility may begin its review, e.g., who determines or how is a determination made that an Aggregator has submitted a complete set of DER enrollment data? Please clarify whether the Aggregator must receive a determination from the distribution utility on the safety and reliability impacts of each DER in order to proceed with the DER's enrollment or modification or if the Aggregator may proceed with no determination from the distribution utility after a certain number of days has passed. Please clarify if the length of the review period differs depending upon the specific characteristics of the DER or Aggregation and/or depending upon whether the distribution utility is performing its initial review of a DER or Aggregation or a modification thereof.*

[4] June 1 Filing at 4-5; proposed revisions to Services Tariff Sec. 4.1.10.

[5] *See New York Indep. Sys. Operator, Inc.*, Compliance Filing and Request for Flexible Effective Date, Docket No. ER21-2460-000 (Jul. 19, 2021) ("2021 DER Filing") pp. 42-46, as modified by *New York Indep. Sys. Operator, Inc.*, Compliance Filing, Docket No. ER21-2460-003 (Nov. 14, 2022) pp 16-20.

NYISO Response

i. The NYISO did not propose a maximum number of days in which a distribution utility must complete its safety and reliability review. The NYISO, in coordination with the Joint Utilities of New York, agreed on a targeted review period of sixty (60) days for distribution utility review of DER and Aggregations, but the June 1 Filing does not propose a hard deadline. As described in response to Commission Question 1, the distribution utility review period proposed in this docket will be superseded by the NYISO's Order No. 2222 compliant market rules which include a tariff-defined sixty-day review period.

ii. The NYISO's Aggregation System will perform an automated validation to confirm that an Aggregator has provided all required information after the Aggregator submits DER physical and operational data, and will notify the Aggregator if there are upload errors or the data is incomplete.[6] The NYISO will provide all of the data to the applicable distribution utility after validating the Aggregator's submission.[7] Distribution utilities are expected to begin their safety and reliability review once the information has been transmitted.[8]

iii. A distribution utility will be required to communicate the results of its safety and reliability review to the NYISO.[9] The NYISO Aggregation Manual requires the applicable distribution utility to document the outcome of its review using a standardized attestation template, in which the utility will either (a) state that the DER will not pose a safety and/or reliability issue, or (b) advise the NYISO and Aggregator of the identified safety and/or reliability issue(s) accompanied by the reason for safety/reliability issue(s) and the mitigation efforts necessary to resolve the identified issue(s).[10] The distribution utility must complete its review and the required attestation prior to a DER's participation in an Aggregation.

iv. The NYISO has not proposed review periods with different lengths based on the specific DER characteristics or the type of review (initial DER review vs. review of modifications). Based on discussions with the Joint Utilities of New York,

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[6] New York Indep. Sys. Operator, Inc., Aggregation Manual at 32; *available at*: https://www.nyiso.com/documents/20142/2925061/M-XX-Aggregation-Manual-DRAFT-Incremental-Clean.pdf ("Aggregation Manual"). The NYISO's Aggregation Manual has been approved by its stakeholders and a final version will be published when the DER and Aggregation tariff revisions become effective. Note that the Aggregation System's automated validation does not evaluate the accuracy of the information submitted by the Aggregator.

[7] *Id.* Neither the NYISO Services Tariff nor the Aggregation Manual require the NYISO to provide the data to the distribution utility within a specific time frame. The NYISO expects (based on its software capability, internal procedures, staffing, and anticipated volume of DER enrollments) to be able to notify the distribution utility within two business days. However, the NYISO is unable to guarantee that the information will be provided to the applicable distribution utility within a specific timeframe until it gains more experience enrolling DER and Aggregations. A future software release will automate the distribution utility notification and DER data distribution process. That software is expected to be deployed as part of the NYISO's Order No. 2222 compliance.

[8] *Id.*

[9] *Id.* at 32-33.

[10] *Id.* at 33.

NYISO believes that the review of a demand response resource will be less complicated than for resources that inject Energy and may eventually result in shorter review timeframes.

b. *Please describe what constitutes a "material modification to a Distributed Energy Resource" that would trigger distribution utility review.*

NYISO Response

A material modification to a DER is any change to the physical and operating characteristics of the DER, such as the DER's upper storage limit (for energy storage DER), or Demand Reduction capability (for Demand Side Resources). In contrast, a non-material modification is a change that does not impact the physical and operating characteristics of a DER, such as DER ownership and contact information. The NYISO's Aggregation System User's Guide[11] includes a complete list of required DER data attributes, including attributes that, when modified, require distribution utility review.[12] As of the date of this filing, the following attributes will trigger distribution utility review when modified:

- Transmission Owner ("TO")
- TO Account Number
- Municipality (where applicable)
- Load Zone
- Subzone
- Complete address (street, city, state, zip code)
- NYISO-issued facility identification number
- Transmission Node identifier
- NYISO-issued Aggregation identification number
- Meter identification number
- Whether the DER is utilizing an alternative to conventional real-time telemetry, and any changes to the alternative telemetry scheme (if applicable)
- Nameplate Rating (MW) (if a generator; must include injection and withdrawal ratings for Energy Storage Resources)
- Total summer Capability Period MW
- Summer Capability Period injection MW
- Summer Capability Period demand response MW

[11] The NYISO has not published the Aggregation System User's Guide as of the date of this filing. The NYISO will publish the User's Guide prior to the effective date of the tariff revisions accepted in Docket No. ER19-2276-000, *et al.*, and in this Docket No. ER23-2040-000.

[12] Aggregation Manual at 31.

- Summer Capability Period withdrawal MW (for Withdrawal-Eligible Generators)
- Summer Energy Resource Interconnection Service ("ERIS")
- Summer Capacity Resource Interconnection Service ("CRIS")
- Interconnection unique identifier (for DER interconnecting via the New York State Standardized Interconnection Requirements or a TO interconnection process)
- Total Summer Net MW (for DER interconnecting via the New York State Standardized Interconnection Requirements or a TO interconnection process)
- Total winter Capability Period MW
- Winter Capability Period injection MW
- Winter Capability Period demand response MW
- Winter Capability Period withdrawal MW (for Withdrawal-Eligible Generators)
- Winter ERIS
- Winter CRIS
- Total Winter Net MW (for DER interconnecting via the New York State Standardized Interconnection Requirements)
- Energy Storage Resource Energy Duration (hours)
- Energy Storage Resource physical upper storage limit (MWh)
- Energy Storage Resource physical lower storage limit (MWh)
- Energy Storage Resource nameplate MWh rating
- Changes to bidding privileges (Fixed Energy, Dispatchable Energy, Summer Regulation, Winter Regulation, Spinning Reserve, 10-Minute Non-Synchronized Reserve, 30-Minute Reserve)
- Whether the unit is engaged in Dual Participation in the NYISO-administered markets and in programs or markets operated to meet distribution system needs
- If an Energy Storage Resource, whether the Generator's withdrawals are invoiced at a retail rate.

c. *Please describe the process for the distribution utility review, including whether the distribution utility will be required to use specific evaluation criteria, whether the distribution utility will be required to provide articulable justifications of a distribution system reliability or safety risk in writing, and whether the results of the review will be made available to the Aggregator. Please explain whether this review will exclude matters the distribution utility already considered during the interconnection study process for the DER. If disputes arise during the distribution utility review process, can the Aggregator use NYISO's existing dispute resolution procedures to resolve a dispute?*

NYISO Response

Distribution utility review is a component of each DER's enrollment in the NYISO's markets. Distribution utilities will have the opportunity to evaluate the safety and reliability impact(s) each DER and group of DERs may have on the utility's electric facilities.[13] Aggregators are responsible for submitting all required DER and Aggregation physical and operational data to the NYISO,[14] which will verify that all required information has been provided.

Once the Aggregator submits the required data, the NYISO will confirm completeness of the enrollment in the Aggregation System (which validation occurs automatically upon import to the Aggregation System and returns error messages to the extent that a given data attribute is incorrectly formatted, inappropriate characters are used, data length fields are exceeded, or the information is otherwise incomplete).[15] The NYISO's automated confirmation process will not validate the accuracy of the data provided.[16]

After the Aggregation System validates that all required data has been provided, the NYISO will create a Microsoft Excel file that will be provided to the applicable distribution utility(ies) via secure file sharing.[17] The NYISO and Aggregator will consult with the applicable Member System,[18] if necessary, to identify the distribution utility(ies) responsible for reviewing the DER in an Aggregation.[19] The NYISO will provide the Member System and identified distribution utility(ies) with all DER and Aggregation physical and operational enrollment data supplied by the Aggregator.[20] Distribution utilities will receive an email notification that the data is available for their review.[21]

[13] Proposed revision to Accepted Services Tariff Section 4.1.10.

[14] *Id.*

[15] Aggregation Manual at 32.

[16] *Id.*

[17] *Id.*

[18] Member Systems are the eight Transmission Owners that comprised the membership of the New York Power Pool, which are: (1) Central Hudson Gas & Electric Corporation, (2) Consolidated Edison Company of New York, Inc., (3) New York State Electric & Gas Corporation, (4) Niagara Mohawk Power Corporation d/b/a National Grid, (5) Orange and Rockland Utilities, Inc., (6) Rochester Gas and Electric Corporation, (7) the Power Authority of the State of New York, and (8) Long Island Lighting Company d/b/a Long Island Power Authority. Services Tariff Sec. 2.13 (definition of "Member System").

[19] Aggregation Manual at 30.

[20] Proposed revision to Accepted Services Tariff Sec. 4.1.10.

[21] Aggregation Manual at 32.

The NYISO has not established a specific set of criteria dictating the scope of the distribution utility review process. A distribution utility may use some or all of the following criteria in its safety and reliability review process:[22]

- Whether the DER is providing service in one or more distribution utility-operated programs
- Whether the DER's participation in the wholesale markets will lead to duplicative compensation or the double counting of services
- Verification of Transmission Node mapping and the electrical location of the DER and Aggregation
- Assessment of conformance with the facility's interconnection agreement (where applicable) (and any limits to the amount (*e.g.*, kW) or type (*e.g.*, Regulation Service) of service the DER may provide)
- Whether the non-NYISO interconnection agreement (where applicable) needs to be modified to accommodate the DER's participation in the wholesale markets
- Whether a transmission or distribution system Aggregation-level study is necessary to identify potential system impacts.

DER-specific attributes distribution utilities may evaluate include, but are not limited to:

- Generator emissions compliance documentation
- Ramp rates
- Upper and Lower Operating Limits
- Voltage and frequency ride-throughs
- Power factors
- Control modes
- Nameplate ratings
- Identification of the distribution system feeder and feeder segment
- Distribution line voltage class
- The specific circuit and bus to which the DER connects
- Any operational limitations for the circuit or feeder (*e.g.*, time-of-day restrictions) identified by the distribution utility

[22] These criteria, which were developed in conjunction with the Joint Utilities of New York, are analogous to the criteria that the NYISO proposed to evaluate as part of its Order No. 2222 compliance tariff revisions. *See* New York Indep. Sys. Operator, Inc., Nov. 19, 2021 Response to October 1, 2021, Letter Requesting Additional Information, Docket No. ER19-2460-000, -001 at 42; New York Indep. Sys. Operator, Inc., Nov. 14, 2022 Compliance Filing, Docket No. ER21-2460-000, *et al.*, at 17, Accepted Services Tariff Sec. 4.1.10.7.1.3. A distribution utility may also evaluate other or additional criteria depending on the specific conditions on the distribution system it operates.

- Any operational limitations for the DER (*e.g.*, charge time for a storage device) identified by the DER Owner/Operator
- The real-time monitoring and telemetry infrastructure available on the applicable distribution system and circuit(s)
- DER metering and telemetry infrastructure
- Applicable distribution utility tariff requirements
- The wholesale market services the DER proposes to provide.[23]

Once a distribution utility completes its safety and reliability review, it will be required to provide an articulable justification for each issue it identifies that may compromise distribution system safety and reliability. As described in response to Commission Question 2(a), the distribution utility must communicate the outcome of its safety and reliability review to the NYISO using a standard attestation template, which will require the utility to state the results of the review, and, when necessary, the reason(s) for limiting or prohibiting participation, along with the required mitigation to resolve the identified issue(s).[24] The NYISO's review does not explicitly prohibit distribution utilities from re-evaluating DER facts that were considered during the applicable interconnection process, and is designed to afford distribution utilities flexibility to maintain distribution system safety and reliability.

Aggregators will be able to utilize the NYISO's existing dispute resolution procedures to address issues that arise during the distribution utility review process. Services Tariff Section 11 contains both formal and informal dispute resolution procedures that are available to parties having a dispute under the NYISO's OATT and Services Tariff, the ISO Procedures, or any Agreement entered into under either tariff.[25]

d. NYISO states that "the NYISO will derate an entire Aggregation when the capability of one (or more) of the DER[s] comprising the Aggregation must be individually derated in order to resolve a distribution or transmission system safety or reliability concern." Please clarify this proposed derating process and provide an example of how much an Aggregation would be derated to resolve a reliability concern caused by one DER in an Aggregation.

NYISO Response

The NYISO has developed extensive ISO-distribution utility-Aggregator operational coordination procedures, and individual DER and Aggregations may at times be derated to maintain transmission and distribution system safety and reliability.[26] The tariff revisions

[23] *See* New York Indep. Sys. Operator, Inc., Nov. 19, 2021 Response to October 1, 2021, Letter Requesting Additional Information, Docket No. ER19-2460-000, -001 at 42-43.

[24] Aggregation Manual at 33.

[25] Services Tariff Sec. 11.1.1.

[26] Aggregation Manual Sec. 6 (Operational Coordination).

proposed in the June 1 Filing enable the NYISO to derate an Aggregation, or to remove an individual DER, from market participation in response to system conditions.

There are three core communication processes that support ongoing operational coordination between the NYISO, Aggregator, and applicable distribution utility: (i) notice of planned distribution system maintenance,[27] (ii) distribution utility review of individual operating plans,[28] and (iii) notice of unplanned distribution system changes and outages.[29] An Aggregation may be derated in response to issues that arise during any of these three processes.[30]

Distribution utilities will be obligated to notify a DER and/or Aggregator[31] when a change to, or outage on, the distribution system may impact DER operation and/or deliverability by 15:00 two days prior to a Dispatch Day.[32] Changes to the distribution system include distribution system derates or outages due to routine maintenance, scheduled repairs, or other anticipated events. This advanced notice provides an Aggregator with the opportunity to submit or modify its Day-Ahead Market Bids to reflect distribution system conditions.

Once the Aggregation receives a Day-Ahead Market schedule, the Aggregator must provide a complete DER Day-Ahead Operating Plan ("DDAOP") to the distribution utility to whose system the Aggregation (through its component DER) connects.[33] The Aggregator must provide the DDAOP by 12:00 on the day prior to the Dispatch Day.[34] The distribution utility will then have until 22:00 on the day prior to the Dispatch Day to review the Aggregator's dispatch plan.[35] If the Aggregator's planned dispatch is inconsistent with distribution system conditions (*e.g.*, if the planned dispatch of individual DER conflict with planned maintenance),

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[27] *Id.* at 41-42.

[28] *Id.* at 47-48.

[29] *Id.* at 48-49.

[30] An Aggregation derate may occur either on an Aggregation-wide basis because of distribution system-wide concerns, or it may be derated because of specific conditions that affect the ability of one or more DER to operate. For example, system conditions may prevent all DER in an Aggregation from injecting energy onto the distribution system (but not impacting Demand Side Resource operation). Alternatively, an issue to a single distribution feeder may prevent a DER connected to that feeder from operating. Whether an Aggregator must notify the NYISO of a derate depends on whether the identified system conditions prevent the Aggregation from meeting its schedule and/or real-time dispatch.

[31] Distribution utilities have advised the NYISO that DER will be identified in their systems, but that they may not have (or have readily available) contact information for the Aggregator representing a specific DER in the NYISO markets.

[32] Aggregation Manual at 54.

[33] *Id.* at 48.

[34] *Id.* at 56. Distribution utilities will use the data provided by the Aggregator to analyze planned Energy injections, Energy withdrawals by Withdrawal-Eligible Generators (if any), and Demand Reductions, to understand the impact on system conditions such as station or feeder issues, equipment loading, voltage profiles, outages and impacts on reconfigured or rerated circuits, compliance with utility directives for distribution system markets or programs (*i.e.*, dual participation).

[35] Distribution utilities may choose not to review an Aggregator's DDAOP. Review of planned DER operation on a distribution system is at the distribution utility's discretion.

and the utility notifies the Aggregator, the Aggregator must either revise its dispatch plan or derate the Aggregation.[36]

Finally, distribution utilities must provide notification to a DER and/or Aggregator when any unforeseen conditions (actual or anticipated) arise on the distribution system in real-time that the distribution utility believes would impact the operation or deliverability of an Aggregation and the DER within the Aggregation.[37] When a distribution system arises that requires one or more DER in an Aggregation to be fully or partially derated such that the Aggregation cannot meet its schedule, the Aggregator must notify the NYISO consistent with accepted Services Tariff Section 4.1.6.[38]

Consider hypothetical Aggregation A comprising four DER (DER 1-4), each with 5 MW nameplate injection capacity. Each DER in the Aggregation is located at different points of interconnection on the distribution system, but electrically connected behind the same Transmission Node. The distribution utility has completed its safety and reliability review and notified the NYISO and the Aggregator that no safety and/or reliability concerns were identified. The NYISO subsequently completes enrollment of the Aggregation with a total capability of 20 MW.

In Example 1, the Aggregator has offered all 20 MW of Aggregation A into the NYISO's Day-Ahead Market ("DAM") and was scheduled by the NYISO to operate all 24 hours at 20 MW. Once the Aggregator receives its DAM schedule it sends the DDAOP to the distribution utility identifying the 5 MW injection schedule for each DER in the Aggregation for each hour of the Dispatch Day.

During its review of the DDAOP the distribution utility determines that maintenance work on the distribution feeder to which DER 3 is interconnected impacts that DER's ability to inject Energy onto the system. The distribution utility then notifies the Aggregator that DER 3 is not permitted to inject Energy on the Dispatch Day.[39]

Having been notified by a distribution utility that one or more DER will be unable to operate during a Dispatch Day, an Aggregator can do two things: (i) notify the NYISO of the Aggregation's derate, or (ii) when able, replace the DER it planned to use to meet its DAM schedule with another DER in the Aggregation.[40] In this Example 1, Aggregation A received a DAM schedule that requires each DER in the Aggregation to operate at full output. Therefore, the Aggregator must notify the NYISO that Aggregation A is derated to 15 MW in each hour of

[36] Aggregation Manual at 56-57.

[37] *Id.* at 48.

[38] Accepted Services Tariff Sec. 4.1.6. ("A Supplier with a Generator or Aggregation with a real time physical operating problem that makes it impossible for the Generator or Aggregation … (b) to provide all of the Energy or Ancillary Services offered in its Bids, … shall notify the ISO.").

[39] Aggregation Manual at 56-57.

[40] *Id.* at 56-57.

the operating day and buy out 5 MW of each hourly DAM schedule in the Real-Time Market ("RTM").

In Example 2 (same Aggregation A, different Dispatch Day), the Aggregator has offered 20 MW of Aggregation A into the NYISO's DAM and was scheduled by the NYISO to operate at 15 MW for all 24 hours of the Dispatch Day. The Aggregator receives its DAM schedule and sends its DDAOP to the distribution utility identifying a 5 MW injection schedule for DER 1 and 2, and a 2.5 MW injection schedule for DER 3 and 4 for each hour of the Dispatch Day.

During its review of the DDAOP the distribution utility determines that maintenance work on the distribution feeder to which DER 4 is interconnected impacts that DER's ability to inject Energy onto the system. The distribution utility then notifies the Aggregator that DER 4 is not permitted to inject Energy on the Dispatch Day.

Once notified of the distribution system issue impacting DER 4, the Aggregator revises its DDAOP to increase DER 3's output to 5 MW and exclude DER 4, which is consistent with distribution system conditions. In this Example 2 the Aggregator was able to modify its DDAOP to align with distribution systems and meet its NYISO-issued schedule, and no further action is needed.

In Example 3 (same Aggregation A, but third Dispatch Day), the Aggregator has offered all 20 MW of Aggregation A into the DAM and was scheduled to operate in Hours Beginning ("HB") 13 through 20 at 10 MW. The Aggregator sends the DDAOP to the distribution utility stating that DER 1 and DER 2 will operate at 2.5 MW each, and DER 3 will operate at 5 MW for HB 13 through 20.

The distribution utility reviews the DDAOP and does not identify any system conditions affecting the Aggregation's planned operations.

At 11:45 on the Dispatch Day, however, a 1964 Buick Skylark with metallic mint green paint collides with a distribution utility pole. There are no injuries to the driver or passenger, but the car topples the utility pole and the distribution system feeder trips offline. The distribution utility notifies the Aggregator at 12:25 (which is as soon as practical considering the circumstances) that the distribution feeder to which DER 2 is interconnected is out of service indefinitely.[41] Once the Aggregator is notified, it may, depending on distribution system conditions, replace DER 2 with the remaining 2.5 MW of capacity from DER 3 or start DER 4 to meet its schedule. If the Aggregator cannot use other DER to meet its full schedule, it must notify the NYISO of the real-time outage pursuant to accepted Services Tariff Section 4.1.6.[42]

Commission Question 3

NYISO states that, "[r]ecognizing the limits on its ability to effectively administer the DER program, the NYISO proposes to implement a 10 kW minimum capability for all individual DER participating in an Aggregation." Please explain in more detail why NYISO decided to

[41] *See id.* at 54.

[42] Accepted Services Tariff Sec. 4.1.6.

propose a 10 kW threshold specifically, as opposed to another threshold, as the minimum capability for individual DER participating in an Aggregation. To what extent will the concerns underpinning NYISO's proposal change or decrease once it deploys the automation features it is currently developing in 2024, as explained in its transmittal?

NYISO Response

The NYISO's 10 kW minimum DER size requirement proposal is the result of internal deliberation of how to reduce the administrative burden of administering its DER and Aggregation participation model. The NYISO also considered potential software modifications and new market rules, neither of which would solve the NYISO's concern and permit deployment of the DER and Aggregation participation model in 2023.

The NYISO has previously described the manual processes NYISO staff will administer to enroll and track DER and Aggregations operating in the NYCA.[43] Over the last twelve to eighteen months it became apparent that these manual processes would be unmanageable with a high volume of DER penetration and the NYISO explored ways to reduce the administrative burden.

The NYISO's evaluation revealed that software automation (some of which the NYISO is planning to release in 2024 (*e.g.*, automated email functionality for communication with distribution utilities, Aggregators, and internal NYISO notifications), and others which will be included in the software updates that effectuate the NYISO's Order No. 2222 compliance) will help ease the burden on NYISO staff. But the NYISO was unable to timely develop software automation without also significantly increasing staffing.

The NYISO's market design discussions identified potential market rule modifications that may be helpful, but those revisions would come at the expense of NYISO oversight. These market rule modifications would, potentially, eliminate NYISO oversight of the individual DER participating in an Aggregation, including enrollment review and measurement and verification validation. The NYISO would instead rely on an Aggregator's word that the individual DER comply with all NYISO rules and requirements.[44]

The NYISO decided that the most efficient method by which it could reduce the anticipated administrative burden was to establish a minimum DER size requirement. The NYISO discussed the potential benefits and costs of various minimum size requirements from zero kW (*i.e.*, no minimum) to 100 kW (the minimum offer size for Aggregations) and decided

[43] *See, e.g.*, New York Indep. Sys. Operator, Inc. July 7, 2023 Answer, Docket No. ER23-2040-000, at 2-9 ("NYISO Answer").

[44] For example, the NYISO would rely on Aggregators to accurately (i) confirm that DER have met all interconnection requirements, (ii) complete the distribution utility safety review, (iii) confirm that each DER is not enrolled in another Aggregation or NYISO participation model, (iv) establish a baseline load for end-use customers, (v) calculate the demand reductions provided by those end-use customers (in the NYISO's experience, these demand reductions would be accomplished by home thermostat controls and smart switches for appliances such as refrigerators, lightbulbs, and washing machines/dryers), (vi) control the demand reductions consistent with the Aggregation's schedule, and (vii) verify that the promised load reductions actually took place (and that the end-use customer did not "opt-out" of a demand response event).

that 10 kW was a reasonable minimum DER size in light of the other components of its DER and Aggregation market design. The NYISO's decision-making process was informed by its existing Emergency Demand Response Program ("EDRP") and Special Case Resource ("SCR") program, which are the NYISO participation models closest in kind to the DER and Aggregation model.[45]

The NYISO analyzed EDRP and SCR enrollments[46] as of July 1, 2022, grouping individual resources by size (in kW), and then summing the capability of all resources within a group to determine the group's total capability. Based on that information (which is presented below with updated 2023 data) it became clear that resources with a capability below 10 kW have not meaningfully contributed to total New York Control Area ("NYCA") capacity.

As the 2023 data below show, of the total 9,814 resources, 66% are between one and nine kW. These 66% of resources represent just 0.58% of EDRP and SCR program MW.

July 2023 EDRP and SCR Program Enrollment Data		
Range	Number of Resources	Total Capability (Declared Value) (MW)
1 – 9 kW[47]	6,475	7.3
10 – 99 kW	1,835	82.8
100 – 499 kW	1,181	254.9
500 – 999 kW	175	119.8
1,000 – 4,999 kW	122	228.3
5,000 – 9,999 kW	9	60.9
10,000 kW+	17	500.0
Total	**9,814**	**1254.0**

[45] In addition to the EDRP and SCR program, the NYISO operates the Day-Ahead Demand Response Program ("DADRP") and Demand Side Ancillary Services Program ("DSASP"). The DADRP does not currently have any participation (and has not had any participation in over ten years). DSASP participation is comprised of large Demand Side Resources ranging in size from over 1 MW to approximately 150 MW. No other participation model offered by the NYISO permits individual Resources sized below 100 kW to participate in the wholesale markets it administers.

[46] The NYISO evaluated SCR and EDRP Resources based on the facility's "Declared Value," which is a Demand Side Resource's Demand Reduction capability. Provided that the Commission accepts the NYISO's proposal, the NYISO intends to use a Demand Side Resource's Declared Value to determine compliance with the 10 kW minimum DER size requirement.

[47] The 1 – 9 kW range includes 1,833 individual end-use customers participating in Small Customer Aggregations. These 1,833 end-use customers provide a total of 0.2 MW of capability.

The NYISO does not currently have sufficient resources to timely and efficiently administer the monthly enrollment processes required for the DER and Aggregation participation model if several thousand end-use customers seek to enroll in the markets at once (or in a relatively constrained timeframe). The costs associated with building the infrastructure to enable such participation include more staff, more software, and the development of new market rules that will result in less oversight of small DER. Any of these solutions will increase costs to electric consumers in New York State for, if the EDRP and SCR program data are viewed as a proxy, a *de minimis* amount of additional capacity.

Advanced Energy Management Alliance and Advanced Energy United protest the minimum capability proposal and note in a recent filing that NYISO stakeholders recently did not prioritize "Participation Opportunities for Small DER" in the 2024 project prioritization process.[48] As previously discussed in this docket, the NYISO has been working with its stakeholders in its 2023 Engaging the Demand Side project to evaluate use cases for small DER that would help inform the NYISO's decision-making moving forward. As part of its 2024 project prioritization process, the NYISO de-coupled integration of small DER from the other demand side efforts to better understand the desires of its stakeholders. And as noted, NYISO's stakeholders did not prioritize integration of small DER in 2024.[49] In its evaluation of the NYISO's proposal, the Commission should consider the priorities of NYISO's stakeholders when evaluating the reasonableness of the NYISO's proposals, particularly when New York ratepayers will be called upon to pay for the new software, staff, and market rules necessary to integrate small DER.

Those costs become more difficult to justify considering other opportunities for small DER participation in New York State. Small resources will remain eligible to participate as Demand Side Resources in the NYISO's EDRP and SCR program. They may also be eligible (provided that they meet applicable criteria) to participate via New York State "Value of Distributed Energy Resources" ("VDER") utility-operated DER programs that compensate DER for energy, capacity, demand reductions, locational system relief, and their environmental value.[50]

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[48] Advanced Energy United and Advanced Energy Management Alliance July 24, 2023, Motion for Leave to Answer and Answer at 3.

[49] *See* Stakeholder Survey Results and NYISO Scoring of 2024 Proposed Market Projects (July 12, 2023) at 18, available at https://www.nyiso.com/documents/20142/38718756/BPWG%202023-07-12%20Market%20Projects%20Scoring%20Results%20Final.pdf/. The Participation Opportunities for Small DER project was scored by only twelve of a possible 153 survey responses, leading to the fourth-lowest weighted survey score of twenty-nine proposed projects. In contrast, the Engaging the Demand Side project, which will evaluate recommendations to enhance the NYISO's market rules for Demand Side Resource participation in the NYISO-administered Day-Ahead and Real-Time Markets, received the highest weighted score of all proposed 2024 projects. *Id.* at 16.

[50] Note that utility operated VDER programs do not permit individual DER to be compensated twice for the same service. Therefore, for example, a DER participating in a VDER program could not simultaneously receive payment for Energy through the NYISO and through VDER.

The NYISO has limited resources. Through its evaluation of EDRP and SCR program enrollments, the NYISO's goal was to identify a minimum individual resource size that balanced market access with efficient use of those limited resources. Based on data from the EDRP and SCR program, 10 kW appeared then, as it does now, to be the appropriate breakpoint. While integration of DER less than 10 kW may be feasible, the issue is whether doing so is appropriate at this time given the expected costs. The tariff revisions proposed in the June 1 Filing reflect the NYISO's belief that the costs of small DER integration at this time outweigh the benefits to New York's consumers.

Commission Question 4

NYISO explains that, in its 2023 Engaging the Demand project, it is working with stakeholders to evaluate the ability of small facilities to provide wholesale market services as part of an Aggregation and develop a framework to consider how best to accommodate small facilities. Specifically, with reference to Question 1 above, will the proposed revisions establishing the 10 kW minimum capability requirement be superseded by the NYISO's Order No. 2222 compliance tariff revisions?

NYISO Response

At this time, the NYISO is not proposing an end-date for its 10 kW minimum capability requirement, nor does it propose that this requirement would be superseded by its Order No. 2222 compliance tariff revisions.

Commission Question 5

NYISO proposes that "Single Resource type Aggregations (except Aggregations comprised only of Demand Side Resources) are required to obtain metering and meter data services from the applicable Member System." Please explain the justification for this requirement. Further, please explain why it is appropriate to allow other types of Aggregations to use Meter Service Entities, while prohibiting Single Resource type Aggregations from using Meter Service Entities.

NYISO Response

The 2019 DER and Aggregation Filing proposed, and the Commission accepted, "a comprehensive reform to [the] metering requirements applicable to Responsible Interface Parties, Curtailment Service Providers, and *Aggregators of DER Aggregations*" (emphasis added) that will permit those Market Participants to utilize a third-party to provide metering and meter data services (a "Meter Services Entity" or "MSE").[51] The metering rules included in that

[51] New York Indep. Sys. Operator, Inc., Proposed Tariff Revisions Regarding Establishment of Participation Model for Aggregations of Resources, Including Distributed Energy Resources, and Proposed Effective Dates, Docket No. ER19-2276 (Jun. 27, 2019) ("2019 DER and Aggregation Filing") at 52. Importantly, a "DER Aggregation" is a specific type of Aggregation. The NYISO defines a DER Aggregation as "[a]n Aggregation consisting of one or more Demand Side Resources, or two or more different Resource types …." Accepted Services Tariff Sec. 2.4 (at definition of DER Aggregation). DER Aggregations are different than single Resource type Aggregations, which are "Aggregations that are comprised of a single Resource type [and] shall follow the rules associated with that Resource type (*e.g.*, an Aggregation of Energy Storage Resources shall follow

filing were the result of extensive stakeholder engagement during its DER and Aggregation participation model development process and were necessitated by factors outside of the NYISO's control. The metering rules proposed in the 2019 filing were not intended to expand opportunities for third party metering, but rather to maintain existing opportunities for Demand Side Resources in the absence of previously effective New York State Public Service Commission regulations.

Beginning at the NYISO's formation in 1999 (and ending on May 1, 2020, the effective date of the MSE rules[52]), the NYISO permitted "[c]ustomers whose metering services are provided by third parties qualified under rules, regulations, and procedures of applicable state regulatory authorities" to utilize that third party meter data for wholesale market participation.[53] Those "rules, regulations, and procedures of applicable state regulatory authorities" referred to third-party metering rules for distribution system customers including those that were proposed and adopted as part of the New York State Public Service Commission's ("NYPSC") proceeding regarding Competitive Opportunities Regarding Electric Service.[54]

In the early 1990's, the NYPSC opened a proceeding that examined "competitive opportunities for electric service in New York, and to closely investigate retail tariff filings that involve pricing flexibility for individualized consumers," which led, in part, to "opening up utility metering services to competition."[55] New York State's competitive metering rules permitted certain end-use customers to use (i) physical metering and metering services (including the sale, installation, maintenance, testing and removal of meters) provided by Meter Service Providers ("MSP"), and (ii) meter reading, meter data translation, and customer association, validation, editing and estimation provided by Meter Data Service Providers ("MDSP") as an alternative to the customer's utility.[56] Generators participating in the NYISO-administered markets and Interties were not subject to the NYPSC competitive metering rules for end-use customers.

Over time, the New York State Department of Public Service ("NYDPS") stopped granting MSP and MDSP certifications, which affected the ability of NYISO Market Participants to utilize third-party metering and meter data service providers.[57] On February 8, 2019, the

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the rules applicable to Energy Storage Resources)." Accepted Services Tariff Sec. 4.1.10.

[52] *New York Indep. Sys. Operator, Inc.*, 170 FERC ¶ 61,033 at P 72 (2020).

[53] *See* New York Power Pool April 30, 1999 Filing, Docket No. ER97-1523-000, *et al.*, at Article 13.2.

[54] *See Order Instituting Phase II of Proceeding*, NYPSC Case No. 93-M-0229 (Aug. 9, 1994).

[55] New York Public Service Commission August 13, 2018 Notice of Intervention and Comments, Docket No. EL18-188-000 at 4-5 (citations omitted).

[56] *Order Providing for Competitive Metering*, NYPSC Case No. 94-E-0952 at 4 (Jun. 16, 1999). The NYPSC Order also required the establishment of MSP and MDSP eligibility and filing requirements "to ensure the competency of providers, protect metering system and electric system safety and reliability, and oversee the development of the market for metering services." *Id.* at 23-24. *See also, Order Providing for Competitive Metering*, NYPSC Case No. 00-E-0165, *et al.* (Attachment entitled "New York Practices and Procedures For The Provision of Electric Metering In a Competitive Environment" at 2 (Jan. 22, 2001)) (Feb. 26, 2001).

[57] *See NRG Curtailment Solutions, Inc. v. New York Independent System Operator, Inc.*, Request for Waiver, or In the Alternative, Complaint of NRG Curtailment Solutions, Inc., Docket No. EL18-188-000 at 6 (Jul. 24, 2018). *See also*, New York Public Service Commission August 13, 2018 Notice of Intervention and Comments,

NYPSC issued an order terminating the MSP and MDSP programs immediately, and cancelled all certifications awarded through those programs.[58]

The 2019 DER and Aggregation filing proposed to revise Services Tariff Section 13 to "establish a new framework pursuant to which an Aggregator of a DER Aggregation, Curtailment Service Provider, or Responsible Interface Party participating in the NYISO-administered markets may obtain wholesale metering and/or meter data services from either: (i) the Member System in which Transmission District the entity is located, or (ii) a new third-party entity—Meter Services Entity—that complies with [applicable] eligibility requirements."[59] As the NYISO explained in that filing, the MSE framework "will replace the existing requirements that provide for the Market Participant to use a certified MSP or MDSP."[60]

At no time did the NYISO contemplate allowing single Resource type Aggregations of Generators to utilize an MSE.

The NYISO's reasoning was threefold. First, the NYISO intended to replace the MSP/MDSP rules for the existing demand response programs (*i.e.*, the SCR program, Emergency Demand Response Program, Day-Ahead Demand Response Program, and Demand Side Ancillary Services Program). Second, the NYISO sought to extend the opportunity to use third-party metering and meter data services providers to Demand Side Resources that participate in the DER and Aggregation participation model. Finally, the NYISO wanted to harmonize the metering rules for single Resource type Aggregations with the rules for stand-alone Generators, which is consistent with the DER and Aggregation market design for single Resource type Aggregations.[61]

The 2019 DER and Aggregation filing proposed that "[a]n Aggregation that is only composed of a single Resource type, with the exception of Demand Side Resources, will be subject to the existing rules for that particular Resource type, along with the general rules

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Docket No. EL18-188 at 5-6 ("In 2006, the NYPSC noted that the expected business investment by the State's competitive providers in advanced metering had not materialized since the inception of competitive electric metering; and that this and other dramatic changes in electricity markets warranted a change from a policy based upon expectations that the competitive market would spur the development of advanced metering to a policy that relies upon electric distribution utilities to install the necessary advanced metering infrastructure to realize the State's energy policy goals.").

[58] *In re Meter Service Provider/Meter Data Service Provider Programs, Order Terminating Metering Programs*, NYPSC Case No. 18-E-0595, *et al.*, (Feb. 8, 2019). The NYISO published a Technical Bulletin as an interim measure to permit Responsible Interface Parties and Curtailment Service Providers that were using a previously certified MSP or MDSP to continue using those entities (Technical Bulletin No. 247: Responsible Interface Party (RIP) and Curtailment Service Provider (CSP) Meter Data Submission (Feb. 27, 2019)). That Technical Bulletin was retired as of May 1, 2020, the date that the MSE tariff revisions in Docket No. ER19-2276-000, *et al.*, became effective. *See* Retired NYISO Technical Bulletins & Manuals (Dec. 5, 2022), *available at:* https://www.nyiso.com/documents/20142/2231383/Retired%20Technical%20Documents-v2022-12-05.pdf.

[59] 2019 DER and Aggregation Filing at 52-53.

[60] *Id.* at 53.

[61] *Id.* at 23 ("An Aggregation that is only composed of a single Resource type, with the exception of Demand Side Resources, will be subject to the existing rules for that particular Resource type, along with the general rules applicable to all Aggregations."). *See also*, accepted Services Tariff Sec. 4.1.10.1.

applicable to all Aggregations."[62] As the NYISO explained in 2019, "[t]his approach provides Market Participants with the ability to aggregate facilities, while ensuring that the market rules applicable to specific Resource types continue to apply."[63] Applying the market rules applicable to specific Resource types to single Resource type Aggregations helps maintain comparability among single Resource type Aggregations and stand-alone Resources of the same type so as not to unduly advantage any one participation model or another.

Commission Question 6

NYISO states that its Mitigation References department will create a list of average marginal costs for different resource types to be used for cost-based reference levels for Aggregations. Please describe the methodology that NYISO will use to determine the average marginal costs for different resource types (for example, what are the "available operating costs data" that will be used? How will the average be determined?).

NYISO Response

For traditional units (*e.g.*, combined cycle, steam turbines, and gas turbines) the NYISO will be able to use its own reference level cost data, obtained from existing Generators, to determine an estimate of marginal costs for a given resource type. The NYISO is able to factor in criteria such as engine type, size, fuel type, and other characteristics to identify similar units that will be used to establish the estimated reference level. For new or less common resource types (*e.g.*, land-based wind, solar, offshore wind, energy storage, biomass), the NYISO will need to consider external data sources. The NYISO has historically, and continues to, use information obtained from the National Renewable Energy Laboratory, Energy Information Administration, other ISOs and RTOs, manufacturers, and asset owners. Studies and other information from these sources are helpful in creating a baseline for marginal costs, which can then be expanded on as the NYISO gains experience working with NYCA resources and Market Participants.

Commission Question 7

Please explain why it is appropriate to use the NYISO-estimated marginal cost of the lowest cost DER in the Aggregation as the reference level for that Aggregation if the Market Participant does not select a specific resources type, or an invalid resource type.

NYISO Response

The NYISO prefers that the Aggregator provide information about the availability of each DER in an Aggregation to develop the Aggregation's reference level. However, in cases where a Market Participant does not inform the NYISO of which specific DER will be operating to meet a schedule, or if an invalid resource type is selected, the NYISO must itself choose the default cost for the Aggregation. Using the lowest cost DER will give the Market Participant a financial incentive to manage its Aggregation's reference levels to ensure the NYISO relies on

[62] 2019 DER and Aggregation Filing at 23.

[63] *Id.*

accurate reference level information in hours when its Aggregation's costs are expected to exceed those of the least-cost resource. It also provides an incentive for Aggregators to inform the NYISO about the availability of the DER in the Aggregation without requiring the NYISO to develop new "command and control" Energy and Ancillary Services market bidding rules—obligating Aggregators to select the resource types that will be used, and proposing consequences for non-compliance.

Commission Question 8

Although the proposed revisions "eliminate the use of LBMP and Bid-based reference levels for Aggregations," NYISO states that "[t]ime-based and non-dollar parameters will also be used to develop bid-based, engine-type-based or NYISO determined reference levels." Please explain this latter statement and how these bid-based reference levels will be used.

NYISO Response

The NYISO proposes to eliminate the use of LBMP and Bid-based dollar-denominated reference levels for Aggregations.[64] The NYISO proposes to develop "cost-based" (including negotiated) or "ISO-determined" reference levels for Aggregations' time-based and other non-dollar parameters. The methods the NYISO proposes to use to develop reference levels for Aggregations' time-based and non-dollar parameters, along with citations to the NYISO's Tariff authority to employ those methods, are provided below.

Time-based and non-dollar parameters include start-up notification time, minimum run times, minimum down time, maximum number of stops over a given time horizon, regulation capacity, ramp rate, reserves, storage levels and Co-located Storage Resources scheduling limits. Many of these parameters do not apply to some or all Aggregations (*e.g.*, Aggregations are not subject to a Co-located Storage Resource scheduling limits). Reference levels will be developed for the parameters an Aggregation is eligible to include in its Bids using the methods described below.[65]

Reference levels for time-based and non-dollar-based parameters have not historically been developed using a "pure" cost basis, because it can be difficult to directly associate some of the time-based and non-dollar parameters with a specific cost. Instead, reference levels for time-based and non-dollar Bid parameters frequently incorporate information provided by, and

[64] The bid-based and LBMP based reference level development methods are explained in Market Services Tariff sections 23.3.1.4.1.1 and 23.3.1.4.1.2.

[65] *See* Services Tariff Section 23.3.1.4.1.

consultation with, resource owners or operators,[66] and "available operating cost data"[67] including the time-based and non-dollar parameters that are submitted when a Generator or Aggregation is actively competing with other Resources to be scheduled or dispatched. Consistent with its existing Tariff authority to develop cost-based and ISO-determined reference levels, the NYISO proposes to develop reference levels for Aggregations time-based and non-dollar parameters using (a) available operating cost data including an Aggregation's bidding history, (b) the bidding history of similar units or Aggregations,[68] (c) information provided by the owner/operator/Aggregator, and/or (d) a value determined by the NYISO based on an Aggregation's expected capabilities and how similar resources or aggregations of resources that participate in the markets operate.[69] The NYISO uses these reference levels in the conduct portion of its conduct and impact test to screen for bidding behavior that may have impacted Locational-based Marginal Prices or guarantee payments.

[66] Input from resource owners is a longstanding, Tariff-recognized component of the NYISO's cost-based and ISO-determined reference level development processes. *See* Services Tariff Section 23.3.1.4.1.3 addressing cost based, including negotiated, reference levels ("[a] level determined in consultation with the Market Party submitting the Bid or Bids at issue … provided the Market Party has provided data on a Generator's operating costs in accordance with specifications provided by the ISO"); Services Tariff Section 23.3.1.4.2.1 addressing ISO-developed reference levels ("the ISO's estimate of the costs or physical parameters of an Electric Facility, taking into account available operating costs data, appropriate input from the Market Party, and the best information available to the ISO").

[67] Services Tariff Section 23.3.1.4.2.1.

[68] Services Tariff Section 23.3.1.4.2.2.

[69] *See* Services Tariff Sections 23.3.1.4.1.3 addressing cost-based, including negotiated, reference levels, and 23.3.1.4.2 addressing ISO-developed reference levels.